THE PROSODIC INTEGRATION OF TEKO IDEOPHONES

FRANÇOISE ROSE, JENNIFER KRZONOWSKI & MAO-LINE FILLON (DDL, CNRS/UNIVERSITÉ DE LYON)

TEKO

- a.k.a. Emerillon
- Tupi & Tupi-Guarani
- French Guiana
- ~ 400 speakers, active transmission to children
- Texts collected from 1990 to 2004 (1h40 audio recordings +17 texts w/o recordings)
- Grammar (Rose 2011)

Rose, Françoise. 2011. Grammaire de l'émérillon Teko, Une Langue Tupi-Guarani de Guyane Française. Langues et Sociétés d'Amérique Traditionnelle 10. Louvain: Peeters.

TEKO IDEOPHONES: BASIC FACTS

- 105 ideophones / 1321 lexemes
  - Not a « small » part of speech (8%)
- 405 occurrences in texts / 2000 sentences
  - Once in every 5 sentences in average
- Described in Rose (2011:400-409)
  - PoS illustrating expressively a situation

Rose, Françoise. 2011. Grammaire de l'émérillon Teko, Une Langue Tupi-Guarani de Guyane Française. Langues et Sociétés d'Amérique Traditionnelle 10. Louvain: Peeters.

TEKO IDEOPHONES: PREVIOUS WORK

- Semantics
  - Often actions, rarely states (‘be with closed eyes’, ‘be dark’)
  - Not a one-to-one correspondance with the semantics of the verbs
  - Phonosemantics

- Phonology
  - Regular segmental inventory (except /f/ in one ideophone)
  - Regular phonotactic rules (no word-internal CC –one exception, VV allowed)
  - Frequency of segments differ from the rest of the lexicon

- Prosody: only some vague impressions

PROSODY OF IDEOPHONES

- Prosody as an under-investigated domain for ideophones
  - Anecdotal facts rather than comprehensive studies
  - Descriptive rather than quantitative approaches
  - Emphasis on features that depart from regular lexicon

- Prosody could be an additional domain to evaluate « weirdness » of ideophones
  - See review of expressive use of suprasegmentals in ideophones (Smoll 2014:20)

INTEGRATION OF IDEOPHONES

- Ideophones often presented as « weird » and « extra-systematic » (see discussion in Newman 2001)
  - Phonosemantics, iconicity
  - Phonological irregularities
  - Lack of morphology
  - Lack of syntactic integration

- In descriptions of ideophones, stress often put on differences with other PoS
  - Ex: Used mostly/only in declarative clauses and narrations.

  But in Teko, can be found in imperative clauses in everyday conversation: ***pug*** *ere* **IDEO.put** 2.say 'Put it down!'

Newman, Paul. 2001. "Are Ideophones Really as Weird and Extra-Systematic as Linguists Make Them out to Be?" In Ideophones, edited by F. K. Voeltz and C. Kilian-Hatz, 251–58. Amsterdam/Philadelphia: John Benjamins.

GOALS OF THE TALK

- Contribute to a better knowledge of the prosody of ideophones
  - Focusing on one language
  - With a quantitative approach
- Are the ideophones really « weirdoes » in language systems?
- Make progress on the issue of the prosodic integration of ideophones at different levels
  - Prosodic root structure
  - Prosody and morphology
  - Prosody and syntax
  - Stress and expressiveness

METHODOLOGY

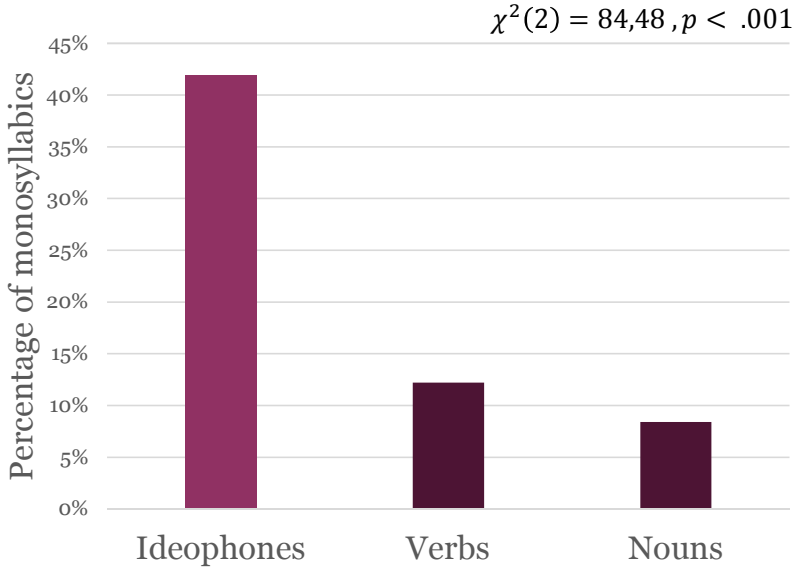
- Study based on
  - Toolbox lexical list of 105 ideophones
    - For their internal structure
  - Random sample of 102 audio-recorded occurrences of ideophones in text
    - For their prosodic properties in discourse, in relation with semantics and syntax
    - Segmentation in Praat:
      - Pauses
      - Vowels (pitch, intensity and duration following methodology in Gordon & Rose 2006: word-final vowels excluded)

Gordon, Matthew, and Françoise **Rose**. 2006. "Emérillon Stress: A Phonetic and Phonological Study." Anthropological Linguistics 48 (2): 132–68.

PROSODIC ROOT STRUCTURE

NUMBER OF SYLLABLES

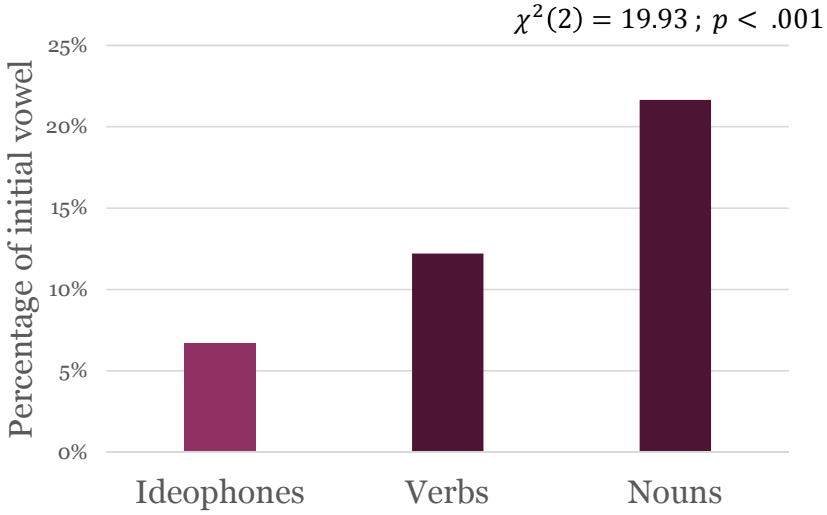
- Ideophones are more often monosyllabic (42%) than other PoS : 12% for verbs ($p < .001$) and 8% for nouns ($p < .001$).



Plurisyllabic ideophones may be overestimated (reduplication issue).

