

Instrumental evidence for Nuclear Stress and destressing effects in Kinande/Luyiira (JD 40)*

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1. Introduction

1.1 Data

12 sessions were recorded with a single speaker-linguist of Kinande/Luyiira (Benue-Kwa JD 40), cf. Muwirii & Malhinga (2004). Total corpus size \approx 150 MB. 5 of the 12 sessions are now edited as an archive and are publicly available in preliminary form. The last two sessions are posted (minus audio) at <http://people.bu.edu/manfredi/research.html> (scroll down the page). Collaboration with the speaker is ongoing, and other corpora from the same speaker are in progress (MIT 24.942, Spring '06-07; BU LX501, Fall '07-08).

1.2 Theory

Linguistically significant pitch is not recoverable from audio in terms of strictly paradigmatic units (Dilley & Brown 2006). If this problem arises even for the interpolation of lexical tones (Dilley 2005), it applies a fortiori to effects like spreading, polarization, (anti)downstep, and catathesis. The theoretical response has been either to save the paradigmatic assumptions of autosegmental phonology with an add-on component of intonational "realization" (Connell & Ladd 1990, cf. Láníran & Clements 2003), or else to reduce the analytic load of tonal categories by including relational metrics within the phonology itself (Bamba 1991; Manfredi 1993, 1995; Akinlabí & Liberman 2001). A third option would be to replace tonemic targets with metrics altogether (Manfredi 2003, 2004).

Other syntagmatic pitch effects arguably depend on elements of narrow-syntax like c-command (Odden 1990) or on grammatically-coded focus assertion (Byarushengo *et al.* 1976; Kenesei 2005). These are amenable to grammar-external analysis only by resort to OT procedures (Truckenbrodt 1995; Szendrői, K. 2001; Zerbán 2005), however the cognitive price of OT is high because it rejects underlying forms in favor of a notion of output candidate set which has yet to be operationalized. Given the foregoing, it would be dogmatic to insist that "intonation... has a phonological organization" (Ladd 1996, 163, 1, original emphasis, cf. Pierrehumbert 1980), or equivalently that "prosodic phonology" recapitulates morphosyntactic domains as arbitrary phonological chunks (Nespor & Vogel 1986). Instead it may be more productive to collect linguistically significant generalizations over pitch tracks, and expect traditional views of phrase structure to 'give' in favor of simpler prosody. This alternative is especially plausible where heavily underanalyzed languages are concerned, on the one hand, and where the interface between syntax and phonetics is (Chomsky 2001).

1.3 Benue-Kwa

A prime example of the foregoing tradeoff is the phenomenon of Nuclear Stress (Chomsky & Halle 1968). This can be understood as a prosodic echo of phrasal recursion (Bresnan 1971; Wagner 2005), rather than a specifically phonological rule, if one is prepared to consider a revised view of sentence structure in Germanic and Romance (Cinque 1991; Zubizarreta 1998). Similarly in Benue-Kwa (BK), although many of these languages have been analyzed with templatic morphosyntax (Guthrie 1948; Baker 1988; Odden 1996; Carstens 2001), this has been challenged on both syntactic and phonological grounds in favor of something closer to recursive phrase structure of the Germanic and Romance type (Keach 1986; Myers 1988; Kinyalolo 2003; Manfredi 2007). The observations supported by the accompanying pitch tracks are by no means unique in the literature.

2. Focus-related p-a effects [discussion notes]

2.1 NSR effects

The 9 tracks on pp. 2-4 below illustrate phrasal effects which are well described in the literature (Bbemo 1982; Valinande 1984) and which are arguably assimilable to the NSR. Note the appearance of a domain-final pitch accent—what AM phonology following structuralist pioneers like Sharman & Meussen (1955) calls a grammatical (lexically spurious) H tone—in three environments: the grammatical subject (03.02a), a subject of secondary predication (08.03c) and a nonbranching VP (03.02b and 03.02c). The absence of this accent in (03.02bb) needs more study but seems related to the obligatory definiteness/topicality of the by-phrase 'by the kids', in contrast to its indefiniteness in (03.02b, 03.02c). If these are phonology their joint appearance is an accident—impossible to disprove, hence the syntactic view merits consideration. More plausibly phonological is the penultimate accent (realized with falling pitch probably explained by an independent process of penultimate lengthening) which occurs in any utterance-final noun that is lexically accented on neither the root (in syntax, 'big N') nor the prefix, e.g. ('little n', cf. Lowenstamm 2005), e.g. (03.02b). Disclaimer: the standard view of noun accentuation (Hyman 1990) is phonological and non-accentual except insofar as privative H qualifies.

2.2 Absence of phrasal H in defocalized domains

Across several tenses, the pitch accent that normally falls on the inflectional aux (10.02c-d; 11.06b-c, 11.10a-b, 11.081-b, 11.09a-b) fails to appear just in case the subject is contrastively focused (10.04c=11.07c, 11.06d, 11.10c, 11.08c, 11.09c). Although rules of this type are well known, e.g. as reviewed by Hyman (1999), a morpho-phonological and tonal account loses the generalization of the shared context.

