

On the prosodic realization of prominence and downstep in the tone language Akan

Susanne Genzel & Frank Kügler
Potsdam University

P&P-5, Köln, 03.03.2009

Interaction of tonal and information structure –

Tone languages

	Tonal marking of prominence (focus)
Yucatec Maya (Kügler & Skopeteas 2006; Kügler & Skopeteas 2007a, b)	no tonal effect ex-situ, in-situ; no downstep
Mandarin Chinesisch (Xu 1999; Xu & Wang 2001)	H-tone raising, L-tone lowering downstep
Haussa (Leben et al. 1989; Hartmann & Zimmermann 2007)	H-tone raising (only <i>ex-situ</i>) no tonal effect in-situ
Kammu (Karlsson et al. 2007)	H-tone raising, L-tone raising downstep?
Ewe (Jannedy & Fiedler 2006)	no tonal effect in-situ tonal and durational effect ex-situ

➤ **How is prominence realised in Asante Twi?**

Introductory remarks

Akan is a Kwa language of the Niger-Kongo family spoken by ca. 5 Mio. people in Ghana and the Ivory Coast.

Three main dialects (Cahill 1985:1):

Asante Twi (2,800,000)

Fante (1,900,000)

Akuapim (555,000)

SVO language (Kobele & Torrence 2006:162)

Tone language, tone has mostly grammatical function (Dolphyne 1988:66f.)

(1a) Kófì gyìná hó.
Kofi stand-hab there
'Kofi stands there (everyday).'

(1b) Kófì gyìnà hó.
Kofi stand-prog there
'Kofi is standing there.'

Tonal Phonology of Akan

Basic tonal inventory: L and H (Dolphyne 1988:55f.)

TBU: syllable

Interrogatives (yes/no):

- final H tone target with a slight fall in pitch,
- whole sentence uttered with higher pitch

Types of downstep:

- Automatic downstep (H-L-H → H-L-!H)
- Non-automatic downstep (H-L-H → H-L-!H → H-!H)

We don't know anything about stress.

Morpho-syntactic focus realisation in Akan

Focus can be morpho-syntactically marked by a cleft construction and the FM 'na'.

(2) Direct object focus (Kobebe & Torrence 2006:164)

(ε-yε) Ama na Kofi bɔɔ (no) (no).

it-is Ama FM Kofi hit-past 3sg det

'It's Ama who Kofi hit.'

Prosodic focus realisation in Akan

(3a) mèbàà há
I-come-past here
'I came here.'

(3b) mé nà mébáá há
I FM I-come-past here
'It is me that came here.'

(3c) mébá há
I-hab-come here
'I come here (everyday).'

(3d) mé nà mébá↑ há
I FM I-hab-come here
'It's me I come here (everyday).'

(Boadi 1974:19)

Prominence in Akan – research questions

1. Basic tonal realisation (baseline)?
2. How is the in-situ variant of focus phonetically realised?
e.g. H-raising, L-lowering, duration, phrasing

Materials

Tonal targets:

(4) L: Àddò

Àgyeman bòáá Àddò ánɔpà yi.
Agyeman help-past Addo morning this.
'Agyeman helped Addo this morning.'

(5) H: *amángo*

Anúm tòò amángo ánɔpà yi.
Anum buy-past mango morning this.
'Anum bought mango this morning.'

Materials

Information structure: Question Answer

The target word occurs in

an all new sentence



narrow focus



post-focal position



pre-focal position



Recording procedure

7 Speakers (4 m, 3 f), age ranges from 22–60

Procedure:

- Visual presentation in Akan script (Powerpoint)
- Auditory via headset
- Randomised order of stimuli
- Presentation of target sentence (quiet reading phase)
- Presentation of context question plus target sentence (production phase)

Recording with headset microphone, Audacity on laptop

112 sentences (2 tone x 4 is x 7 speaker x 2 repetitions)