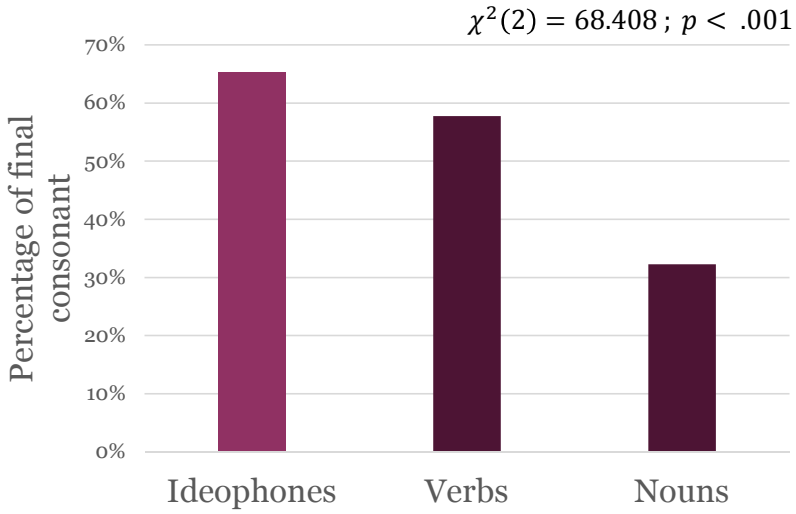
INITIAL SEGMENT

- Ideophones (and verbs) start significantly less with a vowel than nouns ($p < .01$)



FINAL SEGMENT

- Ideophones show a final consonant (65%) more often than nouns (32%, $p < .001$) but not than verbs (57%, $p = .22$).



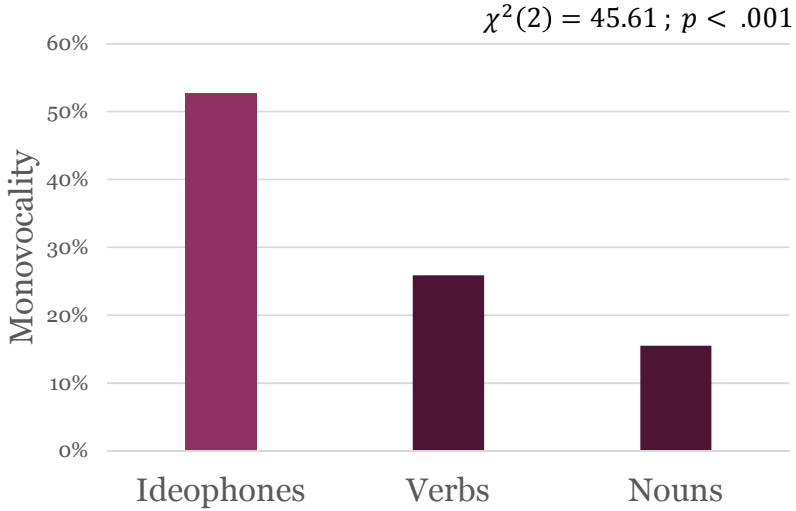
VOWEL HARMONY IN IDEOPHONES

- Described for Korean (Cho 1994), Kisi and Zulu (Childs 1994), Siwu (Dingemanse 2011), Aweti (Reiter 2011), Japanese (Akita et al. 2013)…
- Akita et al. 2013: "an unmarked pattern in mimetics"

Akita, Kimi, Mutsumi Imai, Noburo Saji, Katerina Kantartzis, and Sotaro Kita. 2013. "Mimetic Vowel Harmony." In Japanese/Korean Linguistics, edited by Bjarke Frellesvig and Peter Sells, 20:115–29. Stanford: CSLI Publications.
Childs, G. T. 1994. African ideophones. In L. Hinton et al., eds., *Sound symbolism,* 178-204. CUP
Cho, M.-H. 1994. Vowel harmony in Korean: A grounded phonology approach. *JK* 4, 431-45
Dingemanse, M. 2011. *The Meaning and Use of Ideophones in Siwu*. Doctoral dissertation, Max Planck Institute for Psycholinguistics/Radboud University.
Reiter, Sabine. 2011. "Ideophones in Awetí." PhD dissertation, Kiel: Christian Albrechts University.

VOWEL HARMONY

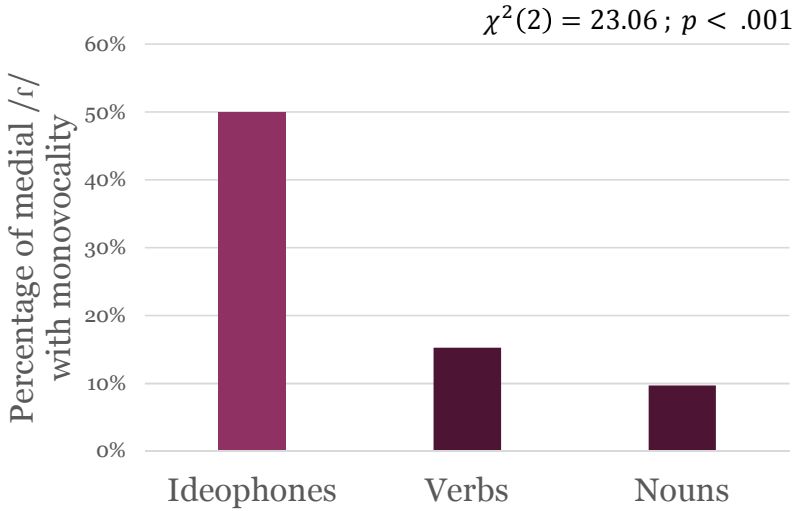
- Kind of vowel harmony investigated
  - Total identity of vowels throughout the root: « monovocalic ideophones » (Dingemanse 2011)
- Ideophones are more often monovocalic than other PoS (all *p*s < .001)



Dingemanse, M. 2011. The Meaning and Use of Ideophones in Siwu. Doctoral dissertation, Max Planck Institute for Psycholinguistics/Radboud University.

MONOVOCALITY & MEDIAL CONSONANT

- Monovocalic ideophones more often have a medial /ɾ/ than monovocalic words of other PoS ($p < .01$)



MONOVOCALITY & MEDIAL CONSONANT

- The combination of both monovocality and medial /ɾ/ in ideophones is higher than expected (50% vs 18%)
  - Given the rate of both monovocality and medial /ɾ/ in ideophones

- Link between monovocality and medial /ɾ/ ?
  - Phonologically: vowel harmony with /ɾ/ as a transparent consonant ? Little work on consonant interference (Hulst and Weijer 2011)
  - Semantically : monovocality to express regularity of the event (Dingemanse 2011), default /ɾ/ too ?
  - Morphologically: as the result of a reduplication pattern with a fixed consonant ? Cf. Malak Malak (Birk 1976)

Birk, D. B. W. 1976. The Malak Malak Language, Daly River (Western Arnhem Land). Canberra: Pacific Linguistics B-45.
Dingemanse, M. 2011. *The Meaning and Use of Ideophones in Siwu*. Doctoral dissertation, Max Planck Institute for Psycholinguistics/Radboud University.
Hulst, Harry van der, and van de **Weijer**, Jeroen. 2011. "Vowel Harmony." In *The Handbook of Phonological Theory*, edited by John A. Goldsmith, 495–534. John Wiley & Sons.

