SAFWA\textsuperscript{1} AS A RESTRICTED TONE SYSTEM

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1. Some remarks on prosodic systems

Confronted with a language like Safwa, which permits only one prominent\textsuperscript{2} syllable per word\textsuperscript{3} most linguists would probably tend to use the label stress rather than tone. This is because they largely operate with simplified box-model typologies like the following:

- **Stress language**: one distinction per word
- **Tone language**: one distinction per syllable

In some cases the claim is even stronger and it is said that in a stress language, stress or intensity is used, and in a tone language, tone or pitch is used, stress and tone being phonetically distinct.

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\textsuperscript{1}Safwa is a Bantu language, spoken in an unknown number of varieties around Mbeye (in Tanzania), and classified by Guthrie as M 25. See for more details Elise Kootz-Kretschmer, *Die Safwa*, 3 volumes, Berlin, 1926-29. My data are exclusively from Ilaambo, a village between Mbeya and the Poroto mountains to the South. I had access to a manuscript grammar by Bishop J. Van Sambeek (finished in 1933), which proved very helpful in the elicitation. My main informant was Celestine K. Mwachusa, the best informant I have ever worked with. Research was carried out between September 14-October 5, 1966, and financed by a grant from the Netherlands Foundation for the Advancement of Tropical Research (WOTRO) under no. W. 417-5. The results have been privately circulated in the form of a surface grammar under the title: *A Grammar of Safwa*. Preliminary draft by J. Voorhoeve, based on previous research by J. Van Sambeek, checked by C. K. Mwachusa. All data on prosodic features were obtained during the research period. A first draft of this paper has been discussed during a colloquium on prosodic systems at Leiden University, 9-11 September, 1972 (see conference report in SAL 3:49-50). I am grateful to valuable criticisms made by participants, especially by Dr. Thilo C. Schadeberg.

\textsuperscript{2}The term prominence is used throughout this paper as a cover term, which does not force the author to make a decision concerning the phonetic correlates (intensity and/or pitch). A prominent syllable is distinct from a non-prominent one by some prosodic feature(s). While I have used the feature \texttt{[TONE]} in the Safwa rules to be presented, Safwa prominence includes impressionistically both greater intensity and higher pitch.

\textsuperscript{3}The only exception to the general rule that only one syllable per word can be prominent will be discussed in Section 2.
Since I assume that pitch is an important component of both stress and tone, it is difficult to postulate an absolute distinction between the two phenomena in the phonetic output. One has to consider the possibility that the labels stress and tone rather reflect underlying distinctions, and symbolize different functions of prosodic distinctions in the language.

McCawley's unpublished 1964 paper enriched the original tone vs. stress dichotomy by narrowing down the scope of the label Tone, to be attached only to those languages demanding a prosodic specification for every syllable of every morpheme in the lexicon. His boxes are ordered in the following way:

<table>
<thead>
<tr>
<th>Bound accent</th>
<th>No syllable lexically specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partially free accent</td>
<td>One fixed syllable per word specified</td>
</tr>
<tr>
<td>Free accent</td>
<td>One free syllable per word specified</td>
</tr>
<tr>
<td>Tone</td>
<td>Every syllable specified</td>
</tr>
</tbody>
</table>

The main division is constructed between Pitch Accent Languages (the first three boxes) which use Accent reduction rules, and Tone Languages (the last box) which use Tone assimilation rules. One could with the same right draw the main division between the first box (languages with rule defined prosodies) and the last three boxes (languages with lexically defined prosodies).

In his 1970 paper, McCawley suggests that some languages (Japanese dialects, Іїїї, Ganda) do not fit into these boxes. These languages show both Accent reduction rules and Tone assimilation rules, although the first always seem to precede the latter. This observation already questions the box-model typology.

I would like to add another observation, which makes clear that the distinction between the first two boxes is not so obvious either. More often than not we find borderline cases, in which one cannot state without hesitancy whether the language uses lexically defined or rule defined prosodies. Sranan, the coastal English-based Creole language of Surinam (former Dutch Guiana) favors penultimate stress, but a minority of lexical items (mainly Portuguese or other non-English origin) shows
ultimate stress:

(1) kabá (/ P acabar)
pásá (/ P passar)
piñá (/ P penar), etc.

This has even created a minimal pair:

(2) bári (/ E bawl)
barf (/ P barril)

One could regard the language as a Bound Accent Language and indicate the lexical items which do not follow the general rule of penultimate stress placement by a rule feature. But it would also be possible to regard the language as a Partially Free Accent Language and mark all the ultimate syllables: barf (P / barril) vs. bári (E / bawl). If the ultimate syllable is marked, it will be stressed, if not, the preceding syllable will be.

