

THE SEMANTICS OF TENSE IN KINYARWANDA\*

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Tense is one of those verbal categories relatively unexplored in Bantu languages. In this study the author endeavors to differentiate and describe the temporal functions of those verbal prefixes directly or indirectly relevant to the expression of tense in Kinyarwanda. These morphemes are shown to constitute diverse semantic (temporal) systems—labeled vector and segmental—which, when juxtaposed, determine the particular tense of any verbal expression. Of particular significance, the analysis demonstrates that these morphemes do not, in all cases, have a unique, absolute meaning or function, but shift according to the semantic context in which they are used.

1. Introduction

The temporal analysis of a verbal expression must take into account two complementary phenomena: tense and aspect. In Kinyarwanda the category of TENSE is particularly complex, embracing several semantic systems each of which characterizes the relationships among events in a different way. The expression of tense relations depends both upon the choice of morphemes belonging to these different systems and the combination of morphemes in the verbal construction. The analysis of the syntactic and semantic interdependence among the morphemes of these various temporal systems constitutes the focus of this article.

The category of tense is not easily analyzed in Kinyarwanda. The verbal

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expression represents a complex unit characterized by the interaction of several diverse grammatical categories. Moreover, these categories are not clearly distinct, but intersect. Nevertheless, we can represent the structure of the verbal expression in the following general terms:

$$\begin{array}{ccccccc} \text{Concordial} & & & & \text{Verbal} & & \text{Radical} \\ \text{Prefix} & \pm & \text{Mode} & + & \text{Focus} & + & \text{Extensions} \\ & & & & & & + \text{Aspect}^1 \end{array}$$

In order to explain the systematic manner in which temporal relations are marked in Kinyarwanda, it is necessary to examine in detail the ways in which the categories of MODE, TENSE, and FOCUS interact to produce the observed surface structures and to convey particular temporal links among events.

Over and above the morphological and syntactic description of the structure of these verbal categories, the essence of this study is the analysis of the meaning and function of each temporally associated morpheme. Before examining these morphemes individually, though, it is necessary to consider first the generic role of tense. Semantically, tense denotes the ordered relation of an event<sup>2</sup> to an established event of reference. In relations of the first order (notably "simplex"<sup>3</sup> tense) this reference event is established by the speech event (R1). For second order relations ("complex" tense) the reference event to which the narrated event is temporally situated is determined by an event (R2) other than the speech event (R1); this event is, in turn, temporally linked to the speech event.

We can distinguish two common types of semantic system that may serve to

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<sup>1</sup>In this analysis I have been concerned almost exclusively with indicative constructions, though the claims made here hold for all "moods". For indicative constructions a negative mark may precede the concordial prefix. The category MODE should not be confused with Coupez's [1980] use of the term. The category proposed here expresses primarily the point of view of the speaker towards temporal relations. The category FOCUS has not been completely explored, the name being applied here because of similarities with functions illustrated by Givón [1972] and restated in Kimenyi [1980].

<sup>2</sup>Although I will speak of events throughout, the notions of tense expressed here are relevant to states, processes, etc.

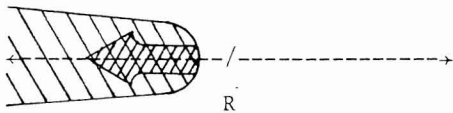
<sup>3</sup>I am using the terms "simplex" and "complex" to refer only to semantic phenomena, the terms "simple" and "compound" for syntactic phenomena.

express these ordered temporal relations between events. The first can be designated a "vector" system, the second a "segmental" system. Both types are manifested in Kinyarwanda and constitute an essential part of the analysis.<sup>4</sup>

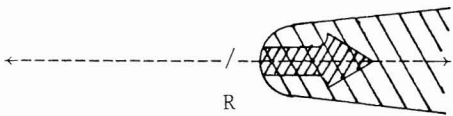
A "vector" system is based on the notion of "direction" with respect to the point of reference. A particular direction may be said to delineate a temporal domain, of which there are four: that domain anterior to the point of reference, posterior to it, simultaneous with it, or disjunct from it. The schemas in Figure 1 depict graphically these four potential relationships between an event and the point of reference. The shaded areas indicate the domain in which the event may be narrated with respect to the reference event (R).

Figure 1. Potential relations in a vector system

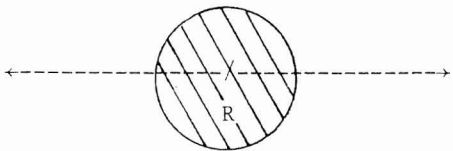
a. anterior



b. posterior



c. simultaneous



<sup>4</sup>See Bull [1960] for a similar discussion of tense.





b. ba-á-léé-bomb-a 'they were working (yesterday)'

Other morphemes serve to differentiate tonally identical expressions, such as -ci- in (1a).

Figure 2. Segmental system (ChiBemba)

Before Yesterday	Yesterday	Today	Tomorrow	After Tomorrow
ḡ	ḡ	ḡ /R (ḡ)	ḡ	ḡ

In the following analysis, I will demonstrate how these two types of semantic system, vector and segmental, are integrated in the category TENSE in Kinyarwanda.

## 2. "Simplex" Tense in Kinyarwanda

By "simplex" tense is to be understood those temporal relations which establish a particular order between the speech event (primary reference point) and the narrated event.<sup>6</sup> In Kinyarwanda these relations are systematically and obligatorily marked in all verbal constructions.<sup>7</sup> In this section I will examine those morphemes which function to express these relations, with a view towards describing explicitly their semantic range. As the point of departure, we can consider first problems associated with the form -ra- .

There are two morphemes in Kinyarwanda having the form -ra- . One of these two falls under the category MODE and will be considered in conjunction with the discussion of "complex" tense. The second is more dynamic in nature, belonging to either of two categories, TENSE or FOCUS, according to the syntactic/semantic context. In one sense, as the examples in (2) and (3) indi-

<sup>6</sup> More precisely, the foregrounded aspect of the narrated event. See Botne [1983] for a more detailed discussion of tense, aspect, and event structure in Kinyarwanda.

<sup>7</sup> This is not completely accurate. While it is true that all verbal expressions will have temporal relations marked, when it is a question of a long narrative text, only the first verbal expression is marked with respect to the speech event; others are marked with respect to that reference point established by the first expression.

cate, this morpheme is associated with the absence of an external complement,<sup>8</sup> and consequently, with focus on the verb as new information. This function of *-ra-* will be noted by the subscript *-ra<sub>c</sub>-*.