3. The comparative prosody of Benue-Kwa

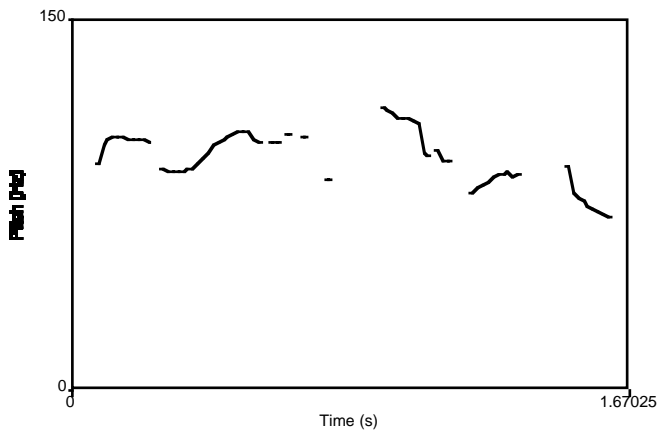
Both of the general effects illustrated in §2 are pervasive in Benue-Kwa *ceteris paribus*, cf. Manfredi (2006).

Notes

* Correspondence: <manfrediatbudotedu>. Thanks to P. Mujomba and the other participants in MIT 24.942 (Spring 2007) as well as to A. Akinlabí, M. Bamba, A. Bachrach, A. Kahnemuyipour, K. Kinyalolo, M. Liberman, A. Nevins, F. Oyèébádé and M. Wagner.

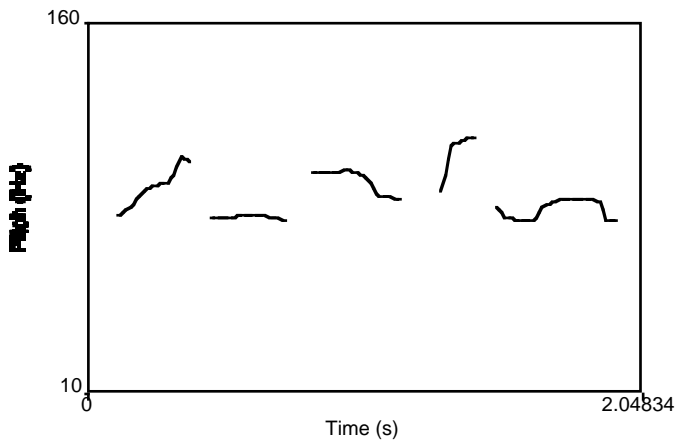
(03.02a) Ába-aná ba-ká nz- a amá-şábu.

‘[The] kids like [the] milk’ (generically)



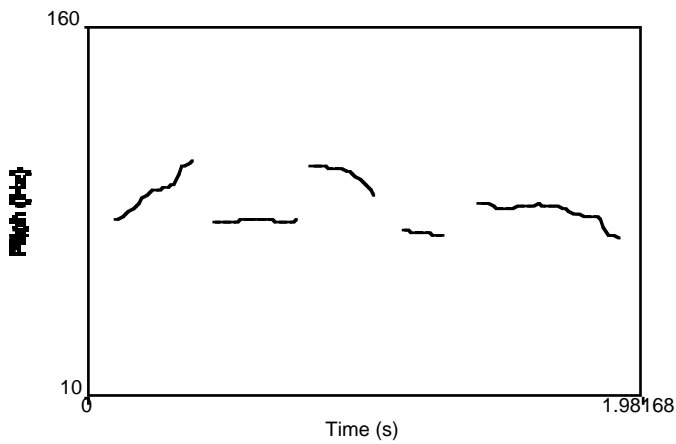
(03.02b) Amá-şábu a-ká nz-aw-á na bá-àna.

‘[The] milk is liked by kids’



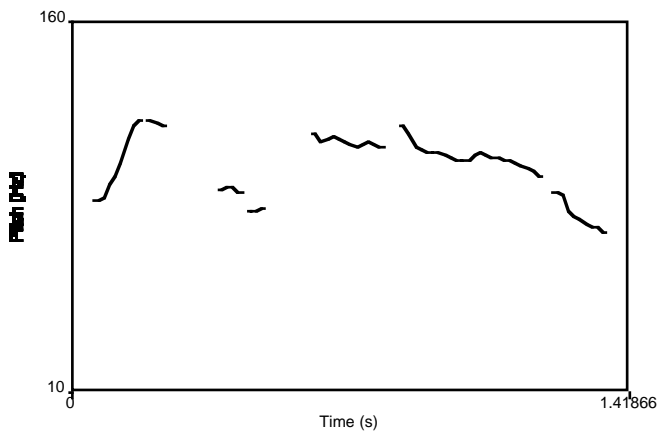
(03.02bb) Amá-şábu a-ká nz-aw- a ná !bá-àna.

‘[The] milk is liked by the kids’



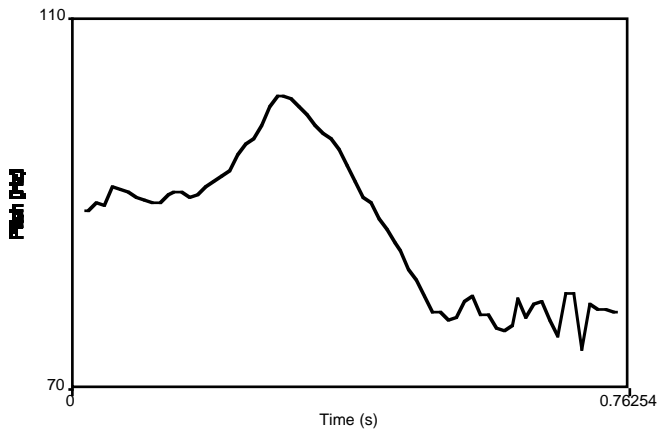
(03.02c) Amá-şábu a-ká nz-á !bá-àna.