Gambian Mandinka has been described as a language in which all lexical items should be marked as belonging to one of two different patterns: Level or Moving Accent. "These names have been chosen because in most realizations of the former the pitch of the voice remains level throughout the word, while in the latter the voice may rise, fall or remain level according to circumstances." (Rowlands [1959:21]). In certain grammatical constructions, the first lexical item determines the pattern of the whole phrase. In the following examples an acute accent over the first vowel represents the Level Accent, and absence of the acute accent over the first vowel the Moving Accent. Numbers indicate pitch contours, 1 being the lowest level:

(3) sóli 'leopard'
jata 'lion'
kuloo 'skin'
sóli-kuloo /2 2 2 2/ 'leopard skin'
sóli-kulu baa /2 2 2 2 2/ 'a big leopard skin'
sóli-kulu-tio /2 2 2 2 2-2/ 'a leopard skin owner'
jata-kuloo /1 1 2 2/ 'lion skin'
jata-kulu baa /1 1 1 1 2/ 'a big lion skin'
jata-kulu-tio /1 1 1 1 2-2/ 'a lion skin owner'
Both languages, Sranan and Gambian Mandinka, can be described in almost identical terms:

(a) one can pick out one pattern as normal and indicate all lexical items which do not follow this pattern as being exceptional, or

(b) one can mark one syllable of the lexical item (the final one for Sranan and the initial one for Gambian Mandinka) and leave the others unspecified.

Our linguistic intuition indicates solution (a) as correct for Sranan, and solution (b) as correct for Mandinka. This intuition seems to be based primarily on numerical proportions. Solution (b) is preferred if the markings are distributed in an almost equal proportion. Solution (a) is preferred if the exceptions are really exceptional and show a low proportion on the total of lexical items involved.

This observation indicates that there seems to exist a gradual transition between the first two boxes in McCawley's typology, just as there is between the last two boxes.

This may force us to leave all box-model typologies and to move in the direction of a scalar model with defined extremes: all vowels specified for prosodic distinctions on the one hand, and no vowels specified for prosodic distinctions on the other hand. I wonder if the extremes are really as common as the box model suggests. Are there Bound Accent Languages which do not need to mark exceptions (like barábara in Swahili) or Tone languages without restrictions in the distribution of tone over the syllables (like the absence of high tone in Bantu nominal prefixes)? Such a question is only important within a box model. The extremes in a scale model are intended to represent theoretical possibilities which are not expected to be found.

\(^4\) On 200 Bantu roots of the type CV(V)C (Guthrie's reconstruction) Dr. Thilo C Schadeberg counted 114 items with H and 86 items with L tone. The same count on the basis of Meeussen's compilation of all lexical reconstructions before Guthrie indicates 121 with H and 79 with L tone. These proportions are regarded as almost equal. The disproportion may indicate L as the marked category in Proto Bantu.
The present paper shows that in Safwa the prominence patterns can be related to a tonal or prosodic distinction in one vowel of each word (actually the word final vowel). If Safwa is described in this way as a restricted tone system, the surface manifestation of prominence can be accounted for in a very general way. In the final section of this paper, the possibility that this Safwa restricted tone system developed historically from an unrestricted tone system is discussed.

2. A restricted set of data

I shall not present the complex set of data all at once. The surface manifestation of prominence is so complex in the verbal tenses, that a simultaneous demonstration of verbal and non-verbal constructions might leave the reader bewildered. I shall therefore only demonstrate non-verbal constructions in this section, which will lead to a set of rules, to be used in the analysis of verbal constructions later.

In general, only one syllable per word can be prominent in a surface representation. Only one exception to this rule has been observed in the language. The immediate action tense shows two prominent syllables in the same construction:

(4) twągąnąbale 'We went at once.'
    agąnábale 'He went at once.'

This tense can be analyzed as a complex form, consisting of the recent consecutive of the verb -g-an 'to love' which is used as a grammatical morpheme to form the immediate action tense: twągąna 'we loved' or aagąna 'he loved', plus the infinitive with fixed prominence on the initial syllable: bale 'to go'. The rules of vowel reduction⁵ should be applied to the first syllable as if there is no intermediate

⁵A rule of vowel reduction operates in the word final syllable and in all syllables preceding the third mora on underlying long vowels, on conditioned long vowels (preceding nasal complex or following a semi-vowel), and on long vowels produced by a merging of two short vowels without deletion of an underlying intermediate consonant, be it only h. The result can be observed without being made explicit in examples (23) and (24) as far as underlying long vowels are concerned, and in the last derivation of (27) for a long vowel produced by a merging of two short ones.
word boundary. The rules for vowel elision should be applied as if there is an intermediate word boundary. The two prominent syllables also indicate the existence of an intermediate boundary. We should therefore accept for this tense only the existence of a reduced word boundary, which only permits vowel reduction, but no prominence reduction.⁶

Complete deletion of an intermediate word boundary with subsequent prominence reduction can be demonstrated in:

(5) aminógiitu 'our teeth'

The underlying forms are ámiino 'teeth' and giitú 'our', resulting regularly, after deletion of the intermediate word boundary, in the cited surface representation.

