

Double downstep in Northern Toussian

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Slides



Downstep and register

- Downstep is a well-attested registral effect in tonal languages
- Register: the pitch range of the speaker at a given point in time (Clements 1990, Snider 1990, 2020)
 - Can be lowered/compressed or raised
 - A change in register affects the pitch of all subsequent tones

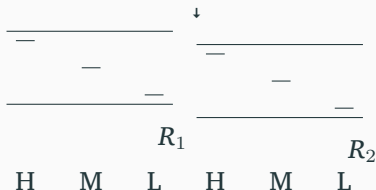


Figure 1: Representation of register lowering

- Downstep: a downward shift/compression of the register, regardless of the trigger

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- Automatic downstep: downstep when a linked H follows a linked L

- Downstep: a downward shift/compression of the register, regardless of the trigger
- Automatic downstep: downstep when a linked H follows a linked L
- Non-automatic downstep: downstep triggered by floating tones, grammatical tone, or through lexical specification

Introduction

- In the Northern Toussian (Niger Congo, possibly Gur) examples below, there is a contrast in the degree of downstep of H-toned *já* ‘watch’
 - In (1a), it surfaces at a pitch lower than an initial H, but higher than the preceding M
 - In (1b), it surfaces lower than the preceding M, but higher than a L

- (1) a. sù p̄ = n ^ˈjá m̄ = núŋ tǝ
father IS = IPVA watch 1SG = mother place
‘When father is going to watch at my mother’s house’ 🔊
- b. p̄ = n ^{ˈˈ}já m̄ = núŋ tǝ
husband = IPVA watch 1SG = mother place
‘The husband is going to watch at my mother’s house’ 🔊

Introduction

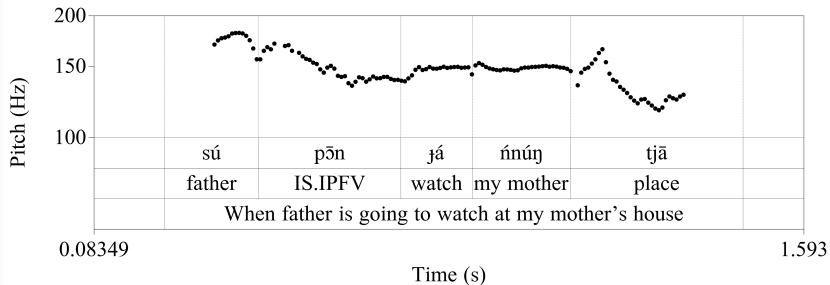


Figure 2: Single downstep of H after M 🔊

Introduction

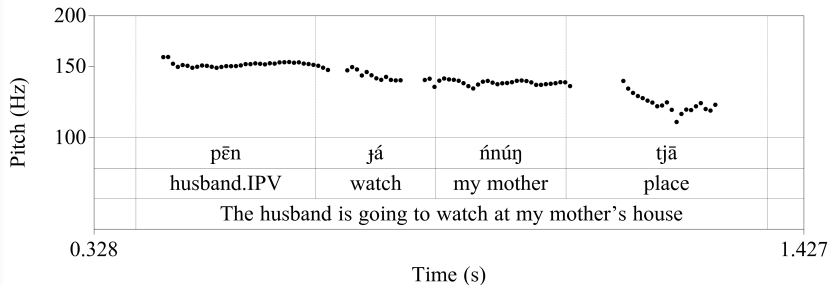


Figure 3: Double downstep of H after M 

- I analyze the latter example as arising due to *double downstep*
 - The register level is shifted down twice at one position in the utterance
 - Leads to a precipitous drop in pitch

- I analyze the latter example as arising due to *double downstep*
 - The register level is shifted down twice at one position in the utterance
 - Leads to a precipitous drop in pitch
- Caused by two different downstepping processes at the same position
 - Prosodic boundary effect
 - Grammatical tone
 - Both processes apply, causing the register to lower twice, cumulatively

