INTERSUFFIXING IN SETSWANA

The case of the perfective -ile, the applicative -ela, and the causative -isa

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Introduction

Our motivation and inspiration to undertake this aspect of the phonology of Setswana is derived from research in Setswana phonology by Creissels (Notes, 1991-1992) and from the Bantu languages phonology by Bastin (1983). The re-analysis of the phenomenon that we earlier treated under what the two linguists describe generally as "imbrication"[1] (cf. Chebanne, 1993, ACAL 24), and which means an affixal imbedding which transforms morphemes has yielded new interpretations on the Setswana data. We are now inclined to call this phenomenon "intersuffixing", which refers here to the adjustment of positions and forms undergone by verbal suffixes according to morpho-phonological rules. The two terms, intersuffixing and imbrication, actually do not mutually exclude each other. Imbrication may result after certain suffixal permutations in the process of intersuffixing have occurred.

Verbal Extensions in Setswana

To convincingly present the phenomenon we are exposing here, we must first demonstrate that the Setswana verbal lexeme, as in other Bantu languages, is characterised by verbal extensions (affixes) which constitute a systematic affixation (addition of specialised morphemes at the end of the verbal base) according to the diathesis (or the voice - i.e, a syntactic relation between the subject and the object

of a grammatical structure which assigns to it a value). Setswana possesses quite a number of extensions (suffixes), some of which have no longer any evident semantic value; they have become fixed and fossilised to the verbal base. A quick look at them will give a clearer idea of their morphology and semantic and syntactic role: -el-, Applicative/applied; -is-, Causative/factive; -eg-, -al-, i(n), -eseg-, -agal-, Middle-voice/neuter; -(i)w-, Passive and; -an- Reciprocative/Reciprocal. The -ol-, Reversive and the -ak- Extensive/Intensive, and -ile perfective do not arise from the diathesis.

These affixal morphemes can combine within a single verbal base. When one examines the possibility of affixal combination, one observes that some combinations can be made only in one order, others are possible in two different orders, but with a difference in meaning. The order can therefore be conditioned by the "semantic field", the "morphological insertion", and the "phonological infixation and intersuffixing"[1] . In this combining of affixes there is a certain order which is more or less fixed. A hypothesis can be posited[2] :

BASE+{inversive-intensive-causative-middlevoice-applicative-passive}+ENDING

The reciprocal seems to be relatively mobile in derivation:

> → lw-a (fight)
> → lw-an-a (fight against each other)
> → lw-an-tsh-a (make to fight each other)
> → lw-an-tsh-an-a (make each other fight one another)

In this order of affixal combination, there can be saturation and incompatibilities caused by the meaning. There can also occur phonological readjustments (intersuffixing).

It is admitted in Bantu grammars that a primitive verbal base bears a lexeme and a finale and a derived base bears a lexeme, one or more extensions, and a final vowel. The verbal base if ever it is reduced to the minimum, always bears the finale. The finale which is always vocalic, constitutes a distinct morpheme. In fact this finale varies in the diversity of verbal conjugation and can take the forms "-a" (in infinitives and positive forms of various tenses); "-ε" (in negative and subjunctive forms); "-i" (in certain negative and perfect forms) and; "-e" (in certain negative, perfect, and subjunctive forms). The verbal base whether primitive or derived can

also take the perfect suffix which together with the causative suffix are involved in what we are going to analyse here.

The case of the perfective -ile

To understand the problem tackled here, we must first show that the suffixes of the perfect stems |iDe| (-ile) and its reduced form |ie| (-ie) have the particularity of appearing in a discontinuous form due to the rule of intersuffixing.

Intersuffixing operates in an evident manner when the verbal base bears the passive morpheme, which in the perfect appears inserted in the form -w- between two segments which constitute in an undissociated manner the morpheme of the perfect:

-réka "buy"   →   perfect base: rek-ile

↓

passive derivative: →   perfect base
-rek-w-a   of the passive: rek-il-w-e

According to Cresseils (1992), even if the concept of a "discontinuous morpheme" is not universally accepted, in such a case it seems difficult not to admit that morphemes can be constituted by two fragments that are susceptible to be found dissociated by the intersuffixing rule.

