Inflectional verb tone in Buli

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1 Introduction

In Buli[1], an Oti-Volta language (Central Gur) spoken in northern Ghana, tone fulfills not only lexical but also grammatical function, in particular in the verbal domain. While most Gur languages are tonal and grammatical tone is not unheard of, information about the role of tone in verbal inflection in the language family is rare (but see Akanlig-Pare and Kenstowicz 2002, among others). By outlining how tone contributes to the inflectional marking in Buli this paper intends to contribute to the typology of grammatical tone (Palancar and Léonard 2016, Konoshenko 2017), showing that inflectional tone patterns in Buli convey important phrasal and morphosyntactic information. Building on prior work on tone in Buli (Schwarz 2003, 2007) simple clauses and complex constructions are scrutinized for inflectional tone.

   The paper is organized as follows. In Section 2 a brief background on tone in Buli is provided. In 3 I outline the basic inflectional patterns as found in the simple predicates of main clauses, then turning to more complex constructions in 4 and concluding with short final remarks in 5.

2 Input and surface tones

This section provides a brief overview on the tonology in Buli as developed in Schwarz (2003, 2007), see also Schwarz (2009), with some minor modifications. There are three contrastive tones levels: Mid (M), High (H), and Low (L)[2], the tone bearing unit (TBU) being the syllable. Contour tones emerge in

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[2]The following conventions are used to symbolize high, mid, and low tones: H *á*, M *ā*, L *à*. Unless explicitly marked, language data are provided with their surface tone realization, underlying tones are occasionally provided in slashes.

the context of morphological fusion or tone spreading.

Buli has a gender system based on common Gur (and Niger-Congo) "noun classes" (see Güldemann and Fiedler 2019 on the classification systems commonly referred to as such). Nominals including the controlling nouns in their indefinite form are not all overtly marked by inherently toneless suffixes. At the morphologically more complex definite noun form, on the other hand, noun class suffixes with grammatical H tones are present.

The L, M, or H tones assigned to the initial syllable of a (pro)nominal stem are here referred to as input tone. Input tones may extend over additional TBUs within or across morphemes if the latter do not provide tones of their own. In addition, regular postlexical phenomena affect the resulting surface tone.[3] First, if there are toneless TBUs available, H-tones do not spread from a given stem-initial associated tone input as other tones (i.e., a single input tone is associated with multiple TBUs). They rather propagate as "H clones", each H assigned to its own, formerly toneless, TBU. Second, H tones that got cloned, i.e., associated with an intrinsically toneless TBU, are in phrasefinal contexts replaced by L boundary tones, this way yielding complementary surface tones, such as on the inherently toneless plural suffix -*sa*: in non-final contexts it surfaces H (*bí-sá bà-tà* 'three children'), in phrasefinal position L (*bí-sà* 'children'). Third, L tones are capable to spread on TBUs with a H, dissociating the existing H tone. The resulting surface tone depends on the availability of another H to the right. If there is no other H TBU following (1), the H tone invaded upon reassociates to the right edge of its former syllable now sensitive to its moraic structure. This yields a surface M tone on monomoraic and a rising LM tone on polymoraic syllables that were formerly H. With a second H tone syllable available (2), the dissociated H tone reassociates with the H at its right. Note that L-spreading operates after the determination of L boundary tones and is common in compounding and other syntagmata.

(1)   L spreads, H reassociates left: /L **H** non-H/ → [L **L(L)M**] polymoraic
                                                                    → [L **M**] monomoraic

(2)   L spreads, H reassociates right: /L **H** H/   → [L **L** H] any moraic structure

Some nominals have unexpected morphotonological structures, as their stem tone varies. The surface tone of their stems varies between [LM] or [L] and the final rising element cannot be reconciled with a consistently underlying final H or M tone, respectively (Schwarz 2007: 56f.). Such stems providing an instable lexical L(M) tone pattern are regarded as irregular.

