PARAMETERS OF MORPHO-SYNTACTIC VARIATION IN BANTU[*]

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ABSTRACT

Bantu languages are fairly uniform in terms of broad typological parameters. However, they have been noted to display a high degree or more fine-grained morpho-syntactic micro-variation. In this paper we develop a systematic approach to the study of morpho-syntactic variation in Bantu by developing 19 parameters which serve as the basis for cross-linguistic comparison and which we use for comparing ten south-eastern Bantu languages. We address conceptual issues involved in studying morpho-syntax along parametric lines and show how the data we have can be used for the quantitative study of language comparison. Although the work reported is a case study in need of expansion, we will show that it nevertheless produces relevant results.

1. INTRODUCTION

Early studies of morphological and syntactic linguistic variation were mostly aimed at providing broad parameters according to which the languages of the world differ. The classification of languages into 'inflectional', 'agglutinating', and 'isolating' morphological types, originating from the work of Humboldt (1836), is a well-known example of this approach. Subsequent studies in linguistic typology, e.g. work following Greenberg (1963), similarly tried to formulate variables which could be applied to any language and which would classify languages into a number of different types. Word-order typology, for example, may distinguish SVO, VSO and VOS languages, or languages can be grouped into head-marking or dependent-marking (Nichols 1986). In parallel to typological work, in generative grammar, universal principles are distinguished from language-specific parameters (Chomsky 1981). While initially, most research on parameters was concerned with broad cross-linguistic variation, building on typological work, for example on the difference between languages requiring an overt subject NP and those which do not (the 'pro-drop parameter'), more recently emphasis has shifted to the investigation of variation

in much smaller, and structurally more similar language groups. Studies in syntactic micro-variation, as opposed to broader macro-variation, are, for example, the study of syntactic variation in Dutch dialects in the SAND project (Barbiers et al. 2002) and the study of variation in the syntax of Italian dialects (ASIS 2006). These local studies provide a detailed view of small structural variation of varieties which share broad typological parameters, and thus can offer an additional perspective on the constraints relevant for linguistic variation, and the cognitive architecture underlying this variation. The present study has a similarly narrow focus on micro-variation found in Bantu languages, which have for a long time been recognized as being typologically fairly homogenous, but which exhibit a high degree of morpho-syntactic micro-variation. While variation within Bantu has been discussed in a number of studies, it is not usually addressed systematically and our aim in this paper is to introduce and discuss a number of parameters of morpho-syntactic variation in Bantu along which variation can be more systematically assessed. The list of parameters and the specific languages we discuss, as well as the results we draw from this discussion, are preliminary because a comprehensive study of micro-variation in Bantu would include more parameters, and a more extensive and balanced sample of languages. Our aim is merely to provide a case study, addressing conceptual issues and hopefully contributing to future, more extensive work. The paper is organized as follows: Section 2 provides an overview of the study and discusses our approach in more detail. In section 3, we discuss the parameters we propose and illustrate them with selected examples from different languages. Section 4 develops some results from our data, in particular a quantitative analysis of the structural similarity between five of the languages we use. Section 5 presents a short conclusion. In a separate appendix, we provide relevant data for most of the languages we discuss.

2. OVERVIEW

Bantu languages are spoken in the larger part of sub-Saharan Africa, roughly in an area from Cameroon to Kenya in the north to the southern tip of the continent. Bantu languages are spoken by around 50 million speakers and there are, depending on the methods of counting, about 300-500 different Bantu languages. Despite this wide geographical spread, Bantu languages are structurally quite similar, which is usually taken as evidence for the comparative recency of the use of Bantu languages in the area where they are now spoken (Vansina 1990, Ehret 1998, Marten 2006a). Within Bantu, a north-western, a western, and south-eastern group are often distinguished. The north-western group exhibits the highest degree of internal variation as well as the highest degree of structural and etymological differences in relation to the other two groups. In contrast, the south-eastern group is the most structurally and lexically homogenous group (Heine 1973, Heine et al. 1977). In this study, we are concentrating on the south-eastern group, as we have found that it has the right level of variation for our purposes, but also because it is the group which is best described in terms of morpho-syntax.

South-eastern Bantu is fairly uniform in terms of broad morpho-syntactic parameters. Languages in the group have SVO basic word-order, are predominantly head-marking, have articulated noun class systems, complex verbal morphology (including a number of valency changing suffixes, sometimes called 'extensions'),

and surface word-order is often determined by discourse-pragmatics and information structure:[1]

(1) Mùtálé   á-àlì-bá-món-à   bà-máyò   [Bemba]
     1.*Mutale* SM1-PAST-OM2-*see*-FV 2-*women*
     'Mutale saw (the) women'

The Bemba example illustrates basic SVO word-order and that subject and object are marked on the head (i.e., the verb) by subject (SM) and object markers (OM), agreeing with the co-referenced NP in noun class: *Mùtálé* is class 1, *bàmáyò*, class 2. Against this background of broad uniformity, morpho-syntactic variation between different south-eastern Bantu languages has often been observed. For example, Bresnan and Moshi (1990) distinguish between Bantu languages with symmetrical double object constructions (like, for example, Chaga) and those with asymmetrical double object constructions (like Chichewa), while Demuth and Mmusi (1997) show that Bantu languages vary with respect to thematic restrictions in presentational constructions, and studies such as Nsuka Nkutsi (1982) and Henderson (2006) document variation in relative clause formation. In the domain of morphology, Beaudoin-Lietz et al. (2004) distinguish between three types of Bantu languages with respect to the morphology of object marking. However, studies on variation in Bantu are often conducted in isolation from each other and are usually not immediately comparable in terms of the languages used, or the particular morpho-syntactic structures investigated.

    In this study we are going to propose and discuss a number of parameters for morpho-syntactic variation in Bantu with the aim to make the study of micro-variation in Bantu more systematic and more comprehensive. We will develop a set of parameters of morpho-syntactic micro-variation in (south-eastern) Bantu and show how they apply to a number of different languages. The selection of the particular parameters we propose reflects the information available in the literature, and our own expertise, and as such they do not constitute a complete or even balanced set. On the other hand, the parameters are concerned with many main-stay topics in Bantu grammar such as object relations, double objects, and agreement, and are thus likely to be included in any future, further developed list of Bantu parameters. Furthermore, our aim here is at least partly to explore conceptual issues when addressing micro-variation in Bantu systematically, and although we are illustrating these with reference to our specific parameters, they are likely to generalize to other areas of variation. The notion of parameter we employ here refers to structural differences between the languages of our sample on the level of surface syntax. This use is different from the more theoretical notion of parameter in some syntactic models (e.g. in Principles and Parameters, Chomsky 1981), and more akin to the conception of parameter in, for example, Longobardi (2004). In general, we have tried to select and formulate parameters that are 1) meaningful in the sample, that is, those which actually differentiate between different languages of the sample; 2) ascertainable, that is, for which the value in the relevant language can be given by reference to published sources or field-material without involving undue subsidiary assumptions about data or analysis – this means that we have deliberately taken a descriptive approach to

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[1] We are using the following lesser-used abbreviations in glossing examples: 1, 2, 3 …: noun class number, APPL: applicative, CT: conjoint, DT: disjoint, FOC: focus marker, FV: final vowel, OM: object marker, RECPAST: recent past, SBJV: subjunctive, SM: subject marker. Tone is marked where we have reliable information.

morpho-syntax, couched in more or less traditional grammatical terminology, which we felt was appropriate for the data at hand, and which may be replaced by a more theoretically informed perspective in due course; 3) binary, that is, for which a given language can be said to either have a positive value or a negative one – as we will see below, in some areas this has led us to postulate a range of related parameters; and 4) transferable, that is, which can be related to structures found outside of Bantu, so that our results can feed into larger comparative studies, for example on the similarities between Bantu and Romance, a topic which has recently attracted increased attention (e.g. de Cat fcmg., Cocchi 2001, Cann et al. 2005). As we will show below, it is not always easy to formulate parameters that fulfil these criteria.

We have included ten Bantu languages in our sample, based on available descriptions and often supplemented with data from fieldwork undertaken in the context of this study from 2003-2006. Table 1 gives the languages included in this study with their conventional classification following Guthrie (1967-71), their main area of use and the main sources we have used for language specific information (in addition, we have relied on comparative studies which are listed in the bibliography).

Table 1: Languages of the study

Language Name and Guthrie Classification	Main Area of Use	Main Sources
Bemba (M42)	Zambia	Fieldnotes
Chaga (Kivunjo) (E62b)	Tanzania	Fieldnotes, Moshi 1998, Bresnan and Moshi 1990
Chichewa (N31)	Malawi	Fieldnotes, Mchombo 2004
Ha (D66)	Tanzania	Harjula 2004
Herero (R31)	Namibia	Fieldnotes, Möhlig et al. 2002
Lozi (K21)	Zambia	Fieldnotes, Fortune 2001
Nsenga (N41)	Malawi/Zambia	Fieldnotes, Miti 2002
SiSwati (S43)	Swaziland/SA	Fieldnotes
Swahili (G42)	Tanzania/Kenya	Fieldnotes, Ashton 1947
Tswana (S31)	Botswana/SA	Fieldnotes, Cole 1955, McCormack fcmg.

In some instances, we make reference to languages not included in our main sample, for example if a particular parameter is particularly well described for a language which we have otherwise not included. On the other hand, we sometimes did not have complete relevant information even for the languages included in the sample, and so in the discussion below, the relevant value for a particular parameter might not be given for all languages. In Section 4, we draw on five languages – Swahili, Bemba, Chichewa, Herero and siSwati – for which we have information on all parameters. All of the languages in our sample are south-eastern Bantu languages with the exception of Herero which is spoken in the western Bantu area, but as it turns out, in terms of structural similarity according to the parameters employed here, it does not show significant differences to the remainder of the sample (see Section 4 for discussion). The majority of the material used in the study is available in the appendix.

3. PARAMETERS

We have used 14 primary parameters, grouped into six topics. Two of the parameters (Parameters 4 and 9) are furthermore divided into different 'sub-parameters' as they are not logically independent, resulting in 19 parameters in total, which are summarized in Table 2.

Table 2: Summary of parameters of the study

Object markers	
1 OM – obj NP	Can the object marker and the lexical object NP co-occur?
2 OM obligatory	Is co-occurrence required in some contexts?
3 OM loc	Are there locative objects markers?
4a One OM	Is object marking restricted to one object marker per verb?
4b Restr 2 OM	Are two object markers possible in restricted contexts?
4c Mult OM	Are two or more object markers freely available?
4d Free order	Is the order of multiple object markers structurally free?
Double objects	
5 Sym word-order	Can either object be adjacent to the verb?
6 Sym passive	Can either object become subject under passivisation?
7 Sym OM	Can either object be expressed by an object marker?
Relatives	
8 Agr Rel mark	Does the relative marker agree with the head noun?
9a Res OM obl	Is an object marker required in object relatives?
9b Res OM barred	Is an object marker disallowed in object relatives?
9c Res OM optional	Is an object marker optional in object relatives?
Locative inversion	
10 LI restr	Is locative inversion thematically restricted to intransitives?
11 Full loc SM	Are there three different locative subject markers?
Conjunct agreement	
12 Partial Agr	Is partial agreement with conjoined NPs possible?
Conjoint/disjoint	
13 Conj/disj	Is there a (tonal) distinction between conjoint/disjoint forms?
14 Tone case	Is there a (tonal) distinction of nominal 'cases'?

While we discuss each of these 19 parameters in turn in the remainder of this section, some remarks about their selection and formulation are in order before looking at the actual data. The overall bias towards objects, as well as towards agreement reflects both the prominence of these topics in the Bantu literature and our own research interests. The parameters grouped under 'Double objects' all refer to the difference between 'symmetrical' and 'asymmetrical' languages mentioned above, but divide this difference into three separate parameters which reflects the situation in more detail. Relative and locative inversion constructions, as well as agreement with conjoined NPs, and, more recently, the marking of 'conjoint' versus 'disjoint' verb forms and tone cases on nouns, are all topics which have a been discussed in various works and are thus included here. Of course, there are many other aspects of Bantu grammar which would lend themselves easily to be included in this list, and for which appropriate literature is available: difference in noun-class system, order and function of verbal suffixes, tense-aspect marking or question formation are only a few of possible topics. While we hope that further parametric research will include these and other aspects, we have found that the parameters selected for this study both bring to

light a number of relevant conceptual issues and lead to results which in some sense can stand on their own. We will first discuss the parameters in detail, and then turn to some of these results in the following section.

3.1. Parameters concerned with object markers

The parameters under 'Object markers' relate to availability of and constraints on object markers. We are only concerned with pre-verbal object markers, in contrast to the study Beaudoin-Lietz et al. (2004) which also includes post-verbal object markers, and which is otherwise complemented by our study. There are four primary parameters, and seven parameters in total which are relevant here.

Parameter 1: Can the object marker and the lexical object NP co-occur?[2]

Yes	Object and OM can co-occur	Bemba, Ha, Lozi, Swahili
No	Object and OM cannot co-occur	Chaga, Chichewa, Herero, siSwati, Tswana

As already seen in section 1, objects in many Bantu languages can be marked on the verb by means of a pre-verbal (or, more precisely, pre-verb stem) object marker. This is true for all languages in our study, and it is also true in all languages that the object NP is not necessary if an object marker is present (so that the object marker in these contexts functions as an 'incorporated' pronoun). However, there is variation as to whether the object marker and the object NP can generally occur together in the same clause (and within one intonational phrase – co-occurrence as an 'afterthought' with marked intonation break is possible presumably in all languages). Bemba (2) and Herero (3) illustrate this difference:

(2) n-álì-mú-món-à   Chìsángá   [Bemba]
     SM1SG-PAST-OM1-*see*-FV   1.*Chisanga*
     'I saw Chisanga'

(3) *mb-é   vé   múnù   òvá-nátjè   [Herero]
     SM1SG-PAST OM2   *see*   2-*children*
     Intd.: 'I saw (the) children'

In Bemba, the use of both an object marker and an overt object NP is grammatical, while in Herero, either the object marker can be used, or the object NP, but not both together. We have not investigated further under what semantic or pragmatic conditions the object marker is used in languages which (structurally) allow co-occurrence of object marker and object NP, which might be related to discourse saliency, animacy, definiteness or other aspects, and we take the main difference to be the structural possibility to have the two elements together (or not). However, we do include the structural *requirement* to have a co-occurring object marker in some languages, which is captured by the next parameter.

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[2] As mentioned above, in the summary tables for each parameter, only the languages for which we have adequate information are included, so that there is slight variation between different parameters.

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?