[At the level of notions, the dash signifies the "limit of morphemes", and to avoid any ambiguity, it is the dot which will be conventionally used to indicate at the structural level the limit between two segments of a morpheme susceptible to appear in a discontinuous form]. One will then explain the perfect base of the passive derivative -rék-a as follows:

- rek-w-il.e   →   rek-il-w-e   (intersuffixing)

In a similar manner, -bon-a "see" has a perfect base boŋ. The structural form bon-i.e is derived from a phonological process which reduces -ile by eliding the -l-. The

passive derivative *bon-w-a* has a perfect base boŋ-w-, which can then be explained in the following way:

bon-o-i.e   → bon-i-o-e (intersuffixing)
                → boŋ-o-e
                → boŋ-w-

To be really rigorous, one must write the intersuffixing rule at the level of presentation where the morphemes are designated in semantic and syntactic terms and have not yet received a phonological form, to take into account the fact that an ultimate choice of allomorphs is in any case posterior to the application of the intersuffixing rule. For an example:

psv-pft1.pft2   →   pft1-psv-pft2,

where psv signifies "passive extension", pft1 "first fragment of the perfect final vowel" and pft2 "second fragment of the perfect ending".

Further more, there exists in Setswana a set of verbal bases which take what seems to be at first sight a particular finale of the perfect, -itse. It is important to note that the choice of this variant is not an isolated case: for verbal bases which select this variant of the perfect finale, the applicative extension, generally realised -el-, takes a form -ets- which as it can be noted, coincides with the form taken by this same applicative extension in contact with the perfect finale |ie|; finally, the combination of the applicative extension and the perfect finale takes with these same verbal bases the form -ed-itse.

The set of the bases which select these variants of the perfect finale and of the applicative extension includes in particular the totality of the verbal bases bearing a causative extension immediately before the finale, and it may be suspected that the verbs that belong to this set, without being synchronically identifiable as causative, must be fossilised ancient causatives. For example:

-rek-a "buy"   perfect base: -rek-ile
                    applicative derivative: -rek-el-a
↓   perfect base of the appl. deriv.: -rek-ets-e
+ causative:

-rek-is-a "sell"   perfect base: -rek-is-itse

↓

+ applicative:
-rek-is-ets-a   perfect base: -rek-is-ed-itse
"to sell for/to somebody"

The case of the causative -is and the applicative -el

For the verbal bases bearing the variant *-is-* of the causative extension, the explanation is not obvious. But for the causative derivative[3] the solution comes from the fact that the combining of the causative extension or the finale of the perfect have generally the effect of re-establishing the non muted final consonant of the lexeme. For example:

tlal-a "be filled"   perfect base: (-tlad-ile*)[4]

↓   tlets-
                                  applicative derivative: - tlal-el-a
↓   perfect base of the applic.: tlal-ets-

+ causative
- tlata-a "fill"   perfect base: tlad-itse

↓

+ applicative
- tlal-ets-a "to fill for someone"   perf. base of the causative:
                                       tlal-ed-itse

In fact the mechanical combining of the perfect ending to the causative derivatives would give incorrect forms like: tlats-ile; tlats-el-a; tlats-itse. Now, taking into account the realisation rules that have already been established and the analysis proposed here above of causatives in $|i|^5$, one can admit that:

- tlets-e	(perfective of tlala)	represents	tlaiD-ie
-tlats-a	(causative of tlala)	represents	tlaD-i-a
-tlad-itse	(perfective of tlatsa)	represents	tlaD-iD-i-e
-tlal-ets-a	(applicative of tlala)	represents	tlaD-eD-i-a
-tlal-ed-itse	(perfective of tlaletsa)	represents	tlaD-eD-iD-i-e