The non-verbal constructions show three possible positions of the prominent syllable: Penultimate (PU), Ante-Penultimate (APU), and a phonologically conditioned variation between Word-Final or Ante-Pre-Stem-initial position (WF). This will be demonstrated by the following sets of examples.

(6) PU (a restricted set of 62 nouns and some pronouns):

imboómbo 'a work'
ipiliipíli 'pepper'
imblá 'fox'
išitála 'a bed'
níñi 'I, other reduplicated personal pronouns'
ifpo 'there'
ábaši bámo 'some women'
ámasiku galínga 'how many days'
abéne 'they themselves'
ábaši beéne 'the women only'

⁶I would like to suggest the following summarized derivation: /tu-á-g-an-a ≠ a-hu-bal-ę/, changed by rules 11, 12, and 13 into /tu-á-g-an-a ≠ á-hu-bal-e/. Subsequent rules change this into /twaáganə ≠ ábale/. The rules for vowel elision before word boundary produce /twaágan ≠ ábale/. The intermediate word boundary is at this stage deleted and the rules of vowel reduction apply to produce [twáganábale].
I regard these as exceptional to be marked by a rule feature or in some other way. They do no all receive the same kind of explanation. Some items have underlying forms with a long final vowel, which is reduced by a very general rule of vowel reduction, but counts as two morae for the rules of prominence placement. This is clearly the case in the reduplicated forms as pilliplí (from underlying /pílíi-pílíi/) or nífi (from underlying /nìi-nìi/), but also in ifpo (from underlying /ii-pa-o/). Other items might represent recent loans from stress languages like Swahili or Nyakyusa: ištálá (from Nyakyusa ikitála). Some morphemes like -ene 'self', -ope 'also', and -g- 'to speak' contain consonants which do not permit a preceding long vowel. See for example the difference with -ene 'only' in (6). In the previous description (see note 1) I regarded these as underlying double consonants. It might very well be that in these cases an underlying /abéene/ (with APU prominence) surfaces as abéne (with PU prominence). The exceptional prominence seems related to the exceptional consonant.

(7) APU (an unrestricted set of nominal and pronominal forms):
    anfína  'holes'
    amapánga  'swords'
    aabfíbi  'bad people'
    aahoóndya  'the Nyakyusa'
    umwana wáane  'my child' with loss of intermediate word boundary
    fípa  'here'
    umwana úula  'that child' with loss of intermediate word boundary
    ábaši bábili  'two women'
    šílihu  'which one' cl. 7
    imboómbó ifzyo zyúunti  'all those works'
    umwéhale  'another one' cl. 1

NB: some long vowels (produced by a late deletion of an intermediate consonant, as in these examples aa from underlying aba) are not subjected to the rules of vowel reduction. See also note 5.
8

(8) WF (an unrestricted set of nouns and pronouns; the stem initial boundary indicated by =):

\begin{align*}
\text{ámi}=\text{ino} & \quad \text{‘teeth’} \\
\text{gámi}=\text{ino} & \quad \text{‘the very teeth’} \\
\text{mi}=\text{inó} & \quad \text{‘it is teeth’} \\
\text{pf}=\text{dala} & \quad \text{‘on the way’} \\
\text{áha}=\text{paanga} & \quad \text{‘a small hawk’} \\
\text{áa}=\text{legeembanu} & \quad \text{‘weak people’} \\
\text{áma}=\text{sangalila} & \quad \text{‘charcoal’} \\
\text{in}=\text{kóombe fim=bisi} & \quad \text{‘uncooked beans’} \\
\text{in}=\text{kóombe m=bisí} & \quad \text{‘the beans are uncooked’} \\
\text{úmwe}=\text{enda ún}=\text{šamamu} & \quad \text{‘a red cloth’} \\
\text{úmwe}=\text{enda n}=\text{šamamú} & \quad \text{‘the cloth is red’} \\
\text{gi}=\text{itu} & \quad \text{‘our’} \\
\text{aminógi}=\text{itu} & \quad \text{‘our teeth’} \\
\text{áma}=\text{loongo ga=né} & \quad \text{‘40’} \\
\text{be}=\text{enú bahfinzile} & \quad \text{‘who have come?’} \\
\text{baanzáwe}=\text{b=opó} & \quad \text{‘they will die also’} \\
\text{ába}=\text{anji bali hwí} & \quad \text{‘where are the others’}
\end{align*}

