

TSWANA VERB MORPHOLOGY AND THE LEXICAL INTEGRITY PRINCIPLE

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1. INTRODUCTION

The question of the cohesiveness of words is central to the debate on the syntax-morphology interface. The traditional view that «words are built out of different structural elements and by different principles of composition than syntactic phrases» (Bresnan & Mchombo 1995:181) has been defended within various frameworks that have in common the acceptance of the *Lexical Integrity Principle*. The *Lexicalist Hypothesis* as stated by Anderson (1992:84) stipulates that «the syntax neither manipulates nor has access to the internal form of words», and this often-quoted formulation can conveniently be taken as the starting point of the discussion. What it exactly means is however not entirely clear, and its precise interpretation within a particular model of grammar raises several more or less controversial questions.

There is in particular an important distinction between those who restrict the Lexicalist Hypothesis to derivation, and those who extend it to inflection (*Strong Lexicalist Hypothesis*). In the «weak» version of lexicalism, lexemes and inflectional affixes can be treated as syntactic atoms whose combination is essentially of the same nature as the combination of words into syntactic phrases, whereas according to «strong» lexicalism, inflected words are the minimal units of syntax. Taking inflected words as syntactic atoms means that inflectional morphology encodes information about the syntactic properties of words, but syntactic rules operate on words characterized by sets of abstract features (such as *number:plural*, *person:first*, *case:accusative*), and have no access to the particular way these features are encoded in the morphological structure of words.

A crucial point in the debate on lexicalism is the nature of the grammatical units involved in the syntax-morphology interface: are they morphemes in the sense of the American Structuralist tradition, or abstract features whose realization is not necessarily identifiable to segments of the words they characterize? In this perspective, evidence that the notion of morpheme as developed in the American Structuralist tradition cannot provide satisfying accounts of the structure of words is particularly decisive in a case for Strong Lexicalism.

Several authors have explicitly addressed the question of Lexical Integrity in Bantu. Some of them defend a syntactically-based approach to inflection: Myers (1987), Carstens (1991; 1993), Kinyalolo (1991). Bresnan & Mchombo (1995), in accordance with the bantuist descriptive tradition initiated by Doke, argue for a strict lexicalist approach. But none of them discusses the crux of the matter, that is, the very nature of Bantu morphology. Most general linguists, in particular among syntacticians, have an oversimplified view of Bantu morphology, popularized by superficial and very partial accounts of Swahili morphology. Even Bresnan & Mchombo, in their case for Lexical Integrity based on Bantu data, do not depart from this attitude, and limit the discussion to aspects of Bantu structure that do not question the common view according to which Bantu languages have a nearly perfect agglutinative morphology.

What I would like to show here is that a precise and comprehensive description of the structure of verb forms in a Bantu language leads to an opposite view, and more precisely, that Tswana verb morphology is incompatible with an approach to inflection based on the notion of morpheme.

2. A BRIEF OVERVIEW OF TSWANA MORPHOSYNTAX

Tswana is in almost every respect a typical Bantu language.¹ Nouns are characterized by a class system manifesting itself in noun prefixes, obligatory head-dependent agreement in the noun phrase, and obligatory agreement of free pronouns and pronominal affixes (subject markers, object markers) with the noun they represent. Noun phrases are head-initial. All types of noun dependents without any exception show class agreement with the head noun.

Basic verbal clauses have a rigid constituent order *subject – verb – objects – obliques*. Subject and object noun phrases are equally devoid of case-marking. Subject markers prefixed to the verb are obligatory, even in the presence of a subject noun phrase. Object markers are used only if the clause includes no object noun phrase representing the same argument.

Multiple object constructions are very common, due to the productivity of valency-increasing operations (causative and applicative).² Depending on their valency, Tswana verbs may simultaneously incorporate up to three object markers, in addition to the obligatory subject marker.

3. TSWANA VERB INFLECTION: THE SYSTEM

Tswana verbs are characterized by a rich system of morphological variations, and auxiliation is also very productive.³ The inflected forms of Tswana verbs can conveniently be divided into the following sets: indicative, circumstantial, relative, subjunctive, sequential, imperative, infinitive.

Indicative, subjunctive, infinitive,⁴ and imperative have uses broadly similar to those of the forms traditionally designated by the same labels in European grammars.

Circumstantial forms are used in subordinate clauses of the circumstantial type. In ex. (1),⁵ the verb of the subordinate clause is in the circumstantial form of the present positive (distinguished from the corresponding indicative form by its tonal contour only).