CONCLUSION ON PROSODIC ROOT STRUCTURE

- Ideophones maintain the canonical syllable structure of the language
  - ((C)V.)((C)V.)…CV(C)

- But with some preferences: a higher probability of
  - being monosyllabic
  - having an initial and a final consonant
  - having both monovocality and a medial /ɾ/

- Root structure is not a definitional criterion for ideophones, but participates to their identification
- In general, the structure of ideophones is closer to that of verbs than that of nouns

PROSODY AND MORPHOLOGY

MORPHOLOGY OF IDEOPHONES

- No bound morpheme, no derivation
  - Unlike nouns and verbs (rich predicate morphology)

- But reduplication

REDUPLICATION IN VERBS

- In verbs, exact copy of one or two initial syllables, without their coda (Rose 2005): CV ~ CV(C)
  - Monosyllabic reduplication expresses event-internal repetition (including plurality of participants)
  - Bisyllabic reduplication express event-internal or event-external repetition (Rose 2007, based on Cusic 1981)

Cusic, David. 1981. "Verbal Plurality and Aspect." PhD Dissertation, Stanford University.
Rose, Françoise. 2005. "Reduplication in Tupi-Guarani Languages: Going into Opposite Directions." In Studies on Reduplication, edited by Bernhard Hurch, 351–68. Empirical Approaches to Language Typology 28. Berlin/New York: Mouton de Gruyter.
Rose, Françoise. 2007. "Action Répétitive et Action Répétée : Aspect et Pluralité Verbale Dans La Réduplication En Émérillon." Edited by Bibliothèque Faits de Langues. *Faits de Langues* 29 (La réduplication): 125–43.

REDUPLICATION IN IDEOPHONES

- A few robust examples of reduplication in ideophones
  - Monosyllabic reduplication, with either one or two copies
  - Medial consonant can differ from C of the base, and is /ɾ/ CV_1~ɾV_1(C) ex: *kʷəg kʷərəg kʷərərəg*
  - Event-internal repetition
- $CV_1ɾV_1$ (ɾV_1)(C) ideophonic forms are numerous
  - potentially more reduplication cases
  - basic form missing
- Other suspect forms, with other patterns, & basic form missing: *kosokosog*
- More data needed…

IDEOPHONIC COMPOUNDS ?

- High number of sequences of ideophones (66/102)
  - Different ideophones (2 to 3): sequence of events in chronological order (26/102)
  - Same ideophone (from 2 to 8): internal repetition of the same event (40/102)

- Some sequences of ideophones show some phonological integration
  - Final consonant deletion before an initial consonant
  - As expected between any words within a prosodic unit
  - Ideophonic compounds ? Cf. 'fusion' in Aweti (Reiter 2011:323)

(10) *ko* ***kuʔe-kuʔe*** ***ki(ɾ)*** ***tou*** *o-wiɾ* *o-ʔa* *zawapinim-a-ʔaɾ.*
then IDEO.shake-RED **IDEO.detach** **IDEO.fall** 3-detach 3-fall.GER jaguar-REF-ON
'Then *kuʔekuʔe kiɾ tou* it shakes and falls down on the jaguar.' 05.025

CONCLUSION ON PROSODY AND MORPHOLOGY

- A pattern reminiscent of other PoS
  - Monosyllabic reduplication
  - Same semantics

- With some specificities
  - No bisyllabic reduplication
  - Fixed consonant in reduplication

PROSODY AND SYNTAX

PAUSES BEFORE IDEOPHONES

- 79 % with a preceding pause
  - Before a single ideophone or the first ideophone of a sequence
- Average duration of pause: 0,76 ms
  - Impression of long pauses
  - But in fact inter-clause pauses with average duration 1,15 ms

PAUSES BETWEEN IDEOPHONES

- 78 % of ideophones are followed by a pause before another ideophone
- Average duration of pauses: 0,57 ms
- Pauses are shorter between identical ideophones than different ideophones
  - 0,55 ms (n = 26) vs. 0,63 ms (n = 7)
- Pauses are equivalent between identical ideophones whatever the meaning of the repetition
  - 0,49 ms temporal repetition (n = 30), 0,47 ms (n = 5) plurality of participants

SYNTAX OF IDEOPHONES

- Sentence-initial
  - Preceded by conjunctions only
  - Not considered as ‘first constituent’ for second-position particles

- 3 degrees of syntactic integration
  - Presented from less to more integrated
  - Individual ideophones can occur in different constructions

SYNTAX

- 1. Independent
  - 2 sub-types depending on semantic contribution

- 1a. Holophrastic
  - sole expression of the event

(1) ***dɨrɨg***, *kaʔi* *w̃ãĩw̃ĩ-a-te* *o-ɨru* *o-bo-pusug*
IDEO.watch macaca woman-REF-FOC 3-clothe 3-CAUS-take_off
'He watches, the female macaque is taking her clothes off.' 23.018

SYNTAX

- 1b. Collocational
  - Co-expresses and specifies the event expressed by a verb (can be considered optional)
  - Sometimes referred to as « manner adverbial »

(2) ***kar*** *o-eta* *nipẽ-am.*
IDEO.cut 3-cut bread-TRANSL
'Slash, he cut bread.'

SYNTAX

- 2. Light-V construction
  - Introduced by a light verb immediately following the ideophone(s)
    - *ʔe* 'say, do (a noise)' , with irregular form with third person subject *eʔi*
    - *baʔe* 'do, make'

(3) ***moŋ*** *eʔi*
IDEO.be_dark 3.say
'It is dark.' [no control of the S]

(4) ***moŋ*** *o-baʔe*
IDEO.be_dark 3-make
'S/he turns the light off.' [control of the S]

SYNTAX

- 3. Argument-taking
  - Absence of verb co-expressing the event
  - Presence of participants of the event
  - No verbal morphology

(5) ***wuɾu*** *o-ɨɾu*
IDEO.thrust 3-clothe
'She gets dressed (puts on her clothes).'

PAUSES AFTER IDEOPHONES

- Correlation with semantico-syntactic integration
  - The less integrated syntactically
    - the more pauses
    - the longer the pause

	Presence of a pause	Average duration of pause	Number of tokens
Holophrastic	67%	0,53	9
Collocational	49%	0,52	37
Light-verb	17%	0,28	6
Argument-taking	0%		7

PAUSES AFTER IDEOPHONES

- Analysis
  - Ideophones are integrated prosodically with what follows
    - In the light-verb construction (as with direct speech and quotative verb, cf. Rose and Vanhove 2007)
    - In the argument-taking construction (as in VPs)
  - Ideophones form a separate prosodic unit when in the independent construction
    - Supports an analysis as clause-external
    - Collocational ideophones are less likely to be syntactically « adverbial »

- Results complementing the inverse relation between expressiveness and syntactic integration (Dingemanse and Akita 2017)
  - Pitch, phonation type, reduplication & lengthening

Dingemanse, Mark, and Kimi **Akita**. 2017. "An Inverse Relation between Expressiveness and Grammatical Integration: On the Morphosyntactic Typology of Ideophones, with Special Reference to Japanese." *Journal of Linguistics* 53 (3): 501–32.
Rose, Françoise, and Martine **Vanhove**. 2007. "Discours Rapporté Direct et Prosodie En Émérillon et En Bedja." presented at the Colloque CerLiCO Grammaire et Prosodie, Nantes.