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[3]There are dialectal differences in what concerns the potential for L-spreading and phrasefinal L boundary tones. The data provided here represent tone in the central dialect region.

The tonological principles outlined above were also employed for the analysis of inflectional verb tone to which we turn now.

3 Basic inflectional tone in simple predicates

Word order in Buli across different tense, aspect, modality, and polarity (TAMP) contexts is S-Aux-V-O-(Aux), with predominantly preverbal auxiliaries. Main clauses formed by a subject[4] and a simple predicate with or without complements are referred to as simple main clauses (SMCs). Pronominal verb objects are typically bound and, in some contexts, pronominal subjects as well. Negation is always morphologically marked to the left of the predicate. In addition, a clausefinal glottal stop is regularly discernable, regardless of the specific primary negation marker (Schwarz 1999). This is considered a prosodic marking. A morphological marker that appears in some negative contexts at the verb in clausefinal position is analyzed as an assertion marker and may also be present in affirmation, albeit tonally distinct. To the right of the verb, some particles (*ká* and *kámā*) are extremely common (Schwarz 2007: 247ff.: 247ff., 2010). Since they do not alter the inflectional input tone of verbs, they are not considered here. Stative verbs incompatible with a perfective reading are excluded from the discussion for reasons of space. Verb forms typically have one to three syllables. Temporal information can be indicated by tense markers in second position, but very often it is just based on aspectual information. The citation form of dynamic verbs is a nominalized form that denotes the action. It has a M input tone and a nominal suffix *-ka* to which the grammatical verb tone spreads. In (3)[5], such a verbal noun functions as the argument of another verb.

(3) ɔ=pìilìn ɲūkā. /pìilim ɲūka/
     3SG.1=start drink:12VN
     'He started drinking.'   (Heiss 585 PA)

Grammatical tone is associated with the initial syllable of the verb. Where applicable, tone spreads within the verb (cf. *pìilim* in (3)) and onto toneless morphemes. Verbfinally bound morphemes are in most contexts toneless and receive their tone through the verb. When attached to a verb with H input, they receive either a H clone or a L boundary tone (4). L-spreading operates in addition in (5).

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[4]In direct imperatives an overt subject (2nd person singular) is omitted.

[5]Less common conventions and abbreviations used in this paper are: ASS – assertive marker; D – disjunctive; NUMCL – numeral classifier; PNEG – prosodic negation; PV – prosodic vowel; Q – question marker; RECPR – reciprocal; T – tense; trloc – translocation; VN – verbal noun. Numbers at (pro)nominals correspond to the numbering system of noun classes in Miehe et al. (2012)

(4)   mí   ɲá=wà.   / mí   ɲá=wá   síúkú   pō. /ɲá=wa/
      1SG.D see=3SG.1   1SG.D see=3SG.1 path:DEF15 in
      'I saw him. / I saw him on the road.'   (wel 326 wiag)

(5)   wà=m̀   pùŋīyàʔ.   /ǹ púŋi-ya/
      3SG.1=NEG swim:ASS.PNEG
      'He didn't swim.'   (tam 3 swim 001b)

Remarkably, toneless suffixes do not copy the L tone of a verb (6). Suffix *-ya* surfaces as M rather than L. One solution for this unexpected surface tone is to assume that after L verbs, the elsewhere toneless pronominal objects and suffix *-ya* contribute or resort to M as their own input tone. Unfortunately, this entails that not the surface tone, but the input tone of objects and suffix *-ya* varies depending on the stem it attaches to. For the time being I maintain this analysis.

(6)   núrú-bɔ́árí   à   chèŋìyā. /chèŋi-yā/
      person1-many.5 PV go:ASS
      'Many people went.'   (tam 5 057)

Readers may have noticed a preverbal vowel *à* in (6) that is not glossed as an auxiliary. This vowel appears at the left edge of verbs that are not aspectually marked, coinciding with a prosodic break. The prosodic vowel (PV) also targets some auxiliaries and connectives.[6] It is not required and does not contribute to the aspectual (or temporal) inflection of the verb. In the imperfective indicative (7), on the other hand, an identical particle virtually functions as an auxiliary and is glossed as such. That the *à* is required here is an indication for an obligatory phrasal boundary between lexical subject and verb in the imperfective indicative. Accordingly, it is the verb tone and not the auxiliary *à* that allows aspectual disambiguation. Pronominal subjects in the imperfective indicative (8) are provided by portmanteau pronouns in which pronoun and auxiliary have fused.