Analysis

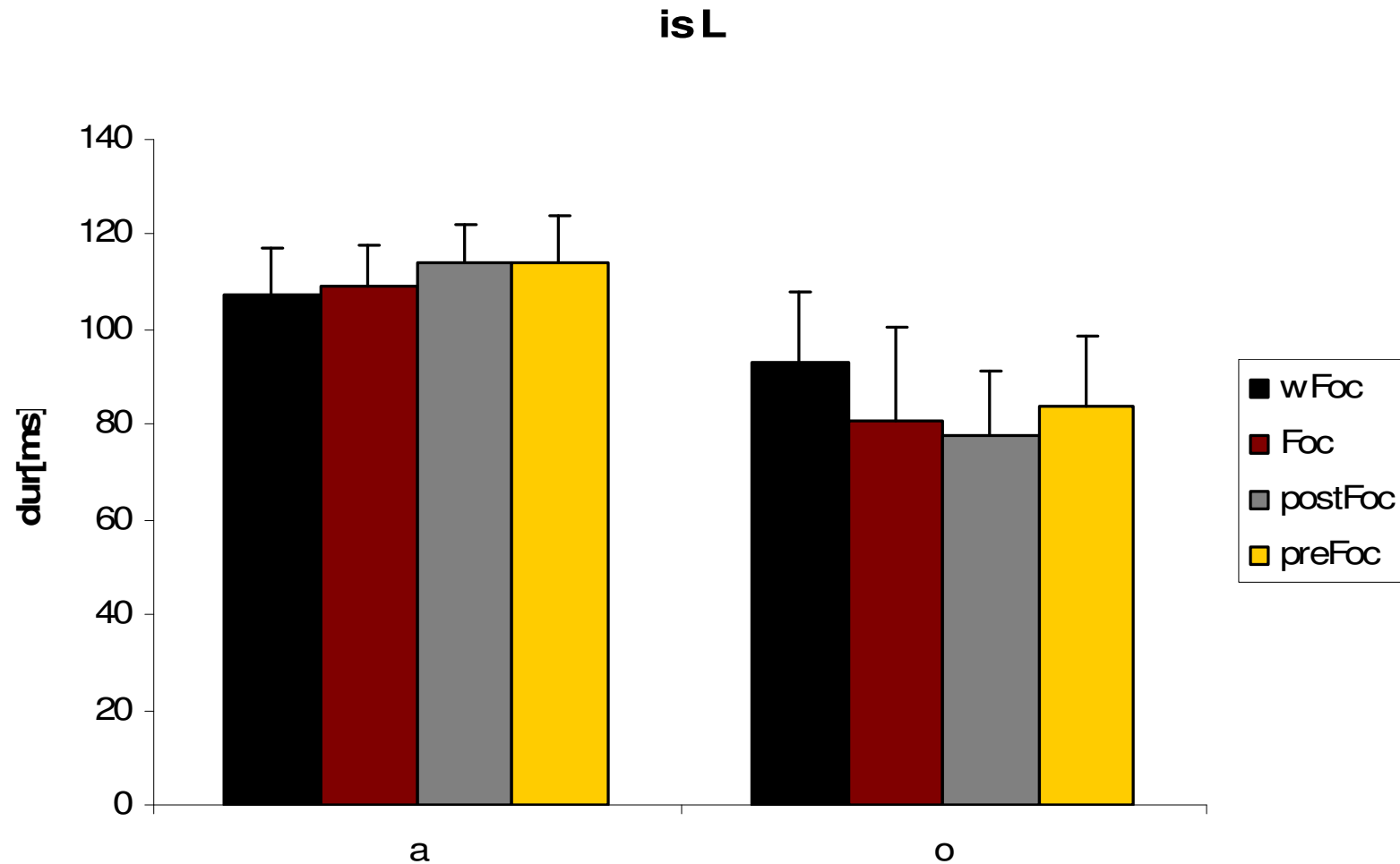
Measurement of duration for each target word vowel (twv) in ms