Yes	Required in some contexts	Chaga, Swahili
No	Never required	Bemba, Chichewa, Herero, Lozi, siSwati, Tswana

As was seen in Parameter 1, Swahili and Bemba, for example, both allow co-occurrence of object marker and post-verbal object NP, but they differ in that in Swahili, the presence of an object marker is required if the post-verbal object is animate:

(4) ni-li-mw-on-a   Juma   [Swahili]
     SM1SG-PAST-OM1-*see*-FV   1.*Juma*
     'I saw Juma'

(5) *ni-li-on-a   Juma
     SM1SG-PAST-*see*-FV   1.*Juma*
     Intd.: 'I saw Juma'

This is not true in Bemba, as (6) shows:

(6) n-álì-món-à   Chìsángá   [Bemba]
     SM1SG-PAST-*see*-FV   1.*Chisanga*
     'I saw Chisanga'

Thus, the value for Parameter 2 is 'yes' for Swahili and 'no' for Bemba. A situation similar to Swahili exists in Kivunjo Chaga as reported in Bresnan and Moshi (1990), where an object marker is required, not if the object is animate, but if the object NP is a pronoun:

(7) n-á-í-kì-lyí-í-à   m-kà   kyô   [Chaga]
     FOC-SM1-PRES-OM7-*eat*-APPL-FV   1-*wife*   7.PRO
     'He/she is eating it for/on the wife' (Bresnan and Moshi 1990)

In (7), the lexical object NP *mkà* is not (in fact, cannot be) marked by an object marker, whereas the pronominal class 7 object *kyô* is obligatorily marked by a co-referring object marker. It is interesting to note that this parameter groups together two languages which received different values in Parameter 1, where Swahili was seen to allow co-occurrence of post-verbal object and object marker, while Chaga does not allow the co-occurrence of post-verbal object NP and object marker except in the case covered in Parameter 2. In addition to the cases discussed here, further restrictions exists on the co-occurrence of object markers and post-verbal objects in Ruwund (L53, Nash 1992), as well as quite generally for dislocated (e.g. fronted) object NPs, but we have not included this variation at present.

Parameter 3: Are there locative objects markers?

Yes	Locative object markers	Bemba, Chaga, Chichewa, Ha, Herero, Nsenga, Swahili, Tswana
No	No locative object markers	Lozi, siSwati

There are typically three locative noun-classes in Bantu, conventionally labelled as class 16, 17 and 18. Locative nouns often behave differently from non-locative nouns, and we have one parameter concerned with locative subject markers below (Parameter 11). However, for this parameter, we checked whether there are locative object markers, and found that some languages, e.g. Luguru (8) and Nsenga (9) have locative object markers while others, e.g. Lozi (10) (as well as Chasu (G22, LM fieldnotes) and Ciruri (E253, Massamba 2000: 115)) do not:

(8) ni-ha-many-a   Mlogholo   [Luguru]
     SM1SG-OM16-*know*-FV   *Morogoro*
     'I know Morogoro' (i.e. the place)

(9) kuLilongwe   n-a-ku-ziw-a   [Nsenga]
     17-*Lilongwe*   SM1SG-PRES-OM17-*know*-FV
     'Lilongwe I know it (there)'

(10) *na-ku-zib-a   (kwa-Lealui)   [Lozi]
     SM1SG.PRES-OM17-*know*- FV   (17-*Lealui*)
     'I know it (Lealui)'

As far as we could ascertain, in languages which have locative object markers, they behave like other object markers with respect to co-occurrence restrictions. Languages without pre-verbal locative object markers often employ an alternative strategy involving post-verbal object markers.

Parameter 4a: Is object marking restricted to one object marker per verb?

Yes	Only one OM	Chewa, Herero, Lozi, siSwati, Swahili
No	More than one OM	Bemba, Chaga, Ha, Tswana

This is the first parameter in a group of four concerned with the number of object markers allowed per verb. Variation in the number of object markers between different in Bantu languages has often been noted, but the degree of variation we found is higher than usually assumed in the literature, and we have sub-divided this area into four related parameters. The first instance of variation is between languages which strictly allow only one object marker per verb, such Swahili (11 – 13) and those which allow more than one object marker per verb:

(11) ni-li-m-p-a   [Swahili]
     SM1SG-PAST-OM1-*give*-FV
     'I gave him (it)'

(12) *ni-li-i-m-p-a
      SM1SG-PAST-OM9-OM1-*give*-FV

(13) *ni-li-m-i-p-a
      SM1SG-PAST-OM1-OM9-*give*-FV

In Swahili, as in a number of other languages of our sample, only one object marker is allowed, irrespective of any other constraints or restrictions. It has often been observed that among languages with only one object marker, there is further variation as to which object marker is permitted when potentially two object markers could be used. In Swahili, for example, this is related to animacy. We have not explicitly addressed this here, but we will come back to this when looking at the double object parameters.

Parameter 4b: Are two object markers possible in restricted contexts?

Yes	Two OM possible in certain contexts	Bemba
No	Two OM either not possible, or possible freely	Chaga, Chichewa, Ha, Herero, Lozi, SiSwati, Swahili, Tswana

Parameter 4b and the following two parameters are all concerned with languages which allow more than one object marker. This is the reason why we have grouped these four parameters together, to highlight that they are not logically independent: The value for the following parameters are predictable for all languages whose value for Parameter 4a is 'no', since if no more than one object marker is allowed, two object markers are not allowed in restricted contexts (Parameter 4b), nor will there be two or more object markers (Parameter 4c), nor indeed will there be restrictions on the order of multiple object markers (Parameter 4d). We could have introduced 'not applicable' as a value, but we have chosen here to give 'no' as a value for one object marker languages, even the 'no' is predictable from the value of Parameter 4a.

   This parameter checks whether two object markers are possible only in restricted contexts. Of the languages in our sample, this is true for Bemba. In Bemba, in general, only one object marker is possible:

(14) *n-ali-mu-ya-peel-a   [Bemba]
      SM1SG-PAST-OM1-OM6-*give*-FV
      Intd.: 'I gave him it (e.g. water)'

(15) *n-ali-ya-mu-peel-a
      SM1SG-PAST-OM6-OM1-*give*-FV
      Intd.: 'I gave him it (e.g. water)'

However, under certain conditions, two object markers are allowed, namely: (i) if both object marker are from class 1/2 (i.e. animate) (16), or (ii) if the first object

marker is from any class, and the second object marker is the 1st person singular object marker *N-* (i.e. a homorganic nasal) (17)[3]:

(16) mù-kà-yè-bá-ndj-éb-él-á-kò   [Bemba]
     SM2PL-TNS-TNS-OM2-OM1SG-*tell*-APPL-FV-17POSTFINAL
     'Go and tell them for me'

(17) à-chí-m-péél-é
     SM1-OM7-OM1SG-*give*-SBJV
     'S/he should give it to me'

A similar restriction is reported for Ruwund (Nash 1992, Woolford 2001), where the restriction is not related to animacy or class, but to the thematic role of the object: The accusative (patient/theme) object can only be expressed by an object marker if the benefactive is expressed by an object marker as well (Nash 1992: 963):

(18) ku-land-in   cikùmbu   ulàl   [Ruwund]
     INF-*buy*-APPL   *house*   *bed*
     'To buy a bed for a/the house'

(19) *ku-wu-land-in   cikùmbu
     INF-OM11-*buy*-APPL   *house*
     'To buy it for a/the house'

(20) ku-wu-ci-land-in   cikùmbu
     INF-OM11-OM7-*buy*-APPL   *house*
     'To buy it for a/the house'

Languages like Bemba and Ruwund are thus different from languages like Swahili, which allow only one object marker, but they also differ from languages which allow multiple object markers freely, as will be seen in the next parameter.

Parameter 4c: Are two or more object markers freely available?

Yes	More than one OM possible freely	Chaga, Ha, Tswana
No	Two OM either not possible, or possible only in certain contexts	Bemba, Chichewa, Herero, Lozi, siSwati, Swahili

This parameter groups together those languages where multiple object markers are possible without any structural restrictions as opposed to those with only one object marker, or those like Bemba and Ruwund where two object markers are only possible in specific structural contexts. In Kivunjo-Chaga, for example, three object markers are found, as (21) shows:

(21) mangí   n-á-lé-í-kú-ḿ-zrúm-a   [Chaga]

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[3] The specific restrictions on this construction are not well understood, and the way we have phrased them here are rather tentative. Also note that all our examples are imperatives or subjunctives. More descriptive work in this area would be useful.

chief   FOC-SM1-PAST-OM9-OM16-OM1-*send*-FV
'The chief sent him there with it'   (Moshi 1998)

Even among the languages which allow multiple object markers there is variation, as some are reported to allow (at least structurally) up to five or six object markers, e.g. Kirundi (Sibomana 1974), Kinyarwanda (Kimenyi 1978), or KiVunjo-Chaga (Moshi 1998), while others are reported to have multiple object marker less frequently, e.g. Ha (Harjula 2004) or Tswana (Cole 1955). We have ignored this difference here and have grouped all languages with two or more object markers together, partly because we do not have enough data on this issue, and partly because there are reasons to think that the restriction is not about whether two or three or four object markers are allowed, but at least partly to do with what type of complement can be expressed by an object marker (see Thwala 2006 for discussion).

Parameter 4d: Is the order of multiple object markers structurally free?

Yes	Order is free	Tswana
No	Order is structurally fixed	Bemba, Chaga, Chichewa, Ha, Herero, Lozi, siSwati, Swahili

The final parameter in this group is concerned with the order of multiple object markers (in those languages which have multiple object markers). It is often assumed that multiple object markers follow a fairly fixed universal order (e.g. Bearth 2003: 126/27), but our data indicate that the situation is more complex than this. While most languages in our sample appear to have a fixed order for multiple object markers (although these fixed orders may vary from language to language, see Marten and Kula 2007 for more discussion), Kwanyama (Halme 2004: 75) and Tswana (Sekgatla dialect) allow variable orders:

(22) Ke   mo   e   ape-ets-e   [Tswana]
       SM1   OM1 OM9   *cook*-APPL-PERF
       'I cooked him/her it'

(23) Ke   e   mo   ape-ets-e   [Tswana]
       SM1   OM9 OM1   *cook*-APPL-PERF
       'I cooked him/her it'

Although the examples in (22) and (23) probably differ in discourse-pragmatic status, both these forms are structurally acceptable, showing that multiple object markers in Tswana do not follow a fixed order, in contrast to the majority of languages for which multiple object marker have been reported (see McCormack fcmg. for more discussion of the Tswana case).

The group of parameters discussed so far were all related to object marking (a topic which will be revisited in Parameter 7 and Parameter 9). We have shown that despite the broad similarity of all the languages discussed – they all have pre-verbal object markers, which, furthermore, are very similar in morphological shape – closer analysis reveals a high degree of micro-variation. In fact, even though the parameters we have proposed are comparatively detailed, there are still aspects of variation which

are not reflected in our classifications. For example, we have grouped Swahili and Chaga together as requiring the presence of an object marker in some contexts, even though the contexts are rather different: It is sometimes not obvious which level of abstraction is most appropriate for the data at hand. Another point worth mentioning is our use of binary parameters. This has methodological advantages, but in terms of analysis, it might be more fruitful to view the variation found, for example, with multiple object markers as a gradient scale from languages with one object marker, through languages with restricted multiple object markers to languages with full productive use of more than two object markers. However, for our study, binarity has practical advantages, and we decided to keep our parameters binary, and we will exploit this feature of our study in the quantitative analysis of our findings in Section 4.

3.2. Parameters concerned with double object constructions

The three parameters in this group address the distinction between symmetrical object type and asymmetrical object type Bantu languages discussed e.g. by Baker (1988) and Bresnan and Moshi (1990). Subsequent work (e.g. Rugemalira 1991, 1993, Mchombo and Firmino 1999) has shown that the situation is more complex than a two-way split, for two reasons: 1) not all languages behave consistently with respect to criteria for symmetry, and 2) languages show different behaviour with respect to symmetry depending on the predicate and the nominal complements used in a given double-object construction, and on the discourse status (e.g. focus) of the two objects. We are here concerned mainly with the former, and use three independent parameters: adjacency to the verb, passivisation, and object marking, but we have not conducted a systematic study of the amount of variation when different predicate and complement types (e.g. animate vs. non-animate, instrument vs. benefactive) or focus are brought into the picture. Essentially, the majority of our data, and the observations based on them, are benefactive constructions with applicative verbs in 'neutral' contexts.

Parameter 5: Can either object be adjacent to the verb?

Yes	Either object can be adjacent to the verb	Ha, Tswana
No	Only one object can be adjacent to the verb	Bemba, Chaga, Chichewa, Herero, Lozi, siSwati, Swahili

The first double object parameter relates to the word-order of double objects. In some languages, the benefactive object (which tends to be animate) has to be the first object (i.e. it will be closer to the verb), and the theme object follows (except in the presence of an object marker, in which word-order possibilities change). This is the case, for example, in Herero (24 and 25). However, in Tswana, both orders of objects are acceptable, although the different orders can probably carry different discourse-pragmatic function (26 and 27).

(24) Mávé   tjàng-ér-é   òvà-nâtjé   òm-bàpírà   [Herero]
     PRES.SM2   *write*-APPL-FV   2-*children*   9-*letter*
     'They are writing the children a letter'

(25) *Mave   tjang-er-e   om-bapira   ova-natje
      PRES.SM2   *write*-APPL-FV   *9-letter*   *2-children*
      Intd.: 'They are writing the children a letter'

(26) ke   ape-ets-e   ngwana   kuku   [Tswana]
      SM1. PRES   *cook*-APPL-PERF   *1.child*   *9.chicken*
      'I cooked the child the chicken'

(27) ke   ape-ets-e   kuku   ngwana
      SM1. PRES   *cook*-APPL-PERF   *9.chicken*   *1.child*
      'I cooked the chicken for the child'

As mentioned above, generalizations from these data are not very strong, as the picture changes easily. For example, in Chaga, benefactive objects have to follow the verb, but if the theme object is focussed, it precedes the benefactive object. On the other hand, in siSwati, the theme object precedes the benefactive object if the benefactive object is focussed. Furthermore, the order of two non-benefactive objects is generally much less restricted (e.g. Moshi 1998). It is quite likely that this holds true more or less also for the languages discussed in this section.[4]

Parameter 6: Can either object become subject under passivisation?

Yes	Either object can become subject	Chaga, Herero, Lozi, siSwati, Tswana
No	Only one object can become subject	Bemba, Chichewa, Swahili

The second double object parameter is concerned with passive constructions related to active double object constructions. The relevant contrast is exemplified by Swahili, where only the benefactive object can be promoted to the subject of the corresponding passive (28 and 29), while, in contrast, in Lozi, both benefactive and theme objects can become subjects (30 and 31):

(28) Asha   a-li-pik-il-iw-a   chakula cha asubuhi   na Juma
      1.Asha SM1-PAST-*cook*-APPL-PASS-FV   *7.food of morning*   *by Juma*
      'Asha was cooked breakfast for by Juma'   [Swahili]

(29) *chakula cha asubuhi   ki-li-pik-il-iw-a   Asha na Juma
      7.food of morning   SM7-PAST-*cook*-APPL-PASS-FV   *Asha by Juma*
      'Breakfast was cooked for Asha by Juma'

(30) ba-eñi   ba-apeh-el-w-a   li-tapi ki   bo-Lungu   [Lozi]
      2-guests SM2-*cook*-APPL-PASS-FV   *10-fish* *by*   *2-Lungu*
      'The guests were cooked fish for by Mr Lungu'

(31) li-tapi   zi-apeh-el-w-a   ba-eñi   ki   bo-Lungu

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[4] There is also variation in the data being reported, e.g. Rugemalira (1991: 202) presents Swahili data where the theme object precedes the benefactive object, which have not been accepted by our consultants.

10-*fish* SM10-*cook*-APPL-PASS-FV   2-*guests*   *by*   2-*Lungu*
'The fish were cooked for the guests by Mr Lungu'

Parameter 7: Can either object be expressed by an object marker?