- (1) *Ke rata borotho ke bo ja ka jeme le botoro*
 ‘I like bread when I eat it with jam and butter’
 kì-rát-á bù-rót^hó kí-bù-dz-á ká dzémé í-bótòró
 S1S-like-FIN 14-bread S1S-O3:14-eat-FIN with 9.jam and-9.butter

Relative forms differ from the corresponding circumstantial forms by the addition of a relative marker, and are used in relative clauses, as illustrated by ex. (2):

- (2) *Thipa e ke segang borotho ka ene e kae?*
 ‘Where is the knife I use to cut the bread’ (lit. the knife I cut the bread with it)
 t^hípa é kí-síχ-à-ŋ bù-rót^hó ká èné í-kâi
 9.knife 9.LINK S1S-cut-FIN-REL 14-bread with PRO3:9 S3:9-where

Sequential verb forms characterize the non-initial conjunct(s) in the coordination of two or more clauses. The choice between the two sequentials depends on the TAM value of the first clause. In ex. (3), the verb of the second clause is in the sequential 1, whereas in ex. (4), it is in the sequential 2:

- (3) *Ke ile toropong ka reka ditlhako*
 ‘I went to town and bought shoes’
 kì-ìl-é tùrópó-ŋ kà-rék-á dí-t^hàkú
 S1S-go.PFT-FIN 9.town-LOC S1S.SEQ1-buy-FIN 8/10-shoe
- (4) *Kamoso ke tlaa ya toropong ke reke ditlhako*
 ‘Tomorrow I shall go to town and buy shoes’
 kámùsó kí-tlâà-j-à tùrópó-ŋ kì-rék-í dí-t^hàkú
 tomorrow S1S-FUT-go-FIN 9.town-LOC S1S.SEQ2-buy-FIN 8/10-shoe

The possibility to incorporate object markers is common to all these sets. A subject marker is obligatorily present in the indicative, subjunctive, relative, circumstantial, and sequential. The infinitive include no reference to a subject, and in the imperative (restricted in Tswana to the second person), reference to the subject is limited to a number distinction (singular vs. plural). Third person subject and object markers express class agreement.

Polarity variations (positive vs. negative) are found in all verb forms, except the sequentials, whose negative counterparts are analytic forms.

TAM variations with a distinction between present, perfect, future, and potential, are found in the indicative, circumstantial, and relative. Infinitive has a slightly different TAM inflection: in the infinitive, «perfect positive» is expressed analytically; conversely, the infinitive maintains the possibility of a morphological expression of the continuative, whereas in the indicative, synthetic forms including the continuative marker are only very marginally used by Tswana speakers, who consider these forms as characteristic of the related language Sotho and tend to express the TAM value «continuative» by means of analytic forms.

Some tenses (but not all) have a distinction between a «disjunctive» and a «conjunctive» form. The disjunctive form is obligatory in clause final position. In non-final position, it indicates that the following terms must be discursively interpreted as recalling old information after the relevant new information has been presented. The conjunctive form is impossible in clause final position, and implies that the relevant new information is to be found after the verb, as illustrated by ex. (5), in which sentence (5a) illustrates the disjunctive form of the indicative perfect positive, whereas sentence (5b) illustrates the conjunctive form of the same tense, characterized by a different tonal contour. For more details on this matter, see Creissels (1996), or Creissels, Chebanne, Nkhwa (1997:35–43).

- (5) a. *O tsamaile Mpho*
 ‘He has gone, Mpho that is’
 ú-tsámà-ìl-è m̀pʰó
 s3:1-go-PFT-FIN 1.Mpho
- b. *O tsamaile le Mpho*
 ‘He has gone with Mpho’
 ú-tsámá-ìl-è Íl-m̀pʰó
 s3:1-go-PFT-FIN with-1.Mpho

The inflected forms of Tswana verbs can be enumerated as follows:⁶

Indicative present, positive (disj. / conj.)⁷ and negative (disj. / conj.)

- perfect, positive (disj. / conj.) and negative (disj. / conj.)
- future, positive (disj. / conj.) and negative⁸
- potential, positive (disj. / conj.) and negative

Circumstantial present, positive and negative

- perfect, positive and negative
- future, positive (disj. / conj.) and negative
- potential, positive (disj. / conj.) and negative

Relative present, positive and negative

- perfect, positive and negative

- future, positive and negative
- potential, positive and negative

Subjunctive, positive and negative

Sequential 1 (disj. / conj.) and Sequential 2

Imperative, positive and negative

Infinitive present, positive (disj. / conj.) and negative

- perfect negative
- future, positive (disj. / conj.) and negative
- potential, positive (disj. / conj.) and negative
- continuative

4. A TEMPLATE OF TSWANA VERB MORPHOLOGY

A Tswana verb form consist of a root together with an obligatory suffix (the «final») and a variable number of other affixes whose presence depends on a variety of factors, each affix having its position in the string.