F0 smoothed at 10Hz, 10 measuring points extracted

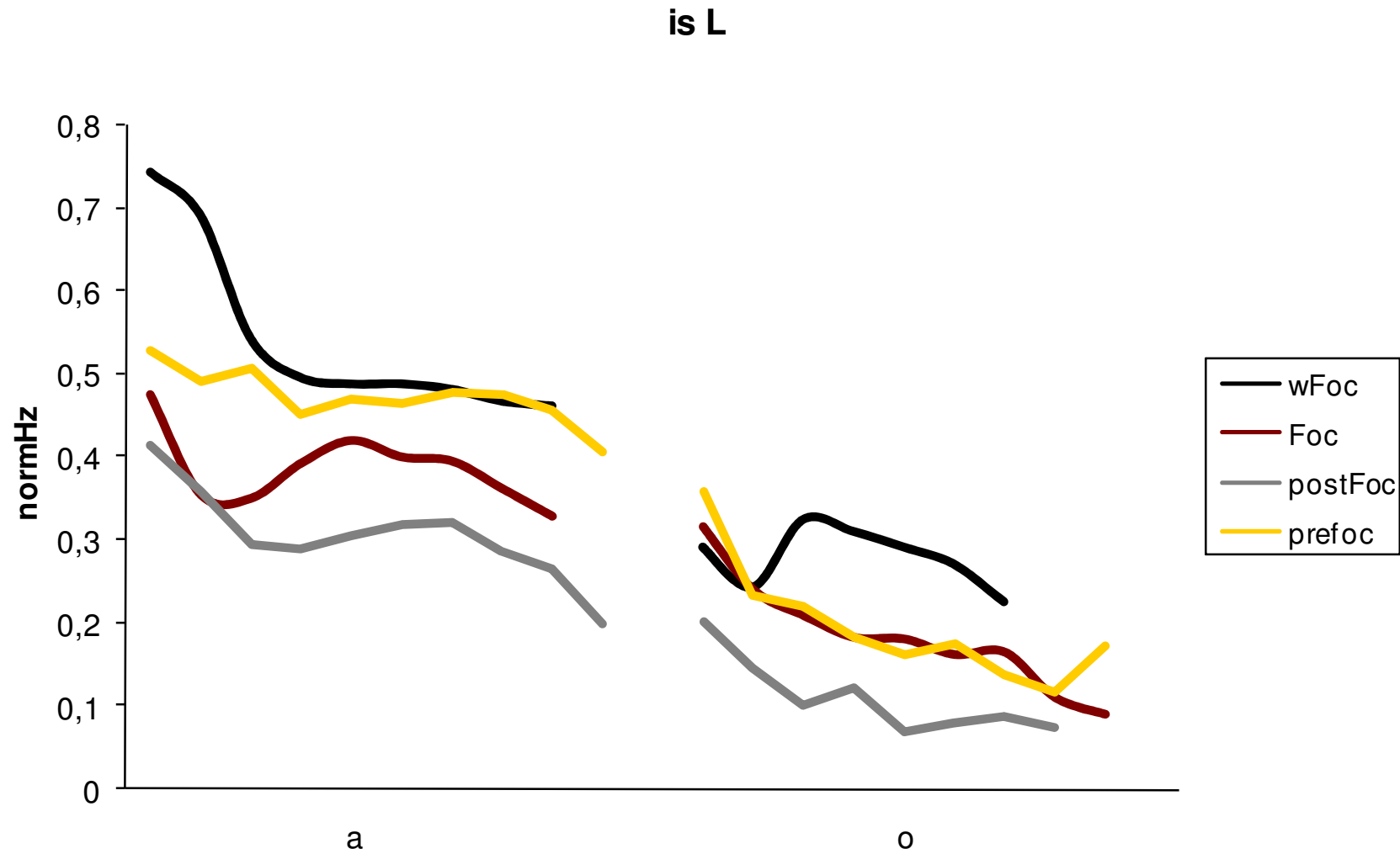
F0 normalisation:

- R1: $H > tw$, R2: $L < tw$
- automatically via Praat script
- $y = (x - R2) / (R1 - R2)$ (Truckenbrodt 2003:325)

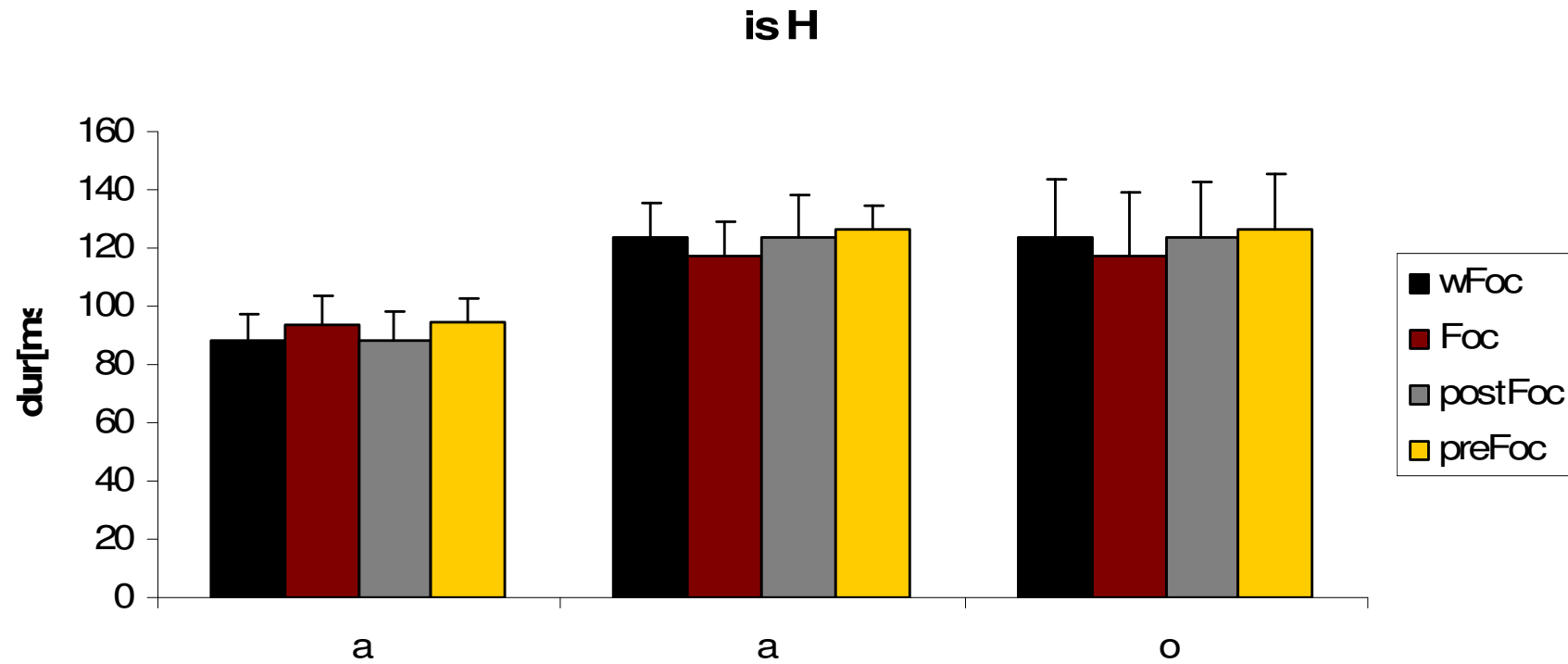
Durational results for Addo (L-tone)