‘[The] milk is liked by *kids*’ (contrastive focus)



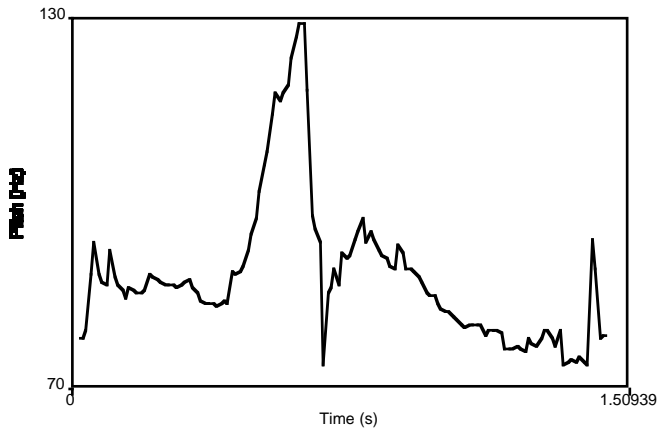
(08.01a) o-lu-gáno

'story, tale'



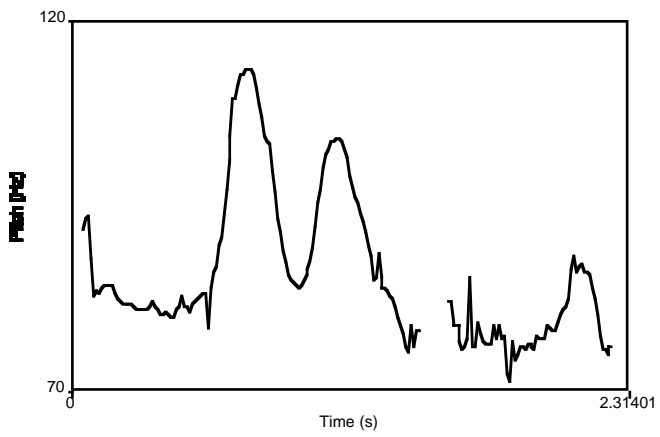
(08.01aa) o-lu-ganó lu-age

'my story'



(08.03c) o-lu-ganó lu-agé lu' oko ma-lwáâ

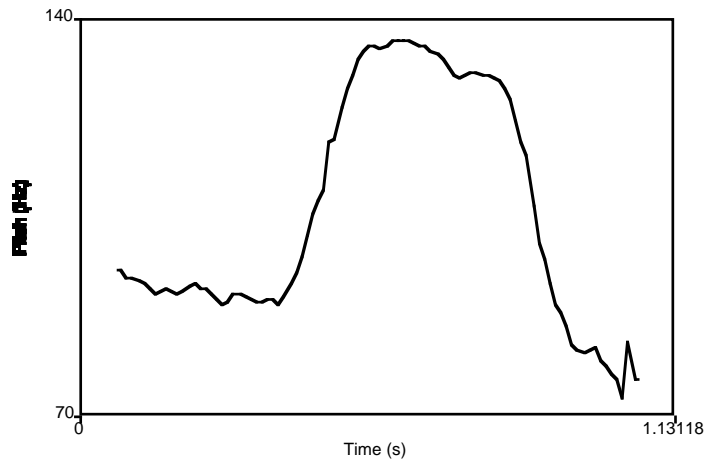
'my story about/on the war'



(08.04a) o-lu-ganó lu-éwe (phonetically, [...lwéèwe])

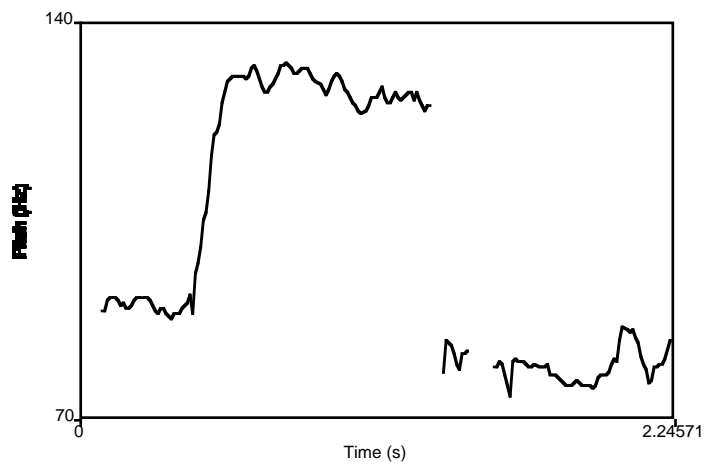
'her/his story'