Yes	Either object can be OM	Chaga, Herero, Lozi, siSwati, Tswana
No	Only one object can be OM	Bemba, Chichewa, Swahili

Our final criterion related to symmetric double object languages is the possibility to express either or only one object with an object marker. The possibilities here are restricted by the relevant parameter settings discussed in the preceding section, but the variation in Parameter 7 seems to cross-cut other object marking restrictions (as already noted by Bresnan and Moshi 1990). For example, in both Bemba and Lozi, the object marker and the lexical object can co-occur, but in Bemba, only the benefactive object can be expressed by an object marker (32 and 33), while in Lozi, both benefactive and theme object can be expressed by an object marker (34 and 35):

(32) Ab-ana   ba-a-mu-ipik-il-a   ify-umbu   [Bemba]
      2-*children*   SM2-PAST-OM1-*cook*-APPL-FV   8-*potatoes*
      'The children have cooked potatoes for Chisanga'

(33) ??Ab-ana   ba-a-fi-ipik-il-a   Chisanga
      2-*children*   SM2-PAST-OM8-*cook*-APPL-FV   1.*Chisanga*
      'The children have cooked potatoes for Chisanga'

(34) bo-Lungu   ba-ba-apeh-el-a   ba-eñi   li-tapi   [Lozi]
      2-*Lungu*   SM2-OM2-*cook*-APPL-FV   2-*guests*   10-*fish*
      'Mr Lungu is cooking fish for the guests'

(35) bo-Lungu   ba-li-apeh-el-a   ba-eñi   li-tapi
      2-*Lungu*   SM2-OM10-*cook*-APPL-FV   2-*guests*   10-*fish*
      'Mr Lungu is cooking fish for the guests'

However, at least in our sample, Parameter 6 and Parameter 7 result in the same set of languages, that is, all languages which allow either object to become subjects in corresponding passives also allow either object to be expressed by an object marker. This may reflect an underlying syntactic difference, e.g. between 'objects' and 'adjuncts', drawn differently in the two language groups, but probably more languages should be included in the sample to see whether the correlation holds in a larger group of languages. More generally, different parameters relating to double object constructions could without doubt be developed, taking into account further differences reported in the literature. For the time being, however, we believe that the three parameters in this group give a good impression of variation in double object constructions, and we will turn to relative constructions in the next section.

3.3. Parameters concerned with relative constructions

The third group of parameters is concerned with relative clause constructions. There is a comparative large body of literature on Bantu relatives (e.g. Nsuka Nkutsi 1982, Henderson 2006, Demuth and Mmusi 1997, Cheng and Kula 2006) and we are concentrating here on the marking of agreement on the relative pronoun, and on the role of object markers in object relatives.

Parameter 8: Does the relative marker agree with the head noun?

Yes	Relative markers agree	Bemba, Chichewa, Ha, Herero, Lozi, Nsenga, Swahili, Tswana
No	Relative markers do not agree	siSwati

This parameter has certain difficulties of interpretation, as many Bantu languages have several strategies of relative clause formation, including strategies where relativisation is marked by grammatical tone on the head noun or the predicate of the relative, or both. We are here only concerned with pronominal relative strategies, illustrated from Bemba and Swahili below:

(36) ùmù-ánàkàshì ùó   á-mwèènè   Mùtàlè   [Bemba]
      1-*girl*   REL1   SM1-*see*.PERF   *Mutale*
      'The girl who Mutale saw …'

(37) ki-tabu   a-li-cho-ki-som-a   Juma   [Swahili]
      7-*book*   SM1-PAST-REL7-OM7-*read*-FV   *Juma*
      'The book which Juma read …'

In both languages, the relative strategy involves agreement of the relativiser with the head.[5] Most languages in our sample are of this type, but in several southern Bantu languages, such as siSwati and Xhosa (S41), relative markers do not show overt agreement with the head noun:

(38) um-fati   tin-tfombi   la-iti-m-elekelel-a-ko   [Swati]
      1-*woman*   10-*girl*   REL-SM10-OM1-*help*-FV-REL
      'The woman whom the girls help …'

(39) in-doda   aba-fazi   a-ba-yi-bon-ile-yo   [Xhosa]
      9-*man*   2-*woman*   REL-SM6-OM9-*see*-PERF-REL
      'The man whom the women saw …'

The relative markers in these two examples, *la-*/*-ko* and *a-*/*-yo*, do not agree with the head noun. This is true for all nouns, although the situation with locative head nouns is slightly more complicated. Note also that there is agreement between the head noun and the object marker in both examples. This agreement relation is addressed in the following parameters; here we are concerned whether the relativiser itself shows agreement, and so the value for siSwati and Xhosa for Parameter 8 is 'no'.

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[5] We refer to the verbal prefix marking the relative in Swahili in the example above as pronominal, but nothing hinges on this.

Parameter 9a: Is an object marker required in object relatives?

Yes	OM required	Chichewa, siSwati, Tswana
No	OM not required	Bemba, Ha, Herero, Lozi, Nsenga, Swahili

Parameter 9 is divided into three inter-dependent sub-parameters, which are all concerned with the role of object markers in object relatives. The first sub-parameter checks whether object markers are required in object relatives. In Tswana, for example, this is the case, as the ungrammaticality of (41), without a 'resumptive' object marker shows:

(40) di-kwelo   tse   ke   di   bone-ng   [Tswana]
      10-*books*   REL10   SM1SG.PAST   OM10   *see*-REL
      'The books which I saw them … '

(41) *di-kwelo   tse   ke   bone-ng
      10-*books*   REL10   SM1SG.PAST   *see*-REL
      Intd.: 'The books which I saw … '

(42) dikwelo   tse   ke   bone-ng   ts-one
      10-*books*   REL10   SM1SG.PAST   *see*-REL   10-DEM
      'The books which I saw *those* … '

The examples show that in Tswana both the relative pronoun and the object marker agree with the head noun. The object marker is required, except in cases like (42) where a 'strong' demonstrative pronoun, adding emphasis, agrees with the head. The parameter thus might be more carefully thought of as asking whether a resumptive pronominal element is required in (object) relatives, but since this function is usually fulfilled by an object marker, we have focussed here on object markers with the provisio that even in languages which we classify as requiring an object marker, this requirement can be suspended if another suitably construed pronominal element is present. At the moment we do not have enough data to ascertain whether this is true for all languages in our sample, so we have to wait for future research to decide whether more fine-grained parameters are needed. In any case, languages like Tswana differ systematically from languages discussed in the next two sections.

Parameter 9b: Is an object marker disallowed in object relatives?

Yes	OM prohibited	Bemba, Herero, Lozi
No	OM allowed or required	Chichewa, Ha, Nsenga, siSwati, Swahili, Tswana

In contrast to languages like Tswana, a number of languages in our sample do not allow the use of object markers in object relatives:

(43) ìcí-pùnà   ícò   ùmù-ánàkàshì   á-mwèènè …   [Bemba]
      7-*chair*   REL7   1-*girl*   SM1-*see*.PERF

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'The chair which the girl saw …'

(44) *ici-puna   ico   umu-anakashi   a-ci-mweene …
      7-*chair*   REL7   1-*girl*   SM1-OM7-*see*.PERF
      Intd.: 'The chair which the girl saw …'

The Bemba example above shows that the use of an object marker agreeing with the head noun of the relative is ungrammatical.

Parameter 9c: Is an object marker optional in object relatives?

Yes	OM optional (possible but not required)	Ha, Nsenga, Swahili
No	OM required or not possible	Bemba, Chichewa, Herero, Lozi, siSwati, Tswana

A third type of languages in our sample has optional object markers in object relatives, for example Nsenga:

(45) vi-sime v-ati   ti-ka-mang-e   vi-ka-w-e   vi-mene   [Nsenga]
      8-*wells* 8- REL   SM1PL-FUT-*build*-FV   SM8-FUT-*be*-FV 8-*beautiful*
      'The wells which we will build will be beautiful'

(46) vi-sime v-ati   ti-ka-vi-mang-e   vi-ka-w-e   vi-mene
      8-*wells* 8- REL   SM1PL-FUT-OM8-*build*-FV   SM8-FUT-*be*-FV 8-*beautiful*
      'The wells which we will build will be beautiful'

As for previous parameters, we are only concerned here with the structural possibility to have optional object markers, and not with any interpretative differences between relatives with and without object marker. The languages in this group are those for which the value for Parameters 9a and 9b is 'no', so the value is predictable, but we have included 9c to make this explicit (and to show an example).

3.4. Parameters concerned with locative inversion constructions

The two parameters in this group are concerned with locative inversion constructions. In locative inversion, a locative NP is the (grammatical) subject of the sentence and is in agreement with the subject marker of the verb, while the 'logical subject' or agent obligatorily follows the verb. The construction often carries presentational focus on the predicate or the post-verbal NP:

(47) m-òn-djúwó   mwá   hìtí é-rùngà   [Herero]
      18-9-*house*   PAST.SM18   *enter* 5-*thief*
      'The thief entered the house' ('Into the house entered the thief')

All languages in our sample have locative inversion constructions, in which we also include 'presentational focus' constructions, without overt locative NP subject, which show (at least historically) locative subject agreement. A number of comparative differences in locative inversion constructions within Bantu have been described in

the literature (Bresnan and Kanerva 1989, Demuth and Mmusi 1997, Marten 2006b), and we are here focussing on the presence of thematic restriction on the predicates which can undergo locative inversion, and on the number of locative subject markers present (which is independent of locative inversion, see discussion below).

Parameter 10: Is locative inversion thematically restricted to intransitives?

Yes	Locative inversion only with intransitives	Bemba, Chaga, Chichewa, Lozi, siSwati, Swahili, Tswana
No	Locative inversion with other predicates	Herero, Nsenga

Thematic restrictions on predicates which can be used in locative inversion constructions have often been taken as a defining feature of the construction. In particular, in a number of languages (not only in Bantu), locative inversion seems to be restricted to unaccusative predicates, that is, those whose highest thematic role is 'theme'. In Bantu, the situation is more complex, e.g. Marten (2006b) distinguishes four different types of thematic restrictions found in different Bantu languages, but we do not have enough data to systematically address this, and so we divide the languages in our sample into those where locative inversion is only found with intransitives, and those with more liberal restrictions:

(48) kú-mwèsù   kwà-lí-ìs-à   áb-ènì   [Bemba]
      17-*home.our* SM17-RECPAST-*come*-FV 2-*guests*
      'Visitors have come to our home'

(49) mw-ì-bálá   mù-lè-lím-à   áb-ènì
      18-5-*field* SM18-PROGR-*come*-FV   2-*guests*
      'Visitors are farming the field'

(50) *ku-nganda   ku-le-som-a   Chisanga
      17-9.*home*   SM1-PROGR-*read*-FV   1.*Chisanga*
      Intd.: 'Chisanga is reading at home'

(51) m-nándà   mù-wéléngél-à   Kàtíshà   [Nsenga]
      18-9.*house* SM18-*read*-FV   *Katisha*
      'In the house Katisha is reading'

In Bemba, locative inversion constructions are found with intransitive predicates like -*ìsà*, 'come' (48) and -*límà*, 'farm' (49), but not with transitives like -*soma*, 'read' (50). In contrast, Nsenga allows, in addition to intransitives, transitive predicates like -*wéléngélà*, 'read' in locative inversion (51). Chichewa is reported as only allowing unaccusative predicates in locative inversion (Bresnan and Kanerva 1989), but our own data indicate fewer restrictions on predicates participating in locative inversion, and we have grouped Chichewa together with Bemba as allowing any intransitive predicate.

Parameter 11: Are there three different locative subject markers?

Yes	Class 16-18 locative SM	Bemba, Chichewa, Herero, Nsenga, Swahili
No	Only one or two SM	Chaga, Ha, Lozi, siSwati, Tswana

Bantu languages have typically three distinct locative noun classes, distinguishing nearness, distance and insideness, and associated subject markers, which are traditionally referred to as Classes 16, 17 and 18 (cf. Parameter 3, above). However, some of the languages in our sample have only one or two locative subject markers (and may or may not have a full or reduced set of nominal noun class prefixes). This is independent of locative inversion, but we have included the parameter here because a relation between the distinctions made between different locative agreement markers and interpretational possibilities of locative inversion constructions (as fully locative or presentational) has been reported in the literature (Demuth and Mmusi 1997). Again, future work might also include a parameter on these different interpretations, but we do not have enough data at present to do this. Be that as it may, we have data on locative subject markers, where the contrast is illustrated by Herero, with a full set of locative subject markers, and Lozi, with only the Class 17 subject marker *ku-*, below:

(52) pò-ndjúwó   p-á-rár-á   é-rúngá   [Herero]
      16-9.*house*   SM16-PAST-*sleep*-FV   5-*thief*
      'At the house slept a/the thief'

(53) kò-mù-tí   kw-á-pós-é   òzó-ndjìmá
      17-3-*tree*   SM17-PAST-make_noise-FV   10-*baboons*
      'In the trees (the) baboons made noise'

(54) mò-ndùndú   mw-á-váz-éw-á   ómu-àtjé
      18-9.*mountain* SM18-PAST-*find*-PASS-FV 1-*child*
      'On the mountain was found a/the child'

(55) fa-tafule   ku-ins-i   li-tapi   [Lozi]
      16-*table*   SM17-*be/sit*-TNS   5-*fish*
      'On the table there is a/the fish'

(56) mwa-ndu   ne-ku-ken-i   ma-sholi
      18-*house* TNS-SM17-*enter*-TNS   6-thieves
      'Into the house entered the thieves'

(57) kwa-kota   ku-opel-a   li-njoko
      17-*tree* SM17-*sing*-FV   10-*monkeys*
      'The monkeys are singing at the tree'

Note that both Herero and Lozi have a three-way class-prefix distinction of locative nouns, but that in Lozi, the relevant subject marker for each locative subject is the Class 17 subject marker *ku-*.

3.5. Partial agreement

There is only one parameter in this group, which compares languages where partial agreement with a conjoined NP (subject or object) is possible, with languages where conjoined NPs agree with one or more 'default' classes. The situation is, like in some of our previous parameters, more complex than is expressed in our binary parameter. For example, often there are different agreement possibilities depending on whether the conjoined nouns belong to class 1/2 or to higher classes, on the word-order between conjoined NP and the verb, or on phonetic features (e.g. Marten 2000, Voeltz 1971). However, the languages in our sample fall into two broad types: those where default agreement with conjoined NPs is almost always required, and those where examples of partial agreement are found in a number of contexts.

Parameter 12: Is partial agreement with conjoined NPs possible?

