

# Prosodic making of the conjoint-disjoint in Bemba: Interactions with focus and finality

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# Roadmap..

- Focus assumptions
- Background: Accentual marking of focus
- Prosody of questions in Bemba
- Bemba Tone and phonological phrasing
- Conjoint-disjoint marking
- Pinning down prosodic focus marking
- The role of finality and prosodic structure
- Direct Interface with discourse semantics
- Conclusions

# Focus

- A cross between Lambrecht (1994) and Rooth (1992) is assumed.
- Discourse functions will be important for the pragmatic effects of focus but also the idea that set of alternatives is evoked in focus contexts (see also van der Wal 2016).

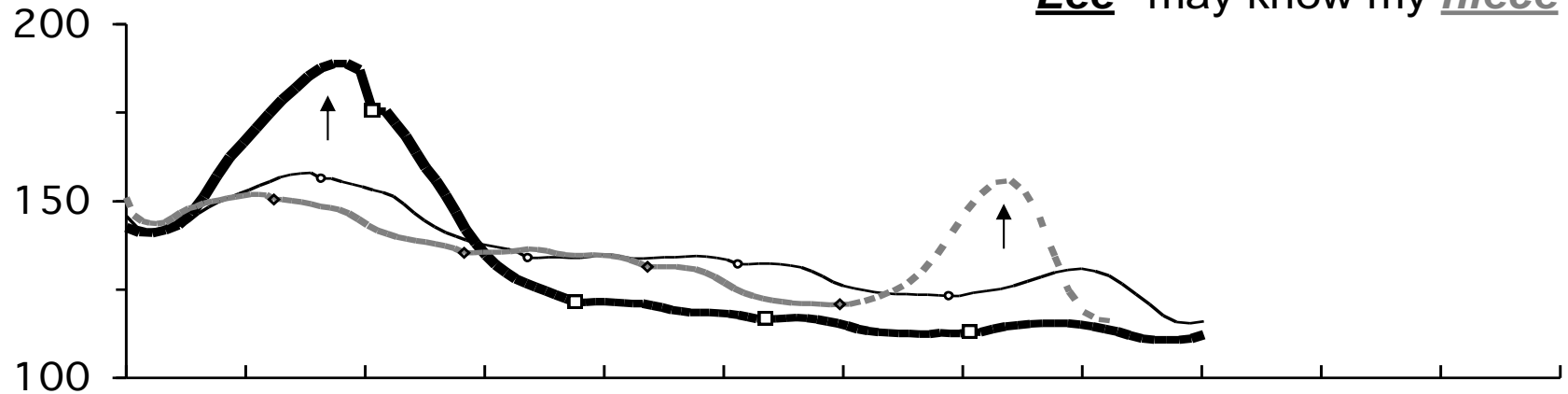
# Accentual marking of focus

- In English, nuclear stress accent is a marker of focus (Selkirk 1984).
- Pierrehumbert & Hirschberg (1990), Ladd (1996) - accented words receive a pitch accent.
- Steedman (2000):  $H^* L$  and  $H^* LL\%$  tunes are associated with the “rheme”
- Backgrounded information or the “theme” have  $L + H^* LH$
- Szendrői (2001, 2003) focus goes to a stress position in Hungarian: syntax may move constituents to satisfy prosodic prominence requirements.

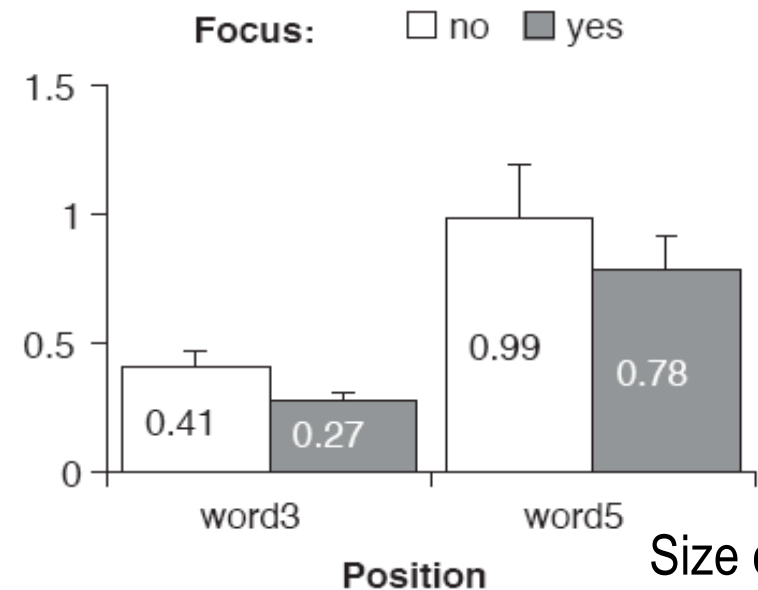
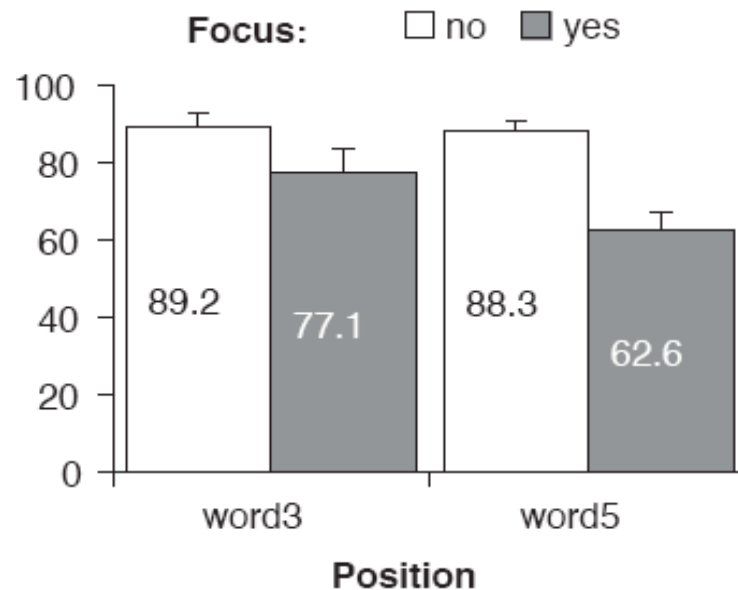
- Reinhart (1999): sentences are mapped onto intonational phrases with assignment of default prominence, with repairs to match stress.
- Cinque (1993) Sentence nuclear stress is assigned within syntax to the most embedded constituent.
- Syntactically focused constituents reside in a position where it receives sentence stress.