- The data show a novel case of double downstep, a rarely attested phenomenon
 - Eastern Grassfields: Dschang Bamileke (Hyman & Tadedjeu 1976, Clark 1993) and Medumba (Voorhoeve 1971)
 - Western Nilotic: Kumam (Hieda 2010) and Acooli (Hieda 2011)

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 - Eastern Grassfields: Dschang Bamileke (Hyman & Tadedjeu 1976, Clark 1993) and Medumba (Voorhoeve 1971)
 - Western Nilotic: Kumam (Hieda 2010) and Acoolli (Hieda 2011)
- There are meaningful analytical differences between the Northern Toussian double downstep and other cases in the literature
- This work contributes to our understanding of the typology of double downstep

Roadmap

Northern Toussian

Morphosyntax

Basic tonology

Causes of non-automatic downstep

Prosodically-conditioned downstep

Grammatical tone

Double downstep

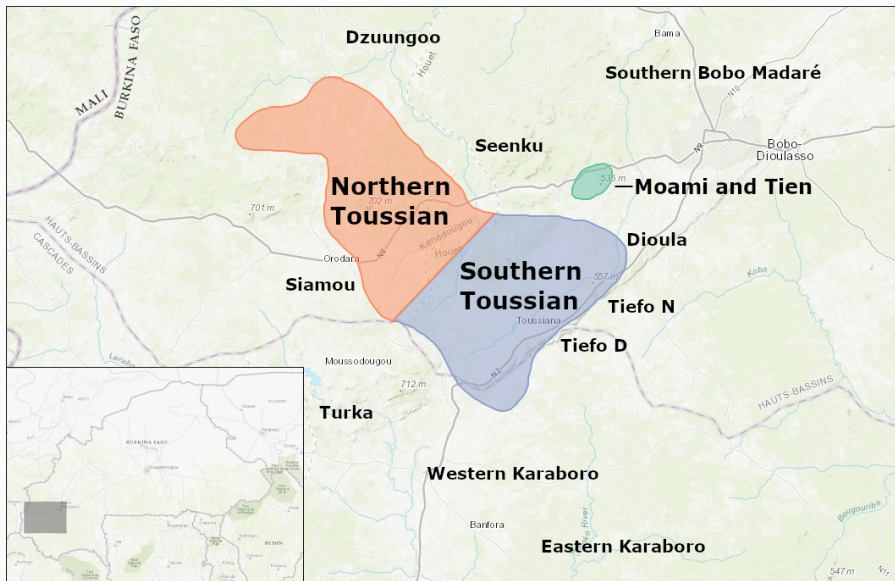
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Toussian languages

- Of uncertain genetic heritage—Niger Congo, potentially Gur/Mabia (Naden 1989, Mieke et al. 2012, Güldemann 2018)
- Two, possibly three Toussian languages
 - Both Northern and Southern Toussian last surveyed at ~20,000 speakers (Eberhard, Simons & Fennig 2020)
 - Third variety spoken in two villages, Moami and Tien; few speakers, likely endangered

Toussian languages



- SAuxOVX word order (Güldemann 2007)
- Largely isolating
- Little morphology

- Aux domain is heterogenous, containing:
 - Tense, aspect, mood, and polarity (TAMP) particles
 - Discourse markers
 - Auxiliary verbs
- Multiple auxiliary elements can co-occur in a single phrase

P1	P2	P3	P4	P5	P6
á ANT	à COND	ká NEG	p̄ ¹ IS	pá PROG	pwó/pī ‘come’
sá IRR	rí SBJV	kàpá NEG.SBJV	jē ‘truly’	tó ² ‘again’	kéj/tjō ‘go’
wú EVID				kwó/fā ‘be able’	
				pī FUT	

¹Immediate sequencing marker: denotes that the events of the current clause immediately precede the events of the subsequent clause.

²This marker has variable word order and can occur in different linear orders.