Yes	Partial agreement possible	Nsenga, siSwati, Swahili
No	Only/mainly default agreement	Bemba, Chichewa, Ha, Herero

The majority of the languages in our sample show default agreement when the relevant subject or object is a conjoined NP, that is, a specific noun class is used for agreement with conjoined NPs, often class 2 for a conjunction of animate NPs, and class 8 or class 10 for non-animates:

(58) ici-puna   ne   tebulo   na-fi-pon-a   [Bemba]
      7-*chair*   *and* 9.*table*   PAST-SM8-*fall*-FV
      'The chair and the table have fallen down'

In other languages, like Swahili, Nsenga and Luguru (G35) agreement may be default agreement like in the first group, or there may be partial agreement, where the relevant subject (59, 60) or object (61) marker is cross-referenced to only one of the conjuncts of the conjoined NP:

(59) chi-ti   na   ghumu-biki   chi-ghul-iw-a   [Luguru]
      7-*chair* *and* 3-*tree*   SM7-*buy*-PASS-FV
      'The chair and the tree were bought'

(60) chi-ti   na   ghumu-biki   u-ghul-iw-a
      7-*chair* *and* 3-*tree*   SM3-*buy*-PASS-FV
      'The chair and the tree were bought'

(61) wa-nzehe   wa-li-ghul-a   li-banzi na   ma-bwe
      2-*elders*   SM2-OM5-*buy*-FV   5-*wood* *and* 6-*stone*
      'The elders bought a wooden board and stones'

There are differences of detail between the languages which show partial agreement, as well as different restrictions on when partial agreement is possible (related to word-order as well as animacy), but the main distinction captured here is whether partial agreement is possible at all or not (see Marten 2000, 2003, 2005 for further discussion).

3.6. Distinction between conjoint and disjoint verb/noun forms

The final two parameters are concerned with the (usually prosodic) marking of constituent and/or information structure between a verb and a following constituent. Marking on the verb is often termed as expressing a distinction between 'conjoint' ('something follows') and 'disjoint' ('nothing follows') verb forms. Although this distinction has been noted, for example, by Meeussen (1959) and Sharman (1956), it has only more recently been discussed more widely (e.g. Creissels 1996, Hyman 1999, Buell 2006, van der Wal 2006) and it is likely that the distinction will be subject to increased discussion in the future. The second parameter in the group is concerned with a tonal distinction of nouns which is often referred to as 'tone cases' (Schadeberg 1986, Blanchon 1999), but it can be seen as marking distinctions similar to the conjoint/disjoint distinction (Marten and Kavari 2006) and thus we have grouped the two together.

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?

Yes	Conjoint-disjoint distinction	Bemba, Ha, siSwati, Tswana
No	No conjoint-disjoint distinction	Chaga, Chichewa, Herero, Swahili

Tswana illustrates the distinction between disjoint and conjoint verb forms: The verb forms in the examples below show different tone patterns, which depend on the position of the verb in the clause as being clause-final or followed by a (relevant) constituent, for example a post-verbal subject in (63):

(62) Mphó   ó   tsámà-ìlè   [Tswana]
      Mpho SM1 *go*-PERF.DT
      'Mpho has gone' (disjoint) (Creissels 1996: 113)

(63) Gó   tsàmá-ílé   Mphó
      SM17   *go*-PERF.CT   *Mpho*
      'There has gone Mpho' (conjoint) (Creissels 1996: 113)

Although in most tenses the distinction is tonal, in some tenses there is a segmental marker in Tswana. In several southern Bantu languages, the distinction is often referred to as the difference between 'long' and 'short' tenses.

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?

Yes	Tone cases	Herero
No	No tone cases	Bemba, Chaga, Chichewa, Ha, siSwati, Swahili, Tswana

Tone cases are, as so far documented, only found in western Bantu languages. In Herero, for example, nouns show a different tone pattern according to their position in

the clause. The system differs form canonical case systems though, in that only relevant (focused?) constituents immediately following the verb receive 'object' case, and in that, like conjoint/disjoint verb forms, the system seems to be sensitive to pragmatic and surface word-order considerations, instead of, or as well as, syntactic constituency (see Marten and Kavari 2006 for more discussion):

(64) òtjì-hávérò   tj-á-ù   [Herero]
      7-*chair*   SM7-PAST-*fall_down*
      'The chair fell down'

(65) vé-múná   òtjí-hávérò
      SM2.HAB-*see*   7-*chair*
      'They usually see the chair'

The tone of the noun (or more precisely, the noun class prefix) differs in these two examples, depending on whether *òtjìhávérò* is found immediately after the verb or in any other position (in this case, in subject position). The structural context of tone-case marking is very similar to the context for conjoint-disjoint verb forms in languages like Tswana, but it is marked on the post-verbal complement, rather than on the verb.

4. RESULTS AND DISCUSSION

The 19 parameters discussed in the preceding section provide the basis of our study. In many ways, they are incomplete. As pointed out above, more parameters could be added to the list, and the way in which we have formulated and interpreted some of the parameters may have to be revised in light of further data or analysis. Furthermore, we have only included a small fraction of Bantu languages in our study, and those which are included have been selected in a rather impressionistic fashion. However, we have enough parameters and values to illustrate the potential results of a systematic study of micro-variation in Bantu which we have outlined here. In particular, we show in this section how the values for our parameters can be used for a quantitative study of morph-syntactic similarity. We first present these results, and then offer some discussion and comments.

4.1. Quantitative results

Quantitative comparative studies have a long tradition in Bantu linguistics, including the lexico-statistical studies of Heine (1973), Heine et al. (1977) and Bastin et al. (1999), as well as Holden and Gray's study (2006) which uses phylogenetic methods on the Bantu lexical data set compiled by Bastin et al. (1999). However, all these studies are concerned with lexical similarity, which is also true for the majority of quantitative studies outside Bantu (e.g. McMahon 2005), although Longobardi (2004) and Guardiano and Longobardi (2005) have recently used morpho-syntactic data for a range of mainly European languages. It was partly with these quantitative studies in mind that we have formulated the parameters discussed above as binary, and we will use them here as data for a comparative quantitative analysis, by comparing the values for each parameter of different languages. Since we have used parameters with binary

values, comparison between different languages is very similar to comparing lexical data which have been coded for cognates, although the interpretation of the data is likely to be different, a point which we take up in the following section. In Table 3 we have summarised the values for the ten languages of our sample (the evidence for the values we have assigned for each language is presented in the appendix).

Table 3: Values for 10 Bantu languages

	Swah	Chag	Ha	Bemb	Chew	Nseng	Tswa	Lozi	Swati	Her
1 OM – obj NP	yes	no	yes	yes	no	?	no	yes	no	no
2 OM obligatory	yes	yes	?	no	no	?	no	no	no	no
3 OM loc	yes	yes	yes	yes	yes	yes	yes	no	no	yes
4a One OM	yes	no	no	no	yes	?	no	yes	yes	yes
4b Restr 2 OM	no	no	no	yes	no	?	no	no	no	no
4c Multiple OM	no	yes	yes	no	no	?	yes	no	no	no
4d Free order	no	no	no	no	no	?	yes	no	no	no
5 Sym order	no	no	yes	no	no	?	yes	no	no	no
6 Sym passive	no	yes	?	no	no	?	yes	yes	yes	yes
7 Sym OM	no	yes	?	no	no	?	yes	yes	yes	yes
8 Agr Rel mark	yes	?	yes	yes	yes	yes	yes	yes	no	yes
9a Res OM oblig	no	?	no	no	yes	no	yes	no	yes	no
9b Res OM barred	no	?	no	yes	no	no	no	yes	no	yes
9c Res OM poss	yes	?	yes	no	no	yes	no	no	no	no
10 LI restr	yes	yes	?	yes	yes	no	yes	yes	yes	no
11 Full loc SM	yes	no	no	yes	yes	yes	no	no	no	yes
12 Partial agr	yes	?	no	no	no	yes	?	?	yes	no
13 Conj/disj	no	no	yes	yes	no	?	yes	?	yes	no
14 Tone case	no	no	no	no	no	?	no	?	no	yes

As can be seen from the table, for a number of languages, we have left some cells unanswered as we did not have sufficient data. In order to avoid the problem of undefined values for quantitative comparison, we have taken the five languages of our sample for which we have values for all parameters, summarized in Table 4.

Table 4: Comparison between 5 languages (only bold values counted)

	Swahili	Bemba	Chewa	SiSwati	Herero
Object markers					
1 OM – obj NP	**yes**	**yes**	**no**	**no**	**no**
2 OM obligatory	**yes**	**no**	**no**	**no**	**no**
3 OM loc	**yes**	**yes**	**yes**	**no**	**yes**
4a One OM	**yes**	**no**	**yes**	**yes**	**yes**

4b Restr 2 OM	no	yes	no	no	no
4c Mult OM	no	no	no	no	no
4d Free order	no	no	no	no	no
Double objects					
5 Sym order	**no**	**no**	**no**	**no**	**no**
6 Sym passive	**no**	**no**	**no**	**yes**	**yes**
7 Sym OM	**no**	**no**	**no**	**yes**	**yes**
Relatives					
8 Agr Rel mark	**yes**	**yes**	**yes**	**no**	**yes**
9a Res OM obl	**no**	**no**	**yes**	**yes**	**no**
9b Res OM bar	**no**	**yes**	**no**	**no**	**yes**
9c Res OM poss	yes	no	no	no	no
Locative inversion					
10 LI restr	**yes**	**yes**	**yes**	**yes**	**no**
11 Full loc SM	**yes**	**yes**	**yes**	**no**	**yes**
Conjunct agreement					
12 Partial agr	**yes**	**no**	**no**	**yes**	**no**
Conjoint/disjoint					
13 Conj/disj	**no**	**yes**	**no**	**yes**	**no**
14 Tone case	**no**	**no**	**no**	**no**	**yes**

As we are interested in assessing the structural similarity between the five languages, we have not counted any values which are predictable, that is, we are not taking into consideration values for Parameters 4a, 4b and 4c, as the values for all languages which have 'yes' for 4a are predictably 'no' for all of these. Similarly, the value for Parameter 9c is predictable from the values for 9a and 9b, so we have disregarded this as well (the values which we have counted are given in bold in the table). By calculating the percentage of shared values between each pair of language, we receive the following results:

Table 5: Similarities based on 15 parameters

Chewa	60%			
Bemba	66%	67%		
Herero	47%	60%	53%	
Swati	40%	53%	33%	40%
	Swahili	Chewa	Bemba	Herero

The figures show that Chichewa and Bemba have the highest degree of shared structure (67%), while the relationship between SiSwati and Bemba has the lowest degree of similarity (33%). In Map 1, we have placed the five languages roughly in the area where they are spoken, and have indicated percentages of shared structure on the connecting lines.[6]

Map 1

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[6] We are grateful to SIL International for permission to reproduce this map here. The map is based on Guthrie's (1948) original classification of Bantu languages and includes some subsequent modifications (e.g. the omission of Guthrie's Zone T and the addition of Zone J, cf. Maho 2003).

The Bantu languages of Africa

Groupings based on Guthrie, 1948*
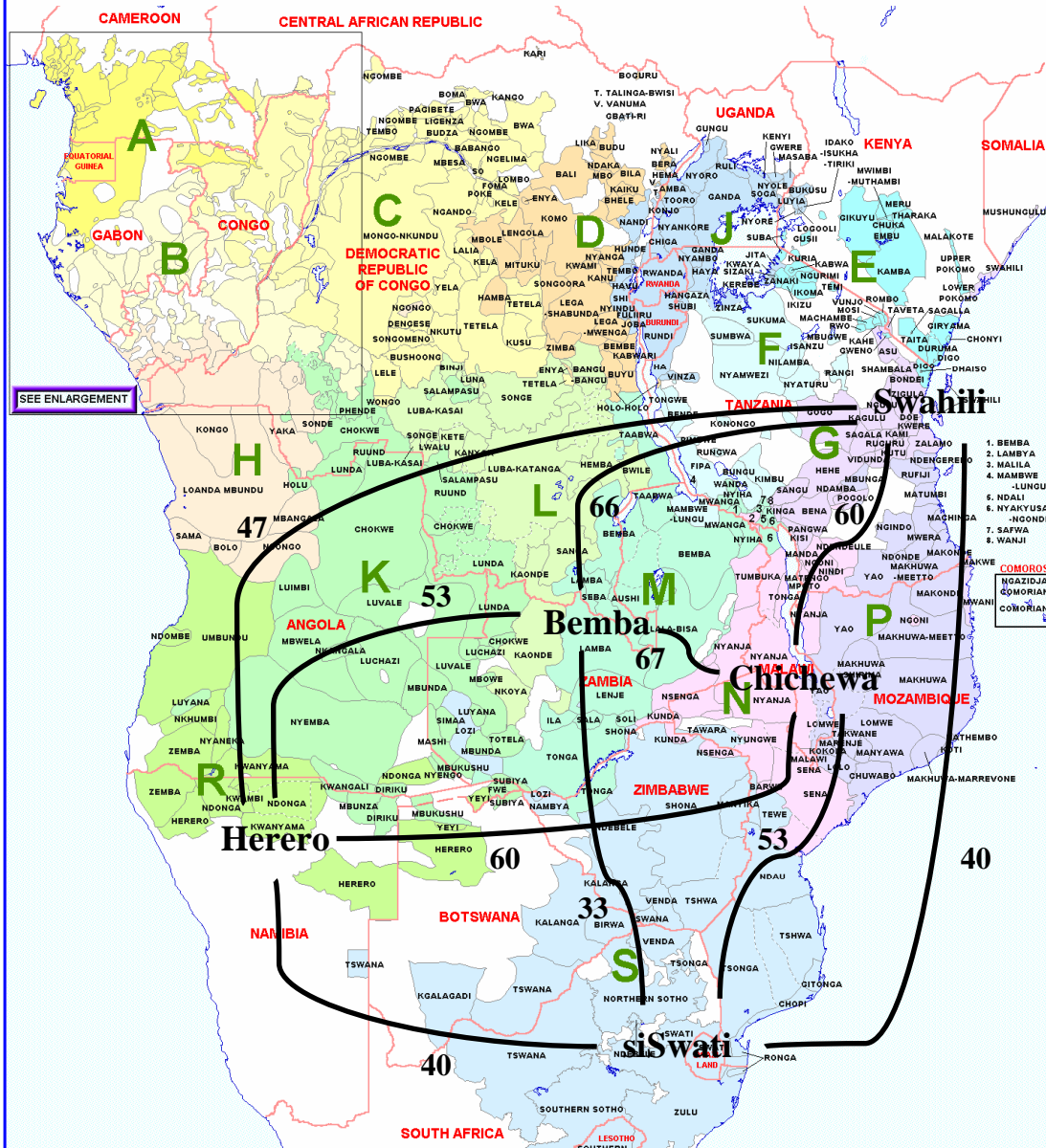
Morpho-syntactic statistic relationship between Swahili, Bemba, Chichewa, Herero and siSwati based on 15 parameters

Note: Dashed lines show overlap of language areas

The representation of our results projected on geographical space shows that the closest similarity exists between the three languages spoken in the central and north-east areas, that is, between Bemba and Chichewa (67%) and between Bemba and Swahili (66%). Chichewa shares 60% of structure with both Swahili in the north and

Herero in the west. The lower figures are found with Herero in the west and siSwati in the south. Herero shows 40%, 47%, 53% and 60% similarity with the remaining four languages, while siSwati, spoken at the southern end of the Bantu area, has the lowest degree of structural similarity with the remaining four languages: 33% with Bemba, 40% with both Herero and Swahili, and 53% with Chichewa. The same results expressed slightly differently appear when calculating the overall amount of shared structure for each language (by averaging the degree of shared structure with the four remaining languages). The language with the highest degree of shared structure is Chichewa with 60%, followed by Bemba (55%), Swahili (53%), Herero (50%) and siSwati (42%). Based on the data we use here, Chichewa would appear as the most 'typical' Bantu language of the five languages in the sense that it shares the most structural characteristics (as defined by the parameters we have used) with the other languages of our sample. In the following section, we discuss how these quantitative data can be interpreted.