# Focus expands and compresses $F_0$ peaks already associated with word stress (Xu & Xu 2005)

Lee may know my niece



% post-focus stressed syllables with  $F_0$  peaks



Size of post-focus peaks

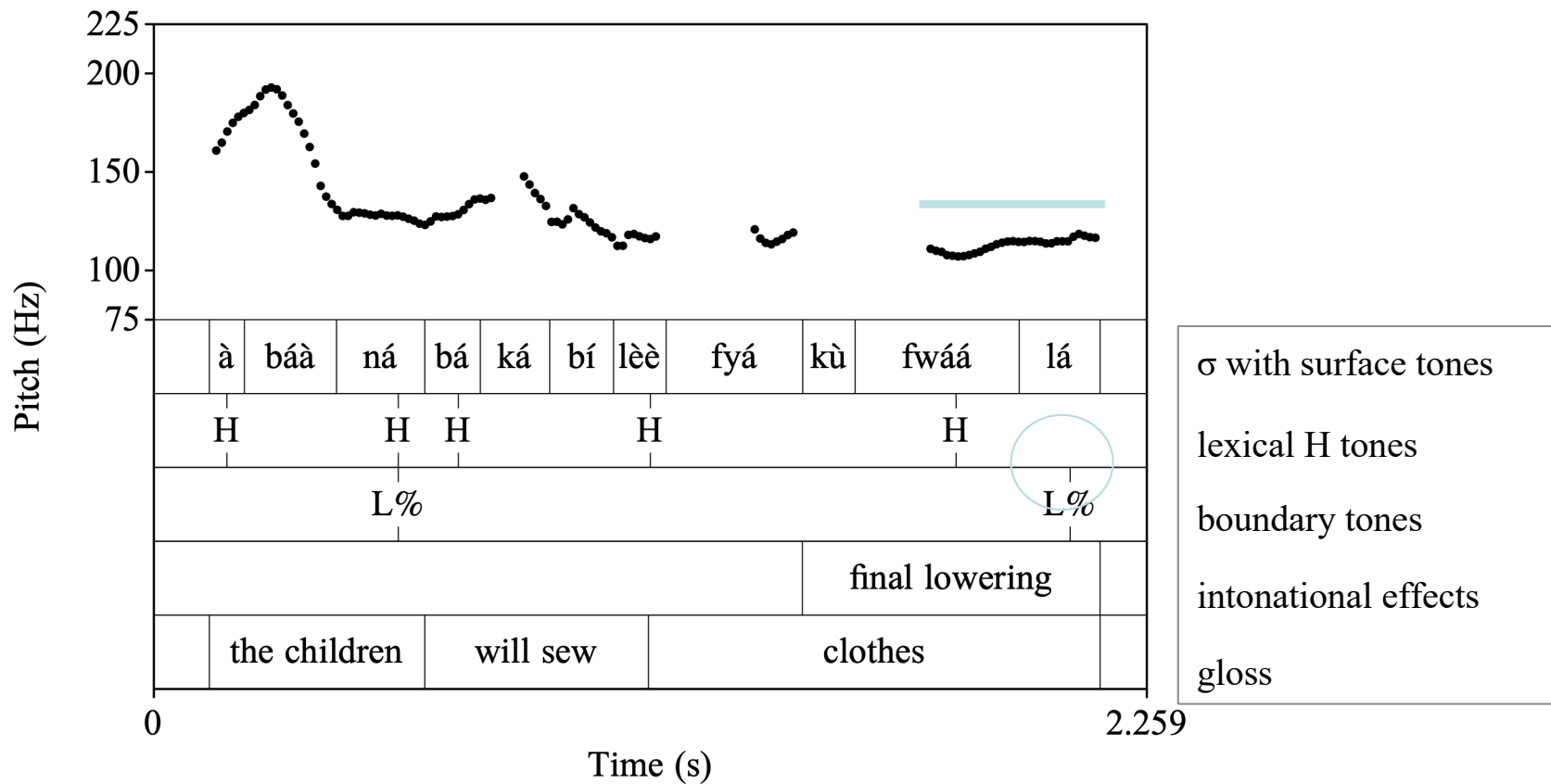
**Accentual position = Prominence => Focus**

# Bantu: No prominence on focus

- Riailand (2009) Lax question prosody – yes/no questions show no final rise but a falling pitch contour, a sentence-final low vowel, vowel lengthening, or a breathy utterance termination
- Downing (2006/2017) for Tumbuka – absence of prominence on the focus
- Bemba: no prominence on question words
- Bemba final lowering at the end of declaratives, is still present in questions
- Focus words are subject to downstep - unexpected if prominence was present

