Spelling out clitics in Kambera*

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Abstract

This paper presents a case study in the positional properties of a complex set of clitics: the mood, pronominal, and clausal-aspect clitics in the Austronesian language Kambera.

The clitics of this language may form a cluster of maximally nine clitics. The positional properties of the clitics can be distinguished into two distinct categories: (a) the position of the clitic cluster as a whole with respect to its host, and (b) the position of the clitics within the cluster with reference to each other. The aim of this paper is to present an account of both these aspects of Kambera clitic placement.

The placement of the cluster as a whole will be characterized syntactically, while the ordering of the clitics within the cluster has the characteristics of inflectional morphology. I argue that the placement of the Kambera clitics with respect to each other is the result neither of the syntactic manipulation of terminal elements of functional categories, nor of lexical word-formation rules or position-class morphology, nor is it determined by the phonological properties of the language alone. Instead, it is the result of the morphological spell-out of morphosyntactic feature bundles (Anderson 1992) at the end of the syntactic derivation, at the interface between syntax and prosody: the postlexical level.

1. Introduction

This paper is a case study in the positional properties of an intriguing set of clitics: the mood, pronominal, and aspectual clitics in the Austronesian language Kambera.[1]

The clitics of this language may form a cluster of maximally nine clitics. The positional properties of the clitics can be divided into two

distinct categories: (a) the position of the clitic cluster as a whole with respect to its host, and (b) the position of the clitics within the cluster with reference to each other. The latter category can again be divided into two subcategories: (i) the position of three subgroups of clitics with respect to each other, and (ii) the placement of the clitics within each subgroup. The aim of this paper is to present an account of all these aspects of Kambera clitic placement.

The placement of the cluster as a whole will be characterized syntactically, while the ordering of the clitics within the cluster has the characteristics of inflectional morphology. Part of this morphology is idiosyncratic, while other aspects of it can be either functionally/semantically or historically motivated.

I argue that the placement of Kambera clitics is the result neither of the syntactic manipulation of terminal elements of functional categories, nor of lexical word-formation rules or position-class morphology, nor is it determined by the phonological properties of the language alone, but is rather the result of the morphological spell-out of morphosyntactic feature bundles (Anderson 1992) at the end of the syntactic derivation, at the interface between syntax and prosody: the postlexical level.

The paper is structured as follows. In section 2, I present information on Kambera clitics and clitic placement: first I discuss in section 2.1 the potential complexities of the Kambera clitic cluster. I discuss how the clitic cluster as a whole is located with respect to its host (the [a] question above) and conclude with a list of the characteristics of Kambera clitic placement within the cluster that must be accounted for (the [b] question above). In section 2.2 I show that the Kambera clitic clusters as they are actually used in spontaneous speech are relatively small and simple compared to their potential complexities. The majority of clauses (94%) contain no more than four clitics: one mood clitic, one aspect clitic, and (depending on the valency of the predicate) one or two pronominal clitics. In section 3 some possible accounts of Kambera clitic placement are evaluated: a syntactic (3.1), a phonological (3.2), and a morphological (3.3) account. None of these appears to be satisfying. Section 4 presents an account of Kambera clitic placement. The clitics are considered to be the morphological spell-out of inflectional features. Their ordering properties are discussed in four different sections: section 4.1–4.3 concern the ordering of the clitics within the functional subgroups (pronominal: 4.1, clausal aspect: 4.2, and mood: 4.3), while section 4.4 presents an account of the ordering of these three subgroups of clitics relative to each other. Section 5 summarizes the findings.

2. Kambera clitics and clitic placement: the data

2.1. *The complexities of potential Kambera clitic clusters*

Following Zwicky (1977) two types of clitics are usually distinguished: "simple" clitics, which are syntactically regular but prosodically deficient, and "special" clitics, which are syntactically irregular but not necessarily prosodically deficient. In this paper I will focus on the positional properties of the "special" clitics in Kambera.

As shown in (1), Kambera has three general classes of such special clitics, expressing mood (emphatic, hortative, diminutive) and clausal aspect (perfective, imperfective, iterative) and marking verbal arguments (pronominal clitics marking subject and direct and indirect objects).

(1) a. Mood:[2] A. bia 'just', mbu 'also/too', wa 'hortative', àru 'hortative (polite)'.

            B. ma 'emphasis', du/di 'emphasis', ki 'just a bit/while (diminutive)', a 'just/no more than'

    b. Clausal aspect: ka 'perfective', pa 'imperfective', i 'again/also (iterative)'.

    c. Pronominal:

	NOM	ACC	DAT	GEN
1s	ku-	-ka	-ngga	-nggu
2s	(m)u-	-kau	-nggau	-mu
3s	na-	-ya	-nya	-na
1p(inc)	ta-	-ta	-nda	-nda
1p(exc)	ma-	-kama	-nggama	-ma
2p	(m)i-	-ka(m)i	-ngga(m)i	-mi
3p	da-	-ha	-nja	-da

Before I discuss the functional and structural properties of the Kambera clitics, I will first present some evidence for their "clitic" (rather than affix) status. Kambera clitics are clitics because they attach to syntactic constituents and do not show selectional restrictions for a specific morphological base. As I will specify below, their syntactic attachment is to the border of a syntactic phrase, while prosodically they attach to the element that happens to linearly precede them (enclitics) or follow them (proclitics).

The examples in (2)–(4) illustrate some of the possible syntactic hosts for clitic clusters. In (2) the clitics attach to a verbal predicate that consists of a verbal projection. In (3) they attach to a nominal predicate, consisting of a nominal projection. In (4) they attach to a locative predicate, consisting of a prepositional phrase. The predicate plus the clitics make up a clause in Kambera, which will be referred to as "nuclear

clause" or S and appears between square brackets with the subscript S in (2)–(4).[3] (For ease of exposition, only pronominal clitics are used in these examples, but mood and aspect clitics could in principle be added as well. The properties of the pronominal clitics will be discussed below.)

(2) a. [Na- [mài]]$_S$ na   sopir
       3sN- come ART driver
       'The driver comes (here)'

   b. [Ku- [hili   mài]$_S$
       1sN- again come
       'I come again/I'll come again'

   c. [[Bidi mài] -nggu]$_S$
       new come -1sG
       'I have just come (here)'

   d. Ka   daingu[4] [[ana   laku] -bia   -nggu]$_S$ duku
       CNJ surely   DIM go   -MOD -1sG   EMP.1S
       'Because I really am going/will be going' (lit. 'go a bit')

   e. Napa [ku- [hili   beli   pàku] -nya$_j$]$_S$ [na   umbuk-nggu]$_j$
       later 1sN- again return first -3sD   ART grandson-1sG
       'I'll first have to go back to my grandson again'

In Kambera, the pronominal clitics attached to the predicate generally have definite referents only. The coreferent definite NPs are generally optional and used for emphasis and disambiguation.[5] In (2a) the verbal argument is marked as a nominative proclitic to the verb itself; in (2b) it is a proclitic to the preverbal adverb *hili* 'again'; in (2c) it is a genitive enclitic to the verb; while in (2d) the same genitive enclitic attaches to the modal clitic *-bia*. In (2e), where the verb is transitive, the nominative proclitic that marks the agent attaches to the preverbal adverb *hili* 'again', while the clitic marking the patient attaches to the postverbal adverb *pàku* 'just, first'. Because of this pattern of attachment we can say that the clitics attach to a verbal projection. This projection consists of a verbal head plus its modifiers — the adverbs.

In (3) the phrase to which the clitics attach is a nominal projection. In (3a) the phrase is a possessed NP and the genitive enclitic attaches to a noun. (3b) is a possessed and modified NP, and the genitive clitic attaches to the modifier of the noun. In (3c) and (3d) the NPs are used propositionally as nominal predicates. Observe that Kambera does not employ a copular verb in such constructions and that the argument of such a nominal predicate is marked with an accusative enclitic.[6] In (3c) the subject clitic attaches to the edge of the predicate and its prosodic host is an adverb; in (3d) the mood clitic *-bia* occurs between the subject clitic and the predicate.