Verbal auxiliaries

- P5 and P6 share certain characteristics with main verbs
 - They are the target of grammatical tone
 - Some auxiliary markers in these positions exhibit concordant marking of imperfectivity
- I treat them as auxiliary verbs




P1	P2	P3	P4	P5	P6
á ANT	à COND	ké NEG	pō IS	pé PROG	pwó/pī 'come'
sé IRR	rí SBJV	kèpé NEG.SBJV	jē 'truly'	tó 'again'	kéj/tjō 'go'
wú EVID				kwó/fā 'be able'	
				pī FUT	

- Tonal inventory
 - three contrastive level tones: H á, M ā, L à
 - three two-tone contour tones: HM â, HL â, LH ǎ
 - three three-tone contour tones: HLH â´, LHL ǎ̀, LHM ǎ̃

- There is very little declination in sequences of like tones

- (2) a. sù bú ǵá
father leopard watch
'Father watched the leopard' 🔊
- b. sù pē-nō bwō fī
father husband-PL 10 insult
'Father insulted the 10 husbands' 🔊
- c. lè dō fēŋ fàn
uncle buffalo mud mix
'Uncle's buffalo mixed the mud.' 🔊

Automatic downstep

- There is automatic downstep (downdrift) where lower tones cause downstep of higher tones
 - L triggers downstep of following M and H (3a-b)
 - M triggers downstep of following H (3c)
 - A downstepped H has a higher pitch than a M
- (3) a. *pē à 'nōŋ fī* 'If the husband insults the person' 
- b. *sú à 'bú já* 'If father watches the leopard' 
- c. *sú pē 'já* 'father watched the husband' 

- All subsequent instances of downstep in this presentation will be non-automatic downstep

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Causes of non-automatic downstep

- The two processes which together cause double downstep
 - Prosodically-conditioned downstep
 - Downstep conditioned by grammatical tone

- There is non-automatic downstep in some contexts with a sequence of M tones, as we see in (4)

(4) pē [˥]nō bwō wū fī [˥]kēj [˥]tjā
husband people 10 dem.PL insult wife place

‘The husband insulted those ten people at the wife’s house’ 

- What conditions where it occurs?

- What conditions where it occurs?
- Let's consider the syntactic structure

- In most instances, downstep occurs after a M positioned at the right edge of DPs and VPs
 - But not always—in (5), there is no downstep internal to the VP following the object DP

(5) [pĕ]_{DP} [[⁺nō bwō wū]_{DP} fī]_{VP} [[⁺kēj]_{DP} ⁺tjā]_{PP}
husband people 10 dem.PL insult wife place
‘The husband insulted those ten people at the wife’s house’ 🔊

- I argue that this is a syntax-prosody interaction, where
 - A floating L is inserted following a M at the right edge of a phonological phrase
 - Instances where downstep does not occur at the right edge of an XP is indicative of asymmetries between syntactic and prosodic structure

(6) (pē)[Ⓛ] (nō bwō wū fī)[Ⓛ] ((kēj)[Ⓛ] tǣ)
[pē]_{DP} [[nō bwō wū]_{DP} fī]_{VP} [[kēj]_{DP} tǣ]_{PP}
husband people 10 dem.PL insult wife place

‘The husband insulted those ten people at the wife’s house’ 🔊

Downstep at the sentence-level

- A floating L is inserted following a M subject DP, causing the object to be downstepped
- But there is no floating L insertion following the object
 - Due to the VP being a single phonological phrase

(7) (kēj)[Ⓛ] (nōŋ fī) → [kēj ⁺nōŋ fī]
[kēj]_{DP} [[nōŋ]_{DP} fī]_{VP}
wife person insult
‘The wife insulted the person’ 🔊


Downstep at the sentence-level


- There are multiple pieces of evidence supporting that the VP constitutes a single phonological phrase
 - L insertion
 - Preferential pausing at its edges
 - Tone spreading restricted to the VP

- The parsing of a verb and its internal argument within single phonological phrase is attested cross-linguistically, e.g., in Niuean (Clemens 2019), Kimatuumbi (Odden 1987), Chitumbuka (Downing 2006), and Chichewa (Downing & Mtenje 2011)