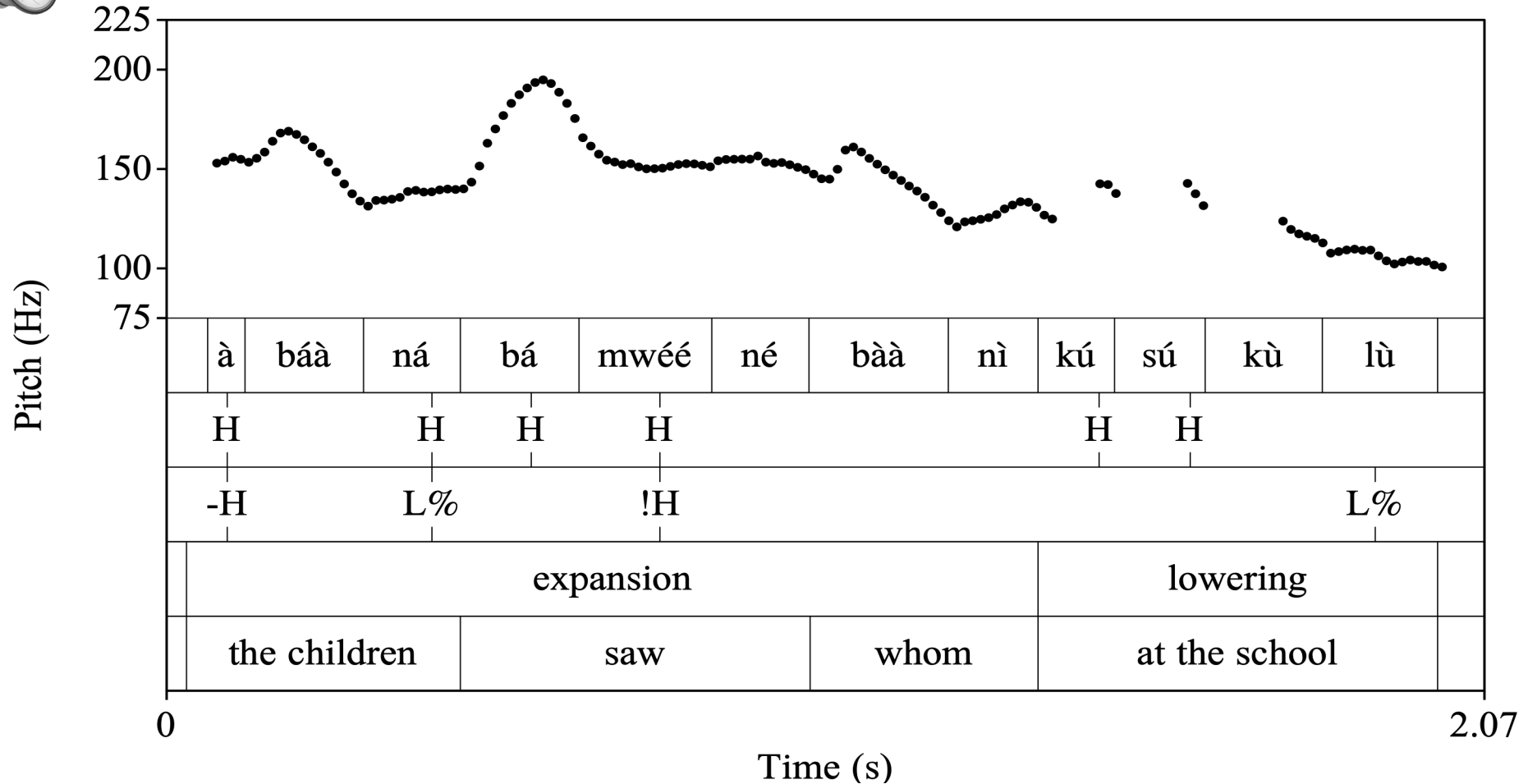
# Final lowering in declaratives

- (1)    aba-ana    ba-ka-bil-a                    ifi-a-ku-fwaal-a  
          2-child    2SM-3FUT-sew-FV                    8-8REL-15INF-wear-FV  
          ‘Children will sew clothes tomorrow’



# Constituent questions

(2) aba-ana    ba-mweene                    **baani**            ku-sukulu  
 2-child    2SM-see.PFV                            2who            17LOC-school  
 ‘**Who** did the children see at school?’



**Downstep:** Production of a H tone on a lower register following another H

# Focus prosody in Bemba

- Intonation does not signal focus in the classical way:
  - there is no prominence on the focus
  - a question word is affected by downstep
  - final lowering as in declaratives still occurs – no pitch range expansion

# Language background

- Classical works: Guthrie (1945), Sharman & Meeussen (1955), Sharman (1956), Mann (1977), Philippson (1998)
- Bemba tone discussion presented here is based on: Bickmore & Kula (2013), Kula & Bickmore (2015), Kula (2017), Kula & Hamann (2017), Kula (2021), Bickmore & Kula (2023)