(3) a. [Na uma -nggu]$_{NP}$[7]
   ART house -3sG
   'My house'
   b. [Na uma bàkul -nggu]$_{NP}$
   ART house be.big[8] -3sG
   'My big house'
   c. [[Uma [bàkul ai lulu]]$_{NP}$ -ya]$_S$
   house be.big very   -3sA
   'It ('s) a very big house'
   d. [[Tau   mayila]$_{NP}$ -mbu -kai]$_S$ nyimi   ná
   person be.poor   also -2pA you (pl) there
   '... (moreover) you (are) also poor people'

In (4) the pronominal clitics are attached to a prepositional phrase. In
(4b) and (4c) the PP in (4a) is used as a locative predicate the argument
of which is marked with the clitic *-ya/-nya*. In (4a), the clitic attaches to
the noun, in (4b) to the possessive clitic *-na* 'his' of the NP, which is
part of the PP *la uma-na* 'in his house'. *-Nya* is the clitic that marks
the argument of the locative predicate; *mbu ndàba-na* 'everything' is its
coreferent subject NP.

(4) a. [La   uma]$_{PP}$
   LOC house
   'At home'
   b. [La   uma]$_{PP}$ -ya$_j$
   LOC house -3sA
   'He$_j$ (is) at home'
   c. [Mbu ndàba -na]$_j$ [[la   uma -na]$_{PP}$ -nya$_j$]$_S$
   everything -3sG LOC house -3sG -3sD
   'Everything is at/in his house'

Note that the argument of the locative predicate is expressed with an
accusative in (4b) (the standard way to express arguments of nonverbal
predicates; see [3c] and [3d]), while a dative is used in (4c), when there
is a genitive clitic preceding. This is an idiosyncratic restriction on
Kambera clitic clusters, which I will return to below (see [18e, ii]).

Once we view the clitics as attaching to syntactic phrases, the position
of attachment is predictable. Though the particular word they attach to
may change, the syntactic constituent of clitic attachment is constant: a
phrasal constituent with a verbal, a nominal, or a prepositional head that
functions as the predicate of a clause. I call this constituent the predicate
XP.[9] Kambera word-order facts (see Klamer 1994, 1996) indicate that
this phrase, together with the pronominal, modal, and aspectual clitics

(the "nuclear clause" or S), behaves as one syntactic unit. Because there is no evidence that clitics in this language ever occur outside this constituent S,[10] I do not assume that they are part of a higher projection than S. The answer to question (a) in section 1 above is thus that the position of the Kambera clitic cluster with respect to its host can be formulated in simple syntactic terms, namely as "suffixing to XP within S":

(5)

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            S'
          /    \
              S
            /    \
[head + modifer(s)] XP  [clitic cluster]
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Question (b) in section 1 above concerned the internal structure of the clitic cluster, which is what I will turn to now. Within the cluster, the clitics occur in two possible specified orders and combinations, as given in (6):

(6)
a.   *Predicate XP* — Mood A *or* {Mood B1 > Mood B2 > Mood B3 > Mood B4}
                              > Genitive > Dative 1 > Dative 2 >
                                   Aspect > Aspect
b.   Nominative >
        Predicate XP > Mood A *or*
                  {Mood B1 > Mood B2 > Mood B3}
                         > Dative 1 *or*
                            Accusative > Dative 2 >
                                   Aspect > Aspect 2

In the remainder of this section I will illustrate some of the possibilities represented in (6) as well as discussing the major functional and structural properties of the Kambera clitics on the basis of the illustrations in (7)–(16):

(7)   Napa [da-   bàkul -bia   -ka]$_S$ nú haromu   da   manu
      later 3pN- be.big -MOD -PRF DEI tomorrow ART chicken
      'The chickens just get big(ger) in time'

(8)   [Na- hili   kano-nodar -ma   -du]$_S$, [na- patanda
       3sN- again RED.hesitate -MOD -MOD 3sN think over
      -ma -nya-ka]$_S$
      -MOD-3sD-PRF
      'He hesitates again and again, he (keeps on) thinking it over'

(9) [Ta- tàru -ha$_j$]$_S$ [da ma- kahingir hàmu -ma-ka   una]$_{S\ relj}$
     1pN- watch -3pA ART REL- clear   nice -MOD-PRF DEI.3s
     'We search for the ones that are nice and clean'

(10) Rupu   -bia   -mu -nya -i   -ka   dumu   nyumu
     kill.chicken -MOD -2sG -3sD -ASP -ASP you.EMP you
     'You just (go on and) slaughter it (i.e. the chicken)'

(11) Lalu bàkul -na$_j$ [na   huru nuna]$_j$
     too be.big -3sG ART spoon DEI.3s
     'That spoon is too big'

(12) Màta -ma   -ki   -a   -nja la hindi
     leave MOD MOD MOD -3pD at attic
     'Just leave them at the attic for a bit (longer)'

(13) Daingu [wua -na   -nggau -nya]$_S$ haromu, jàka [u- laku]$_S$
     surely give -3sG -2sD   -3sD tomorrow when 2sN- go
     'I'll surely give it to you when you go'

(14) [Njàpu -ma   -du   -a   -na-nya   -i]$_S$ nú, na
     finished -MOD -MOD -MOD -3sG.CONT -again DEI ART
     ngara ngia uhu
     way   place rice
     'Thus it is finished, (the story about) the way to grow rice'

(15) [Tau   mini -du   -ya -ka]$_S$
     person male -EMP -3sA -PRF
     'It/he (is) a *man*'

(16) [La   pingi kokur -ka   -i]$_S$,
     LOC top   coconut -PRF -again/also
     [la   pingi a-ài   -bia   -ka]$_S$ una
     LOC top   RED.tree -MOD -PRF DEI.3s
     'Either up in the coconut (tree) or up in any other tree'

Objects are marked by an accusative enclitic, as in (9), or a dative
enclitic, as in (8) and (10)–(13). In cases in which a verb has both a
patient/theme and a recipient/beneficiary object, both objects may be
cliticized on the predicate simultaneously (order: recipient/goal–patient),
as in (13). Agents of transitive verbs need not always be marked (i.e.
zero subjects occur) but if they are, they are marked with either a
nominative proclitic, as in (9), or a genitive enclitic, as in (10) and (13).

The marking of the sole argument of intransitive predicates shows a
more variable marking: it can be marked by a nominative proclitic, as
in (2a), (2b), (7), and (8), or a genitive enclitic, as in (2c), (2d), and
(11), but also by a cluster of a genitive plus third person singular dative
clitic, as in (14), by an accusative clitic (that is, identical to a transitive
object), as in (3c), (4b), and (15), or a dative clitic, as in (4c). In

addition, it can also be doubly marked by the simultaneous attachment of a nominative and an accusative clitic, a construction not illustrated above (cf. Klamer 1994, 1997b).

Various factors determine the choice for the various different markers of transitive and intransitive subjects (Klamer 1994, 1997a, 1997b). For present purposes it is sufficient to know that in most cases the choice for a particular clitic depends either on the properties of the clause in which the clitic appears (such as the discourse function of the clause, aspectual properties of the sentence, and the presentation/interpretation of the intransitive argument as more or less actively involved); or on cooccurrence restrictions in the clitic cluster. In other words, there is NO evidence that the shape of a subject-marking clitic is determined lexically or under government from an adjacent element, but rather that it only gets shape after the derivation of the sentence is completed. This will be further discussed below.

Observe that all clitics under consideration are ENclitics, that is, they attach to the right of XP, except the nominative subject proclitic (cf. [7]–[9] above), which attaches to the left. The pronominal subject- and object-marking clitics at the right edge of XP follow the mood clitics and are followed by the aspectual clitics, as represented in (6) above.

Thus, with respect to the marking of subjects (especially transitive ones) we can say that they may surface in two shapes and two positions: one preceding the XP (the nominative) and one following the XP (the genitive). In the first case, the nominative clitic is directly adjacent to XP; in the latter case the mood clitics intervene between XP and the genitive subject marker, while the subject clitic itself occurs between the verb and its object complement. An analysis of the positional properties of Kambera clitics should take this variation into account.