(7)   wà=chōrɔ̄wá   à   nàgì=wā, ká kù=nɔ̄ā
      3SG.1=husband:DEF1 IPFV hit=3SG.1 KA 3SG.15=NUMCL.6
      yègà. /à nági-wa/
      many
      'Her husband beats her very often.'   (swa 145)

(8)   máà   dīg ká lām. /-à   dīg/
      1SG.IPFV cook KA meat.22 (AUX fused in portmanteau pronoun)
      'I am cooking meat.'   (Heiss 432 PA)

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[6]When present at auxiliaries and connectives, it is conventionally written as one word.

Based on the examination of SMCs, predictable inflectional tone patterns of dynamic verbs emerge (Table 1). The input tone of the verb is marked bold, to its left are obligatory inflectional markers with their input tones. Bound morphemes are preceded by a hyphen and presented with their surface tone. A slash separates the tonal variants caused by L boundary tones that replace H clones clausefinally.

	Subjunctive		Subjunctive IPFV	
			– bound obj	+ bound obj
AFF	Ø **M**-[M]		*á* **M**-[M]	*á* **H**-[H/L]
NEG	*kán* **L**-[M] ?		*ká-á* **M**-[M] ?	*ká-á* **H**-[H/L] ?

	Indicative		Future	Indicative IPFV	
	+ SAP	– SAP		– bound obj	+ bound obj
AFF	Ø **H**-[H/L]	Ø **L**-[M]	*lè* **M**-[M]	*(-)à* **M**-[M]	*(-)à* **H**-[H/L]
NEG	*ǹ* **H**-[H/L] ?		cf. Ind. IPFV	*kàn* **M**-[M] ?	*kàn* **H**-[H/L] ?

Table 1: Inflectional tone for dynamic verbs in SMCs (verb tone in bold)

As Table 1 shows, M is the dominant tone in subjunctive and future. If we consider M as the default tone of dynamic verbs, then there are three conditions under which the tone changes: (i) In the aspectually unmarked indicative, with locuphoric subject pronouns (1st and 2nd person pronouns, Haspelmath 2021: 127) the verb is H, with 3rd person subjects it is L. (ii) In the imperfective, the presence of bound object pronouns correlates with a H verb. In the absence of the pronouns, the verb remains M. (iii) Some preverbal auxiliaries affect tone: After the negative marker *kán* in subjunctive, the verb is L, and after the nasal negation marker in the indicative, the verb is underlyingly H.

In natural discourse only a small fraction of the utterances has the shape of SMCs. We turn now to more complex constructions.

4 Inflectional tone in complex constructions

In the following subsections, I describe four recurrent constructional types analyzing whether, where and how the inflectional tone parallels or changes in comparison with SMCs.

4.1 Subjunctive complement clauses

Complement clauses in the subjunctive are applied for various functions, e.g., intentional future with auxiliary verb *za* 'get/stand up' in the matrix clause. The subjunctive complement clause always follows its matrix clause and may start with a complementizer as in (9). In the construction in (10), on the other hand,

the verb *yaa(li)* in the matrix clause has been reduced to a mere tonal trace at the subject pronoun. Lacking a complementizer, the surface looks like the sequence of two coreferent pronouns. To speakers the underlying construction is transparent, though.