VP-external DP as phonological phrase

- Outside the VP, DPs correspond to a phonological phrase
 - They also condition L insertion
- Seen by
 - Downstep following a DP in a possessive construction (8a)
 - Downstep between object of a postposition and following postposition (8b)

(8) a. $((n\bar{o}\eta)^{\textcircled{L}} \text{ bj}\bar{e}) \rightarrow n\bar{o}\eta \text{ }^{\textcolor{violet}{L}}\text{bj}\bar{e}$
[[$n\bar{o}\eta$]_{DP} $\text{bj}\bar{e}$]_{DP}
person calabash
'The person's calabash' 

b. $((n\bar{o}\eta)^{\textcircled{L}} \text{ s}\bar{e}) \rightarrow n\bar{o}\eta \text{ }^{\textcolor{violet}{L}}\text{s}\bar{e}$
[[$n\bar{o}\eta$]_{DP} $\text{s}\bar{e}$]_{PP}
person with
'With the person' 

VP-external DP as phonological phrase

- There is no downstep within the DP between the noun and its modifier

(9) a. (bjē rī) → bjē rī

[bjē rī]_{DP}

calabash DET

‘The calabash’ 🔊

b. (nōŋ pār) → nōŋ pār

[nōŋ pār]_{DP}

person small

‘The small person’ 🔊

c. (bjē-nō bwō wū) → bjē-nō bwō wū

[bjē-nō bwō wū]_{DP}

calabash-PL 10 DEM.PL

‘Those ten calabashes’ 🔊

Prosodically-conditioned downstep summary

- There is insertion of a floating L following a M at the right edge of a phonological phrase
 - VPs correspond to phonological phrases
 - VP-external DPs correspond to phonological phrases
- It causes following elements to be downstepped

Causes of non-automatic downstep

- The two processes which together cause double downstep
 - Prosodically-conditioned downstep
 - Downstep conditioned by grammatical tone

- There is grammatical tone which signals that the verb lacks a preverbal object
 - It is a construct tune, i.e, its realization varies, conditioned by the tonal and lexical properties of the target (Rolle 2018: p. 105)

Grammatical tone

- The grammatical tone is realized in two ways, depending on TAMP configuration and presence of auxiliary verbs
 - Attaches to verb (10a)
 - Remains floating, causing downstep of following H verbs (10b)


(10) a. sú ①já → sú já

father GT.watch

‘The father watched’ 

b. sú kə ①já → sú kə ‘já

father NEG GT.watch

‘Father did not watch’ 

Null preverbal marker—realization

- The grammatical tone causes downstep when a subset of auxiliary elements are present, e.g.,
 - Subjunctive marker *rí*
 - Negative marker *kó*
 - Imperfective marker =*n*

- (11) a. *sú rí ʔjá* → *sú rí ʔjá*
father SBJV GT.watch
'Let father watch' 🔊
- b. *sú kó ʔjá* → *sú kó ʔjá*
father NEG GT.watch
'Father did not watch' 🔊
- c. *sú = n ʔjá* → *sún ʔjá*
father = IPFV watch
'Father is going to watch' 🔊

- The downstep only targets H verbs—all other tonal categories are unaffected

- (12) a. sú kó ①já → sú kó ʔjá
father NEG GT.watch
'Father did not watch' 🔊
- b. sú kó ①jâ → sú kó jâ
father NEG GT.search
'Father did not search' 🔊
- c. sú kó ①jē → sú kó jē
father NEG GT.sweep
'Father did not sweep' 🔊

Grammatical tone

- The grammatical tones attaches to most H verbs in simple S V sentences like (13a), but with the copula *pé* (13b) and the progressive auxiliary verb *pá* (13c), it causes downstep instead

(13) a. sú ①já → sú já
father GT.watch

‘Father watched’ 🔊

b. sú ①pé → sú ‘pé
Father COP.GT

‘Father is there’ 🔊

c. sú ①pá=n kō → sú ‘pón kō
father PROG.GT=IPFV walk

‘Father is walking’ 🔊

- The grammatical tone indicates that a verb lacks a preverbal object
- Depending on TAMP configuration and the lexical properties of the verb, it:
 - Attaches to the verb
 - Causes H verbs to be downstepped