4



(08.04b) o-lu-ganó lu-éwé lu' oko ma-lwáà

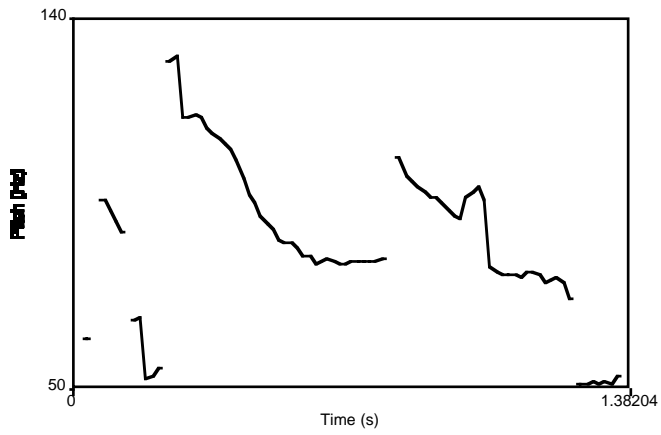
'her/his story about/on the war'



(10.02c) Tu ká gul-a e-syó-mbene.

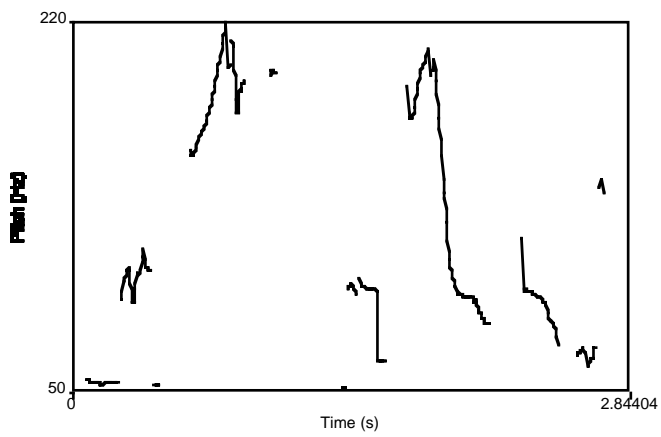
'We're buying goats'

5



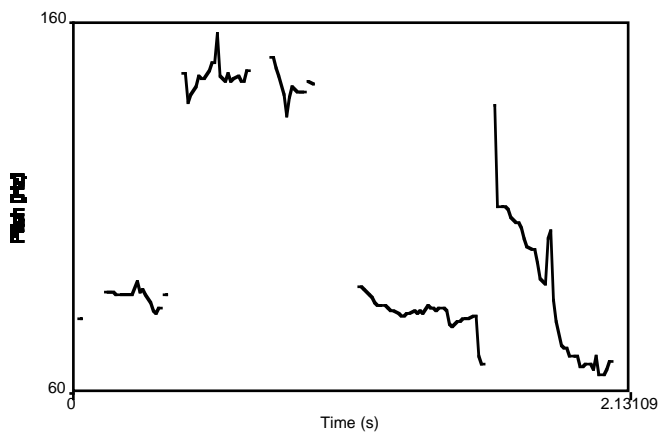
(10.04d) Itwé tu ká gul-a e-syó-mbene.

'Us, we're buying goats'



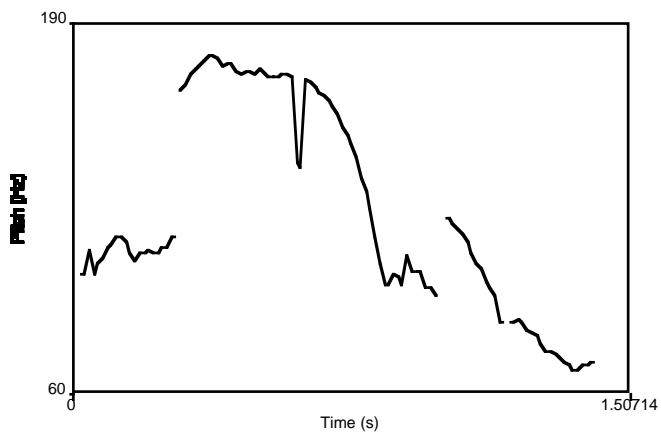
(10.04c) Itwé tú ka gul-a e-syó-mbene.

'We're buying goats'



(11.07c) Itwé tú ka gul-a e-syó-mbene.

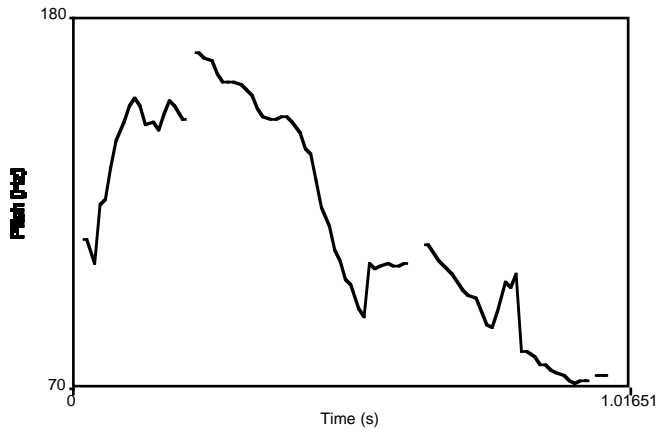
'It's us who buy/are buying goats'



(11.06b) Mó tú á gúl-a e-syó-mbene.