Niger Congo



Benue Congo



Bantu



Eastern Bantu

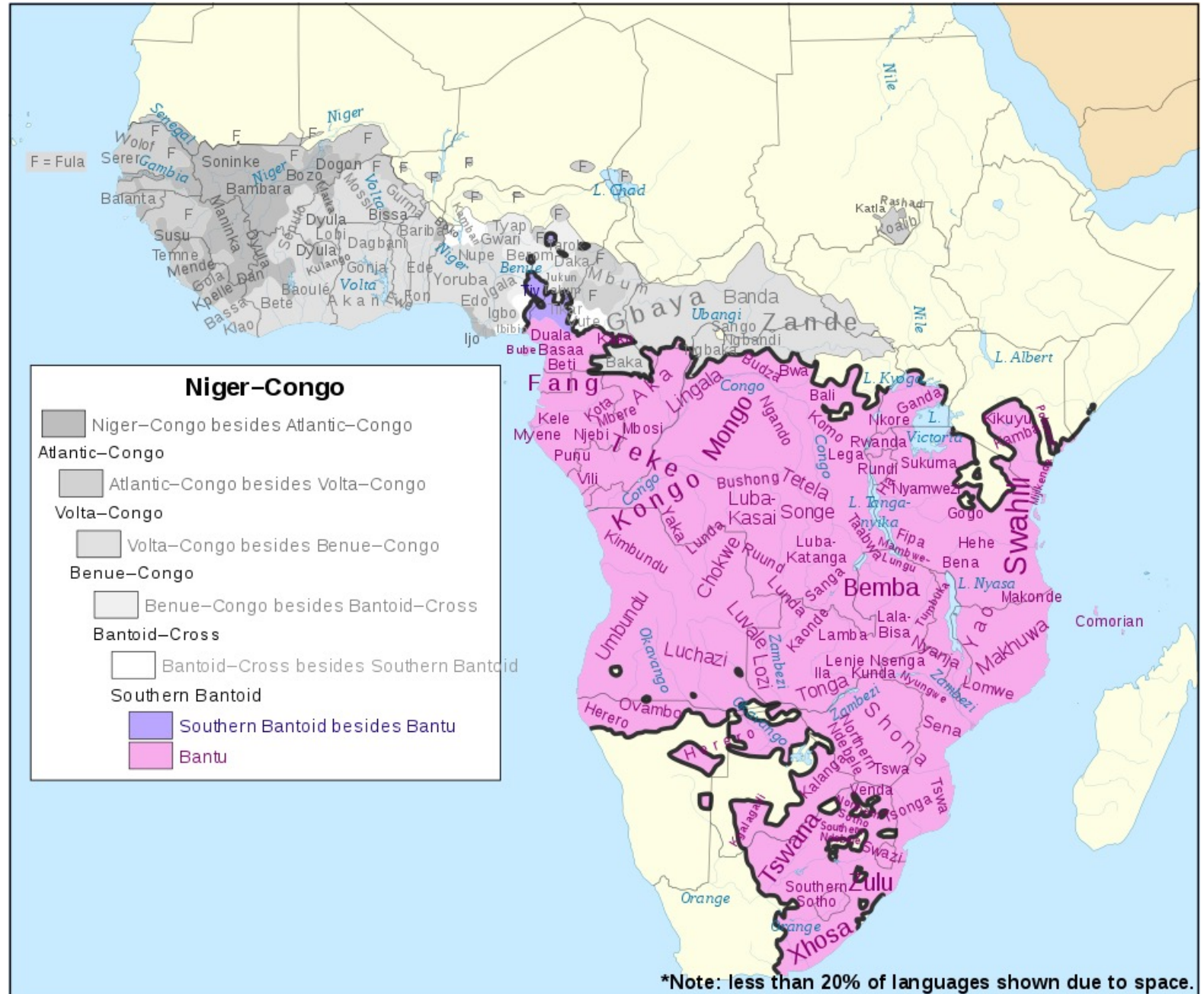


Zone M

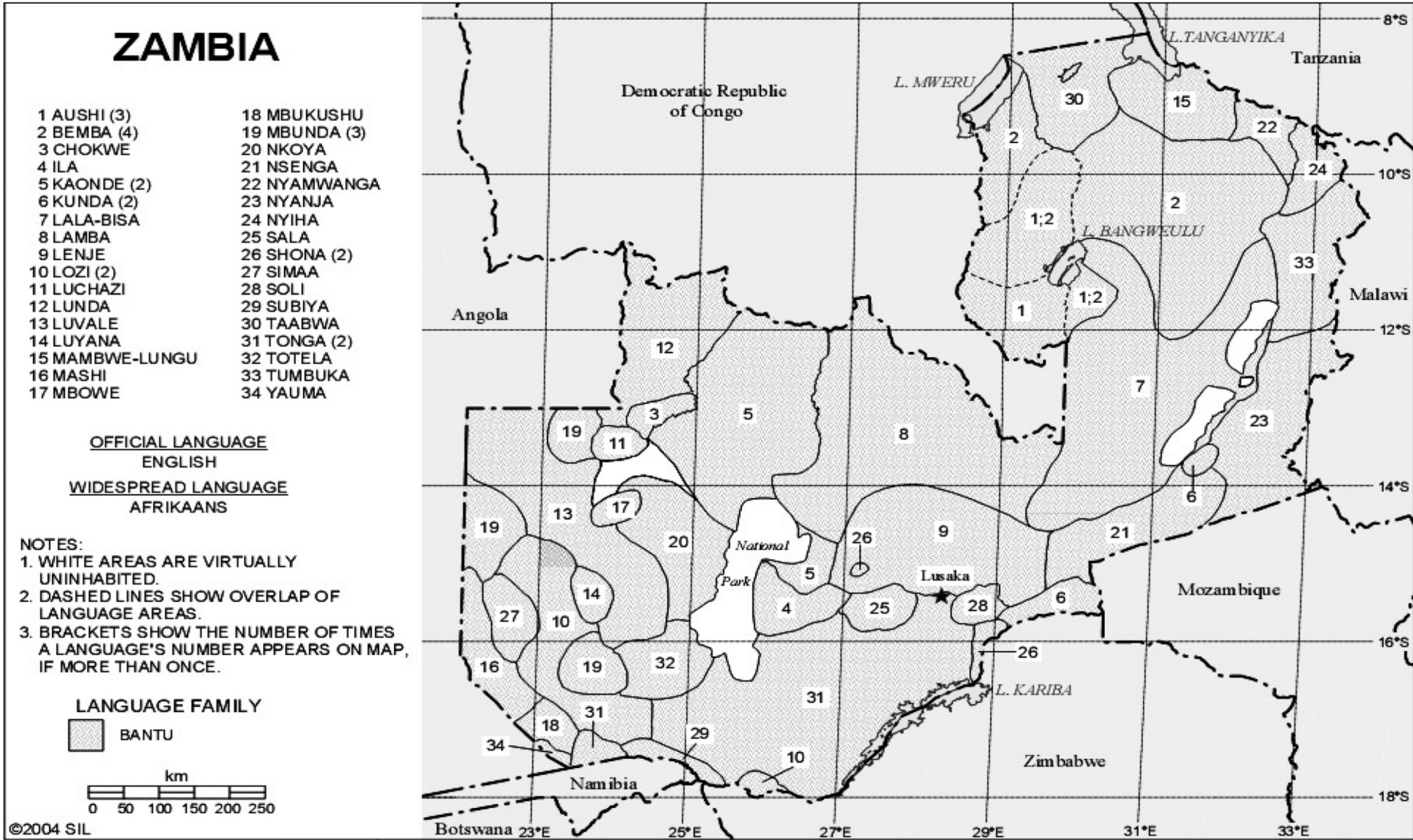


M42

Zambia & DRC  
circa. 2.3m  
speakers



# About 10 main dialects (focus on Copperbelt Bemba)



# Bemba basics

Falling accent = Low tone  
Acute accent = High tone

Low tone will not be marked in  
MOST cases!

Vowel length is contrastive:

- (3) a. ú-kú-shík-á            ‘to be deep’  
b. ú-kú-shíík-á            ‘to bury’

TBU is the mora. Attested syllables: C<sup>à</sup>, C<sup>àà</sup>, C<sup>á</sup>, C<sup>áá</sup>, C<sup>áà</sup>

Verbs exhibit a tonal contrast on root-initial TBU

- (4) a. lùk-á                    ‘weave!’  
b. lúk-á                    ‘vomit!’

Tones can be grammatical, introduced by TAMs (Melodic Highs)

## Main processes (See Bickmore & Kula 2013)

- **Unbounded spreading:** affects a High tone in a phrase final word, not followed by another H

Surface form

Underlying form

(5) a. **bá-ká-fík-á**  
2SM-3FUT-arrive-FV

‘they will arrive’

/bá-ka-fika/

b. **bá-ká-bíl-á**  
2SM-3FUT-sew-FV

‘they will sew’

/bá-ka-bil-a/

c. tu-ka-bil-a  
1PL-3FUT-sew-FV

‘we will sew’

/tu-ka-bil-a/

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2SM-3FUT-sew-FV

'they will sew'

/bá-ka-bil-a/

c. *tu-ka-bil-a*  
1PL-3FUT-sew-FV

'we will sew'

/tu-ka-bil-a/

**Bounded spreading** is TERNARY: applies in (i) non-phrase final words

Surface form

Underlying form

- (6) a. **bá-ká-fík-à** máílò      ‘they will arrive tomorrow’      /**bá**-ka-fika/  
2SM-3FUT-arrive-FV ADV
- b. **bá-ká-bíl-à** máílò      ‘they will sew tomorrow’      /**bá**-ka-bil-a/  
2SM-3FUT-sew-FV ADV

(ii) if there’s another H within the word (a kind of OCP effect):

- (7) **bá-ká-lúk-ìl-à=kó**      /**bá**-ka-luk-il-a=**kó**/  