The information in (1) and (6) is put together in (17):

(17)

Predicate XP		-MOOD	-PRONOM	-CLAUSAL ASPECT
	B	-ma -ki	-gen -dat/acc	-pa/ka/i
		-du -a	-dat	-i/ka
	A	-bia		
		-mbu		
		-wa		
		-àru		

In (18) a summary is given of the characteristics of Kambera clitic placement that need to be accounted for:

(18)   Characteristics of Kambera clitic placement to be accounted for:

a.   There are minimally zero and maximally nine postpredicate clitic positions that can be filled by members of the three

ordered subgroups mood, pronominal (dative, accusative), and clausal-aspect clitics.
b. Within the subgroups of mood and pronominal clitics there is a strict ordering, whereas in the aspectual group at least two (of the three) clitics can take each other's position.
c. The two subgroups of mood clitics (mood A and mood B) are mutually exclusive.
d. The marking of transitive agents and the single argument of intransitives depends either on the properties of the clause in which the clitic appears or on cooccurrence restrictions in the clitic cluster.
e. The language has the following restrictions on sequences of clitics:
    i.   A genitive subject clitic occurs closer to the verb than an object clitic.
    ii. If there is a pronominal clitic following a genitive, it must be dative (compare [4b] and [4c]).
    iii. The two objects of ditransitive verbs can be marked in sequence. In such a sequence the inner clitic always marks the beneficiary/recipient (etc.), the outer clitic the patient/theme.
    iv. A double-object sequence like this is subject to the restriction that they can occur in a sequence only if the first clitic is NOT third person while the second clitic IS third person (Klamer 1994: 65–66, 76–78); stated alternatively,
         — a sequence of two object clitics marking third person (number is irrelevant) is always disallowed;
         — two object clitics can only occur in sequence if the inner clitic is first or second person and the outer clitic is third person.
    Illustrations of sequences that are allowed are given in (19); disallowed sequences are illustrated in (20):

(19) a. Na- wua -nya
         3sN- give -3sD
         'He gives (it) to him/He gives it'
     b. Na- wua -ngga
         3sN- give -1sD
         'He gives (it) to me/He gives me (e.g. as bride to someone)'
     c. Na- wua -ngga -nya
         3sN- give -1sD -3sD
         'He gives it to me'

      d.   Na- wua-nggau -nja
           3sN- give -2sD   -3pD
           'He gives them to you (e.g. apples)'
(20) a.   *Na- wua -nja -nya
            3sN- give -3pD -3sD
      b.   *Na- wua -nya -ngga
            3sN- give -3sD -1sD
      c.   *Na- wua -ngga -nggau
            3sN- give -1sD -2sD

2.2.   The relative simplicity of spontaneously used Kambera clitic clusters

In this section I will show that the Kambera clitic clusters that are actually used in spontaneous speech are relatively small and simple and never show the possible maximal expansion represented in (17). I considered 154 clauses containing clitics, taken at random from my database, which consists of transcriptions of spontaneous spoken texts.

Table 1 below shows that 94% of the 154 clauses under consideration contained one to four clitics and none of them more than seven. That is, despite the fact that it is possible to have a cluster with five to nine clitics, Kambera hardly ever uses more than four clitics per clause. This means that many complexities encoded in the picture in (17) are irrelevant for 94% of the Kambera clauses containing clitics.[11,12]

Table 2 shows the distribution of the three major categories of Kambera clitics (mood, pronominal, and aspectual) over the clauses. Apparently,

Table 1.   *Number of clitics used per clause*

No.	%
1–2	52
3–4	42
5–7	6

Table 2.   *Distribution of category of clitics*

Category	%
Mood	70
Pronominal	68
Aspect	71

there is no difference in how often clitics from the three subgroups are used in actual discourse. Approximately 70% of the clauses contain a mood, pronominal, and aspectual clitic. They all seem to be used more or less with equal frequency; that is, none of the subgroups has clitics that are especially frequent in a cluster.

Table 3 shows how many clitics per category are used in one clause: in other words, how many clauses contain one modal clitic, how many contain two modal clitics, how many have one pronominal clitic or two, etc.

The number of pronominal clitics depends on the number of verbal arguments that must be marked: in general we could say that a transitive predicate more often has two enclitics (marking subject and object) than it has one (marking object), while the opposite applies to an intransitive predicate. In the corpus there were no instances of a cluster with three pronominal enclitics. Table 3 shows that in four out of five clauses just one mood clitic is used rather than the two, three, or four that are possible. In addition, four out of five sentences contain just one aspect clitic, rather than the two that are possible.

The question we can now ask is whether the mood, pronominal, and aspect categories contain certain "favorite" clitics that are used more often than other clitics from the same category. Table 4 presents a

Table 3. *Number of clitics per category, used in one clause*

Category	No.	%
Mood	1	83
	2	13
	>2	4
Pronominal	1	57
	2	43
Aspect	1	78
	2	22

Table 4. *Frequency of clitic (paradigm) per category*

Category	Clitic	%
Mood	group (a) (*bia, mbu, wa, àru*)	15
	group (b) (*ma, du/di, ki, a*)	85 (*ma, du*: 57%)
Pronominal	genitive	35
	dative/accusative	65 (dat: 39%, acc: 26%)
Aspect	*ka* 'perfective'	62
	pa 'imperfective' *i* 'again, also'	38

summary of the various frequencies of clitics per category. This table shows that the most frequent mood clitics are *ma*, *du*, while the favorite aspect clitic is *ka*.

On the basis of the data presented in Tables 1–4 we conclude that the clitic clusters in the majority of Kambera clauses are quite simple — much simpler than the picture in, for example, (17) suggests. Of the possibilities represented in this picture only a small selection is actually used: the majority of clauses contain just one mood clitic (that one very often being either *ma* or *du*), just one aspect clitic (mostly *ka*), and one or two pronominal clitics — depending on the valency of the predicate. So in most cases, Kambera employs only a few of the clitic-cluster possibilities available.

The functional/semantic subgrouping of the Kambera enclitics into mood, pronominal, and aspect clitics seems to be a distinction that is also structurally relevant: if a clause has more than one or two clitics the various clitics come from every subgroup rather than just one. That is, rather than having, for instance, three mood clitics in a row, the language prefers to have one mood, one pronominal, and one aspect clitic in a row. In other words, if we know the meaning/function of a clitic (an inherent property of every clitic specified in the lexicon) we know to which subgroup it belongs. And given the fact that most clauses contain just one mood clitic, one aspect clitic, and one pronominal clitic, we know the clitic orderings within these clauses when we know the ordering of the three subgroups mood, aspect, and pronominals. I will return to this in section 4 below.

2.3. *Overview of the paper*

The facts presented in this section raise questions about the nature of the Kambera clitics during the syntactic derivation and afterward. How can we account for their positions relative to each other? In this paper the latter question will be addressed in connection with the former. I will argue that some standard ways to account for clitic placement do not seem the most promising way to deal with the structural characteristics of Kambera clitics: first, I evaluate a possible syntactic account (section 3.1). Next I suggest that some prosodic factors may be relevant for the size (not the content) of the Kambera clitic cluster (section 3.2). Then I discuss why two traditional morphological accounts do not work for Kambera (section 3.3).

The alternative that I propose is to consider Kambera cliticization as inflection (rather than derivation) and view the clitics as phrasal affixes

(cf. Anderson 1992). The use of the "feature" morphology that has been proposed to account for inflectional processes (Anderson 1992, 1996; Stump 1992; Halle and Marantz 1993; Steele 1995) can thus be extended to the domain of (Kambera) clitics.

In such a view of morphology, the actual shape of the morpheme is separated from its morphosyntactic content. For instance, in Kambera, the segmental sequence [nggu] would be separated from its morphosyntactic features ([1st person], [singular], [possessive]). These features are relevant to and can be manipulated by the syntax but the actual segmental FORM of the morpheme cannot, because it becomes available only after the sentence derivation has been completed: only then does a morphological spell-out rule link the morphosyntactic feature bundles to their appropriate forms. Thus, only the clitics that are syntactically relevant appear at the surface and only at the very end of the derivation is the choice for their segmental form made. This ensures, for instance, that the pronominal clitic marking the subject is chosen from the right paradigm, and that the correct mood or sentential aspect clitics are used. The details of this account will be discussed in section 4.