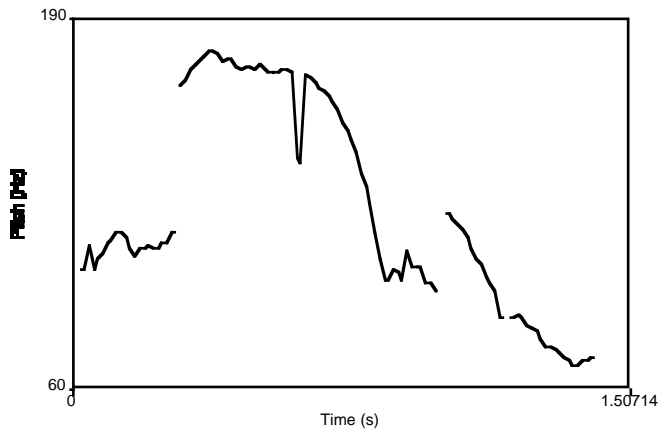
'We bought some goats (long ago)'

6



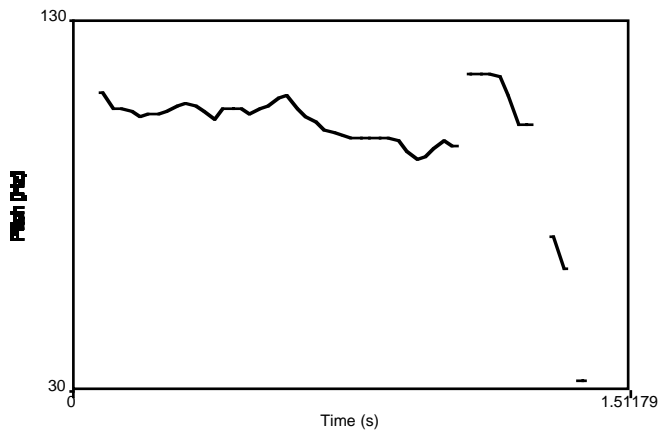
(11.06c) Itwé mó tú á gúl-a e-syó-mbene.

'Us, we bought some goats (long ago)'



(11.06d) Itwe tu a gul-a e-syó-mbene.

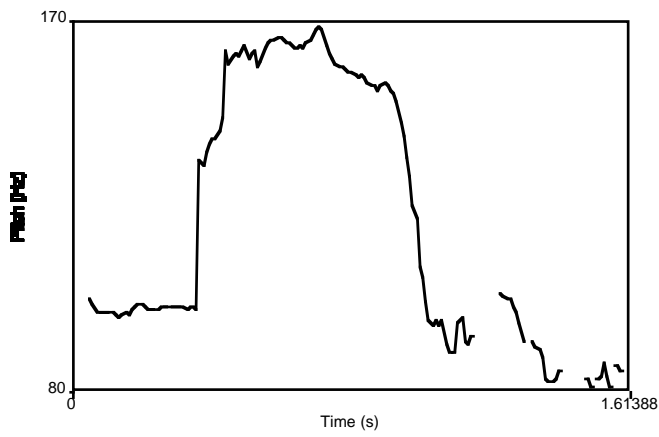
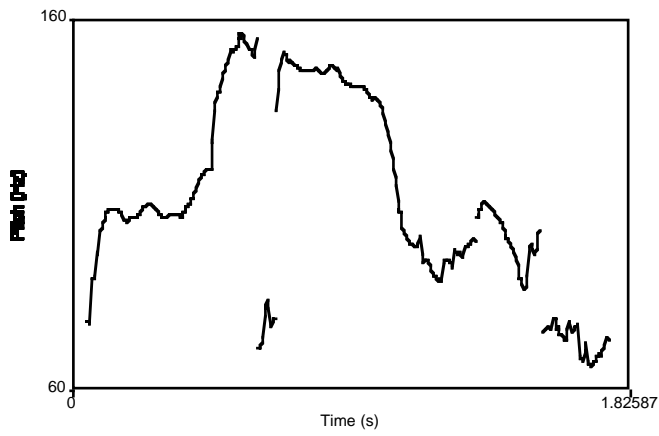
'It's *us* who bought goats (long ago)'



(11.10a) Abandú mó bá á gul-' e-syó-mbene.

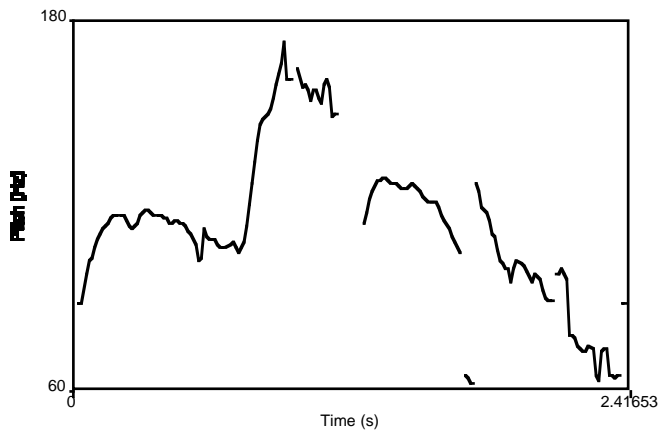
'The men bought some goats (long ago)' (2 takes)