4.2. Interpretation and discussion

The quantitative results presented in the preceding section show that the five languages of our 'narrow' sample exhibit different degrees of structural relationship. In particular, Chichewa, Swahili and Bemba show a closer structural resemblance to each other than the remaining two languages Herero and siSwati. Compared to lexical comparison, however, which similarly result in quantitative statements of similarity, the interpretation of our data is rather more difficult. A plausible explanation of shared lexical structure is to assume shared history, passed on from generation to generation through lexical inheritance. Alternatively, lexical similarities can be interpreted as resulting from lexical borrowing in language contact. However, in order to interpret our data in this way, we would have to have a much better understanding of processes of morpho-syntactic inheritance and borrowing, as in particular the trans-generational transfer of syntactic structure is much less clear than the transfer of lexical structure. Although our results may in fact provide relevant evidence for this discussion, especially when placed next to lexical comparisons, we will leave this discussion for a future occasion here and consider two alternative possible models of explanation. The first of those is to relate structural relation to physical space. By placing the languages within a geographical context, as we have done above, it appears that there is a relation between structural similarity and geographic proximity: on the one hand, an east-centre group can be distinguished from the two more peripheral languages Herero and siSwati. Furthermore, in some cases, the highest degree of similarity exist between two languages which are also close in terms of geographical distance; e.g. Chichewa and Bemba show the highest amount of similarity with each other. Conversely, geographical distance often correlates with structural distance; e.g. the peripheral languages Swahili, Herero and SiSwati have the lowest amount of shared structure, all under 50%. On the other hand, the lowest amount of shared structure, between Bemba and siSwati does not correlate with the furthest distance. It thus seems unlikely that purely geographical distance could serve as the main explanation for structural similarity. Ignoring the imperfect correlation between structure and space and assuming that structural similarity and geographical space more or less correlate, a possible explanation might be that speakers of the languages involved were in comparatively extensive contact with each other (as, for example, in dialect chain situations), but it seems that the geographic distances

involved in our case are probably too great to assume this. However, language contact might be involved in an alternative explanation, and that is that speakers of both Herero and siSwati, but not those of the east-central group Swahili, Chichewa and Bemba, have been in recent and, as far as we know, fairly close contact with speakers of Khoisan languages[7] and, more recently, speakers of Indo-European languages (Afrikaans and English), and this contact may have had an influence on morpho-syntactic properties. However, this would have to be demonstrated in detail. A third alternative explanation might be that Swahili, Bemba and Chichewa, but not Herero and siSwati, are lingua francas with comparatively high numbers of second language users, whose first language furthermore is often another Bantu language. Under this explanation, the use as lingua franca of these three languages has resulted in the convergence effects visible in the study, similar to, but at a much lower level than, convergence effects in language contact situations resulting in pidgin and creoles. However, more detailed studies of the particular languages are necessary in order to provide a coherent explanation of the situation, but the quantitative approach we have followed here has nevertheless provided the specific perspective on the data against which more particular questions can be formulated.

More generally, we believe that our study shows how data from morpho-syntax can be used for quantitative studies of linguistic relationship. Even though both the actual data taken into account and the methods used to compare them could be improved, our results are comparable with quantitative linguistic studies working with lexical datasets. Syntactic change is different from lexical change, and hence results combining both lexical and morpho-syntactic data can lead to a more complex picture of language relationship (Longobardi 2004). However, as we have already pointed out, one of the main problems of using morpho-syntactic information for quantitative studies is the correct formulation of variables, as, in contrast to lexical comparison, there is no intuitively obvious unit such as 'word'. It is to this problem that we turn as the final point of this section.

We have mentioned in the introduction that we have used parameters which are binary, and we have pointed out some problems with this in relation to Parameter 4, where we noted that the distinction between four different types of languages with respect to number and order of object markers is in a sense arbitrary, and that the data we have discussed could be more naturally thought of as showing gradient variation from strictly one object marker languages to those with up to five or six. A similar point could be made for the analysis of the restrictions on predicates which can participate in locative inversion (Parameter 10), where a number of different types of languages can be distinguished. Our choice to use binary parameters was motivated by our aim to use our data for a quantitative analysis in the way we have laid out in the preceding section. We are aware that with more sophisticated statistical methods, we could have used more fine-grained parameters, for example, by allowing fractional values, and this presents a clear avenue for further research. However, the use of binary parameter has also conceptual advantages. For some of the data we have discussed, binarity seems the correct level of analysis. For example, the three parameters under Parameter 9 concerned with the use of object makers in relative clauses describe the variation in the data quite accurately. Using binary parameters, at least at the initial stage of comparative research, thus helps to differentiate areas of variation which do instantiate comparatively straight yes-no choices from those with

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[7] The most well-known linguistic reflexes of this contact are the click consonants found in southern Bantu languages, including siSwati. Although Herero does not have clicks, Khoisan loanwords in Herero are well documented (e.g. Möhlig 2000)

more complex patterns. As with the quantitative study, parametric description in the way we have proposed here does not in itself lead to analysis of the data, but it helps to survey the range of observable variation and to formulate research hypothesis arising from it.

5. CONCLUSIONS

In this paper, we have set out to develop variables for the description of morpho-syntactic variation in south-eastern Bantu languages. Despite the fact that this is only a preliminary case study, which is restricted both in the number of morpho-syntactic structures and in the number of languages included, the study has still revealed a high degree of morpho-syntactic variation between languages which are very similar in terms of broad typological characteristics. It thus shows that the micro-approach to variation provides an important complement to broader typological studies, and also that typological generalizations have to be checked against the actual variation occurring in different languages. Results of our study furthermore show systematic patterns of variation, which lead to more specific research questions. In particular, we have shown that, when interpreted quantitatively, the structural similarity between Bemba, Chichewa and Swahili appears to be closer than the similarity between these languages and Herero and siSwati, which may reflect language contact as well as patterns of language use. In terms of conceptual results, the study has shown that there are areas which appear to reflect binary variation, while other areas show a more gradient pattern. If this difference is supported by further, more comprehensive studies, it provides important evidence for theories of linguistic knowledge and the cognitive study of language variation, since both grammaticalization-like and parametric variation have to be accounted for. Quite generally, we hope that the present study has demonstrated the feasibility and usefulness of the systematic study of morpho-syntactic variation, in Bantu and beyond, and that it might prove to be useful for future research and analysis.

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DATA APPENDIX

Bemba
Sources: Fieldnotes, Lusaka, Ndola, Aug 2005, London Sept 2006

Parameter 1: Can the object marker and the lexical object NP co-occur?
YES

(66) n-álì-mú-món-à   Chìsángá
      SM1SG-PAST-OM1-*see*-FV   1.Chisanga
      'I saw Chisanga'

(67) n-álì-món-à   Chìsángá
      SM1SG-PAST-*see*-FV   1.*Chisanga*
      'I saw Chisanga'

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
NO

Parameter 3: Are there locative objects markers?
YES

(68) n-álì-pà-món-à
      SM1SG-PAST-OM16-*see*-FV
      'I saw it (ie that place there)'

Parameter 4a: Is object marking restricted to one object marker per verb?
NO

Parameter 4b: Are two object markers possible in restricted contexts?
YES

(69) *n-ali-mu-ya-peel-a
      SM1SG-PAST-OM1-OM6-*give*-FV
      Intd.: 'I gave him it (e.g. water)'

(70) *n-ali-ya-mu-peel-a
      SM1SG-PAST-OM6-OM1-*give*-FV
      Intd.: 'I gave him it (e.g. water)'

(71) mù-kà-yè-bá-ndj-éb-él-á-kò
      SM2PL-TNS-TNS-OM2-OM1SG-*tell*-APPL-FV-17POSTFINAL
      'Go and tell them for me'

(72) à-chí-m-péél-é
      SM1-OM7-OM1SG-*give*-SBJV
      's/he should give it to me'

Parameter 4c: Are two or more object markers freely available?
NO

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
NO

(73) Abana   ba-a-ipik-il-a   Chìsànga   ify-umbu
      2-*children*   SM2-PAST-*cook*-APPL-FV   1.*Chisanga* 8-*potatoes*
      'The children have cooked potatoes for Chisanga'

(74) *Abana   ba-ipik-il-a   ify-umbu   Chìsànga
      2-*children*   SM2-PAST-*cook*-APPL-FV   8-*potatoes* 1.*Chisanga*
      Intd.: 'The children have cooked potatoes for Chisanga'

Parameter 6: Can either object become subject under passivisation?
NO, Bemba has two passive strategies, one with a suffix -*w*-, the other with a re-analyzed previous class 2 subject prefix *ba*-. In both strategies, the promotion of theme to subject is less acceptable than the promotion of benefactive.

(75) Chìsàngà   a-a-ipik-il-w-e   ifyumbu   na-bana
      1.Chisanga   SM1-PAST-*cook*-APPL-PASS-PERF   8-*potatoes*   *by*-2.*children*
      'Chisanga was cooked potatoes for by the children'

(76) ?*ify-umbu   fy-a-ipik-il-w-e   Chisanga   na-bana
      8-*potatoes*   SM8-PAST-*cook*-APPL-PASS-PERF   1.*Chisanga*   *by*-2.*children*
      Intd.: 'The potatoes were cooked for Chisanga by the children'

(77) BanaPhiri   ba-lee-ba-ipik-il-a   inkoko   (kuli BanaNyerenda)
      2.Mrs.Phiri PASS-PROGR-SM2-cook-APPL-FV   9.*chicken*   (*by* 2.*Mrs.Nyerenda*)
      'BanaPhiri was cooked chicken for (by BanaNyerenda)'

(78) ??inkoko   ba-lee-i-ipik-il-a   BanaPhiri   (kuli BanaNyerenda)
      9.chicken   PASS-PROGR-SM2-cook-APPL-FV   2.*Mrs.Phiri* (*by* 2.*Mrs.Nyerenda*)
      Intd.: 'The chicken was cooked for BanaPhiri (by BanaNyerenda)'

Parameter 7: Can either object be expressed by an object marker?
NO

(79) Ab-ana   ba-a-mu-ipik-il-a   ify-umbu
      2-*children*   SM2-PAST-OM1-*cook*-APPL-FV   8-*potatoes*
      'The children have cooked potatoes for Chisanga'

(80) ??Ab-ana   ba-a-fi-ipik-il-a   Chisanga
      2-*children*   SM2-PAST-OM8-*cook*-APPL-FV   1.*Chisanga*
      'The children have cooked potatoes for Chisanga'

Parameter 8: Does the relative marker agree with the head noun?
YES

(81) ùmù-ánàkàshì   ùó   á-mwèènè   Mùtàlè
     1-*girl*   REL1   SM1-*see*.PERF   *Mutale*
     'The girl who Mutale saw …'

(82) àbà-ánàkàshì   ábò   á-mwèènè   Mùtàlè
     2-*girls*   REL2   SM1-*see*.PERF   *Mutale*
     'The girls who Mutale saw …'

Parameter 9a: Is an object marker required in object relatives?
NO

Parameter 9b: Is an object marker disallowed in object relatives?
YES

(83) ìcí-pùnà   ícò   ùmù-ánàkàshì   á-mwèènè …
     7-*chair*   REL7   1-*girl*   SM1-*see*. PERF
     'The chair which the girl saw …'

(84) *ici-puna   ico   umu-anakashi   a-ci-mweene …
     7-*chair*   REL7   1-*girl*   SM1-OM7-*see*. PERF
     Intd.: 'The chair which the girl saw …'

Parameter 9c: Is an object marker optional in object relatives?
NO

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES

(85) kú-mwèsù   kwà-lí-ìs-à   áb-ènì
     17-*home.our*   SM17-RECPAST-*come*-FV   2-*guests*
     'Visitors have come to our home'

(86) mw-ì-bálá   mù-lè-lím-à   áb-ènì
     18-5-*field*   SM18-PROGR-*come*-FV   2-*guests*
     'Visitors are farming the field'

(87) *ku-nganda   ku-le-som-a   Chisanga
     17-9.*home*   SM1-PROGR-*read*-FV   1.*Chisanga*
     Intd.: 'Chisanga is reading at home'

Parameter 11: Are there three different locative subject markers?
YES

(88) kú-mwèsù   kwà-lí-ìs-à   áb-ènì
     17-*home.our*   SM17-RECPAST-*come*-FV   2-*guests*
     'Visitors have come to our home'

(89) mù-ngándá   mù-lé-ímb-á   ábà-nà
     18-*house*   SM18-PROGR-*sing*-FV   2-*children*
     'The children are singing in the house'

(90) pà-ngándá pà-lì   àbà-nà
     16-*house* SM16-*be*   2-*children*
     'There are children at home'

Parameter 12: Is partial agreement with conjoined NPs possible?
NO

(91) ici-puna   ne   tebulo   fy-ali-pon-a
     7-*chair*   *and*   5.*table*   SM8-PAST-*fall*-FV
     'The chair and the table fell down'

(92) *ici-puna   ne   tebulo   ch-ali-pon-a
     7-*chair*   *and*   5.*table*   SM7-PAST-*fall*-FV
     Intd.: 'The chair and the table fell down'

(93) *ici-puna   ne-tebulo   ly-ali-pon-a
     7-*chair*   *and*   5.*table*   SM5-PAST-*fall*-FV
     Intd.: 'The chair and the table fell down'

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
YES

(94) tù-péép-á   fwákà
     SM1PL-*smoke*-FV   *cigarettes*
     'We smoke cigarettes'

(95) tù-là-pèèp-à   (fwákà)
     SM1PL-DT-*smoke*-FV   (*cigarettes*)
     'We smoke (cigarettes, that is)'

(96) *tù-pèèpà
     SM1PL-*smoke*-FV
     Intd.: 'We smoke'

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO

Chaga
Sources: Fieldnotes, Dar es Salaam, August 2006; Bresnan and Moshi (1990), Moshi (1998)

Parameter 1: Can the object marker and the lexical object NP co-occur?
NO

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
YES. According to Bresnan & Moshi (1990), from where the examples are taken, object marking is obligatory if the object is pronominalized:

(1) n-á-í-m-lyì-í-à   k-èlyá   ò
     FOC-SM1-PRES-OM1-*eat*-APPL-FV   *7-food*   1.PRO
     'He/she is eating food for him/her' (Bresnan and Moshi 1990)

(2) n-á-í-kì-lyí-í-à   m-kà   kyô
     FOC-SM1-PRES-OM7-*eat*-APPL-FV   1-*wife*   7.PRO
     'He/she is eating it for/on the wife' (Bresnan and Moshi 1990)

(3) n-á-í-kì-m-lyì-í-à   òó   kyò
     FOC-SM1-PRES-OM7-OM1-*eat*-APPL-FV 1.PRO   7.PRO
     'He/she is eating it for/on him/her' (Bresnan and Moshi 1990)

Parameter 3: Are there locative objects markers?
YES

(4) n-á-í-hà-lyí-í-à   k-èlyá   hò
     FOC-SM1-PRES-OM16-*eat*-APPL-FV   *7-food*   16.PRO
     'He/she is eating food there' (Bresnan and Moshi 1990)

Parameter 4a: Is object marking restricted to one object marker per verb?
NO

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
YES

(5) mangí   n-á-lé-í-kú-ḿ-zrúm-a
     chief FOC-SM1-PAST-OM9-OM16-OM1-*send*-FV
     'The chief sent him there with it'   (Moshi 1998)