The *extended root* of a Tswana verb form is the root *stricto sensu* plus the derivatives that modify the meaning of the root without altering its valency (such as inersive, or intensive). The derivatives of this type always stand immediately after the root.

Starting from the extended root as the zero point, the order in which the affixes appear can be described as a sequence of positions numbered from -4 (the leftmost possible position) to +5 (the rightmost possible position).

4.1. Position -4

Position -4 is occupied in the indicative present negative and indicative perfect negative by the negation marker $\chi\grave{a}$ -, as illustrated by ex. (6), otherwise it remains void:

- (6) a. $\chi\grave{a}$ - kí- ts^háb- ì 'I am not afraid'
NEG(-4) s1s(-3) be afraid(0) FIN(+4)
- b. $\chi\grave{a}$ - kí- à d₃- á 'I have not eaten'
NEG(-4) s1s(-3) PFT(-2) eat(0) FIN(+4)

4.2. Position -3

Position -3 remains void in the imperative (7a). In the infinitive, which shows both morphologically and syntactically a mixture of nominal and verbal properties, it is filled by the prefix of noun class 15 (7b). In all the other forms, it is obligatorily filled by a subject marker:

f.	kí-	sà	bín-	ì	‘when I do not dance’
	s1s(-3)	NEG(-2)	dance(0)	FIN(+4)	
g.	kí-	sà	bín-	à	‘when I have not danced’
	s1s(-3)	NEG(-2)	dance(0)	FIN(+4)	
h.	χù-	sà-	bàl-	í	‘not to read’
	INF(-3)	NEG(-2)	read(0)	FIN(+4)	
i.	χù-	sà-	bàl-	à	‘not to have read’
	INF(-3)	NEG(-2)	read(0)	FIN(+4)	
j.	sì-	ts ^h áb-	ì		‘don’t be afraid!’
	NEG(-2)	be afraid(0)	FIN(+4)		
k.	kí-	sì-	lwáì-	ì	‘(I drank medicine) so as not to be ill’
	s1s(-3)	NEG(-2)	be ill(0)	FIN(+4)	
l.	χù-	sá-	báì-	à	‘to keep on reading’
	INF(-3)	CONT(-2)	read(0)	FIN(+4)	

4.4. Position -1

Position -1 can be filled by the object markers and the reflexive marker. Object markers can occur only in the absence of an NP in object function representing the corresponding argument. The reflexive marker, like Romance *se*, is not always analyzable as an incorporated reflexive pronoun, and is better recognized as a valency operator with the expression of reflexivity as one of its possible values, but its tonal behaviour is always identical to that of the object markers, which is very different from that of any other affix.

Up to three successive affixes can be found in this position. Their order is determined by the following rules:

- a) the object marker of first person singular cannot be separated from the root,
- b) the reflexive marker can be separated from the root by the object marker of first person singular only,
- c) the ordering of the other object markers is the mirror image of the ordering of the corresponding object NPs, which in its turn is governed by Animacy Hierarchy (cf. (9)).

- (9) a. *Ke fetse bomalome dikgomo letswai*

‘I have given salt to the cows for my uncle’

kì-f-éts-í bó-màlómé dí-q^hòmú ìì-tswáì
s1s-give-APPL.PFT-FIN 2-uncle.1s 8/10-cow 5-salt

- b. *Ke le di ba fetse*

‘I have given it (the salt cl.5) to them (the cows cl. 8/10) for him (my uncle cl.1)’

kì- lí-dí-bà- f- éts- ì
s1s(-3) o3:5-o3:8/10-o3:2(-1) give(0) APPL.PFT(+1,+2) FIN(+4)

4.5. Position +1

Position +1 can be filled by one or more affixes encoding operations on verb valency: the causative marker, the applicative marker, the decausative marker, and the reciprocal marker. Cf. (10):

- (10) a. kì- tɬàà- χù- bérék- í s- à
 s1s(-3) FUT(-2) o2s(-1) work(0) CAUS(+1) FIN(+4)
 ‘I shall make you work’
- b. kì- tɬàà- χù- bérék- éI- à
 s1s(-3) FUT(-2) o2s(-1) work(0) APPL(+1) FIN(+4)
 ‘I shall work for you’
- c. kì- tɬàà- χù-m- mérék- í s-èts- à
 s1s(-3) FUT(-2) o2s-s3:1(-1) work(0) CAUS-APPL(+1) FIN(+4)
 ‘I shall make you work for him’
- d. rì- tɬàà- bérék- éI-àn- à
 s1p(-3) FUT(-2) work(0) APPL-RECIPR(+1) FIN(+4)
 ‘We shall work for each other’