One can formulate a purely phonological condition to account for the variation between word-final and ante-pre-stem-initial prominence. Nominal and pronominal constructions consist of a stem, preceded by an obligatory prefix and an optional initial element, which might be an augment, a pronominal prefix for emphasis, or a locative. This optional element always occupies the ante-pre-stem-initial position. If the construction is used predicatively, the optional element cannot be present, which leaves the ante-pre-stem-initial position empty. In such a case the ultimate syllable is prominent, unless the intermediate word boundary is deleted (e.g. in possessive and demonstrative constructions) and as a result a new ante-pre-stem-initial position becomes available to receive prominence.  

\footnote{\text{/a-\text{ma}=\text{inó} \neq \text{ga}=\text{itu}/ is after deletion of the intermediate word boundary and application of rule 15 which changes every high tone in a word to low except the word final one, transformed into /a-\text{ma-ino}-\text{ga}=\text{itu}/. If rules (12) and (13) apply to this output, the result is /a-\text{ma-inó}-\text{ga}=\text{itu}/ which produces \text{[aminógitu]}.}
3. Analysis of the preceding data

If I am right in considering PU prominence exceptional, a two-way distinction between APU and WF prominence seems to exist in all non-verbal constructions. The choice between these two possibilities depends on the stem and should be marked in the lexicon. The analyst has to decide whether he prefers to attribute this distinction to some suprasegmental accentual feature of the stem or to a segmental feature on one of the stem vowels. The two analytical procedures are associated with two different theories about the nature of prosodic features: are they inherent (vocalic) features, or rather suprasegmental ones (associated with the syllable, the morpheme or some other linguistic unit other than the segment). My general position is that the inherent feature theory should be preferred, until disproven, as long as one has no idea about the nature of suprasegmental features, which do not fit into any general phonological theory. A second argument in favor of the inherent feature theory is the excessive power of a suprasegmental feature. If complete prosodic configurations can be attached to morphemes, the description of the prosodic system of a language becomes trivial and uninteresting. There are no limits to the possibilities, which reduces all distributional arguments to zero.

One of the conditioned variants of the prosodic pattern WF is final high tone. It seems therefore sensible to associate this prosodic pattern with a final high tone in the underlying structure. The other prosodic pattern, APU, would then best be associated with a final low tone. This last pattern can be produced by the following simple rule:

(9)  [+voc] → [+tone] / [——] [ —— ] [-tone] ≠

Only syllabic segments are represented in the rule. One could insert optional consonant segments in between, if one prefers to state the full environment.

This rule proves too simple in case of monosyllabic stems. These express the basic prosodic distinctions in a slightly different way:

(10)  

<table>
<thead>
<tr>
<th></th>
<th>Polysyllabic stems</th>
<th>Monosyllabic stems</th>
</tr>
</thead>
<tbody>
<tr>
<td>APU</td>
<td>amá=fuko 'bags'</td>
<td>aamá=ji 'eggs of lice'</td>
</tr>
<tr>
<td></td>
<td>ama=páanga 'swords'</td>
<td>uubú=la 'intestines'</td>
</tr>
<tr>
<td>WF</td>
<td>áma=futa 'fat'</td>
<td>áma=bo 'wars'</td>
</tr>
</tbody>
</table>
One might consider a rule which doubles the final vowel of monosyllabic stems (like the rule which lengthens automatically the initial vowel in case of monosyllabic stems only as seen in (7)), or to adapt rule (9) in such a way that the stem initial boundary counts as one mora:

\[(11) \ [+voc] \rightarrow [+tone] \ /
\begin{array}{c}
\text{[---]}
\end{array}
\{[\ = \]}
\begin{array}{c}
[-tone]
\end{array}\]

The two prosodic patterns indicated by WF cannot very well be produced by one rule. If the rule is triggered off by a final [+tone] segment, as we supposed before, the ante-pre-stem-initial prominence should overrule the final high tone. This should be executed by a high tone deletion rule. The following rules may do the job:

\[(12) \ [+voc] \rightarrow [+tone] \ /
\begin{array}{c}
\text{[---]}
\end{array}
\{[\ = \]}
\begin{array}{c}
[-tone]
\end{array}\]

if \(X\) does not contain a stem initial boundary

\[(13) \ [+tone] \rightarrow [-tone] \ /
\begin{array}{c}
\text{[+tone]}
\end{array}
\{[\ = \]}
\begin{array}{c}
[-tone]
\end{array}\]

if \(X\) does not contain [+tone]

If rule (12) fails to apply (because there is no ante-pre-stem-initial position available), rule (13) also cannot apply, and the final high tone is realized in the surface representation.