CONCLUSION ON PROSODY AND SYNTAX

- Variety of degrees of integration
  - Not necessarily extra-clausal

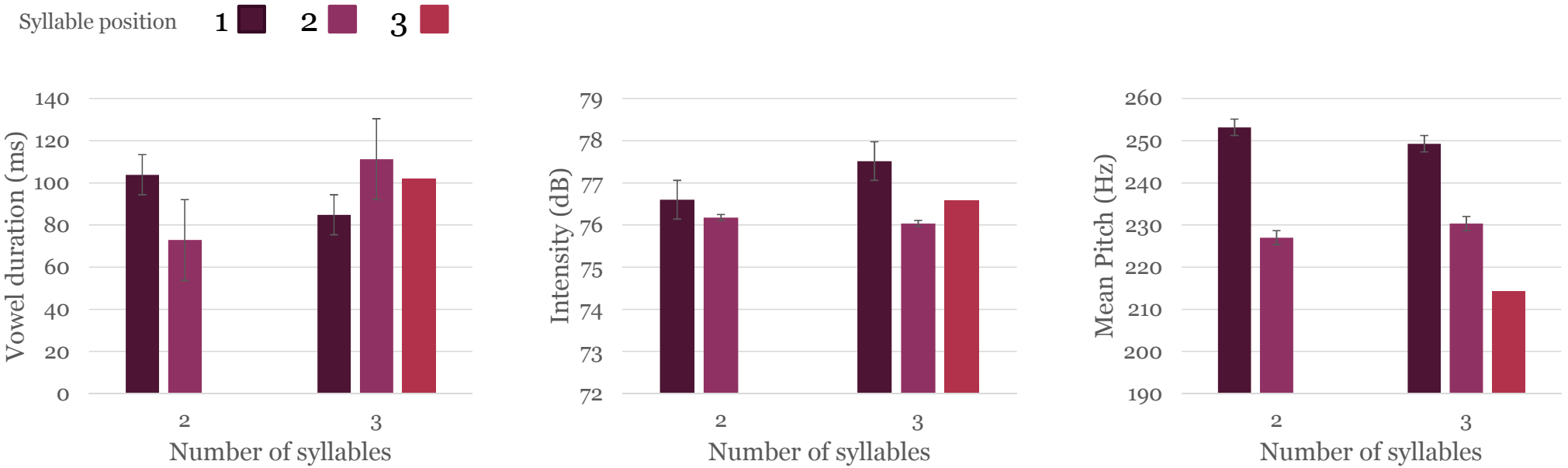
STRESS

STRESS IN TEKO

- Stress in Teko (Gordon & Rose 2006)
  - On penultimate, or on final syllable if heavy
    - On words in isolation
    - On prosodic phrases in connected discourse
  - Acoustic cues:
    - Duration and intensity on words in isolation
    - Pitch additionally in discourse data.

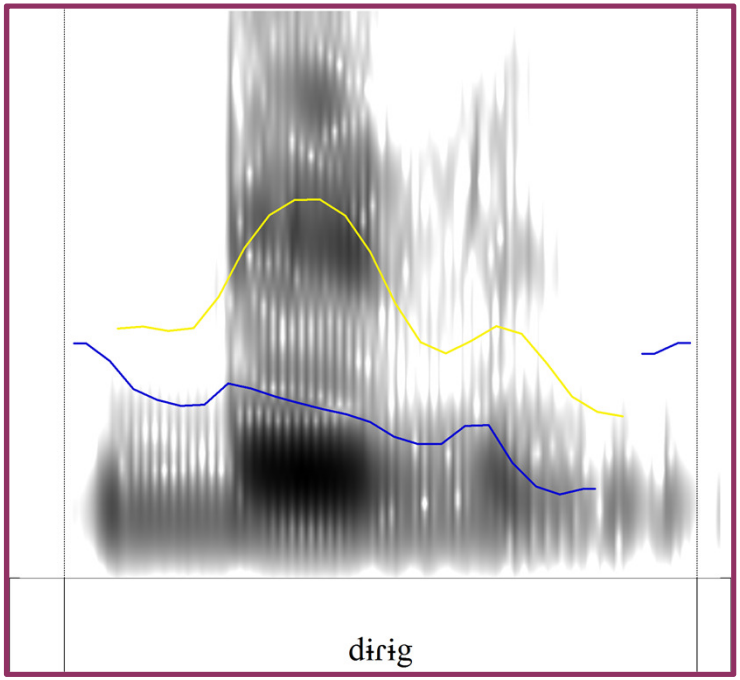
Gordon, Matthew, and Françoise **Rose**. 2006. "Emérillon Stress: A Phonetic and Phonological Study." *Anthropological Linguistics* 48 (2): 132–68.

STRESS IN IDEOPHONES



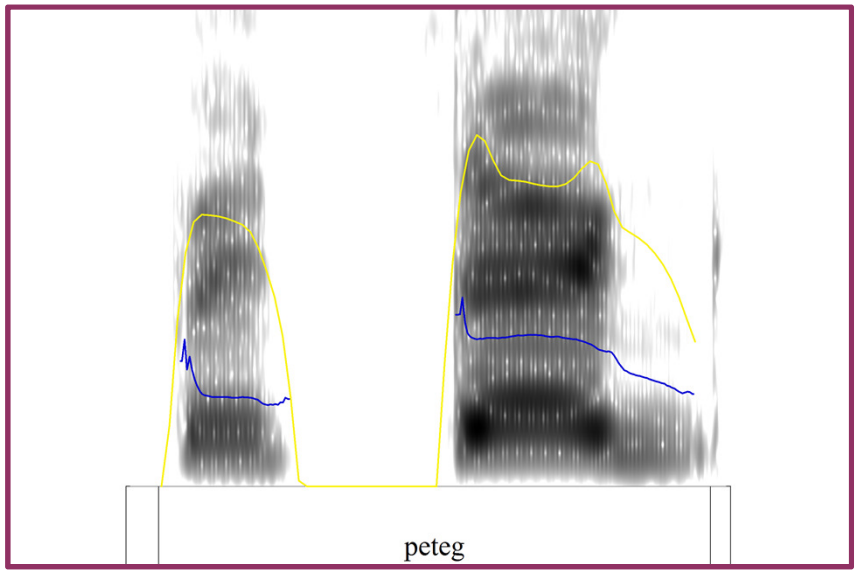
STRESS IN IDEOPHONES

- Stress on first syllable
  - All three cues concord (duration, pich, intensity)
  - Contrary to the pattern on the regular lexicon for words with heavy-final syllable



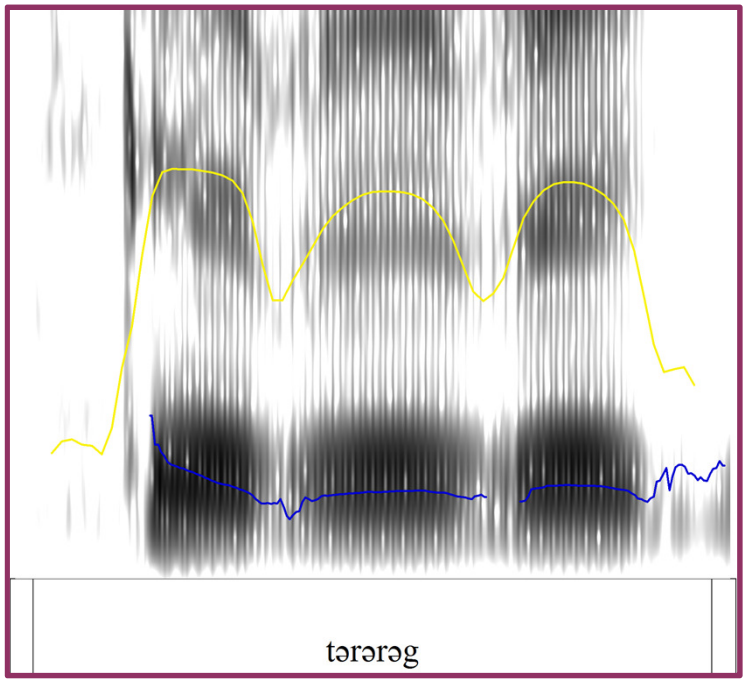
STRESS IN IDEOPHONES

- Yet 6/18 bisyllabic ideophones with final stress
  - Two or three of the cues
  - Whether with heavy final syllable (here)
  - Or light final syllable (*hija* sequence)
    - Then contrary to regular lexicon