It can be seen that these alternants, complex at first sight, can be explained simply

from the structural forms |eD| (-el-) for the applicative extension and |iDe| (-ile) for the ending of the perfect, on condition that it is admitted that the morpheme of the causative |i| undergoes morpho-phonological rules that displace it to the right of the applicative extension and insert it between the two fragments of the perfect ending:

tlaD-i-iDe	→ tlaD-iD-i-e (intersuffixing)
→tlaD-its-i-e (D	→ ts / ... V+cor.V) (imbrication)
→ tlaD-its-e (V+cor. (tladitse)[6]	→ Ø / C ... V) (elision)

tlaD-i-ED-a	→tlaD-ED-i-a (permutation)
→ tlaD-eD-i-a (ɛ	→ e / ... X Vap. 1-3)
	→tlaD-ets-i-a (D → ts / ... V+cor. V) (imbrication)
→ tlaD-ets-a (V+cor.	→ Ø/ C ... V) (tlaletsa)

tlaD-i-ɛD-iD.e	→ tlaD-ɛD-iD-i-e
	→ (permutation intersuffixing)
→ tlaD-eD-iD-i-e (ɛ	→ e / ... X Vap. 1-3)
→ tlaD-eD-its-i-e (D	→ ts /...V+cor. V) (imbrication)
→ tlaD-eD-its-e (V+cor.	→ Ø / C ... V) (tlaleditse)

If the same verbal base accumulates causative, applicative and passive affixes, (meaning, "having been the one for who it was filled"), we have a double intersuffixing in the perfect: tlal-ed-its-w-e, which can be explained in the following manner:

tlaD-i-ɛD-o-iD.e	→ tlaD-ɛD-iD-i-o-e (double intersuffixing)
→ tlaD-eD-iD-i-o-e (ɛ	→ e / ... X Vap. 1-3)
→ tlaD-eD-its-i-o-e (D	→ ts / ...V+cor. V) (imbrication)
→ tlaD-eD-its-o-e (V+cor.	→ Ø / C ... V)
→tlaD-eD-its-w-e (V-cor.	→ w /... a or V+cor.)(tlaleditswe)

According to Creissels[7] the same explanations are valid for verbal bases which can be suspected to be from ancient causatives, but which are no longer felt as such by speakers of the language, and which are difficult if not impossible to identify as

derivatives without going out of the synchronic description framework. For example:

-bots-a (to question)   → perfect base: -bod-itse

↓

applicative derivative

-bol-ets-a (to question for) → perfect base: -bol-ed-itse

The solution which is envisageable here is to consider that the lexeme "to question" is structurally |boD.i| (bol.i) (cf. also to "bola" (to speak) in Ng'oloxa dialect of Sekgalagadi), that is, it is susceptible of appearing in two fragments; the second fragment, though it can no longer be isolated as a morpheme, has in regard to suffixes that can join themselves to this lexeme the same properties of displacement as -i-, the causative morpheme.

We have seen from the above examples that the bases that comprise the variant -is- of the causative extension have also the property to select the variant -itse of the perfect finale as well as the variant -ets- of the applicative extension. The only way not to see a pure and simple irregularity (which would be much less satisfying) consists of analysing this suffix in a similar way that has just been suggested for the lexeme like -bɔts-.

When one takes into account this procedure, the most economic and coherent way to account for the morphologic properties of the forms such as -rek-is-a "to sell" is to consider that structurally, the morpheme which precedes the finale is |is.i|. But first we must submit that Creissels (1991/1992) has shown that "s" does not undergo the alternances of the |j| type, and Cole (1955) has also not raised the transformation of "s". It can also be shown that "i" in an immediate context of C...V can be dropped leaving as a trace an eventual modification of the consonant in question. Therefore if it occurs that the inclusion of an "i" in the structural form of this morpheme allows to account for some of these particularities, there is no reason to reject this hypothesis, since elsewhere it can be easily explained why it disappears more often without leaving a trace.