3. Possible accounts of Kambera clitic placement

3.1. *Syntactically derived?*

Much current work treats clitics as the terminal elements of functional projections or as lexical heads projected and moved around by syntactic rules. This position presupposes a correlation between the position of a morpheme and its syntactic function whereby syntax is responsible for placing morphological elements relative to one another (Muysken 1986; Baker 1988, 1995; Halle and Marantz 1993). It also assumes that the morphological marking of dependency relations in syntax (e.g. by agreement, case marking, and word order) is mediated by syntactic compounding, so-called "head-to-head movement" (Baker 1988).

The empirical base for a syntactic account of word formation is the well-known cross-linguistic observation that word-internal structure often "mirrors" clausal syntactic structure. However, this generalization is not correct for a head-marking (or "nonconfigurational," or "polysynthetic") language like Kambera, where the ordering of independent phrases is relatively free while the ordering of clitics is very much fixed. This fact

alone already denies a literal interpretation of the "mirror principle," and it questions the assumption that word formation, including clitic placement, should be syntactically analyzed. Furthermore, in Kambera, only the pronominal clitics that cross-reference NPs (nouns, pronouns) in the sentence may have "full" counterparts in the sentence, while mood and clausal-aspect clitics do not have such "full" counterparts. Strictly speaking, then, only the pronominals in the cluster could tell us something about whether the clitic cluster reflects clausal structure — the part of the cluster that consists of the mood and aspectual clitics would neither confirm nor deny it.

Ignoring this discrepancy for the moment, we could assume, in line with much of the syntactic literature on clitic placement, that syntactic base generation and movement in the context of an elaborated theory of functional categories must be sufficient to locate clitics properly. The only question that should then be asked concerns the nature and motivation of that functional organization. For Kambera, it would be reasonable to assume three distinct functional projections for pronominal "agreement": one for subject marking, one for direct-object marking, and another one for indirect-object marking. In addition, the language would have a mood projection. We saw in (1) that this projection takes the (surface) position between the predicate and the pronominal clitics. It must have four clitic positions available (cf. [1] and [17]), which must be extrinsically ordered. An aspectual projection would be needed too, with two unordered positions. Finally, as there is no evidence that any of the clitics under discussion ever occur outside the scope of negations or conjunctions, the functional projections that we assume must be complements of the functional projections for negations and conjunctions in this language.
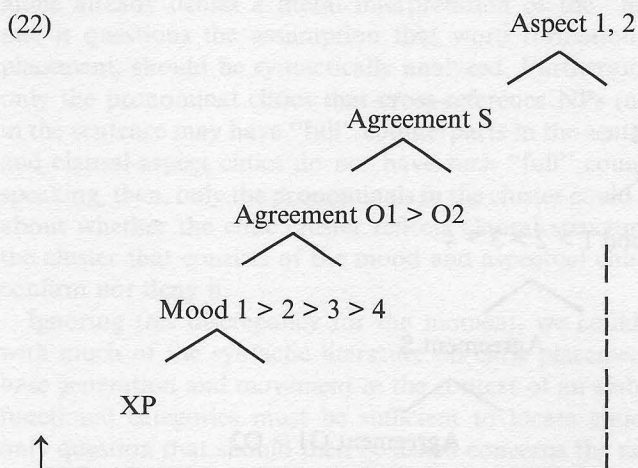
Above, it was mentioned that a Kambera subject (transitive/intransitive) can be marked either with a nominative proclitic or with one of the various enclitics (genitive, accusative, genitive–dative cluster) while the particular morphological case form that the subject eventually gets often depends on properties of the sentence after its derivation is completed. A syntactic analysis has to account for this. In addition, at a more basic level, such an analysis has to deal with the simple fact that subject-marking clitics surface either in preverbal or in postverbal position, in the latter case intervening between the verb and its complement. In a syntactic account that treats the clitics as terminal elements of functional projections, the structure in (21) could be a possible structure for Kambera clauses:

(21) Comp

Neg

Mood 1 > 2 > 3 > 4

Agreement S

Agreement O1 > O2

Aspect 1, 2

XP
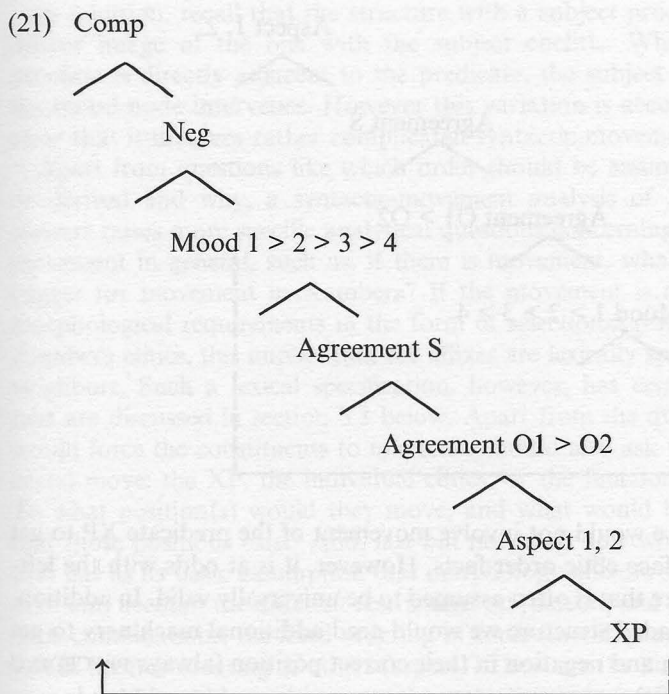
To arrive at the correct surface order on the basis of (21), XP is moved to a position above the mood projection. An analysis along these lines would derive the correct clitic order, but we would still need a motivation for the particular ordering properties of the Kambera functional projections at underlying structure; in particular, why is the mood projection highest and aspect lowest?

We could also assume the "standard" (European) underlying order of functional projections, which differs from the one in (21), and derive the typical Kambera order from this "universal" order by various movements. However, as long as there is no other (independent) motivation for such movements, we would still not have explained the distinct positions that mood and aspect clitics ultimately occupy in a Kambera sentence.

An alternative syntactic account would be the right-headed base-generated structure in (22).

(22)

```
                                    Aspect 1, 2
                                       /\
                        Agreement S
                           /\
              Agreement O1 > O2
                 /\
       Mood 1 > 2 > 3 > 4
          /\
     XP
   ↑
```

This structure would not involve movement of the predicate XP to get the correct surface clitic order facts. However, it is at odds with the left-headed structure that is often assumed to be universally valid. In addition, in this right-headed structure we would need additional machinery to get the conjunction and negation in their correct position (always PRECEDING the whole cluster).

Whether the underlying configuration is left-headed, as in (21), or right-headed, as in (22), in both configurations we need to account for the variable position of the subject-marking clitics (pre- or postpredicate). In (21), the subject clitic, base-derived as a PROclitic, surfaces as an ENclitic to XP when XP is moved.

But we know that subjects may also be marked by nominative proclitics and thus PRECEDE the predicate. For this alternative configuration, the subject marker would ALSO have to move up, after XP has moved, to a position even higher up. Assuming that there is a position available in that region and that we can somehow motivate the movement, this analysis would get the word order right.

The structure in (21) where the subject marker is base-generated in postpredicate position has more problems, because the subject marker would be generated as intervening between the verb and its complement (cf. [9] and [13]). This is an unusual base-generated construction, to say the least. Furthermore, to get to its prepredicate position the subject marker would have to pass the foot of the tree; not to mention the complications that this right-headed structure causes for the correct placement of conjunctions and negations.

In addition, recall that the structure with a subject proclitic is not the mirror image of the one with the subject enclitic. While the subject proclitic is directly adjacent to the predicate, the subject enclitic is not: the mood node intervenes. However this variation is accounted for, it is clear that it involves rather complicated syntactic movement.

Apart from questions like which order should be assumed to be basic or derived and why, a syntactic-movement analysis of Kambera clitic clusters raises more specific analytical questions concerning the process of movement in general, such as, if there is movement, what would be the trigger for movement in Kambera? If the movement is dictated by the morphological requirements in the form of selectional restrictions on the Kambera clitics, this implies that the affixes are lexically specified for their neighbors. Such a lexical specification, however, has certain drawbacks that are discussed in section 3.3 below. Apart from the question of what would force the constituents to move, we should also ask which constituent(s) move: the XP, the individual clitics, or the functional projections? To what position(s) would they move, and what would be the evidence that those positions exist? And, last but not least, how would an account that has as its basic assumption that morphology mirrors syntax regularly take into account the different restrictions on [person] and [case] in certain clitic combinations, the fixed ordering of some (mood, pronominal) clitics versus the free ordering of others (aspect)? These are the kinds of questions that should be addressed in a purely syntactic analysis of Kambera clitic placement. However, I will not deal with Kambera cliticization in this fashion, because I do not see any reason to treat the morphological marking of dependency relations in Kambera syntax such as the agreement between predicates and arguments as mediated by a process of syntactic compounding such as head-to-head movement.