7



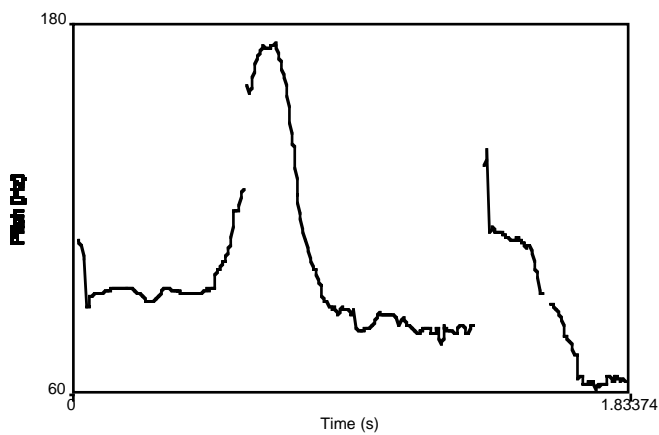
(11.10b) Abandú íbó mó bá gul-' e-syó-mbene.

'As for the men, they bought goats (long ago)'



(11.10c) Abandú bo ba a gul-' e-syó-mbene.

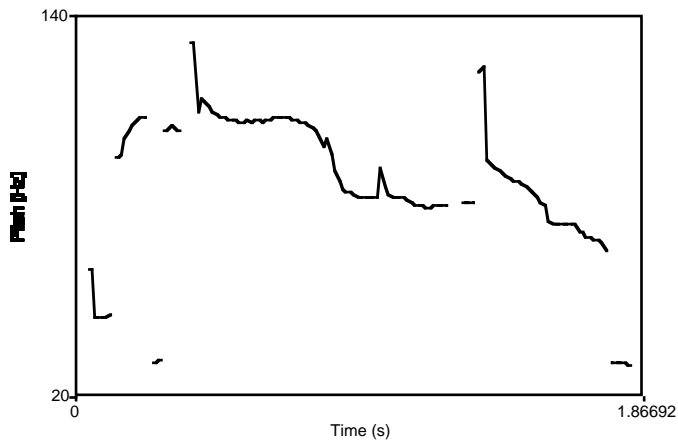
'It's the men who bought some goats (long ago)'
[n.b. insertion of clefting pronoun *bo*]



(11.08a) Mó tu á gúl-ire e-syó-mbene.

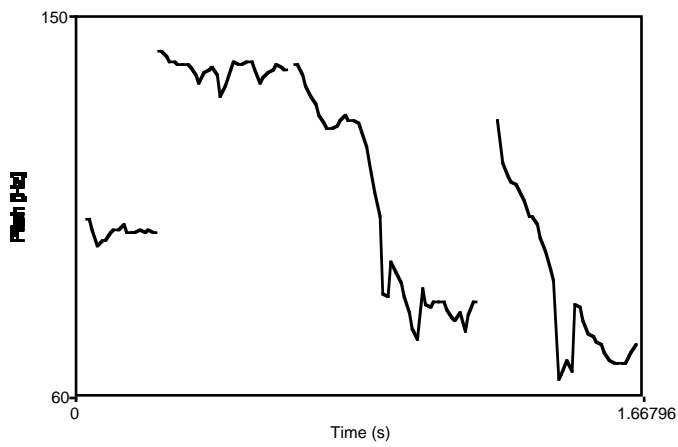
'We bought some goats (recently)'

8



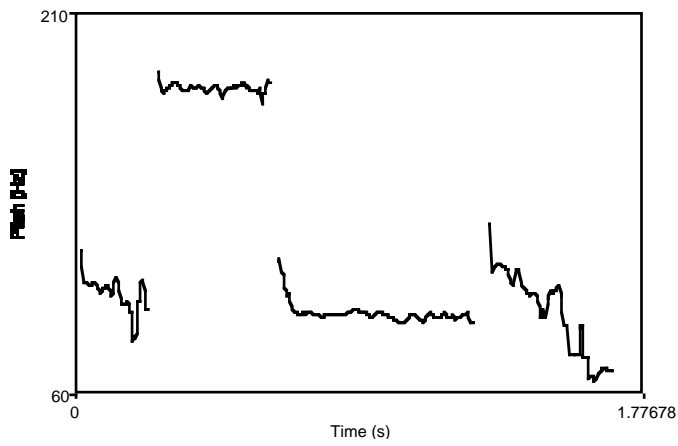
(11.08b) Itwé mó tu á gúl-ire e-syó-mbene.

'Us, we bought some goats (recently)'



(11.08c) Itwé tu a gúl-' e-syó-mbene.

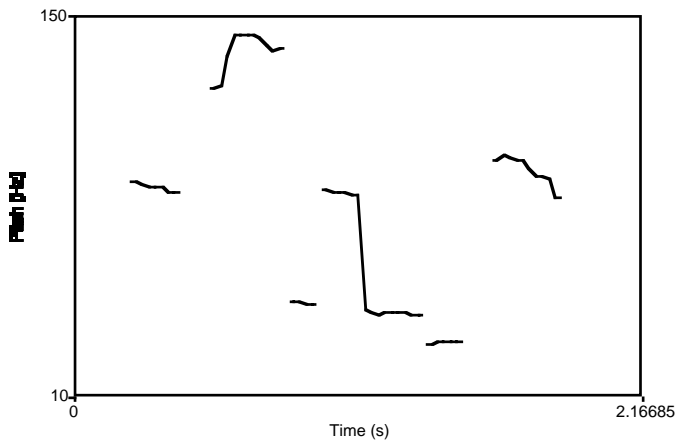
'It's us who bought goats (recently)'
[n.b. zero realization of both mó and -ire]



(11.09a) Tu ká ndi (sya) gul-' e-syó-mbene.