Rule (12) seems a rather mechanical rule. Why should the ante-pre-stem-initial vocalic segment be prominent in case of a final high vowel? The rules could be phrased in a more natural way, reflecting a possible diachronic development (see section 8). But there is no reason to believe that all of the natural diachronic stages are to be incorporated into the synchronic analysis. That is why I regard the set of rules (11), (12), and (13) as a valid part of the Safwa grammar.

I have still to give an account of one other rule. I assume a lexicon in which all word final vowels are marked for [TONE]. Example (5) has shown that deletion of an intermediate word boundary entails deletion of a preceding tone specification:

\[(14) \ \# \ a\text{-ma}=\text{ino} \# \ ga=\text{ane} \# \]
\begin{array}{c}
a\text{-ma-ino-ga}=\text{ane}
\end{array}
\begin{array}{c}
\text{(by deletion of the intermediate word boundary and subsequent application of rule (15))}
\end{array}
\begin{array}{c}
a\text{-ma-ino-gá}=\text{ane}
\end{array}
\begin{array}{c}
\text{(by rule (9))}
\end{array}
\begin{array}{c}
\text{[amino gáane]}
\end{array}
\begin{array}{c}
\text{'my teeth'}
\end{array}
The same result cannot be obtained by an adapted rule (13), which deletes the result of rule (12) in the first element. Example (5) makes clear that this adapted rule (13) should apply before rule (9) can apply. This proves the existence of the following rule, preceding rules (11), (12), and (13):

(15)  [+voc] → [-tone] / ≠ ___ [ ] ≠

All the proposed rules (15, 11, 12 and 13 in this order) are executed as high tone production and deletion rules. It might be more satisfactory to regard [-tone] as a neutral or non-tonal segment, but this would not fit in the phonological model used.

4. First expansion of the set of data (verb constructions with regular prosodic patterns)

Regular patterns are found in those verbal constructions which are influenced by a vocalic prefix of classes 1 and 9, a vocalic verbal suffix (causative -i- or passive -u-) or a vowel-final verb stem, the use of the continuative marker -ag- or -ang-, or by a pronominal object. These do not always exert the same influence on all verbal tenses and will be discussed later. Verbal constructions with fixed prominence on one of the morphemes will also be treated later.

Verbal tenses are defined by formula, which make use of the following abbreviations, cited in the order in which they appear in the verb form: SP = pronominal subject prefix; NE = negative marker si or sa; TM = tense marker; OP = pronominal object prefix; VS = verb stem; SU = verbal suffix; FI = final element, defining with the TM the different tenses.

The following regular prosodic patterns have been observed:

(16)  PU

(i) Negative recent perfect [SP-NE-gaa-VS-ə]
    tusigabajíla 'we could not'
    tusigabuúla 'we have not told'

(ii) Negative recent consecutive [SP-NE-ə-VS-ə]
    tusaayúla 'and we did not yawn'
(17) APU

(i) (Negative) remote perfect [SP-(NE)-ha-VS-ile]
  uhajeándile  'you walked'
  tuhogépe  'we feared'
  tushhabulile  'we did not untie'

(ii) Subjunctive [SP-x-VS-e]
  tuúbale  'let us go'
  tubuúzye  'let us ask'
  NB: x stands for a lengthening of the preceding vowel if in a position where it is not reduced because of the general vowel reduction rule.

(iii) Present [SP-hu-VS-a]
  bahwifíha  'they believe'
  ím'bala  'I am going'
  NB: -hu- is regularly deleted before a consonant.

(iv) Recent consecutive [SP-a-VS-a]
  baábala  'and they went'
  bagáluha  'and they returned'

(v) (Negative) remote consecutive [VP-(NE)-ha-VS-a]
  bahadaámuha  'and they woke up'
  asaabuúlagaga  'and he did not tell'

(vi) (Negative) past continuous [SP-(NE)-mwii-VS-a]
  nimwifíbala  'I was going today'

(vii) (Negative) future [SP-(NE)-hayi-VS-a]
  inhayfbala  'I will go'
  insaayfbala  'I will not go'

(viii) (Negative) potential [SP-(NE)-gaa-VS-a]
  ingaábala  'I can go'
  apa visigaába ívfíntu  'where there can be no food'
  NB: the verb stem 'to be' should have an underlying form ba: vi-si-gaa-ba-a, which includes this form in the APU pattern also.