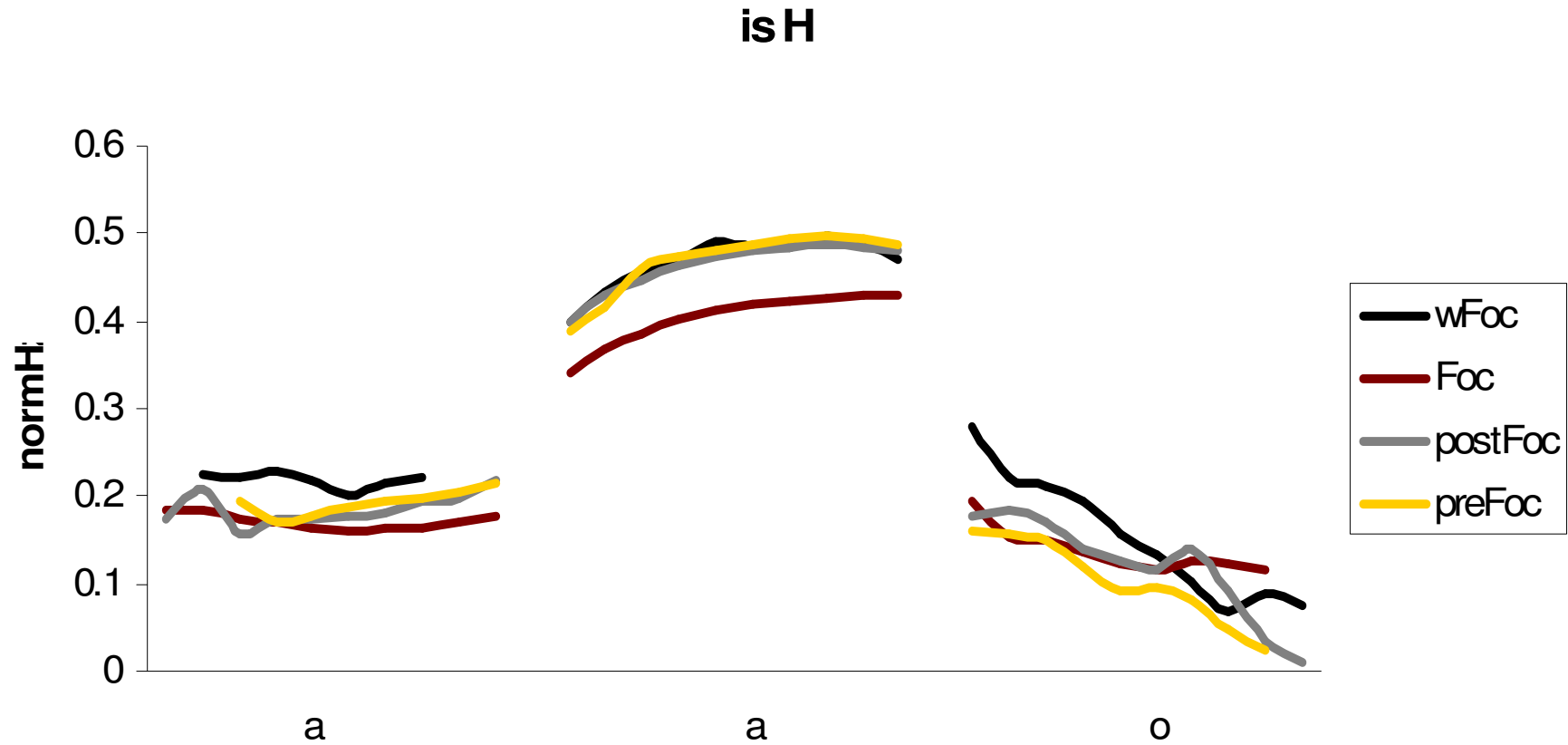
Pitch results for Addo (L-tone)



Durational results for amango (H-tone)



Pitch results for amango (H-tone)



Prosodic in-situ focus marking

No durational cues

L- lowering due to Focus, postfocal stronger effect

(H - lowering due to Focus), postfocal no effect

DOWNSTEP IN AKAN

Downstep in Akan

In the previous part of this talk we discussed the interaction of tone and intonation in SVO sentences occurring in different information structures.