Finally, recall that in Kambera the morphological form of the subject-marking clitic crucially depends on properties of the sentence after the derivation is completed. A syntactic account that treats the subject clitics in their ACTUAL FORM as the terminal elements of functional projections could not account for this fact. Rather, we need to distinguish between clitic properties that are relevant during the syntactic derivation, such as person and number, and other properties of the clitic, such as its morphological case (i.e. whether it is marked by nominative, a genitive clitic, a combination of genitive and dative, etc.; see above) and its meaning properties, so that all subject markings are treated alike until a late stage in the derivation where they diverge. In other words, the morphosyntactic featural content of functional categories should be present in and accessible to syntax, but how such features are overtly realized is only decided after the sentence derivation is completed.

3.2. *Phonologically derived?*

The shape and ordering properties of the Kambera clitics do not depend on phonotactic properties (syllable/word structure), stress, or phonological processes in the language (see Klamer 1994: chapter 2). However, there are some indications that the prosodic properties of the language partly determine the preferred SIZE of the clitic cluster.

Almost all Kambera clitics can be prosodically characterized as mono-syllabic (cf. the forms in [1]), unable to bear stress,[13] and prosodically dependent on the head of a higher prosodic unit.

Kambera lexical items are generally either disyllabic roots or trisyllabic derived forms (a root with a monosyllabic prefix). The prosodic template for a morphological root/basic lexical item in Kambera is a trochaic foot (Van der Hulst and Klamer 1996). The lexical head of a predicate XP is also the prosodic head of the higher phonological unit.[14] Predicate and clitics together form a higher syntactic unit (S or the nuclear clause), which is also a higher prosodic unit — presumably a prosodic word.

A nuclear clause (predicate plus clitics) cannot be considered a prosodic compound.[15] Kambera compounds are prosodically right-headed: ['ana 'mini] 'son'.[16] In a nuclear clause the main stress remains on the left element — the lexical item in the predicate — while the clitic cluster on the right remains unstressed.

Table 1 above shows that only 6% of the 154 nuclear clauses investigated have more than seven syllables. Most of them consist of a lexical head (a root consisting of two syllables plus perhaps a monosyllabic prefix), one proclitic (one syllable), and maximally four enclitics (four syllables). In other words, we may hypothesize that the size of Kambera clitic clusters is bound by prosodic maximality limits: Kambera prosodic words prefer to consist of maximally two feet.[17] However, due to the fact that my data are limited as far as prosodic information is concerned and native speakers can only be consulted locally, these observations should be taken as tendencies rather than hard facts.

3.3. *Morphologically derived?*

One way to order the clitics could be by linking them to nine sequential "slots" that follow the predicate. Such "morpheme slots" or "position classes" are concepts that have often been used to describe the positional properties of morpheme clusters (usually affixes rather than clitics; e.g. Bloomfield 1962; Muysken 1986; Simpson and Whitgott 1986). Theoretically there is little sympathy for such an approach because its

structure-specific character defies a generalization over morphological structure within and across languages. Furthermore, it has undesirable theoretical implications, one being that unfilled positions are structurally as relevant as full positions — contrary to fact in Kambera.

An alternative morphological analysis is the traditional lexical account that views clusters of morphemes as the result of morphological word formation. This approach too is unable to account for the facts of Kambera. First, the placement of Kambera special clitics is not "regular" word formation: because the lexical category and the morphological shape of the host to which the clitics attach may vary, the host cannot be characterized in morphological terms but must be characterized syntactically instead. Second, in a lexical account each clitic would have to have a specification of its potential sister in its lexical entry. In this way it would not be possible to capture some of the Kambera facts such as the free linear order of some clitics (the aspectual clitics) versus the fixed linear order of the other clitics, and the fact that all the clitics are optionally present. In other words, the presence of a sentential aspect clitic (which is positioned at the right edge of the cluster) does not imply the presence of any other clitic: *-pa* can also occur as the only enclitic in a clause, as illustrated in (23):

(23) Na- mutung -pa
      3sN- burn   -IMPF
      'It's still on fire'

Alternatively, we could assume that individual clitics do not select one specific neighbor to attach to but are lexically specified for the exhaustive set of clitics that they may follow. How this distributional information would look for one of the Kambera clitics, the imperfective marker *-pa*, is sketched in (24) (the pronominal clitics, here represented by the name of their paradigms, should be individualized too):

(24) *pa*:
      [XP - [{*ma ki du a*}   Gen Dat Dat]_____]]
      [{*bia/mbu/wa/àru*}

This alternative has the following drawbacks. First of all, even if there is information like this present in the lexicon, it would still not be enough to derive the correct clitic combinations at the surface structure. For instance, the actual marking of, for example, subjects depends either on the properties of the whole clause in which the clitic appears and/or on specific cooccurrence restrictions in the clitic cluster. Because the information on the basis of which we can choose a clitic from one of the paradigms in (1c) is only available after the syntactic derivation, a word-

formation rule in the lexicon cannot specify from which pronominal para-
digm the clitics in a particular context should be chosen. The same applies,
of course, to the mood and sentential-aspect clitics. Second, the optionality
of the neighboring clitics still needs to be encoded in some way.

Furthermore, if clitic-cluster information of this sort is specified in the
lexicon, ALL the possible derived forms must be specified. We have seen
that what attaches to the nuclear clause is a choice from a set of nine
mood clitics, four paradigms of pronominal clitics (i.e. $4 \times 7 = 28$ pro-
nominal clitics), and three aspectual clitics. Such an account would be
enormously redundant.

Finally, note that not all the aspects of Kambera clitic order are
arbitrary language-specific facts that belong in the language's lexicon.
For instance, the fact that mood markers occur closer to the predicate
than pronominal markers obtains cross-linguistically (Bybee 1985: 35).

Another observation that has been made for many languages is that
the encoding of verbal arguments interacts with their animacy according
to an animacy hierarchy proposed by Silverstein (1976). According to
this hierarchy, the more animate an argument is, the more it is likely to
be expressed pronominally. In many languages in the configuration where
an (applicative) verb has two object markers this animacy hierarchy is
reflected when the pronominal marker for the beneficiary/recipient occurs
closer to the verb than the marker for patients/themes. This can be
explained by the fact that beneficiaries/recipients are more often animate
than patients/themes (i.e. giving/handing over someTHING to someONE is
the standard case; giving/handing over someONE to someone else is a
relatively exceptional situation). The more animate an argument is, the
more relevant it is for the semantics of the predicate and the closer to
the predicate it occurs (Bybee 1985). In the animacy hierarchy, 1st/2nd
person pronominals are ranked at the "top" of the hierarchy: they are
the canonically animate pronominals and are followed by 3rd person
pronominals. The animacy hierarchy may be an explanation for the two
conditions that Kambera has on sequences of object clitics, namely that
the recipient is marked closer to the verb than the patient; and that if
the recipient is 3rd person, the patient/theme marker may not be 1st/2nd
person, the reverse being fine.

In a lexical derivational approach, cross-linguistic patterns such as
these are ignored because the facts are all treated as arbitrary and coinci-
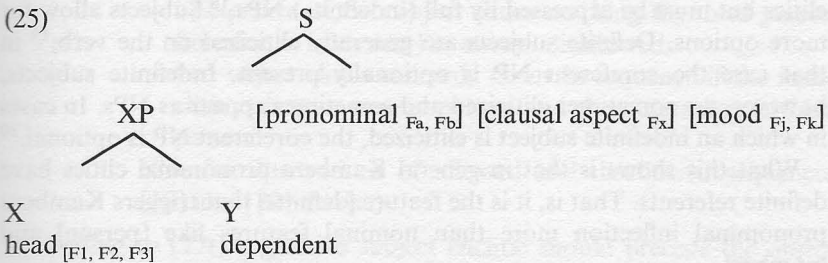dental facts of the lexicon of a particular language.