- (2) a. à- sòm- à Imvaho 'he reads Imvaho (habitual action)'  
3s read asp (newspaper title)
- b. à-ra<sub>c</sub>-yì-sòm-à 'he reads it (habitual action)'
- c. à-ra<sub>c</sub>-sòm-à 'he reads (habitual action)'
- d. \*à-sòm-à
- (3) a. y- á- sóm- yè Imvaho 'he read Imvaho (action having taken place before today)'  
3s ant read asp
- b. y-á-ra<sub>c</sub>-yí-sóm-yè 'he read it (action having taken place before today)'
- c. y-á-ra<sub>c</sub>-sóm-yè 'he read (action having taken place before today)'
- d. \*y-á-sóm-yè

The second function of this morpheme differs from the first in two respects. Syntactically, it is not associated with complementation; semantically, it is not associated with verbal focus, but rather denotes a temporal interval extending from (and including) the speech event to the end of the day. This function of *-ra-* will be noted as *-ra<sub>s</sub>-*.

<sup>8</sup>Certain complements such as *cyaane* 'a lot, much', *neeza* 'well, good', and *koko* 'truly, really' do not figure in this correspondence. Note furthermore that with what Coupez calls the "conjunctive mode" there is a different correspondence between temporal intervals and syntactic usage of FOCUS (compare Figure 3, page 242) than there is for the indicative. With the conjunctive, we find the following:

Before Today	Today		After Today
	Earlier	Later	
		/	
		R1	
NO	YES	NO	YES

That is, there is no syntactic distinction made in the remote past as there is in the indicative, but there is in the remote future. Thus, although this syntactic feature differs between indicative and conjunctive, it still maintains a temporally based phenomenon.

- (4) a. à- rà<sub>s</sub>- sòm- à Imvaho 'he is reading Imvaho'  
 3s tns read asp 'he is going to read Imvaho (later in the day)'
- b. à- rà<sub>s</sub>- yì- sòm- à 'he is reading it'  
 'he is going to read it (later in the day)'
- c. à- rà<sub>s</sub>- sòm- à 'he is reading it'  
 'he is going to read (later in the day)'

Although the functions of  $-ra_c-$  and  $-ra_s-$  are decidedly different, there exists a common feature between them: both refer events to specific temporal intervals. As noted above,  $-ra_s-$  denotes an interval delimited by the speech event and the end of the day.  $-ra_c-$  denotes an interval bounded by, but not including, today, i.e. up to but not including the day of the speech event (see examples in (3)).

This functional differentiation noted in  $-ra-$  is found again in the use of the morpheme  $-a-$ . Like  $-ra_c-$ ,  $-a_c-$  is associated with the absence of an external complement and puts the verb in focus. Furthermore, it denotes a temporal interval extending from the beginning of the day up to, but not including, the speech event. The sentences in (5) illustrate the nature of this morpheme in syntactically appropriate contexts.

- (5) a. y- à- sòm- yè Imvaho 'he read Imvaho (action having taken place earlier in the day)'  
 3s ant read asp
- b. y- à- à<sub>c</sub>- yì- sòm- yè 'he read it (action having taken place earlier in the day)'
- c. y- à- à<sub>c</sub>- sòm- yè 'he read (action having taken place earlier in the day)'
- d. \*y- à- sòm- yè

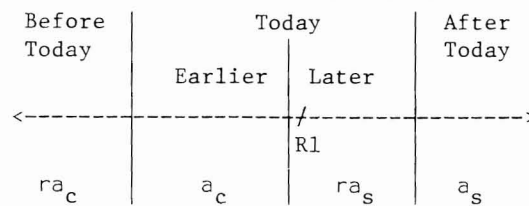
Just as  $-a_c-$  is in complementary distribution with  $-ra_c-$ ,  $-a_s-$  is in complementary distribution with  $-ra_s-$ . Like  $-ra_s-$ ,  $-a_s-$  denotes a temporal interval. The lower bound of this interval is delimited by the day of the speech event, but not including it. This may be observed from the examples in (6).

- (6) a. à- zà- à<sub>s</sub>- sòm- à Imvaho 'he is going to read Imvaho (action to take place after today)'  
 3s rm pos tns read asp

- b. à-zà-à<sub>s</sub>-yì-sòm-à 'he is going to read it (action to take place after today)'
- c. à-zà-à<sub>s</sub>-sòm-à 'he is going to read (action to take place after today)'

The temporal distribution of these forms can be perceived more clearly by means of the graphic representation in Figure 3. Recall that the forms anterior to the point of reference have as their primary function the marking of verbal focus.

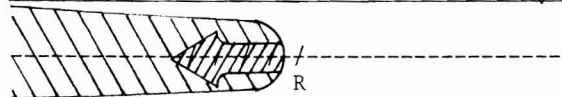
Figure 3. Distribution of the forms -ra- and -a-



The systematic alternation that we observe in the above schema immediately suggests a "segmental" semantic structure, even though the primary function of those forms associated with the past is not temporal in nature. The problem we face here is how to explain this functional distinction and how to incorporate this difference into a synchronic analysis.

Before considering a solution to this problem, it is necessary to examine other morphemes relevant to tense and their semantic functions. There exists a second morpheme in Kinyarwanda having the form -a-. This morpheme occurred in (3) and (5) illustrated earlier. It functions to express a relationship of "anteriority to"; in (3) and (5) this relationship is understood to hold between the narrated event (E) and the speech event. More specifically, -a<sub>v</sub>- marks a vector domain, which we can graphically represent as in Figure 4.

Figure 4. The temporal domain of the morpheme -a<sub>v</sub>-

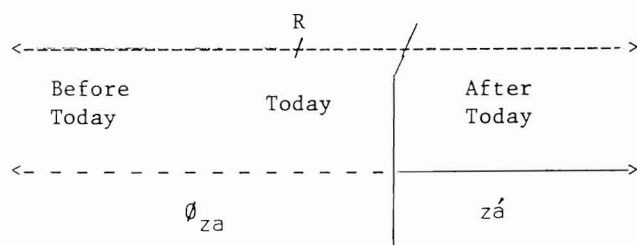


This morpheme represents the semantically marked case in a vector system op-

posing "anterior" to "non-anterior". The semantically unmarked case (morphologically null,  $-\emptyset_v-$ ) embraces all three of the other domains (posterior, simultaneous, disjunct) and can be said to have meaning only by virtue of its opposition to  $-a_v-$ . Consequently, a verbal expression incorporating  $-\emptyset_v-$  will have three potential interpretations, the exact interpretation depending upon the semantic context.