2SM-3FUT-plait-APPL-FV=17LOC  
‘They will plait there’

# OCP & Downstep (indicated by !)

- If another H follows, before ternary spread is complete - downstep applies spread:

(8) a. **bá-ká-!tú-lúká** **bá-ka-tú-luk-a**  
2SM-3FUT-1PL.OM-plait-FV  
'They will plait us (our hair)'

- The final spread to create a ternary spread does not occur:

b. **bá-ká-mu-lás-á** **bá-ka-mu-lás-a**  
2SM-3FUT-1PL.OM-plait-FV  
'They will hit/throw at her/him'

(8a) - DOWNSTEP

(8b) – NO DOWNSTEP, no OCP context created

# Grammatical tones – Melodic Highs

- TAMs with MHs from V2 to FV (9a)
- TAMs with MH on the FV (9b)
- TAMs with MHs on V2

- (9)
- a. • **tu-loondólwéélé**      ‘We explained’      (Perfective)  
1PL-explain.PERF
- b. • **tu-loondolol-é**      ‘We should explain’ (Subjunctive)  
1pl-explain.SUBJ
- **Cf: tu-la-loondolol-a**      ‘We explain’      (Habitual)  
1PL-HAB-explain-FV

# Phonological Phrasing

- Truckenbrodt (1999) Wrap XP and Align XP
- Selkirk (2011) Match XP
- Both exploit syntactic relations as indicating phrasing
- Assume a Prosodic Hierarchy:
- Intonational phrase > Phonological Phrase > Clitic group > Phonological word (Nespor & Vogel 1986)

# Common Phrasings

- (Verb – Adverb)
- (Noun – Adjective)
- (Noun – Possessive)
- (Subject) (Verb)
- (Verb Object) (Adverb)
- (Verb Object Object)
- (Verb Object) (Object)
- (NP) (Conjunction=NP)
- (NP Object) (Verb)
- (Verb with Prn) (Object)
- (Verb) (NP Subject)
- (Verb with Prn) (Object) (Object) (Adverb)
- (Verb with Prn) (Object Object Adverb)

# Phonological Phrasing

- Kula & Bickmore (2015): Phonological phrasing in Bemba is marked by the two contrasting tone patterns
- **Unbounded spreading** indicates that a phonological phrase boundary follows
- **Bounded spreading** indicates that there is no such immediate PP boundary