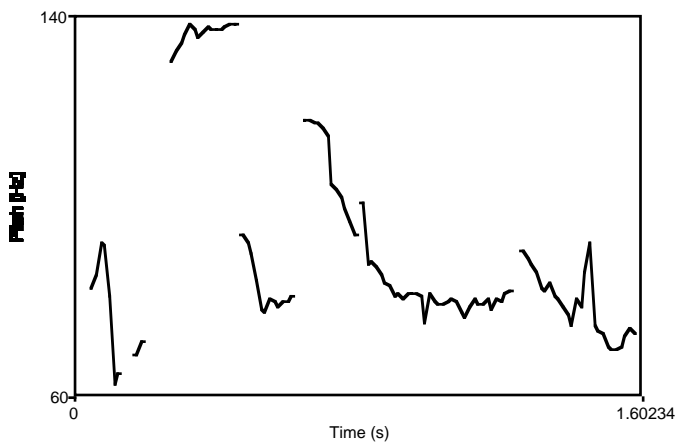
'We're going to buy some goats <after today>
[n.b. the <sya> adverb is not included in the audio]

9



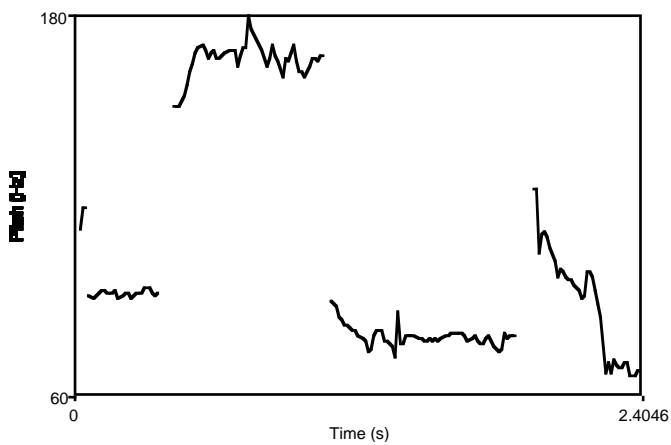
(11.09b) Itwé tu ká ndi (sya) gul-' e-syó-mbene.

'Us, we're going to buy some goats (after today)
[n.b. final H on the strong pronoun, even pre L]



(11.09c) Itwé tú ka ndi (sya) gul-' e-syó-mbene.

'It's us who're going to buy some goats (after today)'