Tense in Kinyarwanda is complicated by the fact that it has not just one vector system, but three. In addition to the principal vector system outlined above, there are two parallel sub-systems. The example in (6) illustrates the semantically marked domain in a system that can be characterized as "remote posterior vs. non-remote posterior". That is, the morpheme  $-z\acute{a}-$  marks that domain posterior to the *day* of the speech event. For all events non-posterior to the day of the speech event, the verbal expression will incorporate the complement of  $-z\acute{a}-$ , that is,  $-\emptyset_{z\grave{a}}-$ . This semantic opposition is graphically presented in Figure 5.

Figure 5. Vector sub-system "remote posterior/non-remote posterior"



The second, and parallel, sub-system incorporates two tones, HIGH vs. LOW, in semantic opposition. The H tone (´) marks that domain anterior to the *day* of the speech event. Like  $-z\acute{a}-$  it represents the semantically marked case. In opposition to this H tone we find the L tone (`) which subsumes in its semantic range all those temporal domains not included in the range of the H tone. The following examples illustrate this difference in function.

(7) yásómyè kiliya gitabo

/a- a<sub>v</sub>- é- ∅<sub>z\grave{a}</sub>- é- sòm- lr..e/  
3s ant rm ant nonrm pos focus read asp

'he read that book (action having taken place before today)'



(8) yàsòmýè kiliya gitabo

/a- a<sub>v</sub>- ɔ̃-      ɔ̃<sub>zà</sub>-      ɔ̃-      sòm- lr..e/  
 3s ant nonrm ant nonrm pos focus read asp

'he read that book (action having taken place earlier in the day)'

(9) a. àràsòmà iki gitabo

/a- ɔ̃<sub>v</sub>-      ɔ̃-      ɔ̃<sub>zà</sub>-      ra<sub>s</sub>- ɔ̃-      sòm- a/  
 3s non ant nonrm ant nonrm pos tns tns read asp

i) 'he is reading this book (action taking place now)'

ii) 'he is going to read this book (action to take place later in the day)'

b. àràkámà inka

/a- ɔ̃<sub>v</sub>-      ɔ̃-      ɔ̃<sub>zà</sub>-      ra<sub>s</sub>- ɔ̃-      kám- a/  
 3s non ant nonrm ant nonrm pos tns tns milk asp

i) 'she is milking the cows (action taking place now)'

ii) 'she is going to milk the cows (action to take place later in the day)'

(10) àzààkámà inka

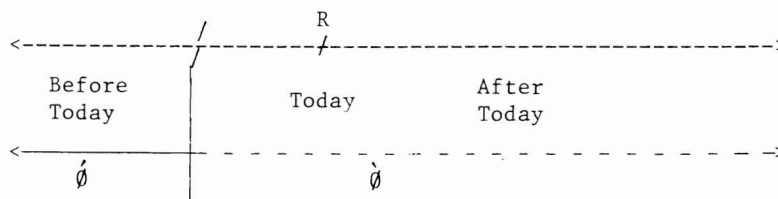
/a- ɔ̃<sub>v</sub>-      ɔ̃-      zá-      a<sub>s</sub>- ɔ̃-      kám- a/ .  
 3s non ant nonrm ant rm pos tns tns milk asp

'she is going to milk the cows (action to take place after today)'

Notice that among those examples expressing a "non-remote anterior" relation (examples (8-10)) only the construction in (9b) does not manifest a low tone on the "tense" morpheme(s). This unexpected high tone derives from the interaction of the lexical high tone on the radical kám (while sòm has a L) with a grammatical high tone from the category FOCUS particular to this type of construction. This interaction of tones will be discussed shortly.

The semantic opposition discussed above between H and L tones can be graphically represented in a manner parallel to that sketched for -zá- .

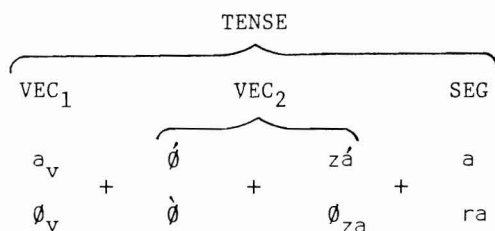
Figure 6. Vector sub-system "remote anterior/non-remote anterior"



I have referred to tones above as either "lexical" or "grammatical" (floating). They are not, however, inherently different in nature. The morpheme *-kám-*, for example, includes a high tone as part of its constituent structure in the same sense as the segment [k]. A "floating tone" morpheme, such as *-ò-* indicating remote anterior, is quite simply a morpheme lacking segmental constituents in the same way that other morphemes lack tonal constituents.<sup>9</sup>

We have seen so far four paradigmatic/semantic oppositions: (i) *-ra-/ -a-*, (ii) *-a<sub>v</sub>-/ -ò<sub>v</sub>-*, (iii) *-z'á-/ -ò<sub>za</sub>-*, (iv) *-ò<sub>v</sub>-/ -ò-*. These four pairs constitute sub-divisions of the category TENSE. From the morphological arrangements that can be observed in the preceding examples, we can establish the following structural ordering:

Figure 7. Tense



The temporal meaning of a verbal expression derives, for the most part, from the sum of the meanings of the morphemes incorporated in it from these four sub-categories. However, this analysis still fails to resolve several problems. We have observed previously the double functions of the morphemes *-ra-* and *-a-* which have not been adequately treated above. Furthermore, there has been no explanation offered of how tones are distributed over segments. In order to present a satisfactory solution to these problems, it is necessary to consider a second verbal category, that of VERBAL FOCUS.

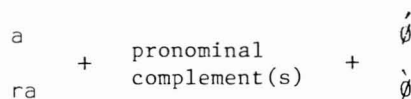
Consider the five examples below (11-15) which include pronominal complements in syntactically different verbal constructions.

<sup>9</sup>A different use of tone is found at the syntactic level, in which certain H tones are assigned to the verbal expression as a whole, depending upon its relationship to other elements [Botne, in preparation, a].