## (subject) (verb)

No downstep on second  
word

- (10) (Subject) (Verb)
- a. (*ìmbá<sub>̄</sub>lámínwé*) (*shí<sub>̄</sub>-ká-sá<sub>̄</sub>láángán-á*)  
9.ring 10SM-FUT3-unorder-FV  
'The rings will be unordered'
- b. (*à<sub>̄</sub>bá<sub>̄</sub>lí<sub>̄</sub>mí*) (*bá<sub>̄</sub>-ká-ló<sub>̄</sub>óndólól-á*)  
2.farmer 2SM-FUT3-explain-FV  
'The farmers will explain'

## (Verb Object) (Object)

No downstep on final  
word

- (11) (Verb Object) (Object)
- a. (ùkú-shíik-il-à      ìmpéléémbé) (ífiíntú)  
15-bury-APPL-FV    9.antelope      8.thing  
'To bury the things for the antelope'
- b. (bá-ká-shíik-il-à      ùmúlimí) (Búúpè)  
2SM-FUT3-bury-APPL-FV    1.farmer      1.Bupe  
'They will bury Bupe for the farmer'

## (Verb with OM) (object) (verb) or (object verb)

- (12) (Verb with OM) (Object)/(Adverb)
- a. (bá-ká-mú-shíík-íl-á) (Chítúúndú)  
2SM-FUT3-1OM-bury-APPL-FV 1.Chitundu  
'They will bury for Chitundu'
- b. (bá-ká-mú-shíík-íl-á) (Chítúúndú) (bwiínó)  
2SM-FUT3-1om-bury-APPL-FV 1.Chitundu well  
'They will bury for Chitundu well'
- c. (*bá-ká-shíík*-íl-à Chitùùndù) (cààngà) (bwiìnò)  
2SM-FUT3-bury-APPL-FV Chitundu caanga well  
'They will bury the bush baby for Chitundu well'

Object marking patterns see Marten & Kula (2012)

# Interaction of phonological phrasing and discourse

# Discourse marking

- Unbounded spreading = Verb focus
- Bounded spreading = IAV focus
  
- Focus: new information/selection from a set of alternatives/pragmatic discourse marking (Lambrecht 1994)

(Costa & Kula 2008: 315)

(13)

- a. (tù-kà-byáálà ínỳànjé mwííbàlà màílò)φ (broad/VP focus) CJ  
1PLSM-FUT-plant 9maize 16garden ADV  
'We will plant maize in the garden tomorrow'
- b. (tùkàbyáálá)φ (ínỳànjé mwííbàlà màílò)φ (verb focus) DJ  
'We will PLANT maize in the garden tomorrow'
- c. (tùkàbyáálè ènyánjé)φ (mwííbàlà màílò)φ (object NP focus) CJ  
'We will plant MAIZE in the garden tomorrow'
- d. (tùkàbyáálà mwííbàlà)φ (ínỳànjé màílò)φ (locative PP focus) CJ  
'We will plant maize IN THE GARDEN tomorrow'
- e. (tùkàbyáálà màílò)φ (ínỳànjé mwííbàlà)φ (adverbial focus) CJ  
'We will plant maize in the garden TOMORROW'

Buell (2005), Cheng & Downing (2012): extraposition of all elements in the VP apart from the focus.

# Conjoint- Disjoint marking

- But there's another discourse marking strategy:
- Conjoint-Disjoint for specific TAMs (Watters 1979, Hyman & Watters 1984, Hyman & van der Wal 2017)
- DJ = Verb focus
- CJ = IAV focus

# Morphology - CJ/DJ TAMs

- Six TAMs show the CJ-DJ in Bemba (Sharman & Meeussen 1955, Kula 2017a,b)

	PRESENT/ HABITUAL	P1/F1 (PERFECTIVE)	P3 (PERFECTIVE)	P4 (PERFECTIVE)	P4 (ANTERIOR)	ZERO (ANTERIOR)
CONJOINT	-Ø- -a	-á- -a	-á- -ile	-a- -ile	-a- -a	-Ø- -ile
DISJOINT	-la- -a	-áa- -a	-álii- -a	-alí- -ile	-alí- -a	náa--Ø- -a

- (14) a. tu-loondolol-a                      abálééndò                      conjoint  
           1PLSM-introduce-FV                2visitors  
           ‘We introduce VISITORS’
- b. tu-la-loondolol-a                      (abálééndò)                      disjoint  
           1PLSM-DJ-introduce-FV                2visitors  
           ‘We INTRODUCE (visitors)’

- **Bemba P4 (Anterioror)**

- (15) a. tu-**a**-loondolol-a                      abálééndò                      **conjoint**  
2plsm-introduce-FV.    2visitors  
'We have introduced VISITORS'
- b. tu-**alí**-lóóndólól-á                      (abálééndò)                      **disjoint**  
2plsm-dj-introduce-FV    2vistiors  
'We have INTRODUCED (visitors)'

Other TAMs e.g. FUT2 and 3 do not have contrasting forms.

## TAMs with no CJ-DJ – use tone

(16) a. **bá-ká-lóóndólól-á** (= disjoint function)

2SM-3FUT-explain-FV  
'They will EXPLAIN'

b. **bá-ká-ló**òndòlòl-à      bwìnò      (= conjoint function)

2SM-3FUT-explain-FV      well  
'They will explain WELL'

# Dual discourse marking?

## TAMs with CJ-DJ

- Segmental markers
- Discontinuous morphemes
- Morphology

## TAMs without CJ-DJ

- Tonally marked
- (Bounded vs. unbounded spreading)
- Phonology

## But CJ-DJ TAMs also use tone!

(17) Habitual zero ~ -la-

a. **bá-0-lóó**ndolol-a      palicímo  
2SM-CJ-explain-FV      16LOC.Monday  
'They will explain (it) on Monday)

b. **bá-lá-lóó**ndólól-á  
2SM-DJ-explain-FV  
'They EXPLAIN (or they really explain)'