4.   The realization of clitics by morphological spell-out rules

We have seen that Kambera clitics are "special clitics" in Zwicky's (1977)
terms because their placement with respect to each other cannot be

handled by normal syntax. I have also argued that for various reasons the structure of the clitic cluster should not be described in terms of lexical word formation either. Kambera clitics are considered "phrasal affixes" — they express inflectional notions and attach to a syntactic constituent (the predicate XP). While arguing for the inflectional morphological status of the Kambera clitics, we also observed that some fixed orderings and preferred combinations of Kambera clitics occur in other unrelated languages as well, hence should not be treated as language-particular idiosyncratic facts.

Assuming a morphological theory like Anderson's (1992), Kambera inflection is considered a list of morphosyntactic features cumulated during the derivation of a clause. The bundle of features becomes one or more formal objects — clitic(s) — through the application of morphological spell-out rules at the end of the derivation.

The accumulation of features is represented in (25). The XP constituent is the Kambera predicate, which consists of a head X and a dependent Y. X can be a verb, noun, or preposition, while Y should be interpreted as either a modifier or a complement of the head (i.e. either an adverb, a noun or a noun modifying a verb or a noun, or a prepositional complement NP) (see section 2.1). As the focus of this paper is to give an account of the correct surface order of the Kambera clitics, I will not discuss the details of Kambera sentence syntax nor the technical details of the derivation of inflectional features, nor consider how the feature copying actually takes place, nor concern myself with the internal composition of the feature bundles. I will simply assume that during the syntactic derivation of the sentence, an as-yet-unordered bundle of features concerning inflectional notions of mood, pronominal, and aspect attach to the predicate XP within the domain of the nuclear clause S:

(25)

$$\text{S}$$

XP [pronominal $_{Fa, Fb}$] [clausal aspect $_{Fx}$] [mood $_{Fj, Fk}$]

X Y
head $_{[F1, F2, F3]}$ dependent

At the end of the derivation the feature bundle(s) are spelled out as clitics and are then linearized. This analysis implies that syntactically irrelevant clitics are not spelled out, which accounts for the optionality

of all Kambera clitics. Because the optionality of the clitics is built into the system, there are no empty positions or unused levels in the case of unused clitics such as a position-class account or a lexical-morphological account would have.

There are two aspects to the linearization of Kambera clitics: (a) the order of the clitics WITHIN three different functional subgroups, and (b) the order of the three subgroups with respect to each other. Sections 4.1–4.3 deal with the former aspect, section 4.4 with the latter.

4.1. *The ordering of the pronominal clitics*

Kambera pronominal clitics, being inflectional elements, are the spell-out of inflectional features that are copied from independent NPs (full or empty) to the predicate XP. In section 2.1 we saw that Kambera pronominal clitics show morphological case distinctions, which depend either on the properties of the entire clause or on cooccurrence restrictions within the clitic cluster (see [18d]). NPs, on the other hand, are not marked for morphological case, hence I assume that morphological case is not an inherent feature of the NPs but a feature that is added to the bundle of inflectional features in the course of the syntactic derivation.

Kambera pronominal inflection differs from well-known "pro-drop" languages. Clitics and full NPs are sometimes in complementary distribution but in other cases full NPs may be "doubling" the clitics. In particular, a distinction should be made between the inflection of subject and object NPs. The cliticization of transitive objects is determined by definiteness, unlike subjects. In other words, definite objects of simple transitive verbs MUST be cliticized on the predicate and their coreferent NPs are always optional, while indefinite objects cannot be marked with clitics but must be expressed by full (indefinite) NPs.[18] Subjects allow for more options. Definite subjects are generally cliticized on the verb;[19] in that case the coreferent NP is optionally present. Indefinite subjects, however, are sometimes cliticized and sometimes appear as NPs. In cases in which an indefinite subject is cliticized, the coreferent NP is optional.[20]

What this shows is that in general Kambera pronominal clitics have definite referents. That is, it is the feature [definite] that triggers Kambera pronominal inflection more than nominal features like [person] and [number].

Except for the nominative, all Kambera clitics attach to the right of XP. I therefore assume that this is the default value for clitic attachment in this language (in line with the "suffixing preference" of Greenberg 1966; Cutler et al. 1985; Hall 1992). The nominative clitics are the only

ones that have to be (lexically) specified for their attachment to the left of XP.

The following spell-out rules illustrate some of the discussion above. The features relevant for the correct spell-out of the Kambera pronominal clitics include syntactic information. (26a) is the feature bundle of a definite object that is marked with a clitic from the accusative paradigm. The feature bundle for an indefinite object in (26b), however, cannot be spelled out as a clitic. The definite subject in (26c) is spelled out as given.

(26) a. [definite, 3rd person, singular, accusative] → -ya
      b. [indefinite, 3rd person, plural] → ∅
      c. [definite, 1st person, nominative] → ku-

Ignoring further details of the feature (bundle) derivation and composition, let us now look at the ordering of the pronominal clitics with respect to each other. The restrictions that were summarized in (18e) are repeated in (27):

(27) Kambera has the following restrictions on sequences of clitics:

      i.   A genitive subject clitic occurs closer to the verb than an object clitic.
      ii. If there is a pronominal clitic following a genitive, it must be dative (compare [4b] and [4c]).
      iii. The two objects of ditransitive verbs can be marked in sequence. In such a sequence the inner clitic always marks the beneficiary/recipient (etc.), the outer clitic the patient/theme.
      iv. A double-object sequence like this is subject to the restriction that the objects can occur in a sequence only if the first clitic is NOT third person while the second clitic IS third person (Klamer 1994: 65–66, 76–78); stated alternatively:
           — a sequence of two object clitics marking the third person (number is irrelevant) is always disallowed;
           — two object clitics can only occur in sequence if the inner clitic is first or second person and the outer clitic is third person.
           (See for illustrations of allowed and disallowed sequences [19] and [20] above.)

According to (27i) a genitive subject enclitic should precede the object enclitic(s), as illustrated in (28):

(28) Daingu [wua -na -nggau -nya]ₛ haromu
      surely give -3sG -2sD -3sD tomorrow
      'I'll surely give it to you tomorrow'

At first sight, this seems in contradiction to the fact that in general a verb and its complement are assumed to form a syntactic unit; the object marker should attach closer to the verb than the subject marker. Recall, however, that the canonical way to mark transitive subjects in Kambera is by using the nominative proclitic. A clause with a genitive subject is a marked construction.

There is a probable historical source for this special type of subject marking. According to Finney (1997; personal communication) the Kambera genitive subject clitic is related to the ergative marking in some of the languages related to Kambera, which would imply that the subject clitic that occurs between the verb and the object marker is a reflex of an ancient ergative pattern of the language. Though present-day Kambera morphosyntax is mainly nominative–accusative, it has some clearly absolutive–ergative properties too (Klamer 1997b). In ergative languages (in contrast to languages of the accusative type) the transitive subject is expected to be closer to the verb than object agreement (Bittner and Hale 1996: 568). If the Kambera genitive is indeed a reflex of an older ergative marker, restriction (27i) becomes understandable as a restriction reflecting a "morphologized" earlier syntactic pattern of the language.

Sentence (28) above also illustrates the restriction in (27iii) that the recipient/indirect object clitic always precedes the patient/direct object. Restriction (27iv) states that if in a sequence of object clitics the recipient is 3rd person, the patient/theme marker may not be 1st/2nd person, while the reverse is fine (see the illustrations in [19] and [20] above). Again, these are restrictions on surface clitic order that apply not only in Kambera, but in other unrelated languages too. Hence, I tentatively proposed the animacy hierarchy of Silverstein (1976) as a functional motivation/explanation for these two conditions (section 3.3).

The only restriction on pronominals that appears to be truly language-particular is (27ii): in a transitive clause where the subject is marked with a genitive clitic, the object must be dative (see [29a], [29b]). (The canonical case is when the subject clitic is nominative and the object is marked with an accusative clitic, as in [29c].)