- (11) nààgítémèyè  
 /n- a<sub>v</sub>- ø- a<sub>c</sub>- ki- ø<sub>c</sub>'- tém- ye/  
 ls ant nonrm ant focus cl.7 infix focus cut asp  
 'I cut it (action having taken place earlier in the day)'
- (12) nàkìmùtèmèyè n'umuhoro  
 /n- a- ø- ki- mu- ø<sub>c</sub>'- tém- e(r)- ye/  
 ls ant nonrm ant cl.7 infix cl.1 infix focus cut ben asp  
 'I cut it for him with a bill hook (action having taken place earlier in the day)'
- (13) nààkímùtèmèyè  
 /n- a<sub>v</sub>- ø- a<sub>c</sub>- ki- mu- ø<sub>c</sub>'- tém e(r)- ye/  
 ls ant nonrm ant focus cl.7 infix cl.1 infix focus cut ben asp  
 'I cut it for him (action having taken place earlier in the day)'
- (14) nákìmùtèmèyè n'umuhoro  
 /n- a<sub>v</sub>- ø- ki- mu- ø<sub>c</sub>'- tém- e(r)- ye/  
 ls ant rm ant cl.7 infix cl.1 infix focus cut ben asp  
 'I cut it for him with a bill hook (action having taken place before today)'
- (15) nárákímùtèmèyè  
 /n- a<sub>v</sub>- ø- ra<sub>c</sub>- ki- mu- ø<sub>c</sub>'- tém- e(r)- ye/  
 ls ant rm ant focus cl.7 infix cl.1 infix focus cut ben asp  
 'I cut it for him (action having taken place before today)'

We can observe in these examples two important phenomena. Notice, first of all, that the absence of an external complement (11, 13, 15) is marked not only by the morphemes  $-ra_c-$  or  $-a_c-$ , but also by a high tone on the pronominal complement. Secondly, the high tone of the radical  $-tém-$  is neutralised when there is an external complement (12, 14). These observations suggest that the category VERBAL FOCUS comprises three sub-divisions as outlined in Figure 8.

Figure 8. Verbal focus

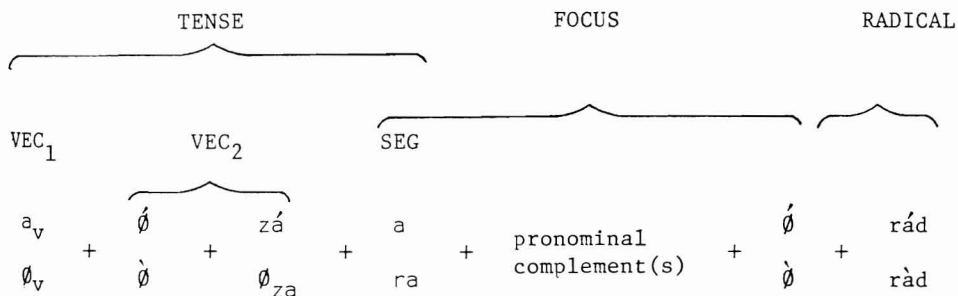


The high (floating) tone correlates with the absence of an external comple-

ment, the low tone with the presence of such complements. Stated somewhat differently, the H tone indicates that the focus is on the verb itself; the L tone indicates the lack of such focus.

At this point in the analysis, we have seen two verbal categories that affect the temporal interpretation of a verbal expression. From the separate analyses proposed above, we obtain the following combined syntactic structure of morphological prefixes.

Figure 9. Tense and focus combinations



Recall that the morphemes *-ra-* and *-a-* have two distinct semantic functions according to the temporal context: (i) when correlated with the temporal notion "anterior", the use of these morphemes indicates primarily the absence of an external complement; (ii) when correlated with the temporal notion "non-anterior", they denote distinct temporal intervals. The dual nature of these morphemes suggests that they shift category and behave as morphemes of a particular category according to semantic criteria. The distribution of tones over the verbal expression supports this hypothesis.

The distribution of tones proceeds in a systematic and predictable manner, contrary to the assertions of Kimenyi [1978:303].<sup>10</sup> Four rules suffice to account for the observed surface phenomena. These rules are essentially morphophonemic in nature.

<sup>10</sup>See Coupez [1980] for a description that is morphologically, syntactically and semantically different from this one.





the construction. Thus, for the application of Rule 1 (LOW TONE SHIFT) SEG behaves as though it were part of the FOCUS category. For the application of Rule 2 (HIGH TONE SHIFT) the category to which SEG will belong depends on the number of moras<sup>12</sup> which will eventually have a high tone in the TENSE category. If there is an *odd* number of moras which will receive a high tone, SEG will behave as though it were part of FOCUS; if, on the contrary, there is an *even* number of moras which will have a high tone, SEG will behave as though it were part of the TENSE category.

We see in (17) that the morpheme  $-a_c-$  behaves as part of the FOCUS category for the application of Rule 1. With Rule 2, we note that TENSE has an even number of moras that will receive a high tone (in this case zero), and consequently  $-a_c-$  behaves as though it belongs to TENSE. The derivation in (18) illustrates a similar case (though with two moras to carry high tone in the TENSE category), while that in (19) illustrates a case with an odd number of moras in the TENSE category that will receive high tones and in which the morpheme  $-ra_c-$  behaves as though it were part of the FOCUS category.

- (18)  $ba + a_v - \acute{o} - \emptyset_{za} + ra_c - ki - mu - \acute{o}_c + t\acute{e}m + lr..e^{13}$   
 3p ant rm ant nonrm pos focus cl.7 inf cl.1 inf focus cut asp  
 ↓ Application of Rule 1 (vacuous)  
 $b + aa_v - \acute{o} - ra_c - ki - mu - \acute{o} + t\acute{e}m + lr..e$   
 ↓ Application of Rule 2  
 $b + \acute{a}\acute{a}_v - ra_c + k\acute{i} - m\acute{u} + t\acute{e}m + lr..e$   
 bááràkímútèmèyè  
 'they cut it for him (before today)'

<sup>12</sup>The number of moras is usually the same as the number of syllables, or, in Kinyarwanda the number of morphemes affixed to the verb. It is necessary to speak of moras here rather than syllables because of examples like (18) in which we find lengthened vowels.

<sup>13</sup>There is a rule in Kinyarwanda for lengthening vowels when consecutive. In this case, the first is deleted. See Botne [1980].

- (19) n + a<sub>v</sub>-<sup>ó</sup>-  $\emptyset$ <sub>za</sub> + ra<sub>c</sub>- ki- mu- <sup>ó</sup><sub>c</sub> + tèm + lr..e  
 ls ant rm ant nonrm ant focus cl.7 inf cl.1 inf focus cut asp  
 ↓ Application of Rule 1 (vacuous)  
 ↓ Application of Rule 2  
 n + a<sub>v</sub> + ra<sub>c</sub>-ki-mu + tèm + lr..e  
 nárákímútèmèyè  
 'I cut it for him (before today)'

The third rule, like the second, concerns the number of high tones in the verbal expression. All verbal expressions in Kinyarwanda have an even number of high tones. Rule 3 assures that after the application of Rules 1 and 2 there will be an even number of high tones.