Descriptively, Sharman & Meeussen (1955) always illustrate morphological CJ-DJ with toneless verbs or in tenses that have MHs

Melodic Highs obscure the H spreading pattern as below:

(18)

- a. **bá-á-ló**ondólwéélé    báshíkóòofù    ‘they introduced the bishop’  
2SM-CJ-introduce.PERF    2sm-bishop
- b. **bá-á!í-ló**ondólwéélé    ‘they explained’  
2SM-DJ-introduce.PERF

# Pre-final summary

- Bemba (like Makonde (Manus 2003)) is shifting to the use of phonological phrasing as a discourse focus marker.
- In some TAMs (e.g. P3, P1) a formally disjoint or conjoint segmental marker can be used in both CJ and DJ contexts, but tone helps to disambiguate (Kula 2017a).
- In paired TAMs there is redundant double marking to indicate focus morphologically and phonologically.
- Other Bantu languages using tone to mark the CJ-DJ: Tswana (Creissels 1996), (Basaa, Duala METATONY, Nurse 2006); with others developing tone use: Makwe & Shangaji (Devos 2017) or as a remnant - Rukiga (van der Wal & Asiimwe 2020) or other phonological features as in Durban Zulu (Zeller, Zerbian & Cook 2016) where pitch, register, tone and phrasing all play a role.
- See Marten (2007) for different Bantu focus strategies.

# **Phonological Phrasing as the central cue for focus/information structure**

# Focus as signalled by prosody

- Phonological phrasing functions to mark discourse and information structure
- Tonal and prosodic well-formedness conditions, rather than syntactic features, are what drive focus positioning.
- Along the lines of Szendroi (2003) and Hamlaoui & Szendroi (2015), in the spirit of Reinhart (1999) this contrasts with the cartographic approach - no syntactic features driving movement to Foc X positions.
- Bemba another example to those already in the literature.

# Finality

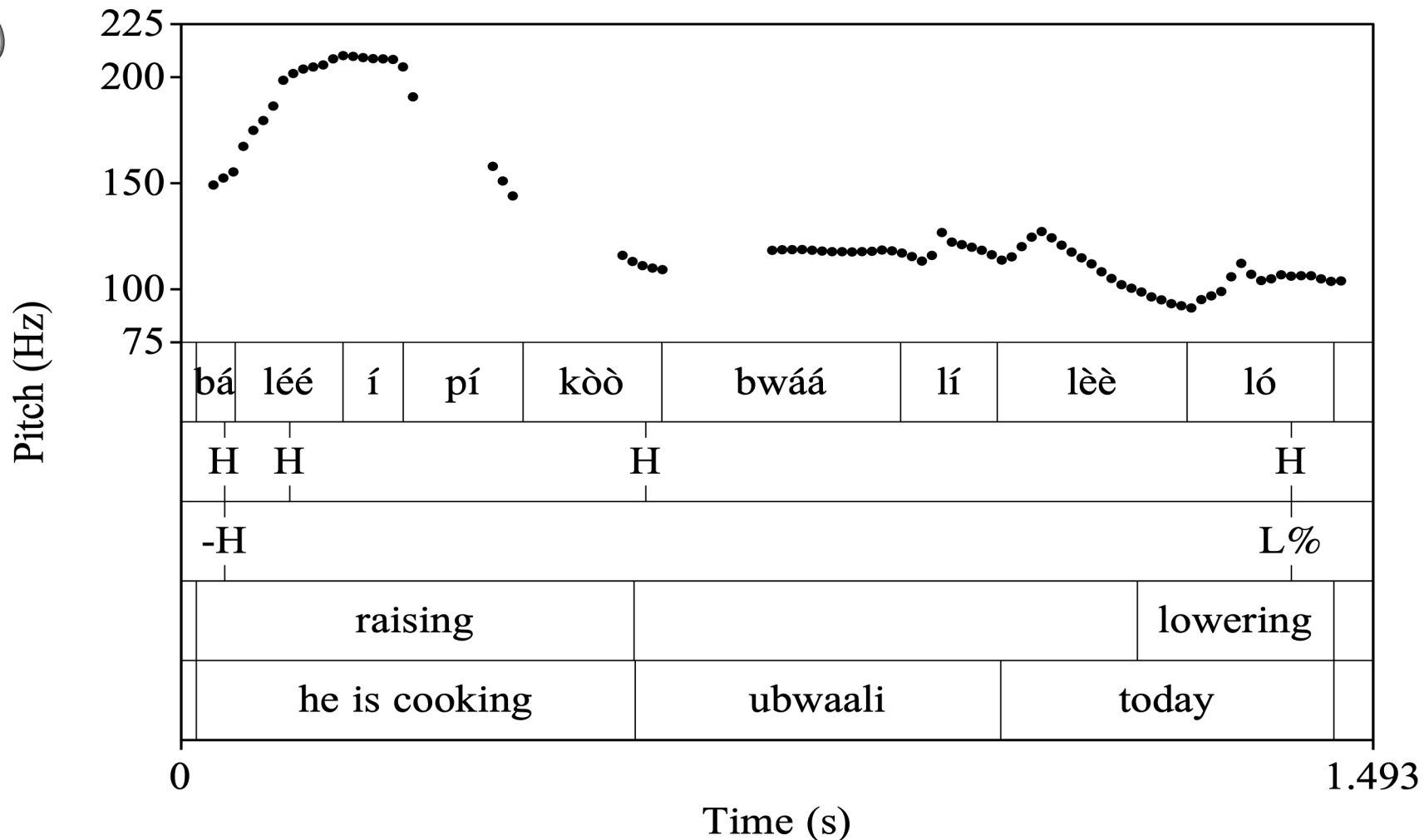
- Disjoint forms are marked by FINALITY in a phonological phrase.
- Finality is a phonological category:
- C.F: Melodic tone domains; spreading to the final or not; stress pattern references to antepenults, penults and finals; final obstruent devoicing, final empty nuclei, etc.
- Going back to Steedman (2000) we can consider a direct mapping between intonation (phonology, prosodic constraints) and discourse semantics.