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- Let's return to (14)
 - The parsing of $p\bar{o}$ IS must be established

- (14) a. $s\acute{u}$ $p\bar{o} = n$ $\textcolor{blue}{j\acute{a}}$ $m = n\acute{u}ŋ$ $tj\bar{a}$
father IS = IPFV watch 1SG = mother place
'When father is going to watch at my mother's house' 
- b. $p\bar{e} = n$ $\textcolor{violet}{j\acute{a}}$ $m = n\acute{u}ŋ$ $tj\bar{a}$
husband = IPFV watch 1SG = mother place
'The husband is going to watch at my mother's house' 

- There is no downstep between *p̄* IS and a following M object

(15) s̄ú p̄ p̄ f̄
father IS husband insult

‘When father insults the husband’ 

Double downstep

- $p\bar{o}$ IS does not belong to its own phonological phrase
 - Downstep would be expected after $p\bar{o}$
- It occurs within the same phonological phrase as the VP (16b)

(16) a. * (sú) (p \bar{o}) (p \bar{e} fĩ) → sú p \bar{o} 'p \bar{e} fĩ
father IS husband insult

'When father insults the husband'

b. (sú) (p \bar{o} p \bar{e} fĩ) → sú p \bar{o} p \bar{e} fĩ
father IS husband insult

'When father insults the husband'

Double downstep

- (17) shows the sentences which contrast in degree of downstep.
- The prosodic structure is overlaid and the grammatical tone is glossed
 - Downstep on *já* in (17a) is due the GT marker
 - Downstep on *já* in (17b) is due to the combination of the M downstep and downstep triggered by the grammatical tone

- (17) a. [sú pōn [↓]já núnɔ̃ tjà]
(sú) (pō = n [Ⓛ]já) ((m = núɔ̃) tjà)
father IS = IPVA GT.watch 1SG = mother place
'When father is going to watch at my mother's house' 🔊
- b. [pēn ^{↑↓}já núnɔ̃ tjà]
(pē = n) [Ⓛ] (([Ⓛ]já) ((m = núɔ̃) tjà)
husband = IPVA GT.watch 1SG = mother place
'The husband is going to watch at my mother's house' 🔊

Double downstep

- Recall that the grammatical tone does not attach to the copula (18b) and progressive (18c) marker, and instead downsteps them

- (18) a. sú [Ⓛ]já → sú ǰǎ
father GT.watch
'Father watched' 🔊
- b. sú [Ⓛ]pé → sú ˈpé
Father COP.GT
'Father is there' 🔊
- c. sú [Ⓛ]pə=n kō → sú ˈpən kō
father PROG.GT=IPFV walk
'Father is walking' 🔊

Double downstep

- Double downstep also occurs with the copula (19a) and the progressive auxiliary verb (19b)

- (19) a. (pē)[Ⓛ] (Ⓛpé) m = núŋ tǎ → pē [Ⓛ]pé nnúŋ tǎ
husband COP.GT 1SG = mother place
‘The husband is at my mother’s house’ 🔊
- b. (pē)[Ⓛ] (Ⓛpá = n) kō → pē [Ⓛ]pán kō
husband PROG.GT = IPFV walk
‘The husband is walking’ 🔊

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- Double downstep is an example of cumulative registral shift
- It is cross-linguistically rare, attested in
 - Dschang Bamileke (Hyman & Tadedjeu 1976)
 - Medumba (Voorhoeve 1971)
 - Kumam (Hieda 2010)
 - Acooli (Hieda 2011)