STRESS IN IDEOPHONES

- For most trisyllabic ideophones
  - Some prominence on initial vowel



CONCLUSION ON STRESS

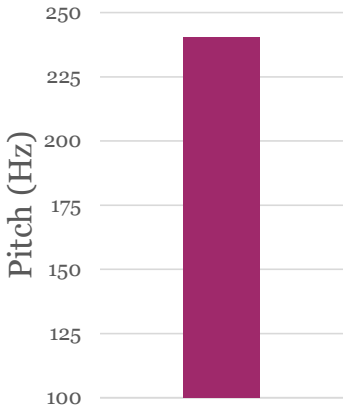
- Not following the general rules
  - First syllable stressed even with heavy-final
  - Light-final syllables can be stressed
- Some irregularities among ideophones
  - Or expressiveness overrides regular stress placement?

EXPRESSIVENESS

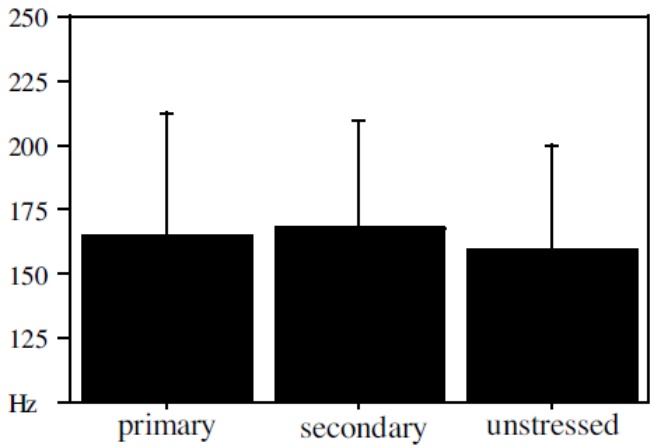
« VARIATION IN PITCH, LOUDNESS AND SPEED OR A SPECIFIC RHYTHM HAVE A DIRECT AFFECT ON THEIR MEANING » (REITER 2011:308)

PITCH AND VOLUME

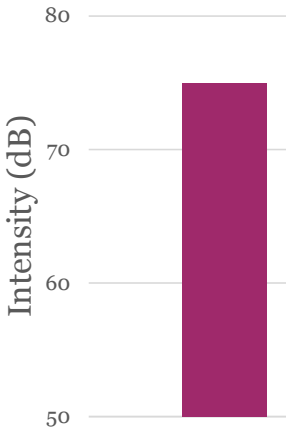
- In general, ideophones show a higher pitch and volume than the surrounding text (Gordon & Rose, 2006) – gender not normalized



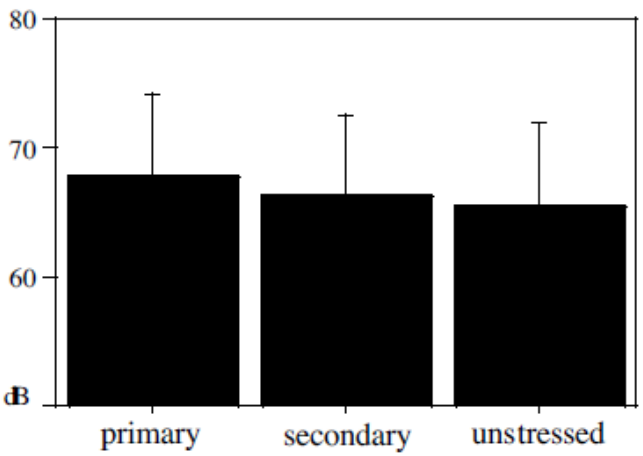
Ideophones



Regular lexicon
(Gordon & Rose 2006)



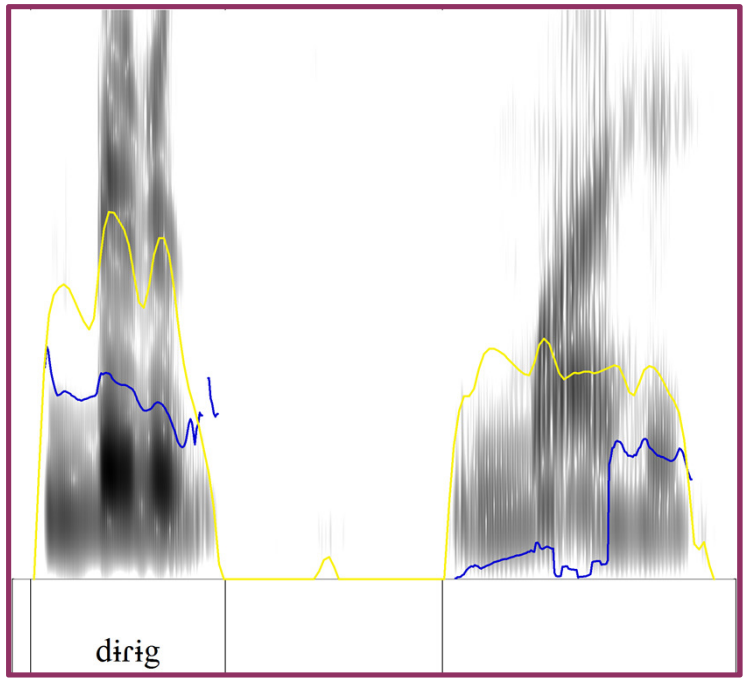
Ideophones



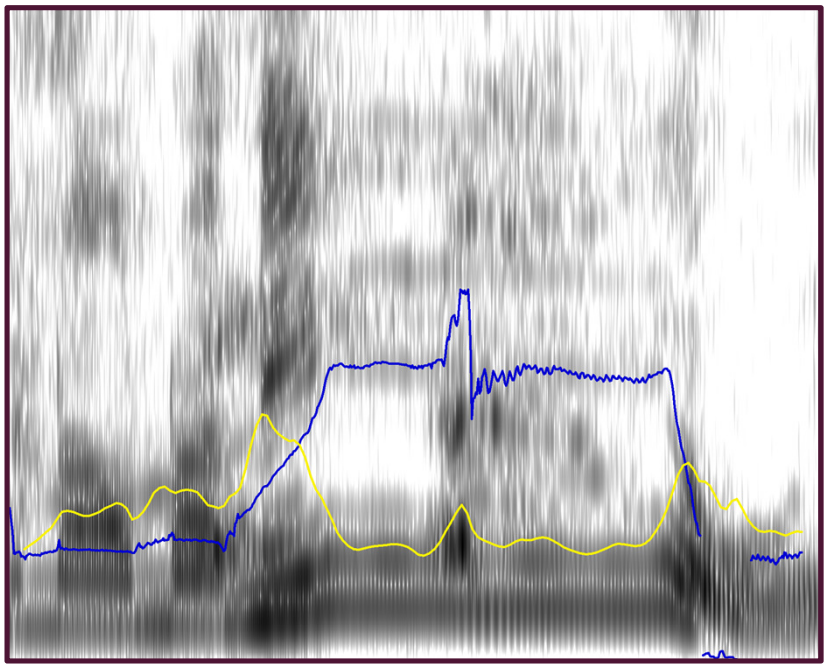
Regular lexicon
(Gordon & Rose 2006)