(9)   kám bàsì [tè fì=bīāká   sītī   būōŋá]?.
      NEG leave CNJ 2SG=dog:DEF.12 provoke goat:DEF.6.PNEG
      'Don't let your dog make the goats running.'   (Heiss 483 PA)

(10) tàā   [tì=ɲɛ̄=nī   ká jīām]
      1PL.want 1PL=do=2PL KA thanks
      'We want to thank you people'   (Anyidohu 021)

Whether coreferent or not, subjunctive complement clauses require a subject pronoun. Conjunction *tè* serves well when the subject of the matrix clause and the subjunctive clause are not coreferential. (11) illustrates a subjunctive complement clause with an imperfective verb. As in SMCs, the aspectual marking in the subjunctive clause fuses with the pronominal subject. The example illustrates that the H tone of the aspectual marker is sometimes completely lost, often, however, it is maintained as a final rise.

(11) nì=bās   [tè tàà   pūŋ].
      2PL=leave CNJ 1PL:IPFV swim
      'Allow us to continue swimming'   (tam 3 swim 054a)

In view of the structural parallels between main and complement clause in the subjunctive, it can be concluded that the subjunctive SMC in Buli represents a case of insubordination, "the conventionalized main clause use of what, on prima facie grounds, appear to be formally subordinate clauses" (Evans 2007: 367).

4.2 Serial verb constructions

Verb serialization, per definitionem monoclausal and asyndetic (Haspelmath 2016) serves a wide range of lexical and grammatical functions in Buli, expressing benefactive, path in motion and transfer predicates, progressive, and many more. In verb serialization in Buli, arguments may intervene between verbs that are sharing one or more arguments. The serialization of more than two verbs is not uncommon. In (12), a motion event is encoded by a subject-sharing verb series expressing manner and path. Note that if the subject pronoun is a locuphoric pronoun (e.g., *mí* or *ǹ* 1SG), only the first verb has a H tone whereas the other two verbs remain unchanged. Note also that suffix *-ya* does not appear at a clausefinal serialized verb in affirmation. The non-initial

verbs with a L tone represent thus distinctive dependent verb forms. Object pronouns surface as M (13), parallel to SMCs.

(12)   ɔ=yɔg   ɲìn   tììmù   zúk, à   sìŋ.
       3SG.1=jump come.out tree:DEF14 on   PV descend
       'He jumped (down) from the tree.'   (wel 125 wiag)

(13)   nì=nāg nísá   à   tὲ=wā.
       2PL=hit hand.6 PV give=3SG.1
       'Clap hands for him.'   (Anyidohu 025)

Future or negation auxiliaries always occur before the first verb in serialization. Unexpected is the tonal behavior in combination with the negative marker *ǹ* (14). It is not just the initial verb but all verbs that display the surface tones of H verbs affected by L-spreading from the negative marker *ǹ* (i.e., as if underlyingly *ǹ dári-wa (ǹ[7]) lɔ́ansi-ya/*). The tone repetition by a dependent verb is probably connected to the morphological marking at the end of the verb series.

(14)   àáíyàʔ,   bīāká   ǹ   dàrì=wá   lɔ̀ànsíyàʔ.
       no.ASS.PNEG dog:DEF12 NEG pull=3SG.1 let.fall:ASS.PNEG
       'No, the dog didn't pull him down.'   (BL (4) 2005: 0036-1)

Most remarkable, however, is the fact that imperfective marking cannot occur at the initial verb. Hence, the aspectual subject pronouns encountered in SMCs do not appear with SVCs. Only non-initial verbs in a verb series can be marked for aspect (15). The structure is the same as in the subjunctive imperfective. While the auxiliary *á* can stand alone, it frequently binds to the preceding verb. In the process of fusion, the distinctive H tone of the auxiliary can get lost.

(15)   bà=kàlàà   pīēsī ká dààtà.
       3PL.2=sit.down.IPFV carve KA wood:21
       'They are sitting and carving wood.'   (BL (1b-sess) 2004: 067)

The fusion of initial verb and the imperfective auxiliary is common in the progressive construction (16). It is formed by a locative stative verb (*bō*) containing a locative adverbial (*dú*) in the process of erosion followed by the aspectually marked lexical verb.