4.6. Position +2

Position +2 can only be occupied by an affix with the TAM value «perfect». This perfect marker is incompatible with negation, and its precise form depends on what immediately precedes it. Its most common variant is -il; in (11), the variant -its results from the interaction with the causative affix:

- (11) bá- m- pérék- í s- ìts- è ‘They made me work’
 s3:2(-3) o1s(-1) work(0) CAUS(+1) PFT(+2) FIN(+4)

4.7. Position +3

Position +3 can only be filled by the passive marker -(i)w. Cf. (12):

- (12) kì- bérék- í s- ìts- w- è lit. ‘I was made work’
 s1s(-3) work(0) CAUS(+1) PFT(+2) PSV(+3) FIN

The fact that the perfect marker (and no other TAM marker!) is systematically inserted between the passive marker and the other affixes encoding operations on verb valency shows that, even in the case of affixes that have a clear syntactic or semantic value, the order of the successive positions in the template cannot be explained from the value of the affixes that can occupy them.

4.8. Position +4

Position +4 is the only position that can be left empty in no circumstances. The affix filling this position, traditionally called «final», consists of a vowel with

4 possible values: a, ɪ, ε, and e ~ ɪ (with an alternation that can be explained as the result of a dissimilation process). The final is clearly inflectional, in the sense that it contributes to the identification of the individual tenses, and its variations are not governed by the immediately preceding affix, but it does not carry any syntactic or semantic information of its own, since each of the four possible finals occurs in a set of forms impossible to define as the forms having in common a particular set of syntactic or semantic features.

4.9. Position +5

Position +5, traditionally called «postfinal», can be filled by the following two affixes, which differ only in tone but have very different values: -ɲ, characteristic of the imperative plural, and -íj, characteristic of the relative forms. Cf. (13):

- (13) a. sì- ts^háb- í- ɲ ‘don’t be afraid! (pl.)’
 NEG(-2) be afraid(0) FIN(+4) PL(+5)
- b. bá- sà bí n- à- íj ‘(those who) have not danced’
 S3:2(-3) NEG(-2) dance(0) FIN(+4) REL(+5)

5. TONAL ALTERNATIONS IN TSWANA VERB MORPHOLOGY

5.1. «Local» Tonal Processes

«Local» tonal processes are tonal variations that can be explained as the result of the interaction of tones underlyingly belonging to adjacent formatives. For example, the future marker tʃaa- is underlyingly toneless. Preceded by a toneless subject marker, it is realized with two low tones, as in (10) above, but preceded by a high-toned subject marker, it undergoes a process of tone spreading affecting its first syllable only or its two syllables, depending on the tonal properties of the following formative. Cf. (14):

- (14) a. bá- tʃáá- χù- bérék- í s- à
 S3:2(-3) FUT(-2) o2s(-1) work(0) CAUS(+1) FIN(+4)
 ‘They will make you (sing.) work’
- b. bá- tʃáà- lú- bérék- í s- à
 S3:2(-3) FUT(-2) o2p(-1) work(0) CAUS(+1) FIN(+4)
 ‘They will make you (pl.) work’

The only important difficulty with local tonal alternations is that tone spreading may operate as if some of the affixes enumerated in section 4 included «invisible» syllables, segmentally empty but participating in tonal processes in the same way as normal syllables (Creissels, Chebanne, Nkhwa 1997:49-55).

5.2. «Special» Tonal Processes

«Special» tonal processes cannot be attributed to the tonal interaction between adjacent formatives. They concern the *stem*, defined as the part of the verb form including Positions 0 to +4, i.e. the part of the verb form extending from the root to the final. With the exception of the root, which may be high-toned or toneless, the formatives included in the stem are tonally inert (in the sense that they do not contribute to the determination of the tonal contour); by contrast, two tonal processes grammatically conditioned but independent from the segmental structure of the stem may modify its tonal contour.

a) In some forms, irrespective of its length and of its segmentation into formatives, the stem shows a tonal sequence LHH... (if the verb root is underlyingly toneless) or HHH... (if the verb root is underlyingly high-toned).¹⁰ I refer to this phenomenon as «incorporation of a grammatical high tone to the stem». In (15a), no grammatical high tone is incorporated, and the underlyingly toneless stem t^hálòχàŋ shows a HLLL contour because of the spreading of a H tone belonging to the prefix ká-. In (15b), the incorporation of a grammatical H tone results in a contour LH... that cannot be subsequently modified by spreading phenomena, and can be modified only by postlexical tone rules affecting the final syllable of words in given conditions.