- Steedman (2000: 259)
  - Theme tunes *presuppose* a rheme alternative set
  - Rheme tunes *restrict* the rheme alternative set
- There is a pragmatic presupposition that the relevant alternative set is available in the context (contextual model)
- In the Bemba case the “rheme tune” is not directly associated with the focus but it’s rather a phonological phrase and the focus takes a FINAL position in that phrase.
- Holds for both CJ and DJ and tone patterns – in both cases the focus is FINAL.

# Final twist – intonational patterns

(19) Q: What is he cooking today?

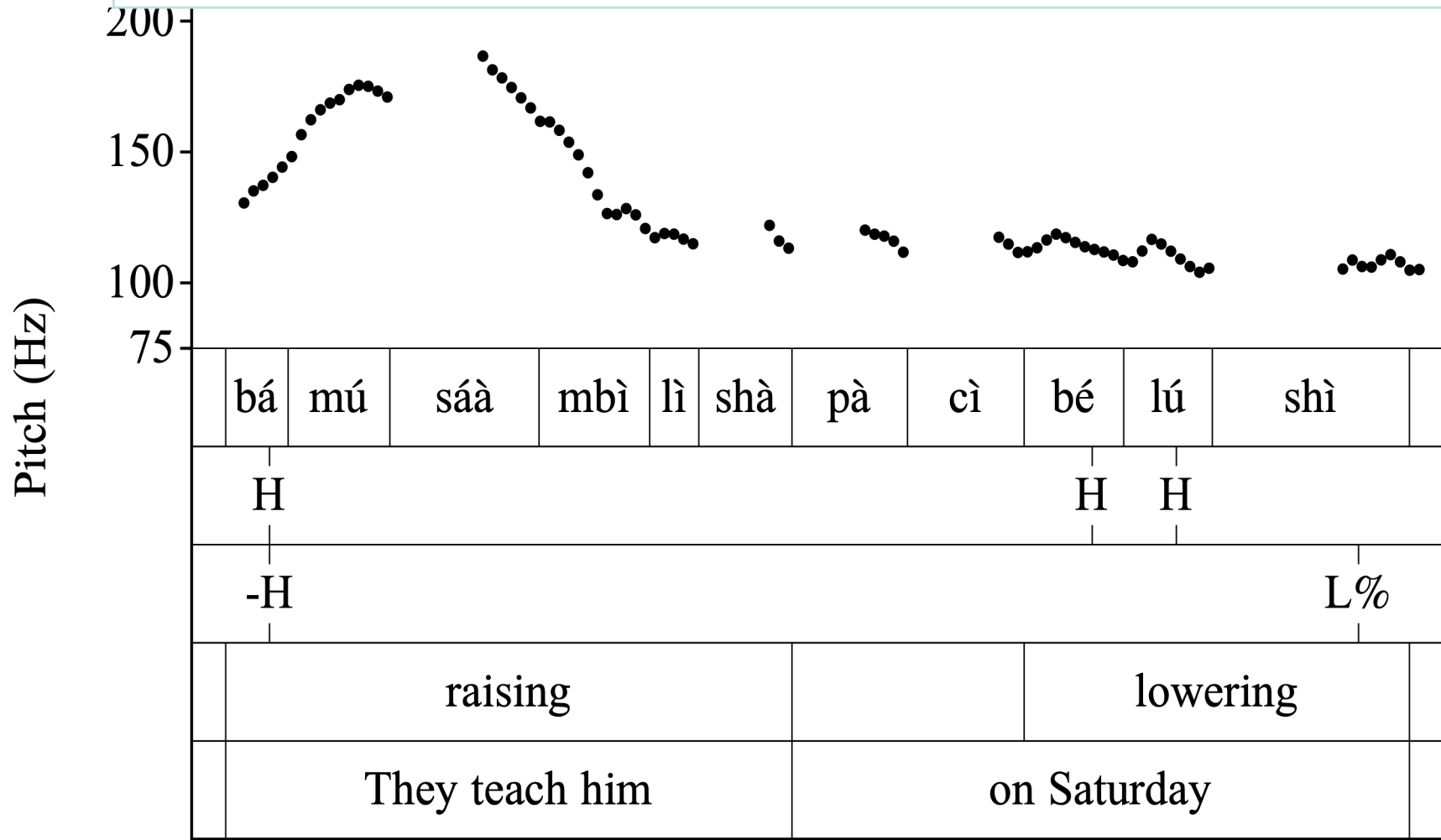
A: **bá-lée-ípíkà**      ùbwáálí lèèlò  
 2SM-PROG-cook-FV   paap      ADV



(20) Q: What day do they teach him?

A: **bá-mú-sá**àm̀bìlish-à pà-cìbélúshì

2SM-3OM-cook-FV 16LOC-saturday



**Pre-focal pitch raising?**

# Conclusions

- The tone and phrasing patterns discussed show that focus can be encoded differently and not as a syntactic primitive.
- Prosody encoded focus does not necessarily need pitch prominence or increase in F0.
- Since the same tonal patterns can be used in non-focal contexts (broad focus examples) the pragmatic context also plays a role in triggering the focus effect.
- The pre-focus pitch raising may suggest a unique use of F0 to e.g. \*H L on the left edge *not* on the focus but to indicate coming focus (?). BUT this is perhaps not significantly different from declaratives!

**Thank you!**

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