(16)   mí bóráá   kūrī ká ɲúé.
       1SG.D be.LOC.there.IPFV pound KA yam.6
       'I'm pounding yams.'   (wel 223 wiag)

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[7]This segment is not present before the non-initial verbs, however, the verb tone suggests that it is.

4.3 *tè*-clause constructions

The clausal conjunction *tè* (sometimes with prosodic vowel *à*) known from
subjunctive complement clauses is also used in various nonmodal contexts,
among them the narration of sequential events. The conjunction assists refer-
ence tracking as illustrated in (17) in which a rudimentary storyline based on a
picture series (Skopeteas et al. 2006) is told. Apart from the introductory part
and a short intermediate stretch, all clauses begin with *tè* and involve a change
of subjects among easily retrievable referents.

(17)   [Today, two of my brothers were sent to buy tomatoes (lit. they sent...)]

    a.   tè   bà   mèèná chèŋ
          CNJ 3PL.2 all   go
          'and they both went'

    [but lost their way. They couldn't get tomatoes.]

    b.   àtè   bà=yāā tòm mī,
          PV:CNJ 3PL.2=T send 1SG.D
          'And then I was sent (lit. they sent me),'

    c.[8] tè mí   gà   bāgī à ɲà dà tām̀,
          CNJ 1SG.D TRLOC be.able PV see buy have.come
          'and I managed to get and bring (the tomatoes),'

    d.   tè bà=pà   dìg ŋàndìintà.
          CNJ 3PL.2=take cook food:21
          'and they prepared something to eat with them.'

                                            (BL (1b-sess) 2004: 394.01)

The dynamic verbs in indicative *tè*-clauses distinguish structurally from those
in subjunctive *tè*-clauses in affirmation, since their tone is not M. They are L,
bound object pronouns are M, and suffix *-ya* does not occur, an inflectional
pattern that corresponds to that of dependent dynamic verbs in SVCs.

    Imperfective marking in *tè*-clauses is possible, as well, among others in sen-
tence constructions in which a non-subject constituent is fronted (18). The
fronted constituent is followed by a *tè*-clause. It may also be accompanied
by copula *ká*. The imperfective verb displays the familiar dependent structure
encountered in subjunctive SMCs and non-initial serialized verbs.

(18)   līgrā   dìnà,   àtè   fàā   yāālī?
          money.6 3SG.5:which PV:CNJ 2SG.IPFV want.Q
          'How much money do you want?'   (Mel Fr 092)

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[8]This example contains two stative verbs with M tone that are not further discussed here.

Postnominal, head-external relative clauses are another common context in which *tè*-clauses occur.

4.4 *le*-clause constructions

The auxiliary of this construction (connective *lē*, allomorph *nē*; compatible with prosodic vowel *à*) precedes the verb. Note that the auxiliary differs only by tone from the future auxiliary and a prepositional comitative marker. The *le*-clause construction can form a main clause on its own, but is discussed here because of its marked structure and use.

As an SMC, the *le*-clause construction occurs in discourse-pragmatic contexts where the referent of the subject constituent is at issue. In Schwarz (2016) I have tried to reconcile these pragmatically determined contexts under the concept of thetic statements (Fiedler et al. 2010 with data from other languages). (19) illustrates the *le*-clause construction. The sentence responds to a question (What happened?) with the proposition conveyed by a picture. A canonical SMC without the auxiliary *lē* would be inappropriate here.

(19)   lɔ́ɔ́rá, àlē   nàgì chāāb.
        car:6 PV:CON hit   RECP
        'There was a car crash. (lit. Cars crashed into each other.)'
                                         (BL (1b-sess) 2004: 021)

(20) provides an illustration for a verb marked for imperfective in a *le*-clause construction. As in SMCs, the aspectual auxiliary binds to the left, but here it is H. It always fuses with the connective *le*, displaying a rising tone (LH or LM) before non-H tones. In the fused form the distinctive M tone of the simple auxiliary that distinguishes it from the future auxiliary and prepositional comitative marker is lost.