(ix) Imperative singular [VS-a]
  bóombba  'work'
  zubá  'climb'
NB: the imperative is more complex. The initial vowel of a vowel initial verb stem is lengthened and prominence is expressed on the following vowel: iit'ha 'believe'. We can offer no explanation for this phenomenon. See also iinz' 'come'.

(18) Pre-APU (fourth mora from final word boundary)
Recent perfect [SP-VS-ile]
bat'hiine 'they have agreed'
úgojile 'you have killed'
NB: this is the only tense which shows this prosodic pattern.

5. Analysis of the preceding data

The prosodic patterns of the verbal constructions are never associated with a prosodic difference in the verb stem, but only with the specific tenses used. The final element of a verb form defines partly the verb tense (together with the tense marker). It is therefore possible to regard the final element or the final vowel as responsible for the prosodic pattern, just as in the non-verbal constructions.

The imperative singular in (17ix) shows that the APU pattern should not be produced by a final [-tone] segment. The form zabá indicates that we are in the presence of a WF pattern which shows the variant possibilities of ante-pre-stem-initial and word final position. This variation can only be produced if zabá and bóomba have the underlying structures /zub=ʌ/ and /boomb=ʌ/. This means that the stem initial boundary of non-verbal constructions should be equated with the final morpheme boundary in verbal constructions. This is only possible when we accept that all morpheme boundaries between non-verbal stems and following elements are deleted (if at all present) and that in both types of constructions the rules operate on a final morpheme boundary. If this is true, the three different patterns can be produced by the following final elements:

(16i) and (16ii) by =ə (monosyllabic with [-tone]);
(17i) by =iə (disyllabic with final [-tone]);
(17ii) by =é (monosyllabic with [+tone]);
(17iii)-(17ix) by =é (monosyllabic with [+tone]);
(18) by =iélé (disyllabic with final [+tone]).
One could also set up a disyllabic final element =aa (with final [-tone]) to account for (16i) and (16ii). The regular prosodic patterns in verbal constructions can be produced by the given rules (11), (12), and (13) if only = is not interpreted as a stem initial boundary, but as a final morpheme boundary.

6. Second expansion of the set of data (verb constructions with irregular prosodic pattern)

A number of verbal constructions have fixed prominence on some morpheme or in a position defined in relation to some morpheme. The following exhaustive list can be presented:

(19i) Infinitive [a-hu-VS-a] with prominence on the initial vowel a-
ábalá 'to go'
ápalamaansye 'to show'
áhwoogope 'to fear'
NB: the element hu is deleted before a consonant.

(19ii) Subjunctive with pronominal object (cf. (17ii)), with prominence on the syllable preceding the pronominal object.
túzifise 'let us hide them'

(19iii) Imperative singular with pronominal object [0P-VS-e], with prominence on the last vocalic segment.
ndaanjé 'show me'

(19iv) Imperative plural [VS-i], with prominence on the last vocalic segment.
balají 'go all of you continually'

(19v) An irregular negative subjunctive with continuous marker [SP-NE-VS-CO-e], with prominence on the negative marker.
usíboombaje 'you should not work'

(19vi) (Negative) remote future subjunctive [SP-(NE)-haa-VS-e], with prominence on the first vowel of the TM hâa.
tuhábuuyze 'shall we ask?'
tusaházifisaje 'shall we not hide them?' cl. 10

No examples are presented for some complex tenses using the infinitive (19i) or the subjunctive with pronominal object (19ii). See for one example the immediate action tense in (4).
Several tenses permit a continuative marker (CO) -ag- or -ang- which causes a shift of regular prominence to the following vocalic segment, if preceded by a vowel. This is demonstrated by the following pairs of examples (with and without this shift of prominence):

(20) Influence of CO

(20i) Negative recent consecutive (cf. (16ii))

asaba’aga 'and he was not going'
asabonesyaagá 'and he was not showing'

(20ii) Recent consecutive (cf. (17iv))

nabálaga 'and I was going'
nabunganyaága 'and I was accumulating'

NB: the last example has been constructed and not elicited. I failed to find the crucial examples in my data.

(20iii) Subjunctive (cf. (17ii))

uleštage 'you may bring'
tubuzyaáje 'let us be asking'

(20iv) (Negative) remote consecutive (cf. (17v))

ahifmbaga 'and he was singing/learning at school'
asaabonesyaága 'and he did not show'

(20v) (Negative) future (cf. (17vii))

inhayibalaga 'I will be going'
asaayibuzyaága 'he will not be telling'

NB: I could not find in my notes the crucial examples with both SP cl. 1 or 9 or both SP of some other class.