- (15) a. bá- ká- t^hálòχàŋ- à ‘They can understand’
 s3:2(-3) POT(-2) understand(0) FIN(+4)
- b. bá- ká-sì t^hálòχáŋ- ì ‘They cannot understand’
 s3:2(-3) POT-NEG(-2) understand(0) FIN(+4)

b) In some forms, the tone attributed to the last syllable of the verb by tone rules internal to the verbal word undergoes only regular postlexical tonal processes. But in some other forms, the final is tonally «weak» in the sense that, if it receives a high tone by virtue of tone rules internal to the verbal word, this high tone may be replaced by a low tone in contexts in which no regular postlexical tone rule affects final high tones. Ex. (16-17) show that the «strong» final of the conjunctive form of the indicative present negative maintains a high tone in contexts in which the «weak» final of the sequential 2 shows an alternation high ~ low.

- (16) a. *Ga ke bereke nabo* χà-kí-bérék-í nà-bó
 ‘I do not work with them’ NEG-S1S-work-FIN with-PRO3:2
- b. *Ga ke bereke thata* χà-kí-bérék-í t^háta
 ‘I do not work much’ NEG-S1S-work-FIN much
- (17) a. ... *ke bereke nabo* kì-bérék-í nà-bó
 ‘... and I shall work with them’ S1S.SEQ2-work-FIN with-PRO3:2
- a. ... *ke bereke thata* kì-bérék-ì t^háta
 ‘... and I shall work much’ S1S.SEQ2-work-FIN much

6. TSWANA VERB INFLECTION: THE CHARACTERISTICS OF THE INDIVIDUAL VERB FORMS

The shape of each inflected form of a Tswana verb is determined by a particular combination of the following features:

- the choice between the four possible finals filling Position 4,
- for the forms including an obligatory subject marker in Position 2, the choice between the four possible sets of subject markers,
- the insertion of particular formatives in Positions -4, -2, +2, or +5,
- the presence *vs.* absence of a grammatical high tone,
- the tonal nature of the final.

In addition to that, some tenses show particularities that cannot be reduced to any regularity. A comprehensive morphological characterization of the forms already listed in section 3 is given as an annex.

7. DISCUSSION

7.1. *General Remarks*

Tswana verb forms are Saussurean signs whose «signifié» can be described as a set of features including the inflectional specifications listed in section 3, and whose «signifiant» is a string of formatives. But the fact that Tswana verb morphology can be represented as a template does not mean that it is amenable to a concatenative morphematic morphology.

The first formalized syntactically-based approaches to inflection explored the hypothesis of a relatively simple correspondence between the features accounting for the syntactic and/or semantic properties of words and the formatives whose concatenation accounts for its phonological form: according to this hypothesis, words are concatenations of morphemes much in the same way as phrases are concatenations of words. In this perspective, each formative must be the «signifiant» of a particular feature or set of features, and overlaps must remain strictly local and amenable to phonological interactions between adjacent formatives.

Tswana verb inflection quite obviously does not satisfy this condition:

- a) from the point of view of mapping a given set of inflectional features onto a string of formatives, multiple exponence is the rule, not the exception, and the formatives that contribute to the expression of a given feature are often non-adjacent, which excludes the possibility to consider one of the formatives as the main exponent, and to treat the overlaps as the result of morphophonological processes;

b) from the point of view of reconstituting the set of abstract features underlying a given string of formatives, it is common that the recognition of an inflectional feature follows from a combination of formatives that, taken individually, have no particular relation to the feature in question.

The following sections draw the attention to some aspects of Tswana verb inflection particularly relevant for a discussion of the Lexical Integrity Principle.

7.2. Morphologically Heterogeneous Correlations

From a syntactic or semantic point of view, the verbal system of Tswana is very clearly organized along several correlations, that however have no constant morphological mark. The relative verb forms, consistently distinguished from the corresponding circumstantial forms by means of the suffix -ŋ in Position +5, constitute rather an exception. The negative verb forms have no constant mark that would systematically distinguish them from the corresponding positive forms, and similar observations can be made regarding the correlation indicative vs. circumstantial.

In all negative forms, a negative marker ($\chi\grave{a}$ -, $s\grave{i}$ -, or $s\grave{a}$ -) can be identified as the main exponent of negation, but no general principle can account for the choice of one of these markers (the forms in which each of them occurs can only be enumerated), and none of them can constitute the unique exponent of negation. Their interaction with other formatives does not show any regularity, and in addition to that is not always local. For example, in the indicative present, the presence of the negative marker $\chi\grave{a}$ - implies the replacement of the final -a by -ɪ, but in the indicative perfect, which has in the positive the final -e ~ -ɪ, the presence of the same negative marker $\chi\grave{a}$ - triggers the use of the final -a. Some tense markers (for example potential $k\acute{a}$ -) are not affected by the presence of a negative marker, but the indicative perfect is marked by -il in Position +2 in the positive, and by a- in Position -2 in the negative, and no special syntactic or semantic behaviour of this TAM value in its combination with negation can explain the use of two different markers in two different positions; the fact that the perfect marker -il in Position +2 is found in all positive forms of the perfect, whereas a- in Position -2 is found in the indicative only, has no explanation either.