(6) mangí   n-á-lé-í-kú-kí- ḿ-zrúmbú-í-a
     chief FOC-SM1-PAST-OM9-OM16-OM7-OM1-*cut*-APPL-FV
     'The chief cut it to/for him (child)/her (wife) in there with it.' (Moshi 1998)

Parameter 4d: Is the order of multiple object markers structurally free?
NO, although the order is not determined by the order of the corresponding NPs

(7)   mangí   n-á-lé-zrúm-a   máná   nyámá   kílrí-nyí
      chief   FOC-SM1-PAST-*send*-FV   1.*child* 9.*meat*   16.*room-in*
      'The chief sent the child for (to get) the meat in the room' (Moshi 1998)

(8)   mangí   n-á-lé-í-kú-ḿ-zrúm-a
      chief   FOC-SM1-PAST-OM9-OM16-OM1-*send*-FV
      'The chief sent him there with it' (Moshi 1998)

(9)   Mangí   n-á-lé-wé-í-á   nyámá   kíshu
      chief   FOC-SM1-PAST-*slice*-APPL-FV   *meat*   *knife*
      'The chief sliced the meat with a knife' (Moshi 1998)

(10) Mangí   n-á-lé-í-kí-wé-í-á
      chief   FOC-SM1-PAST-OM9-OM7-*slice*-APPL-FV
      'The chief sliced it with it' (Moshi 1998)

Parameter 5: Can either object be adjacent to the verb?
NO, except when focussed, or with non-benefactive objects (Moshi 1998: 146-148)

(11) Lémúnyí   n-á-lé-úlr-í-á   máná   sházru
      Lemunyi   FOC-SM1-PAST-*buy*-APPL-FV   *child*   *shoes*
      'Lemunyi bought the child shoes'

(12) *Lémúnyí   n-á-lé-úlr-í-á   sházru   máná
      Lemunyi   FOC-SM1-PAST-*buy*-APPL-FV   *shoes*   *child*

(13) Msolro   n-á-lé-wé-í-á   kíshú   nyáma
      man   FOC-SM1-PAST-*slice*-APPL-FV   *knife*   *meat*
      'The man sliced with a knife the meat'

(14) Msolro   n-á-lé-wé-í-á   nyáma   kíshú
      man   FOC-SM1-PAST-*slice*-APPL-FV   *meat*   *knife*
      'The man sliced the meat with a knife'

(15) Msolro   n-á-lá-wút-í-á   ngúó   kíwánjényi
      man   FOC-SM1-PAST-*remove*-APPL-FV   *clothes*   *field-in*
      'The man removed (his) clothes/undressed in the field'

(16) Msolro   n-á-lá-wút-í-á   kíwánjényi   ngúó
      man   FOC-SM1-PAST-remove-APPL-FV   *field-in*   *clothes*
      'The man removed (his) clothes/undressed in the field'

Parameter 6: Can either object become subject under passivisation?
YES

(17) m̀-kà   n-á-í-lyì-í-ò   k-èlyá

1-*wife*   FOC-SM1-PRES-*eat*-APPL-PASS   7-*food*
'The wife is being benefited/adversely affected by someone eating the food'
(Bresnan and Moshi 1990)

(18) k-èlyá   k-í-lyì-í-ò   m̀-kà
      7-*food*   SM7-PRES-*eat*-APPL-PASS   1-*wife*
      'The food is being eaten for the wife' (Bresnan and Moshi 1990)

Parameter 7: Can either object be expressed by an object marker?
YES

(19) n-á-í-m̀-lyì-í-à   k-èlyâ
      FOC-SM1-PRES-OM1-*eat*-APPL-FV   7-*food*
      'He/she is eating food for him/her' (Bresnan and Moshi 1990)

(20) n-á-í-kì-lyí-í-à   m̀-kà
      FOC-SM1-PRES-OM7-*eat*-APPL-FV   1-*wife*
      'He/she is eating it for/on the wife' (Bresnan and Moshi 1990)

Parameter 8: Does the relative marker agree with the head noun?
YES?

Parameter 9a: Is an object marker required in object relatives?
???

Parameter 9b: Is an object marker disallowed in object relatives?
???

Parameter 9c: Is an object marker optional in object relatives?
???

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES, cf. Demuth and Mmusi (1997)

Parameter 11: Are there three different locative subject markers?
NO, cf. Demuth and Mmusi (1997)

Parameter 12: Is partial agreement with conjoined NPs possible?
???

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
NO?, evidence needed, but has never been reported

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO?, evidence needed, but has never been reported

Chichewa
Sources: Al Mtenje, pc.; Alsina and Mchombo (1993), Bresnan and Kanerva (1989),
Mchombo and Firmino (1999)

Parameter 1: Can the object marker and the lexical object NP co-occur?
NO, except as afterthought and with intonation break

(1) A-lenje   a-ku-zí-phík-a   zí-túmbúwa
     2-*hunters*   SM2-PRES-OM8-*cook*-FV   8-*pancakes*
     'The hunters are cooking them, the pancakes' (Mchombo and Firmino 1999:
     219)

**Parameter 2: Is co-occurrence of object marker and object NP required in some
contexts?**
NO

Parameter 3: Are there locative objects markers?
YES

(2) A-lēnje   a-ku-pá-lúk-ir-á   mí-kêka   (pa-m-chēnga)
     2-*hunters*   SM2-PRES-OM16-*weave*-appl-FV   4-*mats*   16-3-*sand*
     'The hunters are weaving mats on it, the beach' (Alsina and Mchombo 1993:
     42)

Parameter 4a: Is object marking restricted to one object marker per verb?
YES

(3) *A-lenje   a-ku-zí-wá-phík-ir-a   zí-túmbúwa   anyăni
     2-*hunters*   SM2-PRES-OM8-OM2-*cook*-APPL-FV   8-*pancakes*   2.*baboons*
     Intd.: 'The hunters are cooking them (the pancakes) for them (the baboons)'
     (Mchombo and Firmino 1999: 219)

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
NO

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
NO

(4) A-lenje   a-ku-phík-ír-a   anyaní   zí-túmbúwa
     2-*hunters*   SM2-PRES-*cook*-APPL-FV   2.*baboons* 8-*pancakes*
     'The hunters are cooking (for) the baboons some pancakes' (Mchombo and
     Firmino 1999: 217)

(5) *A-lenje a-ku-phík-ír-a   zi-tumbúwá anyǎni
    2-*hunters* SM2-PRES-*cook*-APPL-FV   8-*pancakes* 2.*baboons*
    (Mchombo and Firmino 1999: 217)

Parameter 6: Can either object become subject under passivisation?
NO

(6) A-nyaní   a-ku-phík-ír-idw-á   ma-úngu   (ndí á-lenje)
    2-*baboons* SM2-PRES-*cook*-APPL-PASS-FV   6-*pumpkins* (*by* 2-*hunters*)
    'The baboons are being cooked pumpkins for (by the hunters)' (Mchombo and
    Firmino 1999: 218)

(7) *Ma-úngu ya-ku-phík-ír-idw-á   anyǎni   (ndí á-lenje)
    6-*pumpkins* SM6-PRES-*cook*-APPL-PASS-FV   2.*baboons* (*by* 2-*hunters*)
    (Mchombo and Firmino 1999: 218)

Parameter 7: Can either object be expressed by an object marker?
NO

(8) A-lenje   a-ku-wá-phík-ir-á   zí-túmbúwa (anyǎni)
    2-*hunters* SM2-PRES-OM2-*cook*-APPL-FV   8-*pancakes* 2.*baboons*
    'The hunters are cooking (for) them (the baboons) some pancakes' (Mchombo
    and Firmino 1999: 219)

(9) *A-lenje a-ku-zí-phík-ir-á   anyani   (zí-túmbúwa)
    2-*hunters* SM2-PRES-OM8-*cook*-APPL-FV   2.*baboons* 8-*pancakes*
    Intd.: 'The hunters are cooking them (the pancakes) for the baboons' NB, ok as
    'The hunters are cooking the baboons for them (the pancakes)' (Mchombo and
    Firmino 1999: 219)

Parameter 8: Does the relative marker agree with the head noun?
YES

(10) chi-manga chi-méné a-na   á-na-dy-a
    7-*maize*   7-REL   2-*children* SM2-PAST-*eat*-FV
    'the maize which the children ate …'

Parameter 9a: Is an object marker required in object relatives?
YES

(11) njovu   zi-méné   anyaní   á-kú-zí-páts-á   mi-kanda
    10.*elephants* 10-REL   2.*baboons* SM2-PRES-OM10-give-FV 4-*beads*
    'The elephants that the baboons are giving the beads … '

(12) ??njovu   zi-méné   anyaní   á-kú-páts-á   mi-kánda
    10.*elephants* 10-REL   2.*baboons* SM2-PRES-give-FV   4-*beads*
    Intd.: 'The elephants that the baboons are giving the beads … '

Parameter 9b: Is an object marker disallowed in object relatives?
NO

Parameter 9c: Is an object marker optional in object relatives?
NO

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES. Bresnan & Kanerva (1989) found that locative inversion is restricted to
unaccusatives. However, our data show that the restriction is less clear, e.g. the first
example below is an object-drop transitive verb.

(13) ku-nyumba   ku-na-pik-il-a   a-lendo
      17-*house*   SM17-PAST-*cook*-APPL-FV   2-*guests*
      'At the house cooked guests'

(14) ku-na-fwik-a   alendo
      SM17-PAST-*arrive*-FV   2-*guests*
      'There are arriving guests'

(15) ku-mu-dzi   ku-na-bwér-á   a-lendô-wo
      17-3-*village*   SM17-PAST-*come*-FV   2-*visitors-those*
      'To the village came those visitors' (Bresnan and Kanerva 1989)

(16) *m-mi-têngo   mu-kú-imb-á   a-nyǎni
      18-4-*tree*   SM18-PROGR-*sing*-FV   2-*baboons*
      Intd.: 'In the trees are singing baboons' (Bresnan and Kanerva 1989)

Parameter 11: Are there three different locative subject markers?
YES, cf. Demuth and Mmusi (1997)

Parameter 12: Is partial agreement with conjoined NPs possible?
NO?, more evidence needed, but not found in our data

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
NO?, evidence needed, but has never been reported

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO?, evidence needed, but has never been reported

Ha
Source: Harjula (2004)

Parameter 1: Can the object marker and the lexical object NP co-occur?
YES

(1) ya-a-mú-haa-ye   umw-áana   umu-káaté
     SM1-RECPAST-OM1-*give*-PERF   1-*child*   3-*bread*
     'He gave bread to the child' (Harjula 2004: 148)

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
???

Parameter 3: Are there locative objects markers?
YES

(2) a-ho   nda-ha-pf-iir-a
     DEM-16   SM1SG-OM16-*die*-FV
     'There I can die' (Harjula 2004: 64)

Parameter 4a: Is object marking restricted to one object marker per verb?
NO

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
YES

(3) ya-a-wu-mú-haa-ye
     SM1-RECPAST-OM3-OM1-*give*-PERF
     'He gave it to him' (Harjula 2004: 133)

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
YES

(4) ya-a-mú-haa-ye   umu-káaté   umw-áana
     SM1-RECPAST-OM1-*give*-PERF   3-*bread*   1-*child*
     'He gave bread to the child' (Harjula 2004: 148)

(5) ya-a-mú-haa-ye   umw-áana   umu-káaté
     SM1-RECPAST-OM1-*give*-PERF   1-*child*   3-*bread*
     'He gave bread to the child' (Harjula 2004: 148)

Parameter 6: Can either object become subject under passivisation?

???

Parameter 7: Can either object be expressed by an object marker?
???

Parameter 8: Does the relative marker agree with the head noun?
YES? (Harjula 2004: 164)

Parameter 9a: Is an object marker required in object relatives?
NO? (Harjula 2004: 164)

Parameter 9b: Is an object marker disallowed in object relatives?
NO? (Harjula 2004: 164)

Parameter 9c: Is an object marker optional in object relatives?
YES? (Harjula 2004: 164)

Parameter 10: Is locative inversion thematically restricted to intransitives?
???

Parameter 11: Are there three different locative subject markers?
NO

(6) mu-kw-áaha   ha-raa-z-a   ama-suúmbi
     18-15-*armpit* SM16-DT-*come*-FV   6-*gland*
     'There are glands in the armpits' (Harjula 2004: 54)

Parameter 12: Is partial agreement with conjoined NPs possible?
NO

(7) imi-rúndi   ná-ma-no   bi-ra-n-dy-á
     4-*shin*   *and*-6-*toe* SM8-DJ-OM1SG-*eat*-FV
     'My shins and toes are aching' (Harjula 2004: 133)

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
YES

(8) ba-rim-a   ibi-haragi
     SM2-*cultivate*-FV   8-*beans*
     'They cultivate beans' (Harjula 2004: 98)

(9) ba-ra-rim-a
     SM2-DJ-*cultivate*-FV
     'They cultivate' (Harjula 2004: 98)

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO

Herero
Sources: Fieldnotes, August 2003, August 2005; Möhlig et al. (2002)

Parameter 1: Can the object marker and the lexical object NP co-occur?
NO

(1) *John   me-mu-vang-a   Nelson
     John   PRES.SM1-OM1-*like*-FV   *Nelson*
     Intd.: 'John likes Nelson'

(2) *mb-é   vé   múnù   òvá-nátjè
     SM1SG-PAST   OM2   *see*   2-*children*
     Intd.: 'I saw (the) children'

Co-occurrence ok with intonation break, e.g. as afterthought:

(3) John   me-mu-vang-a,   Nelson
     John   PRES.SM1-OM1-*like*-FV   *Nelson*
     'John likes him, Nelson'

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
NO

Parameter 3: Are there locative objects markers?
YES

(4) ú-pé-térék-èr-à   ònyámà
     SM2-OM16-*cook*-APPL-FV   *meat*
     'S/he cooks meat there'

Parameter 4a: Is object marking restricted to one object marker per verb?
YES

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
NO

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
NO

(5) Má-vé   tjàng-ér-é   òvà-nâtjé   òm-bàpírà
     PRES-SM2   *write*-APPL-FV   2-*children*   9-*letter*
     'They are writing the children a letter'

(6) *Ma-ve tjang-er-e   om-bapira ova-natje
   PRES-SM2 *write*-APPL-FV *9-letter* *2-children*
   Intd.: 'They are writing the children a letter'

Parameter 6: Can either object become subject under passivisation?
YES

(7) òvà-nâtjé má-vé   tjàng-ér-w-á   òm-bàpírà
   2-children PRES-SM2 *write*-APPL-PASS-FV *9-letter*
   'The children are being written a letter'

(8) òm-bàpírà má-í   tjàng-ér-w-á   òvà-nâtjé
   9-letter PRES-SM9 *write*-APPL-PASS-FV *2-children*
   'The letter is being written for the children'

Parameter 7: Can either object be expressed by an object marker?
YES

(9) má-vé   vè tjáng-ér-é   òm-bàpírà
   PRES-SM2 OM2 *write*-APPL-FV   *9-letter*
   'They are writing them a letter'

(10) má-vé   ì   tjáng-ér-é   òvà-nâtjé
   PRES-SM2 OM9 *write*-APPL-FV *2-children*
   'They are writing the children it'

