Embedded Tenses in Bùlì

Introduction: Sulemana (2022) argues that the three past markers *pō:m*, *dīem* and *dā:m* in Bùlì (a Mabia language) are syntactically Tense heads and semantically indicate that the reference time for the clause they belong to is in today, in yesterday, and before yesterday, respectively, (1). Following Partee (1973), he analyzes them as temporal pronouns with different presuppositions that are always interpreted relative to the time of utterance (henceforth t_U) and argues that Bùlì exhibits sequence-of-tense (SOT) effects. In this talk, we argue that Bùlì is not an SOT language and that obligatory *de re* construal of Bùlì tenses explains Sulemana's observations.

Is Bùlì an SOT language? The English sentence (2) can be used to report either that John said, "Mary <u>was</u> sick" (called the 'back-shifted' reading), or that John said, "Mary <u>is</u> sick" (called the 'simultaneous' reading). The back-shifted reading is predicted if the embedded past tense is interpreted relative to the time of John's saying. The simultaneous reading could in principle be seen as a special instance of the case where the embedded tense is construed *de re* and evaluated relative to t_U. As Abusch (1997) argues, however, such a *de re* account cannot explain the available reading of (3) where what John decided to say to his mother is "We <u>are</u> having our last meal together," because the meal is to take place three days after t_U. This supports the view that in languages like English, embedded tenses are sometimes rendered semantically vacuous by some kind of SOT rule, such as deletion under agreement with a c-commanding tense.

As Sulemana (2022) demonstrates, Bùlì allows simultaneous readings when an embedded tense agrees with the matrix tense, (4). However, since (4) may be explained by *de re* construal of the embedded *dīem*, in order to see whether Bùlì has an SOT rule, we should look at something similar to (3). Now, the Bùlì sentence (5) can be used to report that what Asibi said that Asouk would say is "I was sick three days ago," but not "I am sick." Since the *dīem* in the most embedded clause is c-commanded by the *dīem* in the matrix clause, this is unexpected if Bùlì has an SOT rule. This suggests that Bùlì is not an SOT language, and we propose that simultaneous readings as in (4) are due to *de re* construal of embedded tenses.

Obligatory *de re* construal of embedded tenses: Sulemana (2022) observes that (6) does not have a back-shifted reading and concludes that Bùlì past tenses are always interpreted relative to t_U. Under Abusch's (1997) theory of tenses, this would mean that embedded tenses in Bùlì are obligatorily construed *de re*. If we adopt Sharvit's (2018) implementation of the *de re* theory, (6) may receive an LF like (7), where variables for worlds and times are syntactically represented, w_0 and t_1 are to be interpreted as the actual world and t_U, and G_7 is a variable for time-concept generators, i.e., functions of type $\langle i, \langle i, \langle s, i \rangle \rangle \rangle$. The denotation (8) of *wìen* contains an existential quantification, which may be witnessed by a time-concept generator G such that $G(\llbracket t_9 \rrbracket)$ is the 'one hour earlier on the same day' concept, if what Asibi said was "Asouk played one hour ago today." On this approach, past tenses take a temporal variable for evaluation, which is automatically bound by the closest temporal binder at LF or identified with t_U if in the highest clause.

However, the above story does not explain why embedded tenses cannot be interpreted *in situ*. Simply assuming that embedded tenses must somehow evacuate their home clause at LF is inadequate. If the most embedded tense in (9) lands within the higher embedded clause as in (10), it will be evaluated relative to the temporal variable bound by λ_3, giving rise to the nonexistent, back-shifted reading 'Asibi said (yesterday) that Ajohn said (yesterday) that Asouk played (the day before yesterday).' We therefore propose to maintain Sulemana's (2022) analysis that Bùlì tenses are pronouns with a presupposition as in (11), so they do not take a temporal argument for evaluation. Furthermore, tenses should stay put in the absence of any syntactic or semantic reasons for movement. A correct LF for (9) will be (12), where double clausal embedding has produced double wrapping by time-concept generators as in Sharvit (2018).

Lack of nearer past under remoter past: The *de re* theory of tenses is supported by 'present-under-past' sentences like (13a), which can be used when Mary is expected to be still pregnant at t_U and explained by *de re* construal of the embedded present tense with such a time concept as 'while the cause for her right now visible big belly lasts' (Heim, 1994), which can produce a time that overlaps both t_U and the time of John's saying. Bùlì has no present tense marker, but (14), where a nearer past *dīem* appears under a remoter past *dā:m*, is unacceptable without the future marker *àlì*, even if Asibi expected Asouk to be still sick at the time of his saying (cf. (13b), which can be used to report that Chris uttered (13a)). This is predicted by (11) and Abusch's (1997) Upper Limit Constraint (ULC); the time denoted by the *dīem* does not overlap but strictly follows the time denoted by the *dā:m* (= the time of Ajohn's saying = Ajohn's 'now'), in violation of the ULC. We propose that when *àlì* is present, the ULC applies not to the *dīem*, but to the silent first temporal argument of *àlì* shown in (15), causing no violation.