An important difficulty for a treatment of inflection based on inflectional morpheme movement would follow from the fact that one of the negative markers occurs in Position -4, whereas the other two occur in Position -2; since all negative forms have exactly the same syntactic and semantic properties, irrespective of the particular negative marker they include, it would be difficult to explain why negative markers occupying the same position in the underlying architecture of the clause should move to two different positions in the morphological structure of verb forms.

The case of the correlation indicative *vs.* circumstantial is even worse, since this distinction entirely relies on combinations of affixes and tonal phenomena that, taken individually, cannot be analysed as specialized in the encoding of this distinction.

7.3. *Formatives Occurring in a Variety of Forms that have no Syntactic or Semantic Feature in Common*

The impossibility to analyse the morphological units contributing to the formation of Tswana verb forms as morphemes is particularly obvious for some of them, which occur in sets of forms that have no syntactic or semantic feature in common. Particularly striking cases are the final -a, the final -ɪ, the grammatical high tone, and the tonal feature «weak».

The final -a is observed in several subsets of verb forms, and among the subsets that include more than one form, none has the final -a in all forms belonging to it. The final -a occurs in forms that have various TAM values, and no TAM value is uniformly associated to it. It occurs in positive as well as in negative forms.

At first sight, the distribution of the final -ɪ may seem more homogeneous, since it occurs mainly in negative forms. But the final of the negative forms of the perfect is -a, and -ɪ is found in some positive forms also, which forbids analysing it as a negative marker.

The list of forms in which a grammatical high tone is incorporated to the stem includes all negative forms, but it includes also several positive forms, and the lack of coherence of some details of its distribution is obvious. For example, in the indicative perfect positive, a high tone is incorporated to the stem in the conjunctive form only, whereas in all other cases, its presence is independent from the disjunctive *vs.* conjunctive distinction.

The only possible function of the tonal feature «weak» is to contribute to the distinction between disjunctive and conjunctive forms, and in most cases, the distinction between disjunctive and conjunctive forms entirely relies on it. But in some tenses (for example, in the indicative future positive), the feature «weak» characterizes the conjunctive form, whereas in others (for example, in the indicative present negative) it characterizes the disjunctive form. There are also tenses (for example, the circumstantial perfect positive) with a non-weak final irrespective of the distinction conjunctive *vs.* disjunctive, and others (for example, the circumstantial present negative) with a weak final irrespective of the distinction conjunctive *vs.* disjunctive. The division of tenses into four groups according to the tonal behaviour of the last syllable does not show any correlation with any feature characterizing the syntactic or semantic properties of verb forms, or with any other morphological feature. Consequently, this tonal feature cannot be treated as a prosodic morpheme, or as an element of the «signifiant» of some other morpheme.

8. CONCLUSION

To summarize, Tswana is a particularly clear case of a language in which a linguist applying the classical procedures of morphological analysis has no difficulty in analysing verb forms as strings of formatives belonging to different classes, each class occupying a fixed position in a template. But at the same time, Tswana is also a very clear case of a language in which the analysis of the affixes or prosodic elements whose combination accounts for the phonological form of words as morphemes faces insuperable difficulties.

The only possibility to maintain a syntactically-oriented approach to Tswana verb inflection would be to admit that the atoms of the syntactic structure are not lexemes and inflectional morphemes in the current sense of this term, but rather lexemes and abstract features not necessarily identifiable as segments of the words into which they are incorporated by movement operations, as proposed in Distributed Morphology. But such a treatment implies to abandon what was the initial inspiration of the syntactically-oriented approaches to inflection, and to accept the basic principle of Strong Lexicalism in a more or less disguised form.

In my view, the recognition of the impossibility to maintain morphs as the basic units of the syntax-morphology interface is more fundamental than the distinction between theories that maintain some kind of syntactic machinery in the treatment of inflection, and others that consistently draw the consequences of the impossibility to consider inflectional morphology as the result of syntactic operations on morphs.

Annex: Morphological Characterization of the Inflected Forms of Tswana Verbs

Indicative present positive (disj.): final -a, subject marker of set A, a- (DJT) in Position -2.

Indicative present positive (conj.): final -a, subject marker of set A, weak final.