In-situ focus appears to be marked prosodically.

Given that downstep occurs in Akan in certain tonal conditions, and given that the domain of downstep is the phrase, the question is if downstep can be blocked / interrupted under certain information structural conditions (focus) – as is the case for many other languages, e.g. German (Féry & Kügler 2008), Japanese (Ishihara, ms).

Downstep in Akan – research questions

1. Do we find any differences in duration / f0 between *automatic* and *non-automatic* downstep?

H: No (according to Abakah 2002)

2. Do we find any blocking of downstep due to focus?

H: Yes (given the blocking of downstep reported for many languages)

Materials (Dolphyne 1988; Abakah 2002)

Automatic downstep

(6)

L H	L H	L H	L !H

a. kofi + dzimã → kofidzimã
 Kofi + Gyima



b. Ama bɔɔ **Kófi Gyímà** anɔpa yi.
Ama beats Kofi Gyima this morning.



Non-automatic downstep

(7)

H L HH	HL HH	HL !H H
	≠	

a. mɪ + okunu → mɪ kunu → mɪ kunu
 my + husband my husband

b. M'ahunu **mékúnú** anɔpa yi.
I have seen my husband Mann this morning.

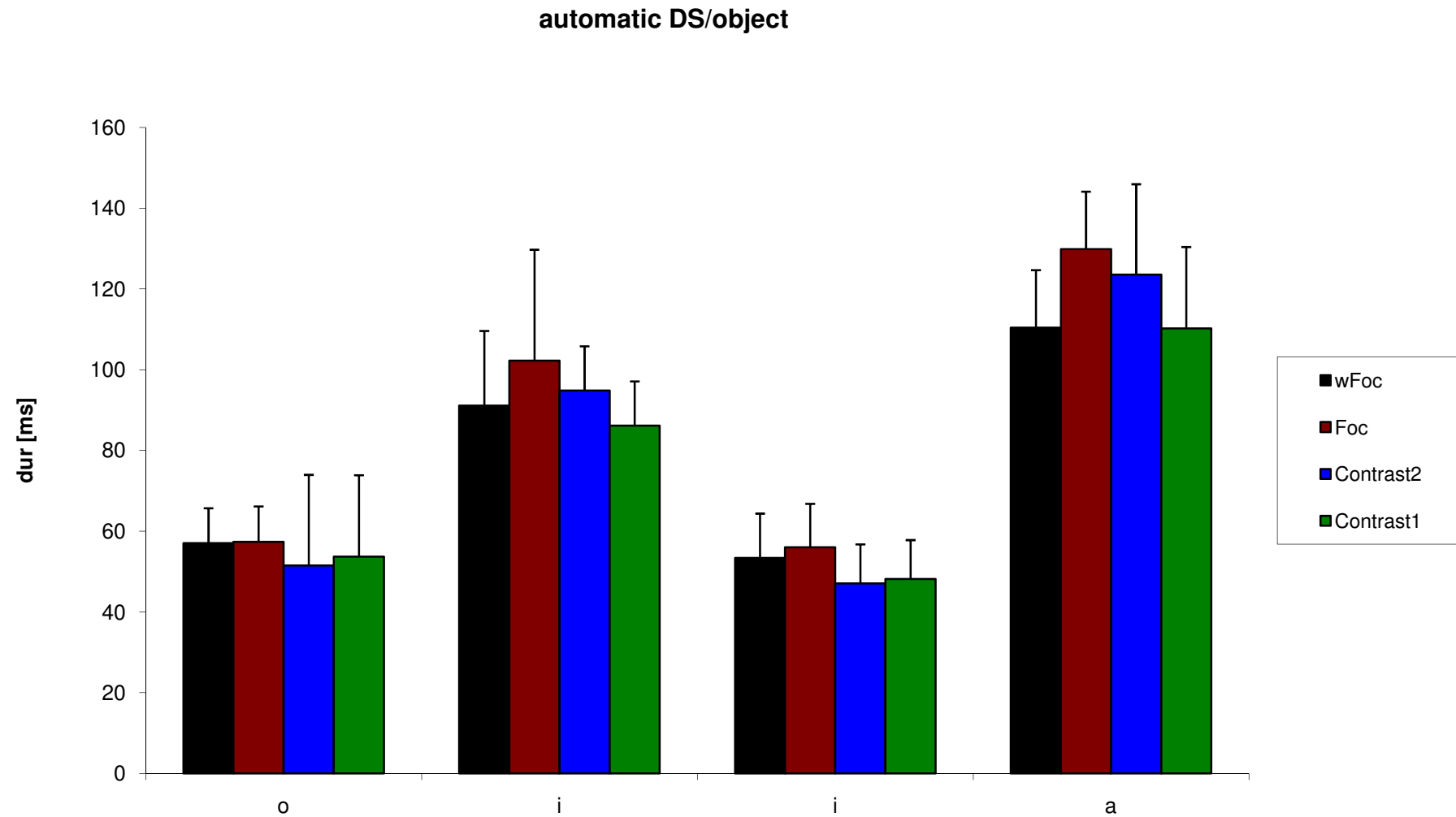


Materials

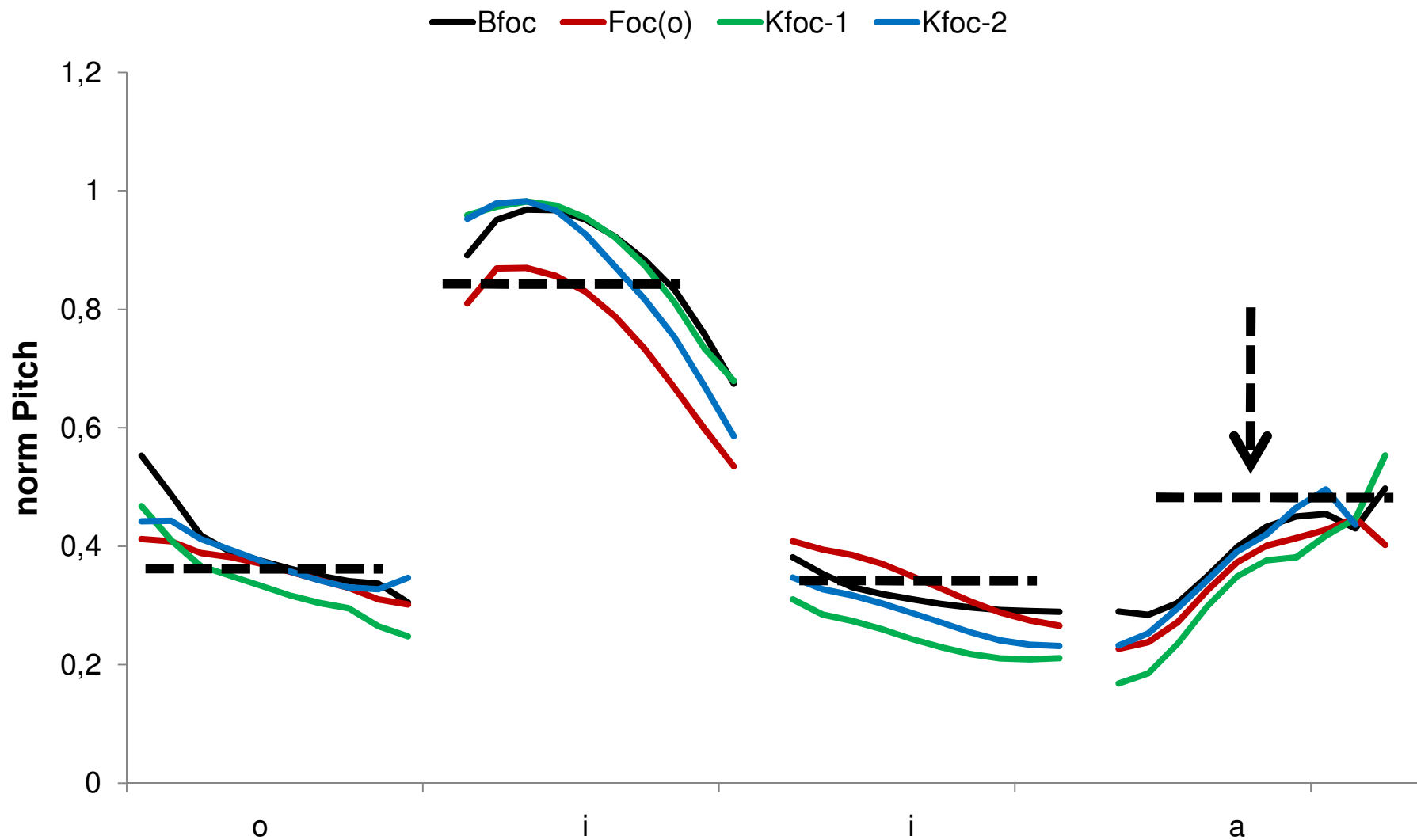
Context conditions:

1. Focus on the whole phrase
2. Narrow focus on the argument
3. Contrastive focus on the second part
4. Contrastive focus on the first part

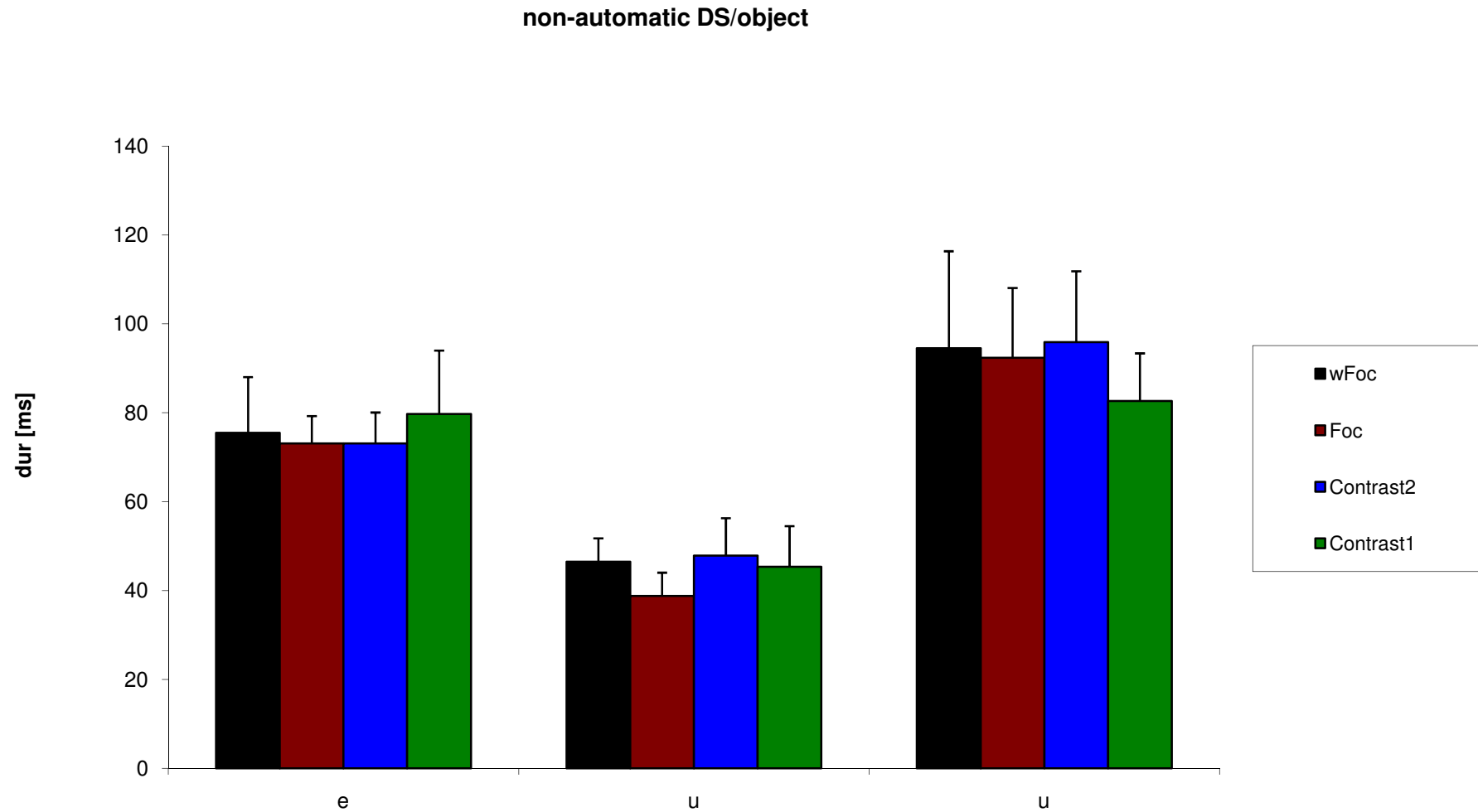
Durational results for 'Kofi Gyima' (automatic downstep)