PITCH AND VOLUME

- High pitch and volume

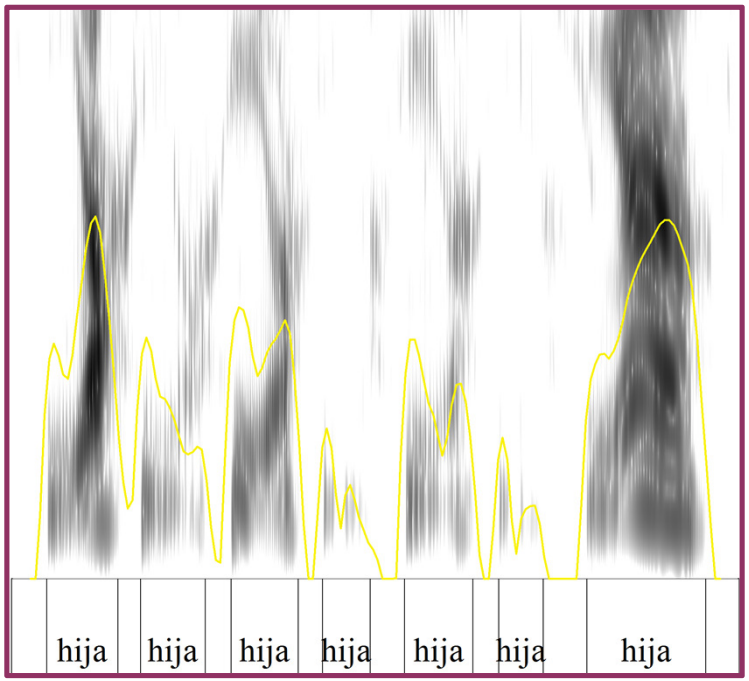


- Expressive high pitch also in other PoS



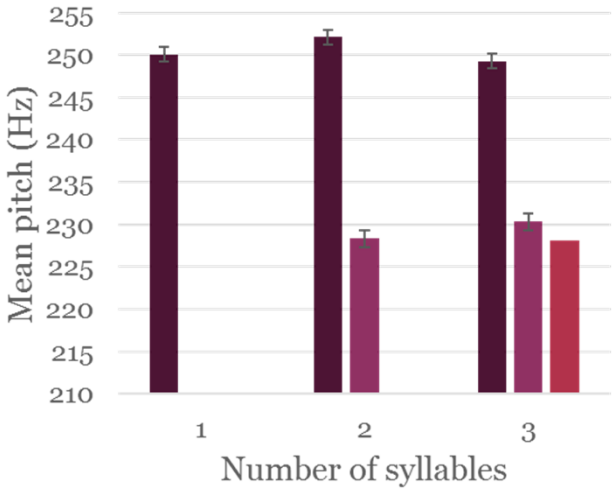
VOLUME

- Expressive variation in volume

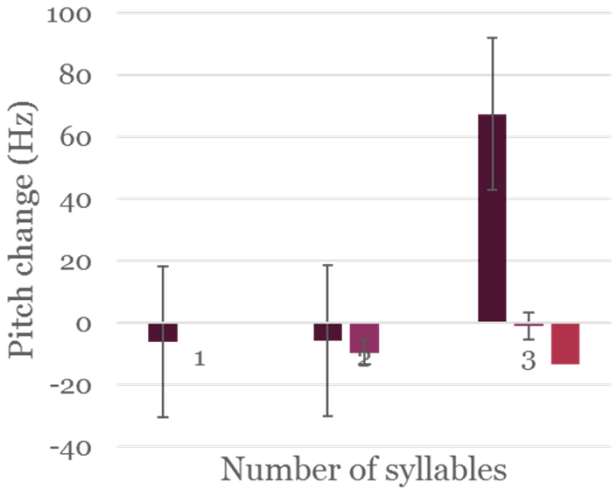


PITCH

- Pitch is usually decreasing on ideophones
  - Throughout the word

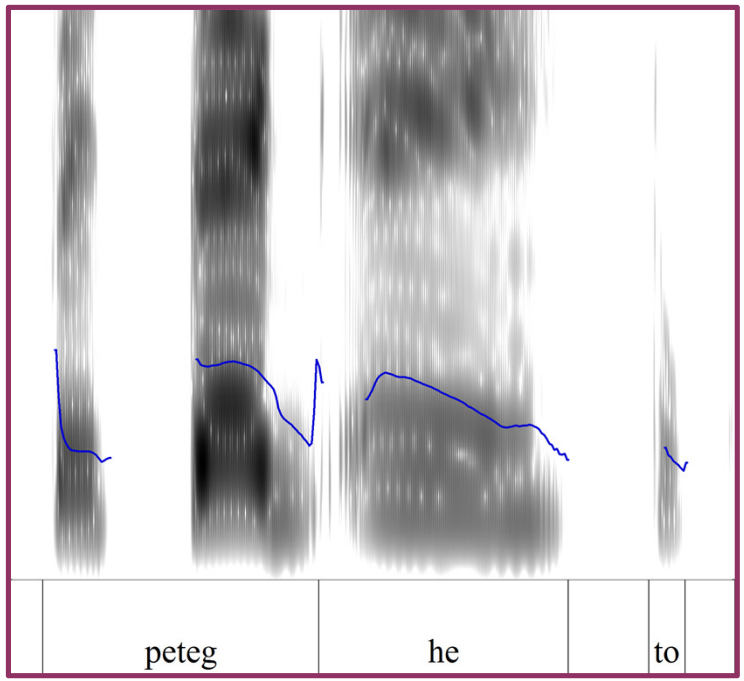


  - And within vowels

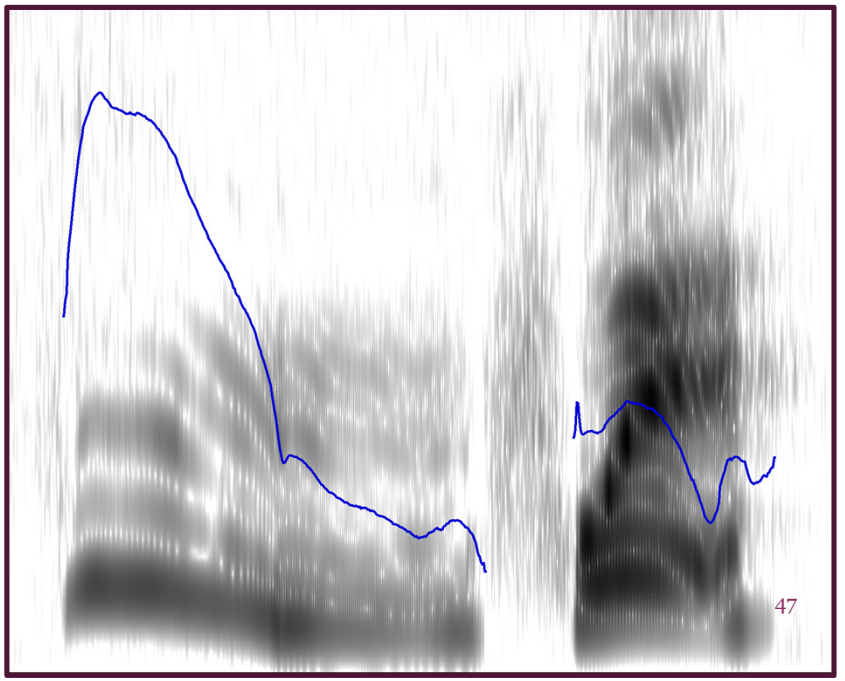


PITCH

- Decreasing pitch in three ideophones