(20vi) Potential (cf. (17viii))

ingabálaga 'I may go'
zigabaánga 'they may be' cl. 10

(20vii) Imperative singular (cf. (17ix))

šfmaga 'keep dancing'
lyáánga 'eat'

A similar phenomenon can be observed in the recent perfect with a vowel preceding the final element =ílé, which also produces a shift in prominence to the following vocalic segment:
Finally, a verbal prefix of classes 1 and 9 causes a shift of prominence to PU if followed by a vowel initial or zero tense marker. The following tenses are affected:

(22i) Recent consecutive (cf. (17iv))

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>zyaábala</td>
<td>'and they went'</td>
</tr>
<tr>
<td>yaábála</td>
<td>'and it went'</td>
</tr>
</tbody>
</table>

NB: this also affects the complex tense (immediate action) which has been treated in (4).

(22ii) Recent perfect (cf. (18))

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>úgojile</td>
<td>'you have killed'</td>
</tr>
<tr>
<td>ahomífle</td>
<td>'he has beaten me'</td>
</tr>
</tbody>
</table>

This section has completed the set of data on prosodic patterns in Safwa with an exhaustive list of all irregular patterns in the verbal constructions.

7. Analysis of the preceding data

The shift of prominence demonstrated in (20) and (21) is the most interesting and frequent phenomenon. In the recent perfect (21) the vocalic segment preceding the final element =iél is repeated after the i1-part of this final element: tu-buul-i-iél has to be transformed first into tu-buul-i-il-i=e. The reality of this operation is revealed by the regular change of l into z before i, and by the semivowel y in the surface representation, clearly from underlying i. If during this operation the morpheme boundary is also copied, we will find regularly a final element =iél after consonant, but =é after vowel. This accounts for the shift in prominence:

<table>
<thead>
<tr>
<th>Verb</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>tu-buul-i-il-i=e</td>
<td>(by the copying rule)</td>
</tr>
<tr>
<td>tu-buul-i-il-i=e</td>
<td>(by rule (12))</td>
</tr>
<tr>
<td>tu-buul-i-il-i=e</td>
<td>(by rule (13))</td>
</tr>
<tr>
<td>[tubuzifzye]</td>
<td>(by a set of general non-prosodic rules)</td>
</tr>
</tbody>
</table>
I would like to propose the same kind of solution to account for the shift of prominence in (20). There is some reason to expect this. The continuative marker (CO) occupies the same (pre-final) position as the iI-part of the final element =iIé. CO and iI are mutually exclusive (a continuative marker is not possible in the perfect tenses). This special pre-final position might be unstable and apt to be separated from the final element by a vocalic verbal suffix or any other preceding vowel.

However, no proof can be presented for the reality of the copied vowel in these cases. I assume therefore that only the vocalic feature is copied without any of the accompanying positional features:

\[(24) \quad \# \text{a-gaa-fu-ang}\# \]
\[
\quad \text{a-gaa-fu-ang}=[+\text{voc}]\quad \text{(by the copying rule)}
\]
\[
\quad \text{a-gaa-fu-ång}=[+\text{voc}] \quad \text{(by rule (12))}
\]
\[
\quad \text{a-gaa-fu-ång}=[+\text{voc}]=\text{a} \quad \text{(by rule (13))}
\]
\[
\quad [\text{agafwaånga}] \quad \text{(by a set of general non-prosodic rules)}
\]

This solution presupposes the possibility of underspecified segments in the underlying representations. One problem in relation to the remote perfect will be treated in section 8.

I would like to produce all instances of final prominence in the same way by the non-application of rules (12) and (13). This would affect the examples (19iii) and (19iv). This makes necessary the deletion of certain morpheme boundaries. The same kind of solution will be applied to the infinitive (19i). In these three cases one has to assume that the stem initial boundary coincides with the last morpheme boundary, just as in non-verbal constructions. There is some reason to regard the infinitive in Bantu as a non-verbal construction:

\[(25) \quad \# \text{a-hu=ogopé} \# \]
\[
\quad \text{á-hu=ogopé} \quad \text{(by rule (12))}
\]
\[
\quad \text{á-hu=ogope} \quad \text{(by rule (13))}
\]
\[
\quad [\text{áhwoogope}] \quad \text{'to fear'}
\]
The last three instances of fixed prominence in (17ii), (17v), and (17vi) offer big problems. I can only propose a very tentative solution in assuming that a stem initial boundary here functions as a word boundary, which is deleted before the application of rule (13):

This solution is offered as tentative and may very well have unacceptable consequences. One serious counter-indication is the fact that in all unquestionable cases of word boundary deletion, it triggers off rule (15) and precedes rules (11) and (12). In the preceding account, word boundary deletion follows rules (11) and (12).
The most difficult problem is presented in (22). If the pronominal subject prefix second person singular is represented by underlying hu, identical with the pronominal object prefix second person singular, we might try to attribute the effect to the vocalic nature of the prefixes of classes 1 and 9 (a- and i- respectively), if they themselves are followed by a vocalic or zero tense marker. This condition should transform the final elements =ā and =i|ā into =āa and =i|āe respectively. One could also attribute the shift of prominence to the tonal difference in Proto-Bantu between the prefixes of classes 1 and 9 ([-tone] in PB) and all other prefixes ([+tone] in PB).