Indicative present negative (disj.): final -i, subject marker of set B, χ a- (NEG) in Position -4, grammatical high tone, weak final.

Indicative present negative (conj.): final -i, subject marker of set B, χ a- (NEG) in Position -4, grammatical high tone.

Indicative perfect positive (disj.): final -e~i, subject marker of set A, -il (PFT) in Position +2.¹¹

Indicative perfect positive (conj.): final -e~i, subject marker of set A, -il (PFT) in Position +2, grammatical high tone, weak final.

Indicative perfect negative (disj.): final -a, subject marker of set B, χ a- (NEG) in Position -4, a- (PFT) in Position -2, grammatical high tone, weak final.

Indicative perfect negative (conj.): final -a, subject marker of set B, χ a- (NEG) in Position -4, a- (PFT) in Position -2, grammatical high tone.

Indicative future positive (disj.): final -a, subject marker of set A, t λ aa- (FUT) in Position -2.

- Indicative future positive (conj.):* final -a, subject marker of set A, tlaa- (FUT) in Position -2, weak final.
- Indicative future negative:* final -i, subject marker of set A, tlaa-si- (FUT-NEG) in Position -2, grammatical high tone, weak final.
- Indicative potential positive (disj.):* final -a, subject marker of set A, ká- (POT) in Position -2.
- Indicative potential positive (conj.):* final -a, subject marker of set A, ká- (POT) in Position -2, weak final.
- Indicative potential negative:* final -i, subject marker of set A, ká-si- (POT-NEG) in Position -2, grammatical high tone, weak final.
- Circumstantial present positive:* final -a, subject marker of set B.¹²
- Circumstantial present negative:* final -i, subject marker of set B, sa- (NEG) in Position -2, grammatical high tone, weak final.
- Circumstantial perfect positive:* final -e~i, subject marker of set B, -il (PFT) in Position +2, grammatical high tone.
- Circumstantial perfect negative:* final -a, subject marker of set B, sa- (NEG) in Position -2, grammatical high tone, weak final.
- Circumstantial future positive (disj.):* final -a, subject marker of set B, tlaa- (FUT) in Position -2.
- Circumstantial future positive (conj.):* final -a, subject marker of set B, tlaa- (FUT) in Position -2, weak final.
- Circumstantial future negative:* final -i, subject marker of set B, tlaa-si- (FUT-NEG) in Position -2, grammatical high tone, weak final.
- Circumstantial potential positive (disj.):* final -a, subject marker of set B, ká- (POT) in Position -2.
- Circumstantial potential positive (conj.):* final -a, subject marker of set B, ká- (POT) in Position -2, weak final.
- Circumstantial potential negative:* final -i, subject marker of set B, ká-si- (POT-NEG) in Position -2, grammatical high tone weak final.
- Relative forms:* in general, the only differences between the relative forms and the corresponding circumstantial forms are: (a) the presence of -ŋ (REL) in Position +5, which leads to the neutralisation of *disjunctive vs. conjunctive* distinctions, and (b) the possibility to use subject markers of set A in free variation with those of set B. The only particular case is the relative form of the present, which does not show the tonal irregularity observed in the corresponding circumstantial form.
- Subjunctive positive:* final -e, subject marker of set B, weak final.¹³
- Subjunctive negative:* final -i, subject marker of set B, si- (NEG) in Position -2, grammatical high tone, weak final.
- Sequential 1 (disj.):* final -a, special set of subject markers.
- Sequential 1 (conj.):* final -a, special set of subject markers, weak final.
- Sequential 2:* final -i, special set of subject markers, grammatical high tone, weak final.
- Imperative positive singular:* final -a or -e, no subject marker, grammatical high tone, weak final.¹⁴
- Imperative positive plural:* final -a or -e, no subject marker, -ŋ (PL) in Position +5, grammatical high tone.