The structural form |is.i| permits one to forecast that the "i" that is postulated here as the second fragment of the causative morpheme generally realised "-is-" is manifested only in the case where the intersuffixing rule displaces it into a context

where it can exercise its action on a consonant. For instance -rek-is-itse, perfect base of -rek-is-a, rek-is-ets-a, applicative derivative of rek-is-a and rek-is-ed-itse, perfect base of -rek-is-ets-a can be explained in the following way:

rɛk-is.i-iD.e
→ rek-is-iD-i-e (intersuffixing)
→ rek-is-iD-i-e (ɛ → e /...X V aperture 1-3)
→ rek-is-its-i-e (D → ts / ...V+coronary vowel) (imbrication)
→ rek-is-its-e (V+cor. → Ø / C ... V)

rek-is.i-ɛD-a
→ rek-is-ɛD-i-a (intersuffixing)
→ rek-is-eD-i-a (e → e / ... X V ap 1-3)
→ rek-is-ets-i-a (D → ts / ... V+cor. V) (imbrication)
→ rek-is-ets-a (V+cor. → Ø / C ... V)

rɛk-is.i-ɛD-iD.e
→ rɛk-is-ɛD-iD-i-e (intersuffixing)
→ rek-is-eD-iD-i-e (ɛ → e / ...X Vap 1-3)
→ rek-is-eD-its-i-e (D → ts / ... V+cor. V) (imbrication)
→ rek-is-eD-its-e (V+cor. → Ø / C ... V) (rekiseditse)

The remark that can be made from this observation is that the Setswana language has not, as it may be thought at first sight, two causative morphemes which are totally different: there is fundamentally one morpheme which for some verbs is extended |is.i| or reduced |i| , without one actually in the present state of the language being able to isolate as a morpheme the first morpheme |is| of this discontinuous morpheme.

Conclusion

In recapitulation, we may argue that it is prudent to consider that the morpho-phonological rules which account for the intersuffixing of discontinuous morphemes are not rules of realisation operating on units already provided with a phonological form, but rather rules which operate at the level of representation

where the structure appears like a chain of abstract lexical and grammatical units to which a phonological form has not yet been attributed.

In such a representation, two grammatical units of Setswana appear as a chain of two fragments:

- perfect	→ pft1 + pfft2	(perfect positive ending)
- causative	→ (caus.1) + caus.2	(causative derivative)[8]

We may add to these units a certain number of lexemes which morphologically bear two fragments, the second being identifiable to causative[2], in spite of the fact that these lexemes are not identifiable as derivatives according to criteria that are generally used. And then, "psv" referring to the passive extension and "appl." designating the applicative extension, the following permutation rules will be expressed, to be applied in the indicated order to result in the intersuffixings observed at the surface:

- caus.2 + appl.	→ appl. + caus.2
- psv + pft1	→ pft1 + psv
- caus.2 + pft1	→ pft1 + caus.2

The behaviour of the perfect suffix in Setswana has other manifestations, which if one is not very careful, would lead to false assumptions that there are more than one perfect stem. The morpho-phonological processes which are attested elsewhere could be applied here to clarify these cases. Here we are thinking of the following seemingly irregular cases:

1. The perfective of εm-a (to stand, stop) which in the perfect is rendered εm-ι. This case can be explained by submiting that as in the case of bɔn-w-a which becomes bɔŋ-w- in the perfect, there are successive processes of -ile suffixal reduction:

ema   → εm-il.e (l   → ø / Cn(lab.) ...V ap.3..l) (elision)
       → εm-l.e (l   → ø / Cn(lab.)...V ap.1...l...V) (dissimilation)
       → εm-e   (V ap.3 → Vap.2 / Cn (lab.)...e)
       (assimilation)
       (eme)