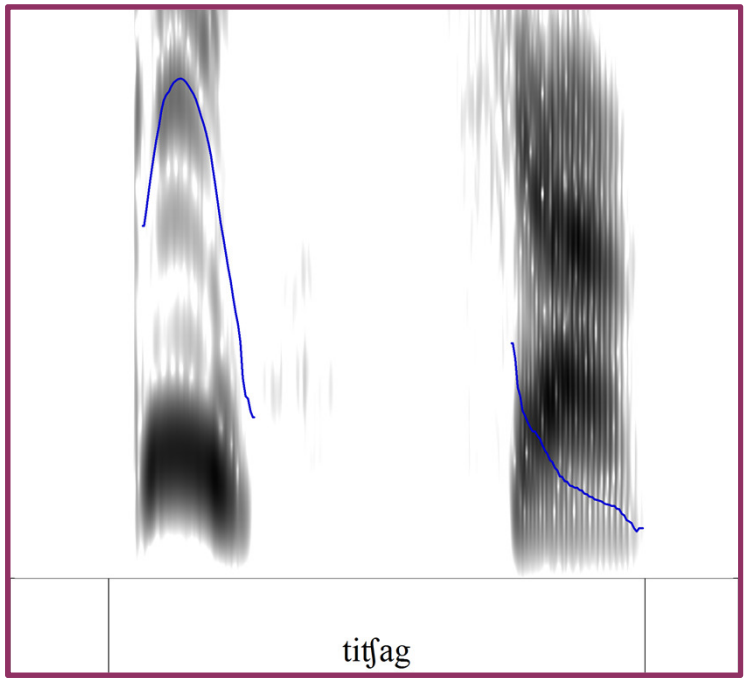


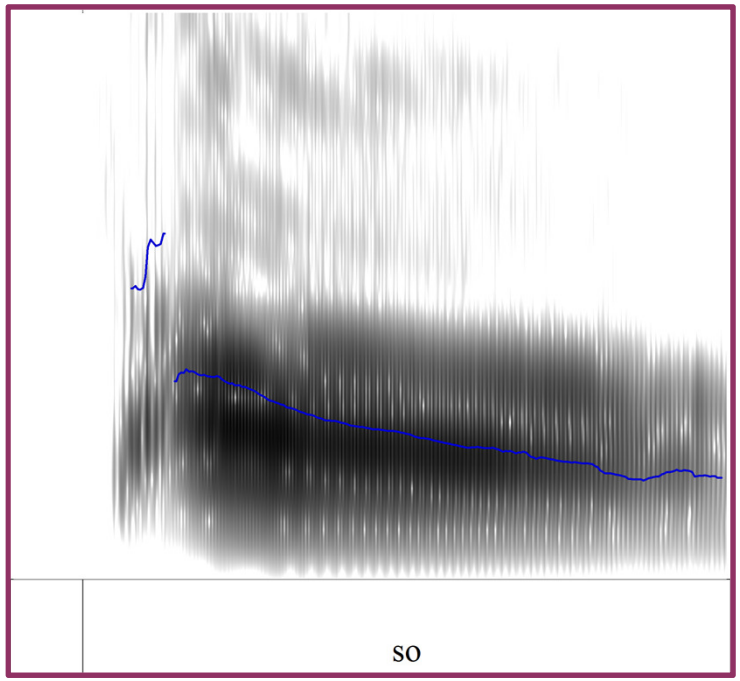
- But also in interjections and vocatives



PITCH

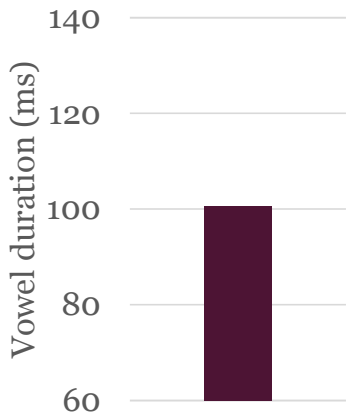
- Expressive variation in pitch



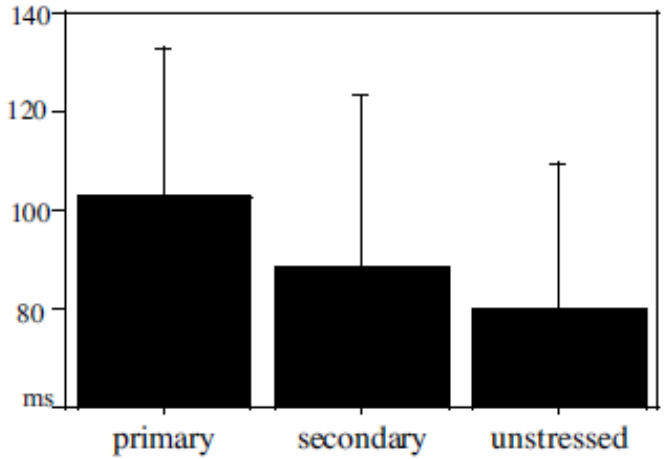


VOWEL DURATION

- Average duration in ideophones comparable to or higher than that of regular lexicon (Gordon & Rose 2006)



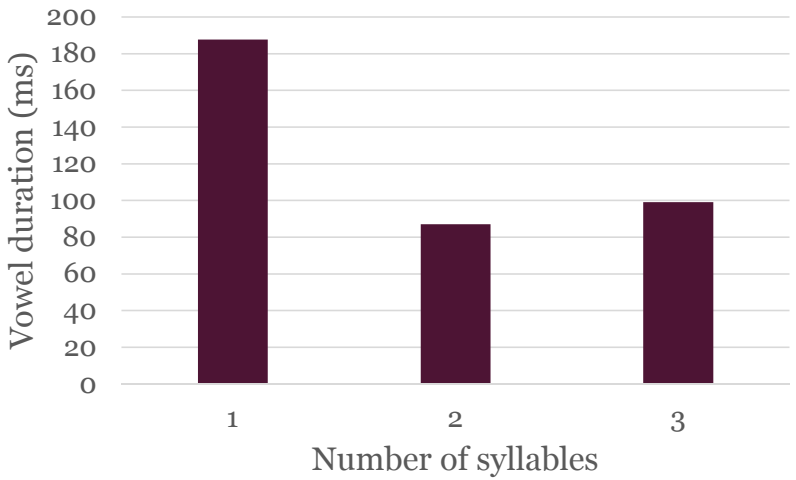
Ideophones



Regular lexicon
(Gordon & Rose 2006)

