Temporal Remoteness and Relativity

This paper argues that temporal remoteness morphemes (TRMs) in Luganda (Northeast Bantu) are relative, not deictic, temporal operators which may relate topic time (TT), event time (ET), or any arbitrary reference time to any arbitrary evaluation time, including speech time, depending on the compositional environment in which they are inserted. Evidence for this comes from observation of transparently stacked TRMs within a single clause (data from original fieldwork with two speakers). This is in contrast to what Cable (2013) argues for Gĩkũyũ (Northeast Bantu) and it provides support for the thesis articulated by Klein (1992) and recently defended by Arregi & Klecha (2014) that perfect constructions in English are simply the result of iteration of Past Tense.

Simple Cases. Luganda has three past TRMs, two of which realize morphologically as circumfixes. The recent past (REC; *–ye*), the intermediate past (INT; *a–/–ye*), and the unmarked past, which is often used as a 'remote' past for pragmatic reasons (REM; *a–/–a*). (Simple present is *–a*.)

(1) W-ali   mu Afrika?
     2SG-COP.REM LOC africa
     'Were you in Africa?' (a while ago)

(2) W-a⟨ba⟩dde   mu Afrika?
     2SG-INT⟨COP⟩INT LOC africa
     'Were you recently in Africa?'

(3) O-ba-dde   mu Afrika?
     2SG-COP-REC LOC africa
     'Were you very recently in Africa?'

(4) A: I saw elephants once.
     B: Wali mu Afrika?
     'Were you in Africa (at that time)?'

(1) is bad out of the blue, but good in a context where a salient past time has been established (4).

TRMs With Aspect. Two aspectual markers in Luganda are examined in this study, which we analyze as perfective (PF; *–ye*) and imperfective (IP; *–a*) respectively. Note that these are syncretic with the recent past and present, respectively. The aspectual markers can be distinguished from the TRMs by the presence of a copula, however. Consider (5b) and (5c), in which such a copula is present. We argue, following Bjorkman (2011) and Arregi & Klecha (2014) for other languages, that this is a dummy verb inserted to support the morphological features of a TRM (here REM), which cannot be hosted on the main verb due to a conflict with the aspectual morphology.

(5) *Context: Oh, I saw Bill at the party.*

   a. Wayogera   naye?
       W-a⟨yoger⟩a naye?
       2SG-REM⟨talk⟩REM him

       'Did you talk to him?'

   b. W-ali   o-yoger-a naye?
       2SG-COP.REM 2SG-talk-IP him
       'Were you talking to him?'

   c. W-ali   o-yoge-dde naye?
       2SG-COP.REM 2SG-talk-PF him
       'Have you talked to him?'

In (5b-c), the TRM (REM) on the dummy auxiliary determines TT (which in both cases overlaps ET). Morphology on the lexical verb (*–yoger–*) is aspectual. NB: The distribution of *wali+V-ye* overlaps but is not identical to that of the English present perfect; only in the context of (5) do we claim that translation of (5c) to the English perfect is appropriate; in other contexts it may not be.

Stacking. Iteration of past TRMs is possible, with readings comparable to English past perfect.

(6) A: On my trip to Africa, I saw lions.
     B: Wali walyolabyeko empolomoga?
     W-ali   w-ali   o-lab-ye-(ko)   empolomoga?
     2SG-COP.REM 2SG-COP.REM 2SG-see-PRFV-(ever) lions

     'Had you (ever) seen lions (before that time)?'

> **Generalization:** The first (or only) TRM describes the temporal depth between ST and TT.

(7) *We are on a trip to Uganda. Yesterday, we saw elephants. Today, I ask you...*

    a. #O-ba-dde   w-ali   o-lab-ye-(ko)   enjovvu
       2SG-COP-REC 2SG-COP.REM 2SG-see-PF-ever elephant

    b. W-a⟨ba⟩dde   w-ali   o-lab-ye-(ko)   enjovvu
       2SG-INT⟨COP⟩INT 2SG-COP.REM 2SG-see-PFV-ever elephant
       Intended: 'Had you ever seen an elephant (before then)'?