Rule 3: HIGH TONE COPYING

If in any verbal category there is an odd number of high tones, a high tone is placed on the first mora of the following category.

- (20) n + a<sub>v</sub>-<sup>ó</sup>-  $\emptyset$ <sub>za</sub> + ki- mu- <sup>ò</sup><sub>c</sub> + tèm + lr..e n'umuhoro  
 ls ant rm ant nonrm ant cl.7 inf cl.1 inf focus cut asp bill hook  
 ↓ Application of Rule 1  
 n + a<sub>v</sub>-<sup>ó</sup> + ki-mu + tèm + lr..e n'umuhoro  
 ↓ Application of Rule 2  
 n + á<sub>v</sub> + ki-mu + tèm + lr..e n'umuhoro  
 ↓ Application of Rule 3  
 n + á<sub>v</sub> + kí-mu + tèm + lr..e n'umuhoro  
 nákímùtèmèyè n'umuhoro  
 'I cut it for him with the bill hook'

Rule 4: LOW TONE ASSIGNMENT

Each mora that has not been attributed a tone by the preceding rules will be assigned a low tone.

This last rule is necessary to insure that each mora of the expression has a tone. In Kinyarwanda, the unmarked, or general, tone is the low tone. The high tone is always associated with a unique meaning. Thus, the presence of a high tone is significant, while that is not necessarily the case with a low tone.

The analysis to present has been limited to expressions having an "anterior" meaning. We have noted already that for "non-anterior" relationships the morphemes  $-ra_s-$  and  $-a_s-$  do not have the syntactic/semantic function of verbal focus. Moreover, I have argued that the "floating" tones of the FOCUS category do not have this function either in this temporal context, but correspond in function to the SEG morphemes, high tone correlating with functions of  $-ra_s-$ , low tone with  $-a_s-$ . The following examples (21-23) illustrate how tone is distributed over moras of "present" and "habitual" constructions. Note that the floating tone of the FOCUS category must be a high tone and is not affected by the presence or absence of external complements.

- (21)  $n + \emptyset_v - \emptyset - \emptyset_{za} + ra_s - ki - mu - \emptyset'_s + tém + ir + a$   
 ls non ant nonrm ant nonrm pos tns cl.7 inf cl.1 inf tns cut ben asp
- ↓ Low Tone Shift (R1)
- $n + ra_s - ki - mù + tém + ir + a$
- ↓ High Tone Shift (R2)
- $n + ra'_s - kí - mú + tem + ir + a$
- ↓ High Tone Copying (R3)
- $n + ra'_s - kí - mú + tém + ir + a$
- ↓ Low Tone Assignment (R4)
- $n + ra'_s - kí - mú + tém + ìr + à$
- ndákímútémèrà (n'umuhoro)<sup>14</sup>

'I am  $\left\{ \begin{array}{l} \text{cutting} \\ \text{going to cut} \end{array} \right\}$  it for him (with a bill hook)'

- (22)  $n + \emptyset_v - \emptyset - \emptyset_{za} + ra_c - bi - mu - \emptyset'_c + tém + ir + a$   
 ls non ant nonrm ant nonrm pos foc cl.8 inf cl.1 inf foc cut ben asp
- ↓ Low Tone Shift (R1)
- $n + ra_c - bi - mù + tém + ir + a$
- ↓ High Tone Shift (R2)
- $n + ra'_c - bí - mú + tem + ir + a$
- ↓ High Tone Copying (R3)
- $n + ra'_c - bí - mú + tém + ir + a$

<sup>14</sup>In Kinyarwanda /r/ is realized as [d] after a nasal.

- ↓ Low Tone Assignment (R4)
- n + rá<sub>c</sub>-bí-mú + tém + ìr + à  
 ndábímútémèrà  
 'I cut them for him (habitually)'
- (23) n + ∅<sub>v</sub>- ∅- ∅<sub>za</sub> + mu- ∅<sub>c</sub> + tém + ir + a ibítí  
 ls non ant nonrm ant nonrm pos cl.1 inf focus cut ben asp trees
- ↓ Low Tone Shift (R1)
- n + mù + tèm + ir + a ibítí
- ↓ Rule 2 (vacuous)
- ↓ Rule 3 (vacuous)
- ↓ Low Tone assignment (R4)
- n + mù + tèm + ìr + à ìbítì  
 mùtèmèr'ìbítì<sup>15</sup>  
 'I cut the trees for him (habitually)'

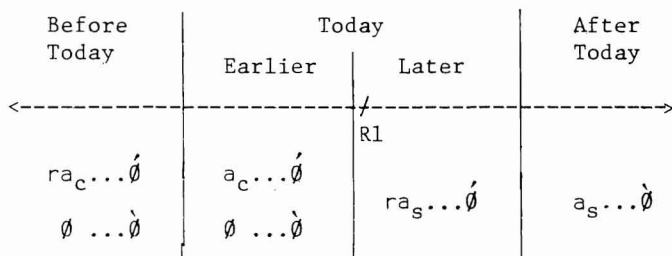
The high tone (FOCUS) is semantically parallel to the morpheme -ra<sub>s</sub>- in the temporal context "non-anterior". Both denote that time interval delimited by the speech event and the end of the day. Comparable to this correspondence between H and -ra<sub>s</sub>- is the correspondence between -a<sub>s</sub>- and L. Consider the following example of a "remote future" construction.

- (24) n + ∅<sub>v</sub>- ∅- zà + a<sub>s</sub>- bi- mu- ∅<sub>s</sub> + tém + ir + a  
 ls non ant nonrm ant rm pos tns cl.8 inf cl.1 inf tns cut ben asp
- ↓ Low Tone Shift (R1)
- n + zà + a<sub>s</sub>-bi-mu + tèm + ir + a
- ↓ Rule 2 (vacuous)
- ↓ Rule 3 (vacuous)
- ↓ Low Tone Assignment (R4)
- n + zà-à<sub>s</sub> + bì-mù + tèm + ìr + à  
 nzààbìmùtèmèrà (n'umuhoro)  
 'I am going to cut them for him (with a bill hook) (action to take place after today)'

<sup>15</sup>/n/ + /nasal/ is realized by most speakers as the second nasal, by others as a geminate nasal.

The low tone is maintained whether or not there is an external complement. Thus, we see here that two morphemes act in concert based on the same semantic criteria for the shift in syntactic/semantic function. A slight revision of the schema in Figure 3 captures this relationship of SEG morphemes and FOCUS tones (Figure 10).