(1)   Asibi {pō:m/dīem/dā:m} dì:nì.   'Asibi (today/yesterday/before yesterday) played.'

(2)   John said that Mary was sick.

(3)   John decided a week ago that in ten days at breakfast he would say to his mother that they <u>were</u> having their last meal together.   (Abusch, 1997)

(4)   Asouk dīem wìen āyīn wà dīem à   wīagī.
             say COMP 3SG   IMPF sick
       'Asouk said (yesterday) that he was sick (at that time of saying).'

(5)   Asibi dīem wìen āyīn Asouk àlì wìen vònùŋ   āyīn wà dīem à   wīagī.
             say COMP   FUT say day.after.tmrw COMP 3SG   IMPF sick
       'Asibi said (yesterday) that Asouk would say the day after tomorrow that he was sick (yesterday/#the day after tomorrow/#tomorrow).'

(6)   Asibi dīem wìen (āyīn) Asouk dīem dì:nì.
       'Asibi said (yesterday) that Asouk played (yesterday/#the day before yesterday).'

(7)   dīem(t_1) [λ_9 [Asibi dīem(t_1) wìen(w_0) [λ_7 λ_4 λ_5 [Asouk G_7(t_9)(t_5)(w_4) dì:nì(w_4)]]]]

(8) $[\![$wìen$]\!]^g$ $(w)(P)(t)(x) = 1$ iff x talks in w at t as if there is a time-concept generator G suitable for x in w at t such that for all doxastic alternatives $\langle w', t' \rangle$ of $\langle w, t \rangle$ for x, $P(G)(w')(t') = 1$.   (adapted from Ogihara 1995 and Sharvit 2018)

(9)   Asibi dīem wìen (āyīn) Ajohn dīem wìen (āyīn) Asouk dīem dì:nì.
       'Asibi said (yesterday) that Ajohn said (yesterday) that Asouk played (yesterday/#the day before yesterday).'

(10)   dīem(t_1) [λ_8 [Asibi dīem(t_1) wìen(w_0) [λ_6 λ_2 λ_3 [dīem(t_3) [λ_9 [Ajohn G_6(t_8)(t_3)(w_2) wìen(w_2) [λ_7 λ_4 λ_5 [Asouk G_7(t_9)(t_5)(w_4) dì:nì(w_4)]]]]]]]]

(11) $[\![$dīem$_k]\!]^{g, t_U}$ $= g(k)$ if $g(k) \in D_i$ and $g(k)$ is in the previous day of the day of t_U; $[\![$dīem$_k]\!]^{g, t_U}$ is undefined otherwise.

(12)   Asibi dīem$_{10}$ wìen(w_0) [λ_6 λ_2 λ_3 [Ajohn G_6(dīem$_8$)(t_3)(w_2) wìen(w_2) [λ_7 λ_4 λ_5 [Asouk G_7(G_6(dīem$_9$)(t_3)(w_2))(t_5)(w_4) dì:nì(w_4)]]]]

(13)   a.   John said that Mary is pregnant.
       b.   Chris said that John said that Mary was pregnant.

(14)   Asibi dīem wìen āyīn Ajohn dā:m wìen āyīn Asouk dīem *(àlì) à wīagī.

(15)   a.   … λ_7 λ_4 λ_5 [Asouk [G_7(G_6(dīem$_9$)(t_3)(w_2))(t_5)(w_4) àlì(t_5)] [à wīagī(w_4)]]
       b. $[\![$àlì$]\!]^{g, t_U}$ $= [\lambda s \in D_i.[\lambda r \in D_i: s < r. r]]$.   (presupposition: s precedes r)

References

Abusch, Dorit. 1997. Sequence of tense and temporal de re. *Linguistics and Philosophy* 20:1–50.

Heim, Irene. 1994. Comments on Abusch's theory of tense. In *Ellipsis, tense and questions*, ed. H. Kamp, DYANA Deliverable R2.2.B, 143–170.

Ogihara, Toshiyuki. 1995. Double-access sentences and reference to states. *Natural Language Semantics* 3:177–210.

Partee, Barbara Hall. 1973. Some structural analogies between tenses and pronouns in English. *Journal of Philosophy* 70:601–609.

Sharvit, Yael. 2018. Sequence of tense: Syntax, semantics, pragmatics. In *Pronouns in embedded contexts at the syntax-semantics interface*, ed. Pritty Patel-Grosz, Patrick Georg Grosz, and Sarah Zobel, Studies in Linguistics and Philosophy 99, 215–247. Springer.

Sulemana, Abdul-Razak. 2022. Temporal remoteness markers in Bùlì. *Journal of West African Languages* 49:24–46.