References

- Akinlabí, A. [1985]. *Tonal underspecification & Yorùbá tone*. Dissertation, UÌbàdàn.
- Akinlabí, A. & M. Liberman. [2001]. Tonal complexes and tonal alignment. *NELS* 31, 1-20.
- Baker, M. [1988]. *Incorporation; a theory of grammatical-function changing*. UChicago Press.
- Bamba, M. [1991]. Sur la relation entre ton et accent. Dissertation, UQuébec à Montréal.
- Bbemo, M. [1992]. *Le Kinande, langue bantoue de l'Est du Zaïre (D.42): phonologie et morphologie*. Dissertation, UParis-3.
- Bresnan, J. [1971]. Sentence stress and syntactic transformations. *Language* 47, 257-97.
- Byarushengo, E, L. Hyman & S. Tenenbaum. [1976]. Tone, accent and assertion in Haya. *Southern California Occasional Papers in Linguistics* 5: Studies in Bantu Tonology, edited by L. Hyman, 183-205. U. C. L. A.
- Carstens, V. [2001]. Multiple agreement and Case deletion; against \varnothing -incompleteness. *Syntax* 4, 147-63.
- Chomsky, N. [2001]. Derivation by phase. *Ken Hale; a life in language*, edited by M. Kenstowicz, 1-52. MIT Press, Cambridge, Mass.
- Chomsky, N. & M. Halle. [1968]. *The Sound Pattern of English*. Harper, New York.
- Cinque, G. [1993]. A null theory of phrase and compound stress. *Linguistic Inquiry* 24, 239-98.
- Connell, B. & D. Ladd. [1990]. Aspects of pitch realisation in Yorùbá. *Phonology* 7, 1-29.
- Dilley, L. [2005]. On the dual relativity of tone. *CLS* 41. <http://faculty.psy.ohio-state.edu/pitt/dilley/dilley-cls05.pdf>.
- Dilley, L. & M. Brown [2006]. Effects of pitch range variation on f_0 extrema in an imitation task. *Journal of Phonetics*.
- Duanmu, S. [2005]. The tone-syntax interface in Chinese; some recent controversies. *Cross-Linguistic Studies of Tonal Phenomena; historical development, tone-syntax interface & descriptive studies*, edited by S. Kaji. Institute for the Study of Languages & Cultures of Asia & Africa, Tokyo U of Foreign Studies. <http://www-personal.umich.edu/~duanmu/ToneSyntax05.pdf>.
- Guthrie, M. [1948]. *Bantu Word Division; a new study of an old problem*. [= International African Institute Memorandum 22.] Oxford UPress.
- Hyman, L. [1990]. Boundary tonology and the prosodic hierarchy. *The Phonology-Syntax Connection*, edited by S. Inkelas & D. Zec, 109-25. University of Chicago Press.
- . [1999]. The interaction between focus and tone in Bantu. *The Grammar of Focus*, edited by G. Rebuschi & L. Tuller, 151-77.
- [Barrett-]Keach, C. [1986]. Word-internal evidence from Swahili for Aux/Infl. *Linguistic Inquiry* 17, 559-64.
- Kenesei, I. [2005.] Focus as identification. *The Architecture of Focus*, edited by V. Molnaar & S. Winkler. Mouton, Berlin. <http://www.nytud.hu/oszt/igazg/kenesei/publ/keneseifocusmay.pdf>.
- Kinyalolo, K. [2003]. The case for null subject-verb agreement morphology in Bantu. *NELS* 34, SUNY Stony Brook. <http://www.linguistics.stonybrook.edu/events/nels/abstracts/kinyalolo.pdf>.
- Ladd, D. [1996]. *Intonational Phonology*. Cambridge UPress.
- Láníran, Y. & G. Clements. [2003]. Downstep and high raising; interacting factors in Yorùbá tone production. *Journal of Phonetics* 31, 203-250.
- Liberman, M. [1975]. *The intonational system of English*. Dissertation, M.I.T., Cambridge, Mass.
- Liberman, M. & J. Pierrehumbert. [1984]. Intonational invariance under changes in pitch range and length. *Language Sound Structure*, edited by M. Aronoff & R. Oerhle, 157-233. MIT Press, Cambridge, Mass.
- Lowenstamm, J. [2005]. On little n, roots and types of nouns. Sounds of Silence conference, Tilburg, 19 October. <http://www.llf.cnrs.fr/Gens/Lowenstamm/SOSbighandout.pdf>.
- Manfredi, V. [1993]. Spreading and downstep: prosodic government in tone languages. *The Phonology of Tone; the Representation of Tonal Register*, edited by H. v. d. Hulst & K. Snider, 133-84. Mouton/de Gruyter, Berlin.
- . [1995]. Tonally branching *s* in Yorùbá is [LH]. *Niger-Congo Syntax & Semantics* 6, 171-82. African Studies Center, Boston U.
- . [2003]. A fonosyntactic parameter within Benue-Kwa and its consequences for Èdó. *Typologie des langues d'Afrique et universaux de la grammaire, vol. 2: Benue-Kwa, Soninke, Wolof*, edited by P. Sauzet & A. Zribi-Hertz, 127-62. Presses Universitaires de Vincennes/Éditions de l'Harmattan, Paris. [corrected copy (.pdf) available on request.]
- . [2004]. A toneless theory of 2-and-a-half tonemes in Gbè. Département de Linguistique, U Paris-7, 1 December 2004.
- . [2006, submitted]. Morphosyntactic parameters and the internal classification of Benue-Kwa (Niger-Congo). Submitted to Proceedings of the Ninth Diachronic Generative Syntax Conference, Trieste. Oxford University Press..
- . [to appear, 2007]. Nuclear stress in eastern Benue-Kwa (Niger-Congo). *Focus Strategies in Niger-Congo & Afroasiatic*, edited by E. Aboh & al. DeGruyter, Berlin.
- Muwirii, K. & N. Malhinga. [2004]. *Orthographie du Luyiira; aspects problématiques*. Institut Supérieur Pédagogique de Muhangi, Vutembo.
- Myers, S. [1998]. AUX in Bantu morphology and phonology. *Theoretical Aspects of Bantu Tone*, edited by L. Hyman & C. Kissebirth, 231-64. CSLI, Stanford, Calif.
- Nespor, M. & I. Vogel. [1986]. *Prosodic Phonology*. Foris, Dordrecht.
- Odden, D. [1990]. C-command or edges in Makonde? *Phonology* 7, 163-69.
- Sharman, J. & A. Meeussen. [1955]. The representation of structural tones, with special reference to the tonal behavior of the verb, in Bemba, Northern Rhodesia. *Africa* 25, 393-404.
- Szendrői, K. [2001]. *Focus & the syntax-phonology interface*. Dissertation, UCollege, London.
- Truckenbrodt, H. [1995]. *Phonological phrases; their relation to syntax, focus & prominence*. Dissertation, M.I.T., Cambridge, Mass.
- Valinande, N. [1984]. *The structure of Kinande*. Dissertation, Georgetown University, Washington, D.C.
- Wagner, M. [2005b]. *Prosody & recursion*. Dissertation, M.I.T., Cambridge, Mass.
- Xu, Y. & C. Xu. [2005]. Phonetic realization of focus in English; declarative intonation. *Journal of Phonetics* 33, 159-97.
- Zerbian, S. [2005]. Why a prosodic approach to focus in Northern Sotho does not work. Bantu Network Meeting, S.O.A.S., ULondon, 13 May.
- Zubizarreta, M.-L. [1998]. *Prosody, Focus & Word Order*. MIT Press, Cambridge, Mass.