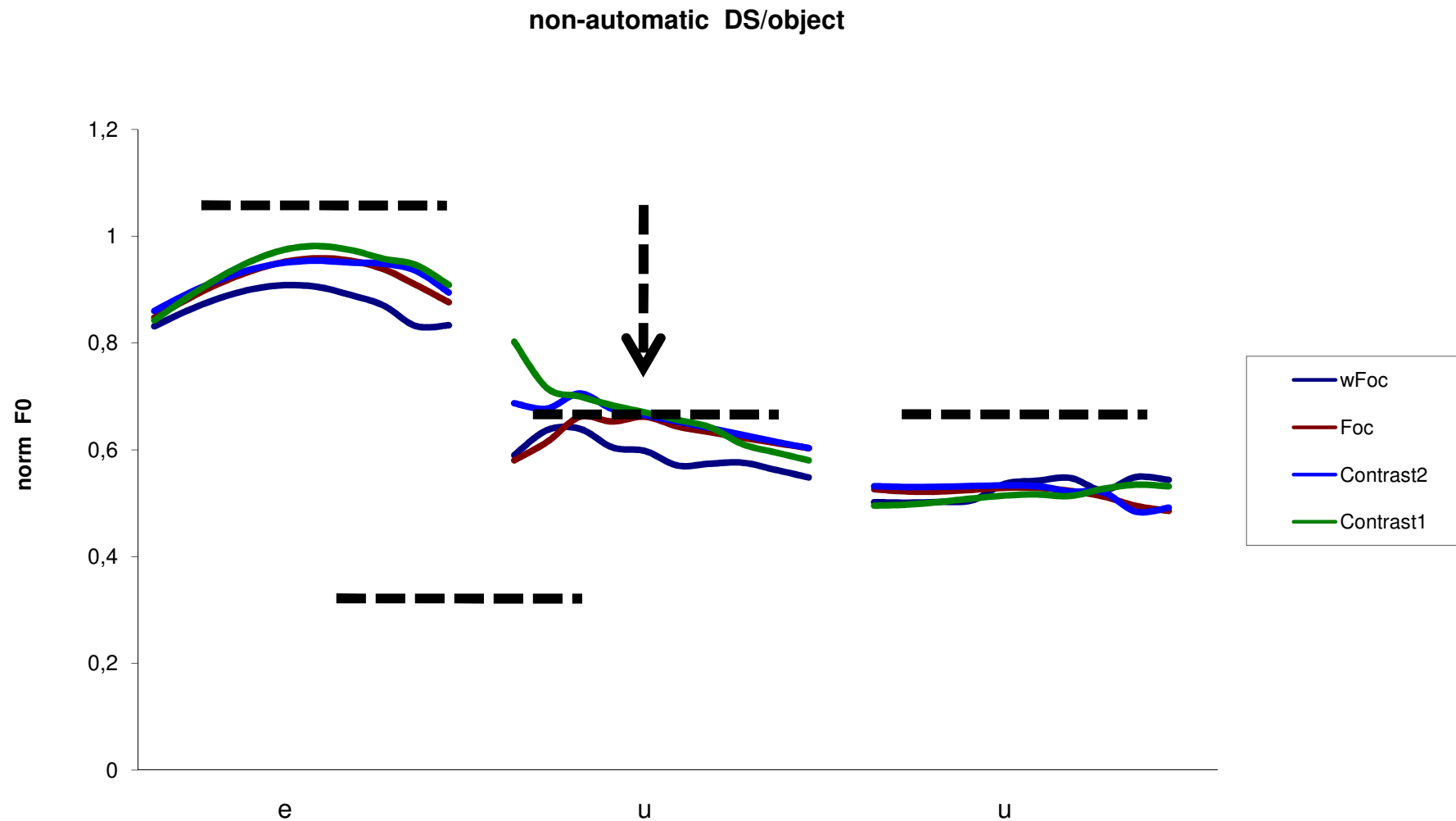
Pitch results for 'Kofi Gyima' (automatic downstep)



Durational results for 'mekunu' (non-automatic downstep)



Pitch results for 'mekunu' (non-automatic downstep)



Summary

1. Difference between automatic and non-automatic downstep

No – as expected

- Downstep effect is similar, independent of downstep trigger.
- Downstep creates a new reference line in the pitch register.

2. Blocking of downstep

No.

- Neither automatic nor non-automatic downstep point to any blocking.

Discussion

From the downstep data we may conclude:

- (i) Downstep occurs in certain conditions,
- (ii) The amount of downstep is similar in different types of downstep.
- (iii) Downstep appears not to be interrupted by focus.

From the focus data we may conclude:

- (i) In situ focus appears to be prosodically realised by means of register lowering

→ Downstep and focus realisation are independent from each other.

Thus, downstep cannot be blocked for pragmatic reasons and preserves its distinctive role in Akan phonology.

Special thanks go to ...

- ... Anne Schwarz
- ... George Diamono
- ... seven Akan speakers
- ... Embassy of Ghana
- ... our student assistants Sophia Jähnigen,
Bernadett Smolibocki, and Dinah Rottmann
- ... the German research foundation (DFG, SFB 632-D5)
- ... and the linguistics department at Ghana University!

Thank you !
Medaase !