Parameter 8: Does the relative marker agree with the head noun?
YES

(11) òzò-ngòmbè nd̠ú y-á-mún-ú   ò-mìt̠ìrì z-á-tùpùk-à
   10-cattle REL10 SM10-PAST-*see*-FV *9-teacher* SM10-PAST-*run*-FV
   'The cattle which the teacher saw ran away'

Parameter 9a: Is an object marker required in object relatives?
NO

Parameter 9b: Is an object marker disallowed in object relatives?
YES

(12) òzò-ngòmbè nd̠ú mb-á-mún-ú   ó-zèngì
   10-cattle REL10 SM1SG-PAST-*see*-FV SM10-*be_many*
   'The cattle that I saw are many'

(13) *ozo-ngombe nd̠u mb-e-ze-mun-u   o-zengi
   10-cattle REL10 SM1SG-PAST-OM10-*see*-FV SM10-*be_many*
   Intd.: 'The cattle that I saw them are many'

Parameter 9c: Is an object marker optional in object relatives?
NO

Parameter 10: Is locative inversion thematically restricted to intransitives?
NO

(10) m-òn-djúwó   mwá   hìtí é-rùngà
     18-9-*house*   PAST.SM18 *enter* 5-*thief*
     'The thief entered the house'

(14) kò-mù-tí   kw-á-ímbúr-á   òzó-ndjìmá
     17-3-*tree*   SM17-PAST-*sing*-FV   10-*baboons*
     'At the trees sang the baboons'

(15) pò-ndjúwó   pé-tjáng-èr-à   òvá-nàtjè ò-mbàpírà
     16-9.*house*   SM17.HAB-*write*-APPL-FV   2-*children* 9-*letter*
     'At the house write (the) children a letter'

Parameter 11: Are there three different locative subject markers?
YES

(16) pò-ndjúwó   p-á-rár-á   é-rúngá
     16-9.*house*   SM16-PAST-*sleep*-FV   5-*thief*
     'At the house slept a/the thief'

(17) kò-mù-tí   kw-á-pós-é   òzó-ndjìmá
     17-3-*tree*   SM17-PAST-*make_noise*-FV   10-*baboons*
     'In the trees (the) baboons made noise'

(18) mò-ndùndú   mw-á-váz-éw-á   ómu-àtjé
     18-9.*mountain*   SM18-PAST-*find*-PASS-FV   1-*child*
     'On the mountain was found a/the child'

Parameter 12: Is partial agreement with conjoined NPs possible?
NO

(19) ò-nyàmà   n-òví-kùryá   ví-tját-à   nàwá
     9-*meat*   *and*-8-*vegetables*   SM8.HAB-*taste*-FV   *well*
     'Meat and food taste good/nice'

(20) òvì-kùryá   n-ò-nyámà   ví-tját-à   nàwá
     8-*vegetables*   *and*-9-*meat*   SM8.HAB-*taste*-FV   *well*
     'Food and meat taste good/nice'

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
NO. Although possibly in the negative habitual? (DT = disjoint, CT = conjoint, DC = default case, CC = complement case)

(21) hí-hòng-ò   òvà-nâtjè
     SM1SG.NEG-*teach*-FV.DT   2DC-*children*
     'I don't teach children' (implies, nor anything else)

(22) hí-hòng-ó   òvá-nàtjè
     SM1SG.NEG-*teach*-FV.CT   2CC-*children*
     'I don't teach *children*' (implies, but someone else)

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
YES (DC = default case, CC = complement case)

(23) òtjì-hávérò   tj-á-ù
     7DC-*chair*   SM7-PAST-*fall.down*
     'The chair fell down'

(24) vé-múná   òtjí-hávérò
     SM2.HAB-*see*-FV   7CC-*chair*
     'They usually see the chair'

(25) òvà-nâtjè   v-á-tjàng-á   òmbápírà
     2DC-*children* SM2-PAST-*write*-FV   9CC.*letter*
     'The children wrote a letter'

(26) mb-á-mún-ù   òvá-nátjè
     SM1SG-PAST-*see*-FV   2CC-*children*
     'I saw the children'

(27) òvà-nâtjè,   mb-é-vé-mún-ù
     2DC-*children* SM1SG-PAST-OM2-*see*-FV
     'The children, I saw them'

(28) mb-é-vé-mún-ù,   òvà-nâtjè
     SM1SG-PAST-OM2-*see*-FV, 2DC-*children*
     'I saw them, the children'

Lozi
Sources: Fieldnotes, Mongu, April 2005; Fortune (2001)

Parameter 1: Can the object marker and the lexical object NP co-occur?
YES

(1) ba-li-bup-a
     SM2-OM10-*mould*-FV
     'They mould them' (Fortune 2001: 60)

(2) ba-li-bup-a   li-pizana
     SM2-OM10-*mould*-FV   10-*pots*
     'They mould the pots' (Fortune 2001: 60)

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
NO

Parameter 3: Are there locative objects markers?
NO

(3) na-zib-a   kwa-Lealui
     SM1SG.PRES-*know*- FV   17-*Lealui*
     'I know Lealui'

(4) *na-ku-zib-a   (kwa-Lealui)
     SM1SG.PRES-OM17-*know*- FV   (17-*Lealui*)
     'I know it (Lealui)'

Parameter 4a: Is object marking restricted to one object marker per verb?
YES

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
NO

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
NO

(5) bo-Lungu ba-apeh-el-a   ba-eñi   li-tapi
     2-*Lungu*   SM2-*cook*-APPL-FV 2-*guests*   10-*fish*
     'Mr Lungu is cooking fish for the guests'

(6) ?bo-Lungu ba-apeh-el-a   li-tapi   ba-eñi

2-*Lungu*   SM2-*cook*-APPL-FV   10-*fish*   2-*guests*
Intd.: 'Mr Lungu is cooking-for the guests the fish' (ok in 'colloquial' Lozi?)

Parameter 6: Can either object become subject under passivisation?
YES

(7)   ba-eñi   ba-apeh-el-w-a   li-tapi   ki   bo-Lungu
      2-*guests*   SM2-*cook*-APPL-PASS-FV   10-*fish*   *by*   2-*Lungu*
      'The guests were cooked fish for by Mr Lungu'

(8)   li-tapi   zi-apeh-el-w-a   ba-eñi   ki   bo-Lungu
      10-*fish*   SM10-*cook*-APPL-PASS-FV   2-*guests*   *by*   2-*Lungu*
      'The fish were cooked for the guests by Mr Lungu'

Parameter 7: Can either object be expressed by an object marker?
YES

(9)   bo-Lungu   ba-ba-apeh-el-a   ba-eñi   li-tapi
      2-*Lungu*   SM2-OM2-*cook*-APPL-FV   2-*guests*   10-*fish*
      'Mr Lungu is cooking fish for the guests'

(10) bo-Lungu   ba-li-apeh-el-a   ba-eñi   li-tapi
      2-*Lungu*   SM2-OM10-*cook*-APPL-FV   2-*guests*   10-*fish*
      'Mr Lungu is cooking fish for the guests'

Parameter 8: Does the relative marker agree with the head noun?
YES

(11) buka   ye-ne-ba-bon-i   ba-nana   fa-tafule   ki-ye-tuna
      9.*book*   9.REL-TNS-SM2-*see*-FV   2-*children*   16-*table*   COP-SM9-*big*
      'The book which the children saw on the table is big'

(12) le-buka   ze-ne-ba-bon-i   ba-nana   fa-tafule   ki-ze-tuna
      10.*book*   10.REL-TNS-SM2-*see*-FV   2-*children*   16-*table*   COP-SM10-*big*
      'The books which the children saw on the table are big'

Parameter 9a: Is an object marker required in object relatives?
NO

Parameter 9b: Is an object marker disallowed in object relatives?
YES

(13) buka   ye-ne-ba-bon-i   ba-nana   fa-tafule   ki-ye-tuna
      9.book   9.REL-TNS-SC2-see-FV   2-children   16-table   COP-SC9-big
      'The book which the children saw is big'

(14) *buka   ye-ne-ba-ye-bon-i   ba-nana   fa-tafule   ki-ye-tuna
      9.book   9.REL-TNS-SC2-OC9-see-FV   2-children   16-table   COP-SC9-big
      Intd.: 'The book which the children saw it is big'

Parameter 9c: Is an object marker optional in object relatives?
NO

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES? Certainly intransitives are possible, but more data is needed.

(15) mwa-kota   ku-opel-a   li-njoko
      18-*tree*   SM17-*sing*-FV   10-*monkeys*
      'In the tree are singing the monkeys'

Parameter 11: Are there three different locative subject markers?
NO

(16) fa-tafule   ku-ins-i   li-tapi
      16-*table*   SM17-*be/sit*-TNS   5-*fish*
      'On the table there is a/the fish'

(17) mwa-ndu   ne-ku-ken-i   ma-sholi
      18-*house*   TNS-SM17-*enter*-TNS   6-thieves
      'Into the house entered the thieves'

(18) kwa-kota   ku-opel-a   li-njoko
      17-*tree*   SM17-*sing*-FV   10-*monkeys*
      'The monkeys are singing at the tree'

Parameter 12: Is partial agreement with conjoined NPs possible?
???

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
???

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
???

Nsenga
Sources: Fieldnotes, Zomba, Malawi, March 2005; Miti (2002)

Parameter 1: Can the object marker and the lexical object NP co-occur?
???

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
???

Parameter 3: Are there locative objects markers?
YES

(19) kuLilongwe   n-a-ku-ziw-a
      17-*Lilongwe*   SM1SG-PRES-OM17-*know*-FV
      'Lilongwe I know it (there)'

Parameter 4a: Is object marking restricted to one object marker per verb?
???

Parameter 4b: Are two object markers possible in restricted contexts?
???

Parameter 4c: Are two or more object markers freely available?
???

Parameter 4d: Is the order of multiple object markers structurally free?
???

Parameter 5: Can either object be adjacent to the verb?
???

Parameter 6: Can either object become subject under passivisation?
???

Parameter 7: Can either object be expressed by an object marker?
???

Parameter 8: Does the relative marker agree with the head noun?
YES, see below, Parameter 9c

Parameter 9a: Is an object marker required in object relatives?
NO

Parameter 9b: Is an object marker disallowed in object relatives?
NO

Parameter 9c: Is an object marker optional in object relatives?
YES

(20) vi-sime v-ati   ti-ka-mang-e   vi-ka-w-e   vi-mene
     8-*wells* 8- REL   SM1PL-FUT-*build*-FV   SM8-FUT-*be*-FV   8-*beautiful*
     'The wells which we will build will be beautiful'

(21) vi-sime v-ati   ti-ka-vi-mang-e   vi-ka-w-e   vi-mene
     8-*wells* 8- REL   SM1PL-FUT-OM8-*build*-FV   SM8-FUT-*be*-FV   8-*beautiful*
     'The wells which we will build will be beautiful'

Parameter 10: Is locative inversion thematically restricted to intransitives?
NO

(22) m-nándà   mù-wéléngél-à   Kàtíshà
     18-9.*house* SM18-*read*-FV   Katisha
     'In the house Katisha is reading'

Parameter 11: Are there three different locative subject markers?
YES

(23) pa-ukwati   p-è-íŵ-íŵ-à   vì-kwámá vì-nyínjì
     16-*wedding*   SM16-PAST-*steal*-PASS-FV   8-*bags*   8-*many*
     'At the wedding many bags were stolen'

(24) m-vi-mi-ti   mu-imb-a   a-kolwe
     18-8-4-*tree*   SM18-*sing*-FV   2-*monkeys*
     'In the trees are singing monkeys'

Parameter 12: Is partial agreement with conjoined NPs possible?
YES

(25) Katisha na   ŵ-ana   ŵake   ŵa-ly-a   ntochi
     Katisha and   2-*children* 2-*her*   SM2-*eat*-FV   9.*bananas*
     'Katisha and her children have eaten the bananas'

(26) wa-ly-a   Katisha na   ŵ-ana   ntochi
     SM1-*eat*-FV   *Katisha and*   2-*children* 9.*bananas*
     'Katisha and her children have eaten the bananas'

(27) ŵa-ly-a   ŵ-ana   na   Katisha   ntochi
     SM2-*eat*-FV   2-*children* *and* *Katisha* 9.*bananas*
     'Katisha and her children have eaten the bananas'

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
???

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO?

SiSwati
Sources: Fieldnotes, London, Sept 2006

Parameter 1: Can the object marker and the lexical object NP co-occur?
NO (based on evidence from adverb placement, phonological evidence seems less clear)

(1)   Ng-a-bon-a   inja
        SM1SG-PAST-*see*-FV   10.*dog*
        'I saw a dog'

(2)   Ng-a-yi-bon-a   kahle   inja
        SM1SG-PAST-OM10-*see*-FV   well   10.*dog*
        'I saw it well, the dog'

(3)   *Ng-a-yi-bon-a   inja   kahle
        SM1SG-PAST-OM10-*see*-FV   10.*dog*   well
        Intd.: 'I saw the dog well'

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
NO (at least not in the context specified for this parameter: the object marker is obligatory with dislocated objects or when following a disjoint verb form)

Parameter 3: Are there locative objects markers?
NO

Parameter 4a: Is object marking restricted to one object marker per verb?
YES

(4)   Ngi-m-nik-e   kudla
        SM1SG-OM1-*give*-PAST   15.*food*
        'I gave him food'

(5)   Ngi-ku-nik-e   Jabulani
        SM1SG-OM15-*give*-PAST   1.*Jabulani*
        'I gave it to Jabulani'

(6)   *Ngi-ku-m-nik-e
        SM1SG-OM15-OM1-*give*-PAST
        Intd.: 'I gave it to him'

(7)   *Ngi-m-ku-nik-e
        SM1SG-OM1-OM15-*give*-PAST
        Intd.: 'I gave him it'

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
NO

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
NO, except when focused:

(8)   Ngi-nik-e   Jabulani   kudla
      SM1SG-*give*-PAST   1.*Jabulani*   15.*food*
      'I gave Jabulani food'

(9)   Ngi-nik-e   kudla   Jabulani
      SM1SG-*give*-PAST   15.*food*   1.*Jabulani*
      'I gave **Jabulani** food' (allowed only with name focus)

Parameter 6: Can either object become subject under passivisation?
YES

(10) Kudla   ku-nik-w-e   tinja   (?ngi-mi)
      15.*food*   SM15-*give*-PASS-PAST 10.*dogs*   *by-me*
      'Food was given to dogs (by me)'

(11) Tinja   ti-nik-w-e   kudla   (ngi-mi)
      10.*dogs*   SM10-*give*-PASS-PAST 15.*food*   *by-me*
      '(The) dogs were given food (by me)'

Parameter 7: Can either object be expressed by an object marker?
YES

(12) Ngi-m-nik-e   kudla
      SM1SG-OM1-*give*-PAST   15.*food*
      'I gave him food'

(13) Ngi-ku-nik-e   Jabulani
      SM1SG-OM15-*give*-PAST   1.*Jabulani*
      'I gave it to Jabulani'

Parameter 8: Does the relative marker agree with the head noun?
NO (the relative marker *la-* shows the influence of a following agreement marker,
surfacing as *le-* and *lo-*, but this agreement morpheme agrees with any preceding NP,
not with the head)

(14) kudla   lo-be-ku-dl-iw-a   tinja
      15.*food*   REL.15AGR-PAST-SM15-*eat*-PASS-FV   10.*dogs*
      '(The) food that was being eaten by dogs'

(15) kudla   tigebengu   le-be-ti-ku-pheka

15.*food* 10.*criminals* REL.10AGR-PAST-SM10-OM15-*cook*-FV
'(The) food which the criminals were cooking'

Parameter 9a: Is an object marker required in object relatives?
YES

(16) kudla   tigebengu   le-be-ti-ku-pheka
      15.*food* 10.*criminals* REL.10AGR-PAST-SM10-OM15-*cook*-FV
      '(The) food which the criminals were cooking'

(17) *Kudla   tigebengu   le-be-ti-pheka
      15.*food* 10.*criminals* REL.10AGR-PAST-SM10-*cook*-FV
      Intd.: '(The) food which the criminals were cooking'

Parameter 9b: Is an object marker disallowed in object relatives?
NO

Parameter 9c: Is an object marker optional in object relatives?
NO

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES. It is not clear of siSwati has true locative inversion, but there are presentational
constructions in which the subject marker is the (historically) locative maker *ku-*.
These seem to be restricted to intransitives.