2.   The perfective of apar-a which takes the form apɛr-ι may be explained by positing that underlyingly apar-a has the form apa.ir-. If that is admitted, then the usual suffixal reduction rule applies:

apa.ir-a → apair-il.e (ai → ɛ) (assimilation)
→ apɛr-il.e (l → ø / Cr...Vap.1..l...) (dissimilation)
→ apɛr-i.e (l → ø / C...Vap.3) (elision)
→ apɛr-e (Vap.3 → Vap.2) / Vap.4...C...Vap.3 (assimilation)
    (apere)

3.   The case of bin-a (to dance) which becomes bin-ne in the perfect is a regular one. It does not arise from the morph-phonological process of intersuffixing nor of imbrication, but that of a regular assimilation of dental consonants (nasal and lateral) -n-l- which produces a double nasalisation -nn-.

Why these suffixal reductions, assimiltions and elisions occur is a complex issue to synchronically account for. And why these verbal bases do not synchronically accept suffixal intersuffixing nor imbrication on them could be explanable from their morpho-phononological conditions. These complex conditions which are no longer evident in synchrony give the impression that Setswana has more than one perfect and causative suffixes, but what is observable from these brief analysis is that, in fact, there is only one suffix -il.e of the perfect, and also one suffix -is.i of the causative. Both these have the particularity of appearing in a discontinuous manner, or can even be reduced according to the phonological environment of the verbal base.

The notion of intersuffixing has perhaps a very small part in the common grammar of the language, but the fact that it is still a diachronically active phenomenon as evidenced in our short presentation, warrants it a mention in the various phonological studies undertaken on the language. Its phonological features and processes, especially when considered under the general |j| transformations, are quite interesting for linguists of the Setswana language.

Endnotes:

. Chebanne: "Etudes constrative des constructions verbales en tswana et en français". (PhD thesis, Université Stendhal-Grenoble III, 1991), Page 263.

. Chebanne, ibid., page 264

. The causative derivatives of the Setswana verb characterise themselves in most cases by a suffix -is-. But a certain number of verbal bases whose final consonant is f, l, n; or X , no segment can be isolated in realisation as representing the causative morpheme, and the formation of the causative derivative turns out to be a substitution of tsh for f, of ts for l, of ŋ for n and s for x ; if the preceding vowel is E or O, it becomes e or o respectively:

nonof-a (be capable)	→ nonotsh-a
tlal-a (be filled)	→ tlats-a
tsen-a (come in)	→ tseŋ-a
xoro x-a (arrive)	→ goros-a

The modification undergone by the vowel of the 4th aperture and the fact that l and n are modified exactly as in contact with the reduced perfect finale which is structurally |i.e| lead to attributing to this morpheme of the causative the structural reduced form |i|.

The following rule suffices to account for these modifications x → s / ... V +cor.
V

. This form, though grammatical in some Setswana dialects, is rather common with young Setswana speakers.

. It can even be thought that this rule is part of rules which are generally valid for describing the j type of alternances. and that only the lexical accident or lack of data makes it to be only encountered in the causative derivation: example:

$$\text{x>ɔr> xχ-i-a} \quad \rightarrow \text{xoroχ-i-a (ɔ} \quad \rightarrow \text{o / X V ap..1-3)}$$
$$\rightarrow \text{xoros-i-a (χ} \quad \rightarrow \text{s / ..V +cor..)}$$
$$\rightarrow \text{xoros-a (V+cor..} \rightarrow \text{Ø / C....V)}$$

NB: symbols and phonological concepts are inspired by the research of D. Creissels in his notes: Phonologie du tswana, 1991.

- NB. the allophones d and l are better represented in phonology by /D/ their archiphoneme. /l/ appears before /a/, /o/, /ɷ/, /e/ wowels; and /d/ before /i/ and /u/.

- D. Creissels: "*Phonologie du tswana*", (Personal notes, Université Stendhal-Grenoble III,1991), Chapter XIV, page 11.

- In the case of the causative derivative, the brackets mean that, according to the base to which this unit attaches itself, it can bear the two fragments |is| and |i| or limits itself to the second. As for the perfect positive finale always bears two fragments which can be analysed as |iD| and |e|