(29) a.   Mbàda rongu-nggu -*nya*
           already hear-1sG   -3sD
           'I (have) heard it already/before'
      b.   *Mbàda rongu-nggu -*ya*
           already hear-1sG   -3sA
      c.   Hi ku- rongu -*ya*
           CNJ 1sG- hit- -3sA
           'So I'll hear it'

If we assume that the correct linearization of the clitics is determined by the order in which the morphological spell-out rules apply, we can extrinsically state the order of the spell-out of pronominal clitics as nominative > genitive > dative 1/accusative > dative 2.

However, in this ordering the restrictions (27ii), (27iii), and (27iv) are not taken into account. These restrictions cannot be formalized by rule ordering because they obviously have a more global reference. Hence, we must assume that the configuration that is the result of morphological spell-out is "almost right" but not quite; at the final stage it is subject to surface restrictions, which include idiosyncratic restrictions like (27ii) and functionally motivated ones like (27iii) and (27iv). I will return to this in section 4.4 below.

4.2. *The ordering of the clausal-aspect clitics*

Being part of the same clitic cluster as the pronominal clitics, the clausal-aspect clitics[21] are assumed to be the spell-out of inflectional features too. An aspectual feature like [imperfective] is copied onto the XP from a constituent expressing imperfective clausal aspect. This constituent must be assumed to be an abstract (covert) entity always, because the Kambera aspectual clitics are never accompanied by overt aspectual phrases (unlike the pronominal clitics, which may occur with "doubling" NPs). The three clausal-aspect clitics are repeated in (30) and illustrated in (31)–(33):

(30) Clausal aspect: ka 'perfective', pa 'imperfective', i 'iterative'
(31) Mutung[22] -nanya   *-ka*
       burn   -3s.CONT -PRF
       'It has been burning/It is burnt down'
(32) Mutung -nanya   *-pa*
       burn   -3s.CONT -IMPF
       'It is (still) burning'
(33) Mutung -nanya   *-i*
       burn   -3s.CONT -again
       'It is/has been burning again'

Perfective and iterative clitics have been attested in either order, that is, either *i-ka* or *ka-i* (which are semantically distinct). Combinations of imperfective and interative clitics have only been attested as *pa-i*. However, given the distributional similarities between *ka* and *pa*, the sequence *i-pa* is expected to be grammatical too. A combination of imperfective *pa* and perfective *ka* is predicted to be impossible because

of their semantic incompatibility. In summary, in our account we do not
need a statement fixing the order of the aspectual clitics.

4.3. *The ordering of the mood clitics*

Mood clitics occur in two mutually exclusive groups: group A and group
B in (34):

(34)   Mood: A.   bia 'just', mbu 'also/too', wa 'hortative', àru 'horta-
tive' (polite)

B.   ma 'emphasis1', du (di) 'emphasis2'[23]
ki 'just a bit/just a while (diminutive)', a 'only/no
more than'

Like the other clitics in the cluster of which they are a part, we assume
the mood clitics to be the spell-out of inflectional features. The inflec-
tional-mood features are copied onto XP from one or more (again:
covert) mood phrase(s) elsewhere in the sentence structure. If the bundle
of inflectional features attached to XP contains mood features, the
spell-out of the mood A and B clitics may be represented as in (35)
and (36):

(35)   a.   [hortative]   →   [wa]
b.   ['just']   →   [bia]
c.   ['also, too']   →   [mbu]
d.   ['hortative' (polite)]   →   [àru]

(36)   a.   [emphasis1]   →   [ma]
b.   ['no more than']   →   [a]
c.   [diminutive]   →   [ki]
d.   [emphasis2]   →   [du/i]

We do not need to state the ordering of the rules in the A group, (35),
because these clitics are specified to occur on their own without any other
mood clitics. The clitics of group B, however, may appear together. If
they do, they must occur in a fixed order: *ma-ki-du-a* 'emphasis1'–'diminu-
tive'–'emphasis2'–'only/no more than' (vs. *ma-du-ki-a*, * *du-ki-a-ma*, etc.
etc.). We account for the fixed order of the mood B clitics by the formal
mechanism of extrinsically ordered spell-out rules, as in (37):

(37)   [emphasis1] → [*ma*] >> [diminutive] → [*ki*] >> [emphasis2] →
[*du/i*] >> ['no more than'] → [*a*]

An alternative would be to propose spell-out rules combining (unordered) features:

(38) e. [emphasis1], ['no more than']   →   [*ma a*]
     f. [emphasis1], [diminutive]   →   [*ma ki*]
     g. ['no more than'] [emphasis2]   →   [*du/i a*]
     h. [emphasis2], [emphasis1]   →   [*ma du/i*]
     i. [diminutive], [emphasis2]   →   [*du/i ki*]
     j. [diminutive], [empahsis2], [emphasis1] → [*ma du/i ki*]
     k. etc.

However, rules of this type are theoretically unattractive because they imply the logical possibility of clitic orderings that do not exist (for instance, if *ma-a* is the spell-out of two features, nothing in the formal notation of the rules prevents the spell-out of *a-ma*, which does not occur). Furthermore, in rules like the ones in (38) the same information is repeated again and again, leading to redundancy.

Thus, extrinsically ordering the spell-out rules of (36) as is done in (37) seems to be the better option. Despite the general conceptual unattractiveness of such extrinsic rule ordering, note that in this case it does reflect the properties of the fixed ordering of the Kambera mood B clitics. After all, the idiosyncratic ordering of these mood B clitics seems to be a language-particular morphological fact without any independent structural motivation. It is a property of the language that a speaker just "has to know." A way to formalize this is to extrinsically order the rules by which the clitics are introduced.

4.4. The ordering of the three functional subgroups of clitics

Now that we have considered the spell-out rules for the clitics per subgroup, we turn to the question of how the three subgroups are ordered with respect to each other. As we have seen in section 2.2 the majority of the Kambera clauses that were investigated contained just one mood clitic (that one very often being either *ma* or *du*), just one aspect clitic (mostly *ka*), and one or two pronominal clitics — depending on the valency of the predicate. In other words, if we can account for the order of the functional subgroups, we have accounted for the clitic order in more than 90% of the actually uttered Kambera clauses.

Again I propose an extrinsic ordering for the functional subgroups of clitics because there seems to be no structural reason why the mood clitics should precede the pronominals and why the aspect clitics are attached at the end of the cluster. In this case, however, the extrinsic

ordering is not completely idiosyncratic (unlike the ordering of the mood B clitics discussed in the previous subsection), because what seems to be at work here is a functional principle regulating the order of the subgroups. It is formulated as a universal principle in (39). This principle is similar to the relevance principle formulated by Bybee (1985) to account for the cross-linguistic properties of affix ordering, but here it concerns clitics rather than affixes.

(39)   *Universal clitic ordering principle:*
       Relevance to meaning of predicate.

According to this functional principle the higher the relevance of the clitic to the meaning of the predicate, the closer it occurs to the edge of the predicate XP.

From a functional point of view we find two types of clitics cross-linguistically: clitics that have relevance to the meaning of the predicate and clitics that have relevance to larger domains, like the discourse surrounding the predicate (see Anderson 1992: 218–219 for a similar observation). Put differently, some clitics have a function within the phrase that contains the predicate, other clitics have phrase-external relevance.

Mood clitics like the emphatic and hortative Kambera clitics in (1a) are relevant to the meaning of the predicate — they are used as modifiers and have an adverbial function. Clitics representing basically "grammatical" material, such as the Kambera pronominal clitics, express the relation between a predicate and its arguments. They have an argument-indexing function. Both mood and pronominal clitics are therefore more relevant to the meaning of the predicate than the clausal-aspect clitics because the latter express the relation between a sentence and its context. So the universal functional principle in (39) would result in the universal ordering of clitics in (40):

(40)   Predicate-modifying clitics > Argument-indexing clitics
       > Contextual clitics

In summary, the ordering of the functional subgroups has a functional motivation: the principle of relevance to predicate. Another functional motivation that plays a role is the "animacy hierarchy" discussed in section 3.3. Both can be viewed as functional constraints on Kambera clitic clusters.