(18) Ku-hlala   tilwane   le-ti-dla   ba-ntfu   e-lwandle
      SM17-*live* 10.*animals* REL-SM10-*eat*-FV 2-*people* LOC-11.*sea*
      'There live animals that eat people in the sea'

Parameter 11: Are there three different locative subject markers?
NO

Parameter 12: Is partial agreement with conjoined NPs possible?
YES

(19) si-tulo   ne-li-tafula   si-tseng-w-e   ngu-Dlamini
      7-*chair* CONJ-5-*table* SM7-*buy*-PASS-PAST   *by-Dlamini*
      '(The) chair and/with (the) table were bought by Dlamini'

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
YES (DJ = disjoint, DJ = conjoint)

(20) Ngi-yi-bon-ile   inja
      SM1SG-OM10-*see*-PERF.DJ   10.*dog*
      'I saw a dog'

(21) Ngi-bon-e   inja
      SM1SG-*see*-PERF.CJ 10.*dog*
      'I saw a dog'

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO

Swahili
Sources: Fieldnotes, Zanzibar and Dar es Salaam, July-September 2001, August 2006;
Ashton (1947), Bokamba (1985), Marten (2000), Muhammed Said Abdulla (1976),
Mvungi (n.d.)

Parameter 1: Can the object marker and the lexical object NP co-occur?
YES

(1) ni-li-mw-on-a   Juma
     SM1SG-PAST-OM1-*see*-FV   1.*Juma*
     'I saw Juma'

(2) ni-li-ki-on-a
     SM1SG-PAST-OM7-*see*-FV
     'I saw it'

(3) ni-li-on-a   ki-tabu
     SM1SG-PAST-*see*-FV   7-*book*
     'I saw a/the book'

(4) ni-li-ki-on-a   ki-tabu
     SM1SG-PAST-OM7-*see*-FV   7-*book*
     'I saw the book'

(5) Gidyoni a-li-kuw-a   h-a-ja-mw-on-a   huyo   ki-jana vizuri
     Gidyoni SM1-PAST-*be*-FV   NEG-SM1-ANT-OM1-*see*-FV   DEM1   7-*youth well*
     'Gidyoni had not seen the youth well' (Mvungi n.d.: 126)

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
YES

(6) ni-li-mw-on-a   Juma
     SM1SG-PAST-OM1-*see*-FV   1.*Juma*
     'I saw Juma'

(7) *ni-li-on-a   Juma
     SM1SG-PAST-*see*-FV   1.*Juma*
     Intd.: 'I saw Juma'

Parameter 3: Are there locative objects markers?
YES

(8) ni-na-pa-ju-a
     SM1SG-PRES-OM16-*know*-FV
     'I know it (i.e. there)'

Parameter 4a: Is object marking restricted to one object marker per verb?
YES

(9) ni-li-m-p-a
     SM1SG-PAST-OM1-*give*-FV
     'I gave him (it)'

(10) *ni-li-i-m-p-a
     SM1SG-PAST-OM9-OM1-*give*-FV

(11) *ni-li-m-i-p-a
     SM1SG-PAST-OM1-OM9-*give*-FV

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
NO

Parameter 4d: Is the order of multiple object markers structurally free?
NO

Parameter 5: Can either object be adjacent to the verb?
NO

(12) Juma   a-li-m-pik-i-a   Asha   chakula cha asubuhi
     1.*Juma* SM1-PAST-OM1-*cook*-APPL-FV   1.*Asha*   7.*food   of morning*
     'Juma is cooking breakfast for Asha'

(13) *?Juma   a-li-m-pik-i-a   chakula cha asubuhi   Asha
     1.*Juma* SM1-PAST-OM1-*cook*-APPL-FV   7.*food   of morning*   1.*Asha*
     'Juma is cooking breakfast for Asha'

Parameter 6: Can either object become subject under passivisation?
NO

(14) Asha   a-li-pik-il-iw-a   chakula cha asubuhi   na Juma
     1.*Asha* SM1-PAST-*cook*-APPL-PASS-FV   7.*food   of morning*   *by Juma*
     'Asha was cooked breakfast for by Juma'

(15) *chakula cha asubuhi   ki-li-pik-il-iw-a   Asha na Juma
     7.*food   of   morning*   SM7-PAST-*cook*-APPL-PASS-FV   *Asha by Juma*
     'Breakfast was cooked for Asha by Juma'

Parameter 7: Can either object be expressed by an object marker?
NO

(16) Juma   a-li-m-pik-i-a   Asha   chakula cha asubuhi
     1.*Juma* SM1-PAST-OM1-*cook*-APPL-FV   1.*Asha*   7.*food   of morning*
     'Juma is cooking breakfast for Asha'

(17) *Juma   a-li-ki-pik-i-a   Asha   chakula cha asubuhi

1.*Juma* SM1-PAST-OM7-*cook*-APPL-FV 1.*Asha* 7.*food* *of morning*
'Juma is cooking breakfast for Asha'

Parameter 8: Does the relative marker agree with the head noun?
YES

(18) ki-tabu   amba-cho Juma   a-li-som-a
      7-*book*   REL-7   *Juma*   SM1-PAST-*read*-FV
      'The book which Juma read …'

(19) ki-tabu   a-li-cho-ki-som-a   Juma
      7-*book*   SM1-PAST-REL7-OM7-*read*-FV   *Juma*
      'The book which Juma read …'

Parameter 9a: Is an object marker required in object relatives?
NO

Parameter 9b: Is an object marker disallowed in object relatives?
NO

Parameter 9c: Is an object marker optional in object relatives?
YES

(20) ki-tabu   amba-cho   ni-li-ki-som-a
      8-*book*   REL-8   SM1SG-PAST-OM8-*read*-FV
      'The book which I read (it) ...'

(21) ki-tabu   amba-cho   ni-li-som-a
      8-*book*   REL-8   SM1SG-PAST-*read*-FV
      'The book which I read ...'

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES (although the interpretation of the second example seems less straightforward)

(22) ha-pa   pa-me-kuf-a   simba
      DEM-16   SM16-PERF-*die*-FV   9.lion
      'A lion has died here' (Ashton 1947: 128)

(23) mahali   p-ote   p-a-tak-a   ma-ji
      16.*place*   16-*all*   SM16-PRES-*want*-FV   6-*water*
      'The whole place needs water' (Ashton 1947: 125)

Parameter 11: Are there three different locative subject markers?
YES

(24) ha-pa   pa-na   mi-ti
      DEM-16   SM16-COP   4-*trees*
      'There are trees here' (Ashton 1947: 128)

(25) ku-le   m-ji-ni   ku-me-kuf-a   wa-tu   w-engi

17-DEM 3-*town*-LOC   SM17-PERF-*die*-FV   2-*people*   2-*many*
'Many people have died in the town over there' (Ashton 1947: 128)

(26) mw-itu-ni   m-me-lal-a   wa-nyama
      3-*woods*-LOC SM18-PERF-*sleep*-FV   2-*animals*
      'Animals are asleep in the woods' (Ashton 1947: 127)

Parameter 12: Is partial agreement with conjoined NPs possible?
YES

(27) wa-li-kuja   Haroub na Nayla
      SM2-PAST-*come*-FV   *Haroub and Nayla*
      'Haroub and Naila came'

(28) a-li-kuja   Haroub na Nayla
      SM2-PAST-*come*-FV   *Haroub and Nayla*
      'Haroub and Naila came'

(29) m-guu   wa   meza   na   ki-ti   kimevunjika
      3-*leg*   *of*   9.*table*   *and*   7-*chair*   SM7-PERF-*break*-FV
      'The leg of the table and the chair are broken' (Bokamba 1985: 45)

(30) … a-li-i-ti-a   fremu na picha   ya Muhammad Ali   chini
      SM1-PAST-OM9-push-FV   9.*frame and* 9.*picture*   *of Muhammad Ali*   *under*
      ya godoro …
      of mattress
      '… she pushed the frame and/with the picture of Muhammad Ali under the
      mattress…' (Muhammed Said Abdulla 1976: 70)

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
NO

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO

Tswana

Sources: Fieldnotes, Gaborone, March 2005, Denis Creissels, p.c.; Cole (1955), Creissels (1996), Demuth and Mmusi (1997), McCormack (fcmg.)

Parameter 1: Can the object marker and the lexical object NP co-occur?
NO

(1) kè   rát-á   Mphó
     SM1SG *like*-FV.CT   *Mpho*
     'I like Mpho' (conjoint) (McCormack fcmg.)

(2) kè   à   mó-rát-à
     SM1SG DT   OM1-*like*-FV.DT
     'I like him' (disjoint) (McCormack fcmg.)

Parameter 2: Is co-occurrence of object marker and object NP required in some contexts?
NO?

Parameter 3: Are there locative objects markers?
YES

(3) ke   a   gó   itse
     SM1SG TNS OM17   *know*
     'I know it (there)'

Parameter 4a: Is object marking restricted to one object marker per verb?
NO

Parameter 4b: Are two object markers possible in restricted contexts?
NO

Parameter 4c: Are two or more object markers freely available?
YES

(4) Ke   mo   e   ape-ets-e
     SM1   OM1   OM9   *cook*-APPL-PERF
     'I cooked him/her it'

Parameter 4d: Is the order of multiple object markers structurally free?
YES

(5) Ke   mo   e   ape-ets-e
     SM1   OM1   OM9   *cook*-APPL-PERF
     'I cooked him/her it'

(6) Ke   e   mo   ape-ets-e
     SM1   OM9   OM1   *cook*-APPL-PERF
     'I cooked him/her it'

Parameter 5: Can either object be adjacent to the verb?
YES

(7) ke   ape-ets-e   ngwana   kuku
     SM1. PRES   *cook*-APPL-PERF   1.*child*   9.*chicken*
     'I cooked the child the chicken'

(8) ke   ape-ets-e   kuku   ngwana
     SM1. PRES   *cook*-APPL-PERF   9.*chicken* 1.*child*
     'I cooked the chicken for the child'

Parameter 6: Can either object become subject under passivisation?
YES

(9) ngwana   o   ape-ets-w-e   kuku
     1.*child*   SM1 *cook*-APPL-PASS-PERF   9.*chicken*
     'The child was cooked a chicken for'

(10) kuku   e   ape-ets-w-e   ngwana
     9.*chicken*   SM9 *cook*-APPL-PASS-PERF   1.*child*
     'The chicken was cooked for the child'

Parameter 7: Can either object be expressed by an object marker?
YES

(11) ke   mo   ape-ets-e   kuku
     SM1   OM1   *cook*-APPL-PERF   9.*chicken*
     'I cooked him/her the chicken'

(12) ke   e   ape-ets-e   ngwana
     SM1   OM9   *cook*-APPL-PERF   1.*child*
     'I cooked it for the child'

(13) Ke   mo   e   ape-ets-e
     SM1   OM1   OM9   *cook*-APPL-PERF
     'I cooked him/her it'

Parameter 8: Does the relative marker agree with the head noun?
YES, see below, Parameter 9a

Parameter 9a: Is an object marker required in object relatives?
YES

(14) di-kwelo   tse   ke   di   bone-ng
     10-*books*   REL10   SM1SG.PAST   OM10   *see*-REL
     'The books which I saw them … '

(15) *di-kwelo   tse   ke   bone-ng
     10-*books*   REL10   SM1SG.PAST   *see*-REL

Intd.: 'The books which I saw … '

(16) dikwelo   tse   ke   bone-ng   ts-one
      10-*books*   REL10   SM1SG.PAST   *see*-REL   10-DEM
      'The books which I saw *those* … '

Parameter 9b: Is an object marker disallowed in object relatives?
NO

Parameter 9c: Is an object marker optional in object relatives?
NO

Parameter 10: Is locative inversion thematically restricted to intransitives?
YES? There seems to be dialectal variation in this area: Demuth and Mmusi observe that in the Rolong dialect, transitive predicates are not allowed in locative inversion. However, McCormack's data from Senwato and Sekgatla indicate that locative inversion is possiblbe also with transitive predicates like 'write'.

(17) Gó-léma   ba-nna
      SM17-*plough*   2-*men*
      'There are men ploughing' (Demuth & Mmusi 1997)

(18) Gó-bíná   ba-sádi
      SM17-*sing*   2-*women*
      'There are women singing' (Demuth & Mmusi 1997)

(19) *Gó-kwál-éla   kokó   lo-kwálo   [Rolong]
      SM17-*write*-APPL   1a.*grandmother*   5-*letter*
      Intd.: 'There is writing the grandmother a letter' (Demuth & Mmusi 1997)

(20) Gó-kwálá   ńkùkù   lè-kwálò   [Sengwato/Sekgatla]
      SM17-*write*   1a.*grandmother*   5-*letter*
      'There is writing the grandmother a letter' (McCormack fcmg.)

Parameter 11: Are there three different locative subject markers?
NO

(21) fá-se-tlharé-ng   gó-émé   ba-símané
      16-7-*tree*-LOC   SM17-*stand*.PRF   2-*boys*
      'By the tree stand the boys' (Demuth & Mmusi 1997)

(22) kó-Maúng   gó-tlá-ya   roná   maríga
      17-*Maung*   SM17-FUT-*go*   *we*   *winter*
      'To Maung we shall go in winter' (Demuth & Mmusi 1997)

(23) mó-le-fátshé-ng   gó-fúla   di-kgomo
      18-5-*country*-LOC   SM17-*graze*   10-*cattle*
      'In the country are grazing the cattle' (Demuth & Mmusi 1997)

Parameter 12: Is partial agreement with conjoined NPs possible?

60

???

Parameter 13: Is there a (tonal) distinction between conjoint/disjoint forms?
YES

(24) Mphó   ó   tsámà-ìlè
      Mpho   SM1   *go*-PERF.DT
      'Mpho has gone' (disjoint) (Creissels 1996: 113)

(25) Gó   tsàmá-ílé   Mphó
      SM17   *go*-PERF.CT   *Mpho*
      'There has gone Mpho' (conjoint) (Creissels 1996: 113)

(26) kè   rát-á   Mphó
      SM1SG   *like*-FV.CT   *Mpho*
      'I like Mpho' (conjoint) (McCormack fcmg.)

(27) kè   à   mó-rát-à
      SM1SG   DT   OM1-*like*-FV.DT
      'I like him' (disjoint) (McCormack fcmg.)

Parameter 14: Is there a (tonal) distinction of nominal 'cases'?
NO

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