(7a) is bad because the time of seeing elephants (TT for (7a-b)) is yesterday, which is too far in the past to use the recent past; it becomes acceptable if the question is asked immediately after the elephant-seeing event. (7b) is good in the original context because INT is the appropriate TRM for an event that occurred the day before. Note that (7b) is *not* understood as asking about elephant-seeing events within the intermediate past time interval – it asking about events at any time prior to TT. Thus the highest TRM relates speech time to TT, which is not necessarily event time.

Analysis. On this analysis, tenses and aspects are given the type of modifiers $\langle\langle i,t\rangle, \langle i,t\rangle\rangle$ which allows for arbitrary stacking of temporal operators. The following pattern emerges: The lowest temporal operator relates event time to an evaluation time determined by the next one up; the highest operator relates speech time to a reference time determined by the next one down. The reference time of each temporal operator is the evaluation time of the next one down.

(8) *Luganda Aspectual Inventory*
    a. $[\![\text{IP}]\!]^g = \lambda P \lambda t [\exists t'[P(t') \ \& \ t \subseteq t']]$
    b. $[\![\text{PF}]\!]^g = \lambda P \lambda t [\exists t'[P(t') \ \& \ t' \subseteq t]]$

(9) *Luganda TRM Inventory*
    a. $[\![\text{REM}_7]\!]^g = \lambda P \lambda t [P(g(7)) \ \& \ g(7) < t]$
    b. $[\![\text{INT}_7]\!]^g = \lambda P \lambda t [P(g(7)) \ \& \ g(7) <_{\text{near}} t]$
    c. $[\![\text{REC}_7]\!]^g = \lambda P \lambda t [P(g(7)) \ \& \ g(7) <_{\text{v.near}} t]$

The core examples above are then derived as below.

(10) Wayogera naye = [REM [you-talk-to-him]]
    $[\![\text{wayogera naye}]\!]^g = [\![\text{REM}_7]\!]^g([\![\text{VP}]\!]) = \lambda t [[\![\text{VP}]\!](g(7)) \ \& \ g(7) < t]$

(11) Wali oyogedde naye = [REM [PRFV [you-talk-to-him]]]
    $[\![\text{wali oyogedde naye}]\!]^g = [\![\text{REM}_7]\!]^g([\![\text{PF}]\!]^g([\![\text{VP}]\!]^g)) = \lambda t [\exists t'[[\![\text{VP}]\!](t') \ \& \ t' \subseteq g(7)] \ \& \ g(7) < t]$

(12) Wabadde walyolabye enjovvu = [INT [REM [PRFV [you-see-elephants]]]]
    $[\![\text{Wabadde walyolabye enjovvu}]\!]^g = [\![\text{INT}_7]\!]^g([\![\text{REM}_3]\!]^g([\![\text{PF}]\!]^g([\![\text{VP}]\!]^g))) =$
    $\lambda t [\exists t'[[\![\text{VP}]\!](t') \ \& \ t' \subseteq g(3)] \ \& \ g(3) < g(7) \ \& \ g(7) <_{\text{near}} t]$

The temporal anaphors introduced by TRMs can refer to moments in time (as in the case of a simple past like (10)), but also intervals. So in cases like (11) the TRM serves more as a domain restrictor, by referring to such an interval. In (12), the inner TRM (REM) behaves the same, with the outer TRM (INT) establishing the right boundary of this interval.

This is parallel to what Klein and Arregi & Klecha argue for the English perfect: That the present perfect is formed by stacking Present Tense directly on Past Tense. A similar construction in Luganda exists in which a past tense is stacked directly on perfective aspect. While the claim about English is muddled by morphological facts ($-ed \neq have + -en$), Luganda tenses stack transparently. This is in part because lexical verbs can only morphologically support the features of one temporal operator (either an aspect or a TRM); when more than one such operator exists in a clause, dummy auxiliaries are inserted to support the features of higher operators. Scope of those operators can therefore be read off of the visible morphosyntax.