- Imperative negative singular*: final -I, no subject marker, sI- (NEG) in Position -2, grammatical high tone, weak final.
- Imperative negative plural*: final -I, no subject marker, sI- (NEG) in Position -2, -ŋ (PL) in Position +5, grammatical high tone.
- Infinitive present positive (disj.)*: final -a, χʊ- (INF) in Position -3.
- Infinitive present positive (conj.)*: final -a, χʊ- (INF) in Position -3, weak final.
- Infinitive present negative*: final -I, χʊ- (INF) in Position -3, sa- (NEG) in Position -2, grammatical high tone, weak final.
- Infinitive future positive (disj.)*: final -a, χʊ- (INF) in Position -3, tʌa- (FUT) in Position -2.
- Infinitive future positive (conj.)*: final -a, χʊ- (INF) in Position -3, tʌa- (FUT) in Position -2, weak final.
- Infinitive future negative*: final -a, χʊ- (INF) in Position -3, tʌa-sI- (FUT-NEG) in Position -2, grammatical high tone, weak final.
- Infinitive potential positive (disj.)*: final -a, χʊ- (INF) in Position -3, ká- (POT) in Position -2.
- Infinitive potential positive (conj.)*: final -a, χʊ- (INF) in Position -3, ká- (POT) in Position -2, weak final.
- Infinitive potential negative*: final -a, χʊ- (INF) in Position -3, ká-sI- (POT-NEG) in Position -2, grammatical high tone, weak final.
- Infinitive continuative (disj.)*: final -a, χʊ- (INF) in Position -3, sá- (CONT) in Position -2.
- Infinitive continuative (conj.)*: final -a, χʊ- (INF) in Position -3, sá- (CONT) in Position -2, weak final.

NOTES

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¹ For an overall presentation of Tswana, see Cole (1955), Creissels (2003).

² In applicative constructions, participants that cross-linguistically tend to be treated as obliques are systematically encoded as objects.

³ In the analytic verb forms, the auxiliated verb may occur in a sequential form, in a circumstantial form, or in the infinitive. Cf. Creissels (2001).

⁴ On Tswana infinitives, see Creissels (2004).

⁵ The following abbreviations are used in the glosses of Tswana examples:

1S, 2S = 1st/2nd person singular; 1P, 2P = 1st/2nd person plural; 3:X = 3rd person, class X; numbers at the beginning of the gloss of nominal forms indicate the noun-class to which it belongs; APPL = applicative; CAUS = causative; CONT = continuative; DJT = disjunctive; FIN= final; FUT = future; INF = infinitive; LINK = linker; NEG = negation; O... = object marker; PFT = perfect; PL = plural POT = potential; PRO = pronoun; PSV = passive; RECIPR = reciprocal; REL = relative; S... = subject marker, SEQ1 = sequential 1, SEQ2 = sequential 2

⁶ I designate here as «circumstantial» the forms designated as «participial» in Creissels, Chebanne, Nkhwa (1997), and that I use «sequential» as a label for the forms labelled

«consecutive» in Creissels, Chebanne, Nkhwa (1997). The reason for avoiding the term «participial» (traditional in South African Bantu studies) is that these forms are in many respects very different from the forms traditionally labelled «participles» in European grammar. The reason for avoiding «consecutive» is that misunderstandings about the meaning of these form may follow from the traditional use of this term in relation with a particular type of adverbial subordination.

⁷ «(disj. / conj.)» signals the tenses that have a distinction between a disjunctive and a conjunctive form.

⁸ The synthetic forms of the future (indicative, circumstantial, relative, and infinitive) are very rarely used. Negative future is more commonly expressed by means of analytic forms.

⁹ Two of these formatives (ká- and sa-) have an irregular tonal behaviour. Cf. Creissels, Chebanne, Nkhwa (1997:55) for a possible treatment.

¹⁰ In the case of monosyllabic stems, the LHH... contour is reduced to H, resulting in the neutralization of the distinction between toneless roots and high-toned roots.

¹¹ This form is also characterized by tonal variations that cannot be accounted for by means of any regular tone rule. Cf. Creissels, Chebanne, Nkhwa (1997:50) for a possible treatment of this exceptional tonal behaviour)

¹² When no object marker or reflexive marker is present, this form shows tonal variations that cannot be accounted for by means of any regular tone rule. Cf. Creissels, Chebanne, Nkhwa (1997:50) for a possible treatment of this exceptional tonal behaviour.

¹³ When no object marker or reflexive marker is present, the subjunctive positive has a tonal contour which cannot be accounted for by means of any regular tone rule. For more details, see Creissels, Chebanne, Nkhwa (1997:167).

¹⁴ In the imperative positive, the choice between the two possible finals depends on the presence of object markers.

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Summary: Sulla base di una concisa ma completa descrizione della struttura morfologica delle forme verbali sintetiche dello Tswana, questo articolo mostra che le forme verbali sintetiche non sono riconducibili ad un approccio alla flessione coerentemente basato sulla nozione di morfema nel senso della tradizione strutturalista americana. Le sole opzioni possibili sono sia il tipo di approccio conosciuto come lessicalismo forte, caratterizzato dal riconoscere che le parole pienamente flesse sono le unità minime della sintassi, sia approcci che mantengono un qualche meccanismo sintattico nel trattamento della flessione, ma che condividono con il lessicalismo forte il riconoscimento di tratti flessivi astratti, piuttosto che di morfi, quali unità rilevanti nella descrizione dell'interfaccia sintassi–morfologia.