Figure 10. Temporal Distribution of the forms -ra-/-a- and the tones - $\emptyset$ - and - $\acute{\emptyset}$ -



I have established in the preceding analysis of simplex tense that Kinyarwanda manifests a principal division "anterior/non-anterior" which is supplemented by secondary temporal systems. Furthermore, according to the temporal domain expressed, certain morphemes ( -ra-/-a- and  $\acute{\emptyset}/\emptyset$  ) may shift from one syntactic/semantic function to another. Having outlined the syntactic/semantic functions of the major morphemes involved in simplex tense constructions, we can turn now to the problems of complex tense constructions.

### 3. "Complex" Tense in Kinyarwanda

Complex tense differs from simplex tense in the number of reference events necessary for interpretation of the verbal expression. In simplex expressions, the event is narrated with respect to a single reference event, the speech event (R1). In complex expressions, the narrated event is oriented to the speech event only indirectly, being mediated by a second, intervening reference event determined from the grammatical context.

Semantically complex expressions can be, from a syntactic perspective, either simple or compound. Simple constructions are those that consist of a single radical and its affixes; compound constructions involve more than one radical. I shall consider first those constructions that are syntactically "simple". This will involve a discussion of two morphemes of the form -ka-



and examination of the structure of the MODE category and its link to the TENSE category.

Based on Whorf's [1956] proposed analysis for Hopi, the category MODE can be conceived of as that generic category which indicates both the nature of the connection and the perspective the speaker has of that connection, established between the narrated event (E) and a mediating event ( $E_m$ ) or between events expressed in consecutive propositions. Thus, the morphemes in this category function to indicate the meaning relationship that is perceived to hold between one event or proposition and another.

Both of the  $-ka-$  morphemes fall into this category of MODE (cf. Coupez [1980:328]). I will differentiate them here by use of subscripts, hence  $-ka_m-$  and  $-ka_t-$ . The first, designated "subsecutif" by Coupez, can denote three semantic relations between consecutive events or propositions: (i) a relation of *consequence* in which the second event or proposition is narrated as a consequence or result of the first; (ii) a relation of *sequence* in which the event in the second clause is chronologically sequent to the first and dependent upon the realization of the first for its own realization; (iii) a relation of *similarity* in which the second proposition expresses an idea, a concept, similar to the first. These three potential functions of  $-ka_m-$  are illustrated by the examples below:

- (25) ubwo Kangabo yálf átúyè muli Kenya, yáràkòràgà cyaane àKÁbónà amafaraanga meenshi.  
'while Kangabo lived in Kenya, he worked a lot and (consequently) earned a lot of money'
- (26) amaazi yààshyà, umuteetsi àGÁtúlìrà, àKÁvúgà umutsima.  
'the water is heated, then the cook adds the flour, then she prepares the dough (paste)'
- (27) buli muunsi abasore bàràgìrà inka bàGÁhíngà mu murima  
'every day the young boys tend their cows and cultivate their fields'

The second morpheme,  $-ka_t-$ , also includes as part of its semantic range certain "modal" qualities. It may introduce into the verbal expression (i) the notion of contrast (unexpected by the speaker), (ii) an element of surprise on the speaker's part, or (iii) an additional commentary on the preced-

ing proposition.

- (28) yààKÁányìbyè nárámùcùumbìkìyè  
'he robbed me, and yet I gave him lodging'
- (29) wààKÁbáàyè mweene waabo  
'it's no wonder that you are his relative!'
- (30) aherako akora uko yáKÁmàzè kuvuga  
'then he did (just) as he said he would do'

In addition to the above possibilities, *-ka<sub>c</sub>-* also has certain temporal functions. Comparison of the sentences in (31-33) clearly shows the nature of this function.

- (31) a. ntìbáákòzè 'they did not work (before today)'  
b. ntìbàákòzè 'they did not work (earlier in the day)'
- (32) ntìbáráákòrà 'they have not worked yet (but their working is still expected)'
- (33) ntìbárááGÁkòrà 'they did not work (as expected)'

In example (31) we find a simple negation of the relation "anterior to" attributed to the event *-kór-*. In (32) we see that, in addition to negation of this temporal relation "anterior to", there is also a notion of expectation. This notion is evident in (32) as well, in which it is relegated to the past. From a morphological analysis of these expressions, we are led to conclude that this notion of expectation derives from the presence of the morpheme *-rá<sub>m</sub>-*.

This morpheme *-rá<sub>m</sub>-*, different from the *-ra-* that we have seen previously, indexes a mediating event (*E<sub>m</sub>*).<sup>16</sup> By this term is meant a "testimonial" event on the basis of which the speaker reports the course of the narrat-

<sup>16</sup>The term "mediating event" indicates an event to which the speaker attaches some significance with respect to the narrated event. That is, it establishes some type of semantic link between itself and the narrated event. Furthermore, it carries the notion that the speaker can in some manner testify to the occurrence of the mediating event. The event indexed as *E<sub>m</sub>* is not necessarily expressed in discourse, but may be understood from context.

ed event (E) (see Jakobson [1963:136]). By use of  $-r\acute{a}_m-$  in the examples above, the speaker puts forward a perspective *from* the mediating event *towards* the narrated event. Thus, in (32) and (33) we find expressed the relationship  $E_m \rightarrow E$  by virtue of  $-r\acute{a}_m-$ ; that is, the speaker is taking a perspective from the mediating event which was instantiated toward the expected event which has not been instantiated. The use of  $-ka_t-$  in (33) indicates that the "potential for the instantiation of E" no longer exists, that is, it is anterior to the speech event. In (32), by contrast, the potential for the instantiation of E still exists, that is, it is non-anterior to the speech event. We can propose a null morpheme,  $-\emptyset_{ka}$ , in opposition to  $-ka_t-$  which would convey this meaning. In summary form, then we would have the following readings of (32) and (33):

- (32') E anterior to R1 by  $-a_v-$  (negated by  $nti-$ )  
 'E<sub>m</sub> → E'/potential for E extant at R1 by  $-\emptyset_{ka}$
- (33') E anterior to R1 by  $-a_v-$  (negated by  $nti-$ )  
 'E<sub>m</sub> → E'/potential for E non-extant at R1 by  $-ka_t-$

In the preceding examples we have noted that the morpheme  $-r\acute{a}_m-$  presents the speaker's perspective from the mediating event towards the narrated event. If, rather than  $-r\acute{a}_m-$ , the morpheme  $-\grave{a}_m-$  is incorporated into the verbal construction, we find the opposite perspective, i.e. *from* the event (E) *towards* the mediating event (E<sub>m</sub>). The following sentences illustrate this shift in perspective:

- (34) wààkààntùtsè nárágúháàyè inka  
 'you have insulted me, and yet I gave you a cow'
- (35) wàántúkà nárágúháàyè inka  
 'you would insult me, and yet I gave you a cow'
- (36) wààntúkà nibye aliko sinibye  
 'you could insult me if I had stolen (something), but I haven't'

In these sentences, as with those found in (31-33), we have the proposition "E anterior to R1" by virtue of the vector morpheme  $-a_v-$ , although in the present examples this proposition is not negated. In addition, we have

narrated a perspective from this E to a mediating event, 'give a cow' in (34) and (35), 'steal' in (36). This shift in perspective correlates with the speaker's perception of the event as either "potentially coming to be" (  $-r'_m-$  ) or "actually having occurred" (  $-a_m-$  ). Thus, in (34)  $-ka_t-$  indicates that the event (E) is anterior to R1 and has actually occurred. In (35), the lack of  $-ka_t-$  or the occurrence of  $-\emptyset_{ka}$  indicates that the speaker treats the event "insult" as having occurred but at the same time places it after the speech event (or simultaneous with it); that is, he behaves as though the event had already occurred. In (36) the event has occurred, but the speaker indicates that it should only have occurred after a particular mediating event, in this case "steal". If we consider in summary form the interpretation of (36), we have the following:

(36') E anterior to R1 by  $-a_v-$

'E<sub>m</sub> + E' /actual instantiation non-posterior to R1 by  $-\emptyset_{ka}-$

The understood meaning of this sentence is that the event (E) has occurred, but the speaker indicates that he believes it should have occurred only after the appropriate mediating event.

What is clear from these examples is that the morpheme  $-ka_t-$  has both a temporal and a modal function, thus belonging to both the TENSE category and the MODE category. As a temporal morpheme,  $-ka_t-$  functions as a vector temporal marker denoting that domain anterior to R1 (similar to  $-a_v-$  ). Having established the functions of  $-ka_t-$  , we are in a position to complete the structural description of temporal morphemes affixed to the verb. Before presenting this structure, it is necessary to note briefly that the tonality of  $-ka_t-$  changes in a significant manner according to context. If it has a low tone, as in (37), it indicates the speaker's belief in the reality of the event. If, on the other hand, it has a high tone, as in (38), it indicates that the speaker questions the reality of the event (hence the notion of incredulity or surprise).

(37) wààgàkòzè nka Kangabo!

'it is not surprising that you act like Kangabo!'

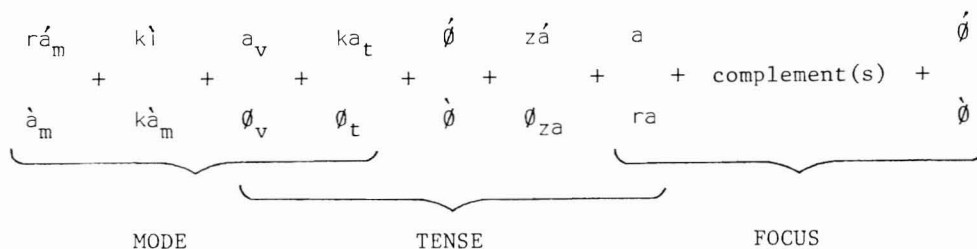
(38) wààkábááyè umwaana wa Kangabo, wààkòzè nka we.

'if you are Kangabo's child, why don't you act like him?'

(lit. if you were really Kangabo's child, you would act like him)

Incorporating this information into the analysis, we arrive at the schema in Figure 11 which shows the relative positions of those morphemes that have been analyzed here and the verbal categories to which they belong.<sup>17</sup>

Figure 11. Tense and focus prefixes



It should be noted here that not all verbal constructions include all three of these categories. In particular, the category MODE is limited in distribution and is not found, for example, in "simple past" constructions such as those in (31). We might consider this category as differentiating semantically "autonomous" propositions (non-modal) from semantically "conjoined" propositions (modal).

Turn now to a consideration of complex tense as expressed in syntactically compound constructions. The compound structure consists of a primary verb and its affixes plus an auxiliary verb and its affixes of MODE, TENSE and ASPECT. TENSE morphemes function in the same manner in compound structures as that outlined previously for simple structures, with one exception. SEG morphemes do not occur as affixes on the primary verb because they indicate relations with respect to R1 (the speech event); in compound constructions, the primary verb is subordinate to the auxiliary verb, and all tense relations between event and reference event are with respect to that event indexed by the auxiliary event, not the speech event. The focus of this part, then, will be the

<sup>17</sup>The H/L tone opposition that is proposed in conjunction with -ka<sub>t</sub>- can be accounted for by proposing that the H/L tonal opposition previously determined in the TENSE category functions in a new way when there are MODE morphemes present. However, we note that the H never occurs on all of the morphemes that precede it in the same category, that is, -a<sub>v</sub>- and -ka<sub>t</sub>-, but on only one of them. Consider the following example:

wààkábáàyè umwaana wa Kangabo, wààkòzè nka we

'if you were really the child of Kangabo, you would act like him'

By the rules proposed in this analysis, we would expect a H as well on the -a- preceding immediately -ka-. I have no explanation at present for this discrepancy.



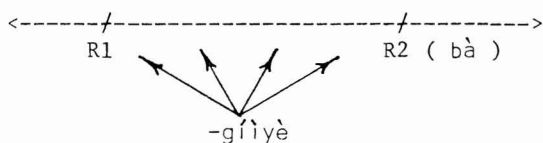
role of the auxiliary verb in the interpretation of temporal relations. The discussion here will be limited to constructions having the auxiliary verb -bá- 'be'.

The use of the auxiliary verb -bá- indicates that an event in addition to the speech event has been indexed as a reference point. It is with respect to this reference event (R2) that the narrated event (in Kinyarwanda) is temporally oriented. This reference event is directly related to the speech event (R1). Consider the following examples:

- (39) jyà kwíftègùùrà 'go (and) get ready'  
 (40) bà úgíyè kwíftègùùrà 'in the meantime, go (and) get ready'

In (39) we note a simple imperative command. However, in (40), in addition to the command, there is the notion of waiting for some other event to occur. This interpretation derives from the relations specified between the narrated event -gíyè (kwíftègùùrà) and the reference event indexed by bà (which cannot be identified out of context). The relation of -gíyè to bà is expressed by the underlying low tone (TENSE) and completive aspect (marked by -ye on surface).<sup>18</sup> This relationship can be visualized as follows:

Figure 12. Complex temporal ordering with -ba



The narrated event -gíyè may occur at any time after the speech event (R1) and before the secondary reference event (R2) which will take place at some time in the near future.