- In the attested cases, double downstep is often derived as follows:

$$\begin{array}{ccccccc}
 (20) & H & L & H & L & H & \\
 & | & & & & | & \\
 & V & & & & V & \\
 & & & \longrightarrow & & & \\
 & H & \downarrow & H & \downarrow & H & \\
 & | & & & & | & \\
 & V & & & & V & \\
 & & & \longrightarrow & & & \\
 & H & \downarrow\downarrow & H & & & \\
 & | & & | & & & \\
 & V & & V & & &
 \end{array}$$

(Adapted from Hyman 2003)

- The intervening floating H serves two purposes:
 - To prevent the floating Ls from merging
 - To act as the target of downstep

- The Northern Toussian double downstep appears to be derived as follows:

$$(21) \quad \begin{array}{ccccccc} H & L & L & H & & H & {}^{\downarrow\downarrow}H \\ | & & & | & \longrightarrow & | & | \\ V & & & V & & V & V \end{array}$$

- There is no independent evidence for a floating H intervening between the two Ls in Northern Toussian
- A floating L might not require a subsequent H or M to trigger non-automatic downstep

Discussion

- Are automatic and nonautomatic downstep basically the same thing?
 - Downstep is caused when a L precedes a H, regardless whether the L is linked or floating

(22) a. $\begin{array}{cc} \text{L} & \text{H} \\ | & | \\ \text{V} & \text{V} \end{array} \longrightarrow \begin{array}{cc} \text{L} & \text{'H} \\ | & | \\ \text{V} & \text{V} \end{array}$ Automatic downstep

b. $\begin{array}{cc} \text{L} & \text{H} \\ & | \\ & \text{V} \end{array} \longrightarrow \begin{array}{c} \text{'H} \\ | \\ \text{V} \end{array}$ Non-automatic downstep

Discussion

- This cannot be the case in Northern Toussian
 - Recall that there is no downstep between sequences of linked L tones
 - If *any* L tone caused downstep, we would expect example (24), instead of the attested pattern in (23)

$$(23) \quad \begin{array}{ccc} \text{L} & \text{L} & \text{H} \\ | & | & | \\ \text{V} & \text{V} & \text{V} \end{array} \longrightarrow \begin{array}{ccc} \text{L} & \text{L} & \text{H} \\ | & | & | \\ \text{V} & \text{V} & \text{V} \end{array}$$

$$(24) \quad * \begin{array}{ccc} \text{L} & \text{L} & \text{H} \\ | & | & | \\ \text{V} & \text{V} & \text{V} \end{array} \longrightarrow \begin{array}{ccc} \text{L} & \text{H} & \text{H} \\ | & | & | \\ \text{V} & \text{V} & \text{V} \end{array}$$

- What explains this asymmetry?

- What explains this asymmetry?
- Some thoughts

- Automatic and non-automatic downstep have different behaviors
 - Floating tones always trigger downstep, whereas with linked tones downstep is contextual
- Also supported by
 - Languages which have non-automatic downstep but not automatic downstep, e.g., Dschang Bamileke and Ebrié (Tadedjeu 1974, Clark 1993)
 - Languages where automatic and non-automatic downstep have different phonetic effects, e.g., Igbo (Lieberman et al. 1993, but see also Laniran 1992)

- Difference in cyclicity/layering
 - Downstep can arise twice because one is conditioned by word-level processes (the grammatical tone), whereas the other is due to phrase-level processes (L insertion)
 - If both floating Ls were prosodic or grammatical, maybe they would merge or otherwise not cause double downstep

- The floating tones are featurally distinct
 - Ask me about a Register Tier Theory (Snider 2020) analysis during the Q&A

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- Northern Toussian has double downstep, caused by two separate floating low tones
 - L inserted following a M at the right edge of the phonological phrase
 - Grammatical tone, marking the lack of a preverbal object.
- Both floating L individually cause downstep, which cumulatively leads to double downstep

á ní cé!

Thank you!