Both hypotheses seem to lead to some very unnatural rules.

8. Some diachronic and synchronic problems

If one compares the reconstructed tones of PB with the restricted underlying prosodic distinctions of Satwa, it becomes abundantly clear that the tonal distinctions of PB have been preserved in the initial syllable of a word final morpheme only:

(28) PB  Satwa

<table>
<thead>
<tr>
<th>PB surface representation</th>
<th>lexical representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>-pũko</td>
<td>a-mā=fuko</td>
</tr>
<tr>
<td></td>
<td>=fuko</td>
</tr>
<tr>
<td>-kũta</td>
<td>ō-ma=futa</td>
</tr>
<tr>
<td></td>
<td>=futā</td>
</tr>
<tr>
<td>-bogō</td>
<td>i-m=bogo</td>
</tr>
<tr>
<td></td>
<td>=bogo</td>
</tr>
<tr>
<td>-kūdū</td>
<td>ō-a=ku</td>
</tr>
<tr>
<td></td>
<td>=kúú</td>
</tr>
</tbody>
</table>

The shift of a tonal distinction from first to last syllable of a morpheme, regardless of the number of syllables, does not seem a realistic development. I rather assume that all syllables assimilated to the tone of the initial syllable by some diachronic rule like:

(29) [+voc] → [atone] / = [atone] ≠

The development of the Proto-Bantu prosodic system into the restricted Satwa system should have passed the following stages:

(a) As a first step we have to accept the deletion of all possible morpheme boundaries following a stem initial boundary in non-verbal constructions only. The same deletion which has been
accepted to account for the anomalies in (25) and (26) should have taken place at a later stage and not be confused with this one.

(b) In the second place, all following vocalic segments of the final morpheme should have assimilated to the tone of the first vocalic segment according to rule (29).

(c) Thirdly, all tonal distinctions preceding a word final vocalic segment should have been neutralized according to rule (11).

(d) If the final vocalic segment is [-tone] we find APU prominence (with polysyllabic final morpheme) or PU prominence (with monosyllabic final morpheme) according to rule (11).

(e) If the final vocalic segment is [+tone], the second vocalic segment preceding final morpheme boundary is prominent and overrules a following [+tone] segment according to rules (12) and (13).

These stages show in what way the original prosodic distinctions of PB may have been restricted. Stage (c) may have had a preceding intermediate state in which only those tonal distinctions preceding the final morpheme were neutralized, which would facilitate a more natural account of rule (12). It may be that this hypothetical stage preceded stage (b) and was later generalized after stage (b).

Stage (b) might not figure any longer in the grammar of Safwa, swept away by the generalization of rule (15): not only the vocalic segments preceding the final morpheme, but also those preceding the final vocalic segment were neutralized. There has been found, however, one slight indication of a possible synchronic reality of stage (b) and the corresponding rule (29) in the remote perfect.

This tense was defined as [SP-ha-VS-i|e], with a disyllabic final element =i|e (with final [-tone]). If preceded by a vocalic suffix, the vowel is copied after the |i| part, just as in the recent perfect (with FI =i|é). This would inevitably lead to the following
derivation:

(30) ≠ tu-ha-buul-i=ile ≠
    tu-ha-buul-i-il-i=le (by the copying rule)
    tu-ha-buul-i-il-if=le (by rule (11))

which would lead to the incorrect surface representation tuhabuzilzyé
instead of the correct [tuhabuzifzye]. The desired result could
only be produced by a final element =é. If we could accept rule
(29) in the grammar, we could set up the following underlying forms
for the perfect tenses:

(31) Recent perfect =flé (unchanged by rule (29)) and
    Remote perfect =ilé (changed by rule (29) to =ile).

The last change is not executed if a vocalic element is inserted
between ll and é. This solution would have serious consequences
for all the underlying representations in the lexicon.

Rule (15) (reflecting stage (c)) cannot be phrased as a word­
structure condition, because it should not be reapplied after rules
(11), (12), and (13). Rule (15) could be avoided altogether if
rules (11) and (12) should produce a new feature [PROMINENCE], after
which all underlying tonal distinctions would be deleted. Here again
we would deviate in an unacceptable way from the chosen model.

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