(20)   ká nùìnsà nàá   yīr, dāā júmàʔ.
        KA bird:13 CON.IPFV fly   NEG fish:6.PNEG
        'It is birds that fly, not fishes.'   (sent 139)

le-clause constructions occur in various contexts and are easily integrated in larger sentence constructions. Relativization with a *le*-clause (21), as a case in point, differs from relativization with a *tè*-clause by its head-internal structure (Schwarz 2007: 75ff., Hiraiwa 2003). A relative clause with auxiliary *lē* does not modify a nominal head represented in the matrix clause but functions as a constituent in the matrix clause. Note that the syntactic construction does not necessarily require a clausefinal determiner *lá*.

(21) bá   kàn ɲɛ̄ [wà=nàá   ɲɛ̄ dīī   lá]?.
     3PL.2.D NEG do 3SG.1=CON.IPFV do 3SG.INDEF DET.PNEG
     'They don't do what he is doing.'   (Karichiwade 006)

Crucially, *le*-clauses can, but they do not need to follow an external head, in contrast to *tè*-clauses. They are commonly found at the beginning of complex sentences, for instance as sentence-initial adverbial clauses or recapitulative clauses in tail-head linkage constructions. The inflectional structures in the imperfective are straightforward and familiar (see (20), (21)). The verb tone is determined by the availability of pronominal objects. In aspectually unmarked *le*-clauses, however, a new inflectional pattern appears (22). If the verb is not in clausefinal position (i.e., followed by a complement or by determiner *lá*), it displays the familiar L of aspectually unmarked dependent verbs (cf. (19)), object pronouns are M. In clausefinal position, however, the verb bears a rising LM tone and ends with a palatal vowel that seems to represent a truncated form of suffix -*ya*, while the full syllabic suffix -*ya* is not allowed.

(22) nípōōwá   būūkú   lē ŋɔ̀bī.
     woman:DEF1 goat:LDEF15 CON eat.(ASS)
     'The woman's goat has eaten (the beans)'   (BL (2) 2005: 0473-1)

5 Final remarks

This overview shows how tone contributes to the inflection of verbs, considering a range of simple and more complex constructions in affirmation and negation. The results are briefly summarized here.

The imperfective construction is tonally controlled by the availability of bound pronominal objects and has only two basic forms. The aspectually unmarked paradigm, in contrast, comprises of distinctive inflectional verb forms for (i) indicative with subject controlled tone, (ii) subjunctive, (iii) dependent verbs and (iv) dependent verbs in the *le*-clause. The only difference between the two imperfective constructions is the tone of the auxiliary, the dependent H variant *á* used everywhere except in indicative SMCs. For the L imperfective auxiliary in SMCs (*à*), a prosodic background has been suggested, the presence of an obligatory phrase boundary in this construction that separates the verb from a lexical subject constituent and has contributed to the development of portmanteau subject pronouns.

The dependent verb forms also show that inflectional tone conveys syntactic information. The fact that dependent verb forms occur with negation marker *ká(n)* in SMCs supports the hypothesis (Schwarz 1999: 96) that the respective negative markers are of verbal origin (see stative verb *kā* 'not exist, not have'). More interesting, however, is the nature and history of the affirmative

auxiliaries. I hypothesize that all instances of auxiliary *lē* – i.e., auxiliary *lè* in the epistemically probable future as well as the auxiliary variants in *le*-clauses: *lē* and fused *làá* ∼ *làā* ∼ *làà* – are etymologically related to the prepositional comitative marker *lè*. An interesting verb *le* (see Kröger 1992: 212, entry *lie³*) with compatible semantics is synchronically attested in questions where it occurs without interrogative complements (X *lee?* 'Where is X?'). This topic cannot be pursued here, but it seems fair to say that, not unlike some Bantu languages, inflectional tone in Buli does its best to function "as the glue holding a grammar together" (Hyman 2016: 35).

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