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Roadmap

Appendix

Interaction with automatic downstep

Grammatical tone as marker of intransitivity

Realization of grammatical tone

VP as a phonological phrase

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Interaction with automatic downstep

Grammatical tone as marker of intransitivity

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Interaction with automatic downstep

- The degree of downstep caused by M a at a phrase boundary (25a) is not different from that caused by automatic downstep when an M precedes a H phrase-internally (25b)

- (25) a. (pē)[Ⓛ] (sú já) → pē 'sú já
husband father watch
'The husband watched the father' 🔊
- b. (sú) (pē já) → sú pē 'já
father husband watch
'Father watched the husband' 🔊

Interaction with automatic downstep

- Recall that with automatic downstep, lower tones downstep higher ones
 - $M L H \rightarrow M L {}^H H$
 - $M H \rightarrow M {}^H H$
- We would not therefore predict a difference between (26a), which has a $M \textcircled{L} H$ sequence, and (26b) which has a $M H$ sequence

- (26) a. $(p\bar{e})^{\textcircled{L}} \quad (s\acute{u} \quad j\acute{a}) \rightarrow p\bar{e} \quad {}^H s\acute{u} \quad j\acute{a}$
husband father watch
'The husband watched the father' 
- b. $(s\acute{u}) \quad (p\bar{e} \quad j\acute{a}) \rightarrow s\acute{u} \quad p\bar{e} \quad {}^H j\acute{a}$
father husband watch
'Father watched the husband' 

Interaction with automatic downstep

- Likewise, there is no difference in pitch when the GT marker follows a M and when automatic downstep lowers a following H
 - In (27a), the verb *ǰá* lacks a preverbal object, and is therefore marked by the GT
 - In (27b), a transitive phrase, the GT is not present because of the object
 - The degree of downstep is the same in both contexts.

(27) a. (sú) (pō ①ǰá) → sú pō ʼǰá
father IS watch

‘When father watches’ 🔊

b. (sú) (pē ǰá) → sú pē ʼǰá
father husband watch

‘Father watched the husband’ 🔊

Roadmap

Appendix

Interaction with automatic downstep

Grammatical tone as marker of intransitivity

Realization of grammatical tone

VP as a phonological phrase

Why not a marker of intransitivity?

- The grammatical tone does not mark intransitivity
- It attaches to the leftmost verb if an auxiliary verb present
 - It is present even if the main verb has an object (28c)

(28) a. /sú ①tó jâ/ → [sú tǒ jâ]

father GT.again search

‘Father searched again’ 🔊

b. /sú ①kéj kō/ → [sú kěy kō]

father go.PFV.GT walk

‘Father went and walked’ 🔊

c. sú ①tó bú já → [sú tǒ bú já]

father GT.again leopard watch

‘Father watched the leopard again’

Why not a marker of intransitivity?

- It surfaces when an object is postposed
- Canonical ‘give’ constructions have the form [Agent Recipient Give Patient-sē]
 - The recipient can be postposed after the verb, where it receives the suffix -sē (29b)
 - When the recipient is postposed, the verb surfaces with the GT marker

- (29) a. ádámá álímátá kǔ kò sē
Adama Alimata give meat with
‘Adama gave Alimata the meat’
- b. ádámá kǔ álímátá-sē kò sē
Adama GT.give Alimata-OBL meat with
‘Adama gave Alimata the meat’

Roadmap

Appendix

Interaction with automatic downstep

Grammatical tone as marker of intransitivity

Realization of grammatical tone

VP as a phonological phrase






Realization of grammatical tone

- The GT marker attaches to a verb
 - When no auxiliary element is present (30a)
 - When a subset of auxiliary markers is present, e.g.,
 - the past marker *á* (30b)
 - the evidential marker *wú* (30c)

- (30) a. *sú* ①*já* → *sú já*
father GT.watch
'father watched' 🔊
- b. *sú* *á* ①*já* → *sú á já*
father PST GT.watch
'Father had watched' 🔊
- c. *sú* *wú* ①*já* → *sú wú já*
father EVID watch.NPVA
'It is said that father watched' 🔊

Realization of grammatical tone

- When it attaches to a verb, it only affects the tone of verbs with an initial H
- It has the following effects:

H	→	LH	/sú ^① já/	[sú jǎ]	‘father watched’	
HM	→	LHM	/sú ^① kō/	[sú kǒ̃]	‘father walked’	
HL	→	L	/sú ^① jâ/	[sú jà]	‘father searched’	
M	→	M	/sú ^① jē/	[sú jē]	‘father swept’	
L	→	L	/sú ^① fàn/	[sú fàn]	‘father mixed’	

Roadmap

Appendix

Interaction with automatic downstep

Grammatical tone as marker of intransitivity

Realization of grammatical tone

VP as a phonological phrase

VP as phonological phrase

- VPs constitute phonological phrases, evidenced by
 - VP internal tone spreading
 - Pauses preferentially occur before and after the VP
 - Floating L insertion at its right edge
 - No downstep within the VP
- The parsing of a verb and its internal argument within single phonological phrase is attested cross-linguistically, e.g., in Niuean (Clemens 2019), Kimatuumbi (Odden 1987), Chitumbuka (Downing 2006), and Chichewa (Downing & Mtenje 2011)

VP as phonological phrase—L spreading

- Within the VP, a L on the object spreads onto the following verb

(31) a. H verb \rightarrow LH

[sú]_{DP} [[lè]_{DP} jǎ]_{VP} \rightarrow [sú lè jǎ]
father uncle watch

‘Father watched uncle’ 

b. HL verb \rightarrow L

[sú]_{DP} [[lè]_{DP} jâ]_{VP} \rightarrow [sú lè jâ]
father uncle search

‘Father looked for uncle’ 

VP as phonological phrase—L spreading

- This tone spreading is not found elsewhere, e.g.,
 - Between S and O (32a)
 - Between noun and postposition (32b)
 - Within a possessive construction (32c)

- (32) a. *lè bú já*
uncle leopard watch
'Uncle watched the leopard' 🔊
- b. *bû ré*
house at
'At the house' 🔊
- c. *lè sú*
uncle father
'Uncle's father' 🔊

VP as phonological phrase—pausing

- Pauses frequently occur between S and O, rarely between O and V

- (33) a. (lè) || (sȳ ǰá)
uncle || medicine watch
‘Uncle watched the medicine’ 🔊
- b. (n̄ŋ)^① || (pē rī ǰá)
person || husband DEF.DISC watch
‘The person watched that husband’ 🔊
- c. (sú) || (bú ǰá)
father || leopard watch
‘Father watched the leopard’ 🔊

VP as phonological phrase—pausing

- We also tend to see pauses immediately after the verb

(34) a. (sú) (bú fĩ)[Ⓛ] || ((pē)[Ⓛ] sē)
father leopard insult || husband with

‘Father insulted the leopard as well as the husband’ 



VP as phonological phrase—downstep

- A floating L is inserted following a M verb, downstepping the adjunct

(35) (sú) (bú fĩ)[Ⓛ] ((kūr) rǔ) → sú bú fĩ 'kūr rǔ
[sú]_{DP} [[bú]_{DP} fĩ]_{VP} [[kūr]_{DP} rǔ]_{PP}
father leopard insult village in
'Father insulted the leopard in the village' 🔊

VP as phonological phrase—downstep

- Only M tones condition L insertion—there is no downstep between a verb and adjunct if both are H (36a) or L (36b)

- (36) a. sú bú ǰá núŋ tǰā
father leopard watch mother place
'Father watched the leopard at mother's house' 
- b. sú mīŋ fàn lè tǰā
father flour mix uncle place
'Father mixed the flour at uncle's house' 

VP as phonological phrase—downstep

- Similarly, there is no downstep between subject and object if both are H (37a) or L (37b)

- (37) a. (sú) (bú já) → [sú bú já]
[sú]_{DP} [[bú]_{DP} já]_{VP}
father leopard watch
'Father watched the leopard' 🔊
- b. (dò) (fèn fàn) → [dò fèn fàn]
[dò]_{DP} [[fèn]_{DP} fàn]_{VP}
buffalo mud mix
'The buffalo mixed the mud' 🔊