It is necessary to emphasize here that auxiliary -bá- does not "carry the temporal modality" of the primary verb (cf. Kimenyi [1973:69]); rather,

<sup>18</sup>Completive aspect marks the completion of the nuclear phase of an event, though the final coda phase may be in progress at the specified point. By nuclear phase is meant that phase of the event that is characteristic of the activity of that event. See Botne [1983] for a discussion with respect to Kinyarwanda; see Freed [1980] for a discussion of English and a general theoretical framework.



there are in these compound constructions two sets of temporal relations: those between (R2) and (R1) ("indexical" relations) and those between (E) and (R2) ("cardinal" relations). Furthermore, the compound construction does not indicate "un état durable pendant lequel peut survenir un événement" [Coupez 1980:420], but more precisely, a temporal interval delimited by the speech event and the instantiation of the secondary reference event. The narrated event may or may not occur during this interval depending upon the nature of the tense relations expressed. The following examples lend support to these claims:

- (41) úzé kùgàrùkà nimugorooba, ndábá nábòònyè amafaraanga yawe  
'come back this evening; I will have obtained your money'
- (42) amahoro Ndeju, nzààbá nkúbwìirà icyo náábìtèkèrèjèhò ni nkùbònà<sup>19</sup>  
'peace Ndeju, I will tell you what I think when I see you'
- (43) ...kaandí nímùtáàmbònà nzààbá náàpfùùyè uwo nuunsi<sup>20</sup>  
'...and therefore, if you do not see me, I will be dead already that day'
- (44) bavuga ko iyo wishe igikeri itwiite ùbà úzáàkìbyààrà  
'they say that when you kill a toad while you are pregnant, you will give birth to one'

In these four examples we find three different relationships expressed between the secondary reference event (R2) indexed by -bá- and the speech event (R1). In (41) it is situated later in the day ( /n + Ø + ra<sub>s</sub> + Ø<sub>s</sub> + bá + a/ ); in (42) and (43) it is situated after the day of the speech event ( /n + Ø + zá + a<sub>s</sub> + Ø<sub>s</sub> + bá + a/ ); in (44) it is disjunct with respect to R1 ( /u + Ø + bá + a/ ).<sup>21</sup> The narrated event is subsequently interpreted with respect to this indexed reference event. Notice that it can be anterior to the R2 (41 and 43),

<sup>19</sup>Drawn from *Ntuzakundi Intati* by Nsabimana Seruhuga.

<sup>20</sup>Drawn from *Indyohesha-birayi* by Alexis Kagame.

<sup>21</sup>For "past tense" constructions we find comparable constructions, but the use of -bá- as an auxiliary verb is almost completely replaced by the defective form -ji. Nevertheless, there is an important distinction between them that merits further research.

simultaneous (42), or posterior (44). Consequently, we must conclude that compound constructions incorporating auxiliary *-bá-* determine two sets of temporal relations in which three events are linked, i.e. the speech event, the reference event, and the narrated event.

In sum, we have seen in the analysis of complex tense that there is invariably a second reference event to which the narrated event is directly linked. This secondary reference event may be of two types: (1) as a mediating event, it introduces the speaker's perspective of the narrated event; (2) as a secondary referencing event, it establishes a second axis of orientation. In the first case, the relationship is marked by morphological affixes, in the second by auxiliary verbs such as *-bá-*.

#### 4. Conclusion

I have tried to demonstrate in this study of the verbal category TENSE in Kinyarwanda that tense relationships are not derived from one unique, monolithic, absolute semantic structure. Rather, they depend upon the connections and intersections of various semantic domains whose morphological reflexes are dynamic in nature, shifting meaning in a marked manner as we move among these domains. Previous analyses of verbal expressions have arrived at impasses because they have tacitly assumed a static, homogeneous nature for individual morphemes and for the temporal system. The present analysis has shown that such an approach is untenable, that we must search for models that are more flexible and dynamic in scope.

Several aspects of the analysis raise questions relevant to more general considerations in linguistics and merit comment here. First, the analysis presented in this study demonstrates that tone need not be considered as simply a phonetic, syntactic, or lexical phenomenon. In Kinyarwanda tones have the same phonological status as other segments, but are distributed over verbal structures according to morphological/semantic criteria. In addition, we find further support for the notion of "floating" tones which may, in themselves, be considered to constitute morphemes. These tones, designated perhaps as "morphophonemic" tones, can be contrasted with "syntactic" tones which link two or more verbal expressions.<sup>22</sup> The first type establish the "quali-

<sup>22</sup>See Botne [in preparation, a] for an analysis of syntactic tones.

ties" a speaker perceives *in* an event (or state, etc.), the second the type of relationship that holds between events (or states, etc.).

A second salient characteristic of this analysis is the tripartite function of the paradigmatic opposition *-ra-/-a-*. We saw initially that a major function of these morphemes is verbal focus in which they intersect the semantic domain of the morphemic opposition H/L tones. This function was shown to hold only for "anterior" constructions, a broader range of meaning, segmental temporal divisions, being applicable to all autonomous (modal) constructions. For those "non-anterior" constructions we saw that the *-ra-/-a-* opposition corresponded exactly to a H/L opposition. Finally, we saw that *-rá-/-à-* (tones now constituents of the morpheme itself) are associated with a "modal" distinction which itself is indirectly related to temporal relations. The remarkable reappearance of this same opposition again and again would appear to be a striking example of the syntactic/semantic evolution of a morphemic paradigm. Naturally this observation raises questions: Why should such a change take place? How does the semantic structure contribute to, or bring about, such syntactic change, or vice versa? Further consideration of similar cases could present us with new understanding of linguistic change.

A third aspect of the analysis, secondary reference events, raises interesting questions for the study of discourse. I have shown for Kinyarwanda that the auxiliary verb *-bá-* indexes a secondary reference event. The primary, or cardinal, relationship of an event is interpreted with respect to this point. In Botne [1981; in preparation, b], I have argued for a similar semantic function of the modal *will*. What may be of potentially more interest than their pure temporal functions is the manner in which they function to "tie together" narrative texts. Do all languages have similar mechanisms for indexing these "secondary points of reference"? What other mechanisms are there?

This study represents an attempt to map a specific semantic terrain that Whorf might have considered "primitive physics of time". As with all studies exploring semantic domains from a novel point of view, this one raises as many questions as it resolves. If nothing else, this approach may suggest new lines of inquiry that may contribute to a more profound understanding of the semantic structures underlying our expression of temporal relations.

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