5.   Summary and discussion

In this paper I have argued for a morphological-feature account of Kambera clitic clusters. Many characteristics of Kambera clitic clusters

were discussed as evidence for the proposal that the actual clitic mor-
phemes are introduced late in the derivation. That is, in Kambera, inflec-
tional clitics are not the terminal elements of syntactic projections
("heads"); functional categories like mood, person, and aspect are neither
morphological nor phonological "objects," nor syntactically separate
constituents with associated projections. Rather, in order to derive the
correct clitic cluster, the morphosyntactic featural content of the clitics
needs to be separated from their actual (phonological) form until the
end of a derivation where they are spelled out by rules. Every rule
operation "adds" a clitic to the output of the previous operation.

A morphological-feature approach allows us to treat the content, but
not the overt realization of functional categories, as present in and
accessible to syntax. This is what we need because the clitic cluster reflects
some aspects of syntactic structure (inflection) while it also shows a
surface order that is not syntactically motivated.

The positional properties of the Kambera clitics were described as
follows. The cluster as a whole attaches to the predicate XP within S. It
consists of the three ordered subgroups of inflectional clitics: mood,
pronominal, and clausal aspect. The order of the subgroups is functionally
motivated by extending Bybee's (1985) principle of relevance to the order
of clitics as well as affixes.

The ordering of the clitics WITHIN the three subgroups required a
separate treatment. Because the order of the aspect clitics is free, we do
not need to state their ordering. On the other hand, the mood B clitics
that occur together must be ordered extrinsically. Finally, we saw that
the ordering of the pronominal clitics either reflected a historical (ergative)
property of the language or was determined by semantic/functional
restrictions (the definiteness hierarchy).

As yet it is not so clear how the "history" and "function" of grammati-
cal elements could be incorporated in the synchronic model of language
structure. Recall from section 3.2 that, in addition to functional and
historical motivations determining the shape of the clitic cluster, prosodic
constraints seem to limit its size. Thus, both the shape and size of the
Kambera clitic cluster seem to be constrained by requirements that cannot
be defined in purely structural (syntactic, morphosyntactic) terms.
Rather, requirements of the human computational and perception/pro-
duction system seem to play an important role in shaping the Kambera
clitic cluster. This is an additional indication that the cluster is formed
at a late level, for example between syntax and prosody. Of course, the
linearization of the clitics in a cluster like the Kambera one may also be
formulated in optimality-theoretic terms (Prince and Smolensky 1993;
Prince and McCarthy 1994) employing ranked constraints on surface

output, referring, for instance, to the alignment of clitics to their host. In this case, language variation (language-internally or cross-linguistically) should constitute the evidence for reranking the constraints. If, however, variation is (assumed to be) absent, as in the account above where a universal ordering principle was proposed, there is no need for constraint reranking resulting in language variation, hence the OT framework is not crucially needed to account for this type of clitic placement.

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Notes

1. Kambera is an Austronesian language of the Central Malayo-Polynesian branch, has
    about 150,000 speakers, and is spoken on the eastern part of the island of Sumba in
    Eastern Indonesia; Klamer (1994) is a grammar of the language.
2. The term "mood" is employed here as an (admittedly vague) cover term for the clitics
    that are employed to express subjective feelings of the speaker with respect to the
    action/state denoted by the predicate, including emphasis, hortative mood, and diminu-
    tive. The group of "mood" clitics can also be defined as follows: (i) they do not express
    aspectual or pronominal notions and (ii) they immediately follow the predicate XP.
    (For the contrast between "mood" and "modality," and the difficulties in defining
    these notions, see Bybee 1985).
3. List of abbreviations: A = accusative, ART = article (*na* = sg., *da* = plural), CAUS =
    causative prefix, CNJ = conjunction, CTR = marker of control sentence, D = dative,
    DEI = deictic element (space/time), DEM = demonstrative, EMP = emphasis marker,
    G = genitive, IMPF = imperfective aspect marker, LOC = locative preposition,
    MOD = mood marker, N = nominative, NEG = negation, p = plural, PRF = perfec-
    tive aspect marker, REL = relative marker, s = singular. Notational conventions: in
    the notation of the Kambera examples a clitic is separated from its (syntactic) host by
    a hyphen [-]. Accents on vowels mark contrastive vowel length. Note on translations:
    third person singular pronominals in Kambera are neutral with respect to gender but
    are translated as 'he', 'him', or 'his', unless the context demands otherwise. Kambera
    verbs are not marked for tense and the tense used in the English translations was
    determined by the original context of the utterances.

4. *Daingu* 'surely' is a sentential adverb rather than a verbal adverb; it can be separated from the verbal projection by a conjunction, i.e. is not part of the "nuclear clause" S (see below).

5. The relation between pronominal clitics and NPs is more complicated than this; see section 4.1 and Klamer (1994) for more discussion.

6. This marking is obligatory and is one of the ergative properties of Kambera; see Klamer (1997a) for a discussion of this structure.

7. Possession and definiteness are notions that are structurally independent in Kambera. An NP (possessed or not) is indefinite if there is no article present, as in (i), versus (ii) where the NP is definite:

(i) Ningu uma-nggu
    be.here house-1sG
    'I have a house' (lit. 'there [is] a house of mine)'

(ii) Wua-nja na uma-nggu
    give-3pD ART house-1sG
    'Give them my house'

8. There is no structural evidence to assume a category of adjectives in Kambera. (Hence, there is also no adjectival projection). Adjectival notions are usually expressed by stative intransitive verbs. Bare verbs (active and stative intransitive, transitive) can be used to modify nouns.

9. Note that the structure of a Kambera verbal projection (VP?) differs from what is standardly assumed because the verb and its complement (expressed as an accusative or dative enclitic) do not form a separate constituent — adverbs, genitive enclitics, and mood enclitics always intervene between the verb and the object-marking clitics. See also note 10.

10. There is no evidence that Kambera clitics ever move at all. Nor do clitics ever occur before an interrogative, a conjunction, or a negation. Interrogative pronouns *nggamu* 'who' and *nggara* 'what' may remain in situ but may also head a relative clause (i.e. 'who[m] did you see' expressed as 'who is the [one that] you saw').

11. Note that in this respect, some example sentences in (7)–(16) (chosen to illustrate the larger clitic combinations) are atypical because many of them contain four or five clitics and/or more than one aspect or mood clitic (see below).

12. This preference for smaller clitic clusters may be caused by prosodic restrictions of the language; see section 3.2 below.

13. Exceptions: (1) disyllabic mood clitic *àru*, pronominal clitics *nggama, kama, nggami* (= *nggai*), *kami* (= *kai*); (2) stressed mood clitics *bia, àru, du* (cf. Klamer 1994: 30–32).

14. That is, the lexical head is the prosodic head as long as it is not modified by another lexical item (e.g. the adverb *hili* 'again' in [8] or the noun *pingi* 'top' in [16]), because then that item becomes the prosodic head.

15. Thanks to Ruben van de Vijver (personal communication) for suggesting this possibility.

16. Compounds are syntactically left-headed: *ana mini* 'child male' = 'son'.

17. Prosodic maximality is an important issue in phonological grammar. More particularly, many have argued that prosodic constituents are not n-ary branching (contra Nespor and Vogel 1986). That is, syllables, feet, prosodic words, and phonological phrases are bounded by a maximal number of two or three subordinate constituents (cf. Helsloot 1995 and references cited there). A Kambera prosodic word would then consist of maximally two or three feet, i.e. approximately six or seven syllables.

18. Definite second objects of ditransitive verbs behave differently from objects of simple transitives — they may be marked either with a clitic or with an NP, depending on other factors such as discourse saliency (Klamer 1994: chapter 8).
19. An empty subject (no clitic, no NP) frequently occurs when it is known from the context.
20. Inflected indefinite subjects are used very rarely. An indefinite subject is usually expressed by the full indefinite NP only.
21. Note that the aspect expressed by the imperfective and perfective clitics in Kambera is not lexical aspect (or "Aktionsart") but clausal aspect. Lexical aspect is expressed in Kambera by causative prefixes and applicative suffixes attached to a morphological base, not by clitics (cf. Klamer 1994).
22. *Mutung* is an intransitive verb that can be translated as 'burn' or 'be aflame'.
23. *Di* is a phonological variant of *du*, but *du* is used more frequently. The differences between *du/di* and *ma* are that *du/di* expresses stronger emphasis than *ma* and that *du/di* has its own stress while *ma* does not.

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