VOWEL DURATION

- Average vowel duration in ideophones higher than that of regular lexicon (Gordon & Rose 2006)
- Vowel lengthening especially frequent in monosyllables (here excluding word-final vowels)

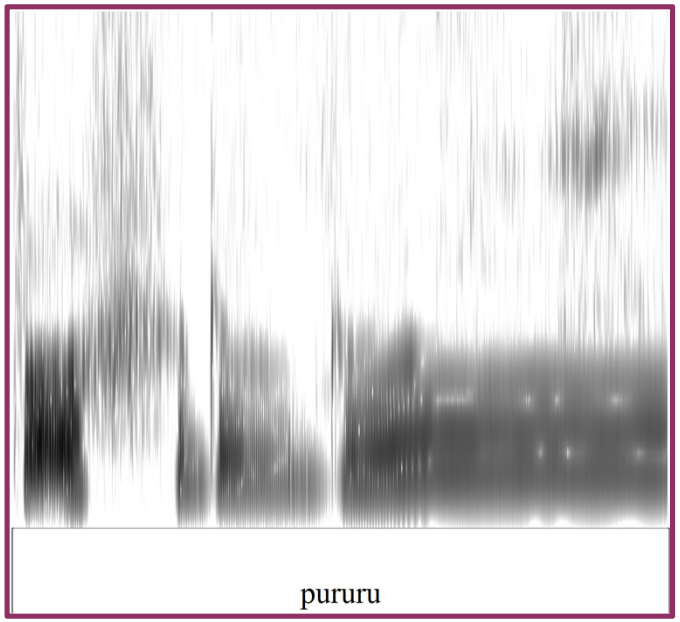


- The expressive prolongation of vowels is an iconic means of signifying an extension in space or time (Reiter 2011, Childs 1994).

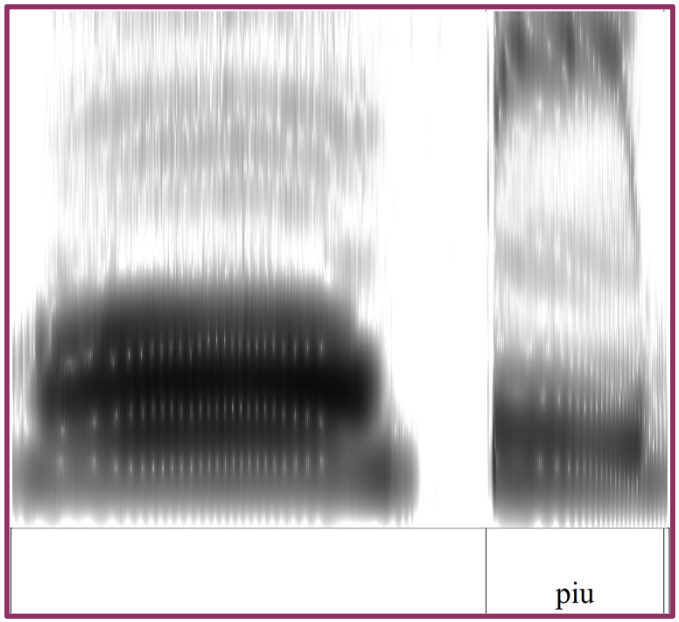
Reiter, Sabine. 2011. "Ideophones in Awetí." PhD dissertation, Kiel: Christian Albrechts University.
Childs, G. 1994. "African Ideophones." In *Sound Symbolism*, edited by Leanne Hinton, Johanna Nichols, and John Ohala, Chapter 13:178–204. Cambridge University Press.

VOWEL DURATION

- Vowel lengthening



- Not restricted to ideophones
  - Often for plurality of participants



CONCLUSION ON EXPRESSIVENESS

- Prosody used to
  - make ideophones more salient in discourse
  - express additional meaning (time, motion, rhythm…)
- But not strictly restricted to ideophones
  - Similar interpretation

CONCLUSION

OUTPUT

- An advance in the description of the prosody of ideophones
  - Offers quantitative analyses to support impressionistic prosodic description in Rose (2011)
  - Offers a detailed prosodic profile of ideophones in a language to facilitate
    - Other descriptions
    - Comparison within the Tupi family (Reiter 2011)
    - Typological studies

CONCLUSION

Ideophones are rather well integrated in the lexicon

- Regular phonotactics
- Monosyllabic reduplication (like on verbs)
- Prosodic integration
- Same interpretation of expressive prosody than other PoS

→ Not outside of grammar

Regularities usually unnoticed (// Newman 2001 on Hausa)

Newman, Paul. 2001. "Are Ideophones Really as Weird and Extra-Systematic as Linguists Make Them out to Be?" In Ideophones, edited by F. K. Voeltz and C. Kilian-Hatz, 251–58. Amsterdam/Philadelphia: John Benjamins.

CONCLUSION

Ideophones show some straightforward distinct features

- No bisyllabic reduplication
- Stress placement

Ideophones show biases

- Higher probability of being monosyllabic
- Higher probability of having an initial and a final C
- Higher probability of having both monovocality and a medial /ɾ/
- Can stand alone as a prosodic unit
- More salient in discourse
- High use of expressive prosody

Some of these biases may be universal

tuɾuʤ

IDEO.strike.water.with.fists.when.happy

‘clapping’

PERSPECTIVES

- To investigate further
  - Reduplication process
  - Stress
  - Phonosemantics
  - Gestures (with videos)

- Comments and suggestions are very much welcome!

SEQUENCES OF IDEOPHONES

- High number of sequences of ideophones (66/102)
  - Different ideophones (2 to 3): sequence of events in chronological order (26/102)

(6) *ko* ***kuʔe-kuʔe*** ***ki(ɾ)*** ***tou*** *o-wiɾ* *o-ʔa* *zawapinim-a-ʔaɾ*.
then **IDEO.shake-RED** **IDEO.detach** **IDEO.fall** 3-detach 3-fall.GER jaguar-REF-on
'Then *kuʔekuʔe kiɾ tou* it shakes and falls down on the jaguar.' 05.025

  - Same ideophone (from 2 to 8): internal repetition of the same event incl. plurality of participants (40/102)

(7) ***Hija*** ***hija*** ***hija*** ***hija*** ***hija*** ***hija*** ***hija***
IDEO.step **IDEO.step** **IDEO.step** **IDEO.step** **IDEO.step** **IDEO.step** **IDEO.step**
'Hija hija hija hija hija hija hija (someone goes out)'. 21.157

SEQUENCES OF IDEOPHONES

- Expressive prosody of the sequences
  - Often regular tempo, variation in intensity and pitch
  - Last item often salient, prosodically or through reduplication

(8) ***kʷərəg*** ***kʷərəg*** ***kʷə~rə~rəg*** *upi* *o-wɨro-ho.*
IDEO.climb **IDEO.climb** **IDEO.climb-RED** along 3-climb 3-go
'Kʷərəg kʷərəg kʷərərəg they climb away along it (a huge tree)'. 21.193

(9) ***kurug*** ***kurug*** ***kurug*** ***kurug*** ***kurug*** ***kurug*** ***kurug*** ***ku~ru~rug.***
IDEO.dig **IDEO.dig** **IDEO.dig** **IDEO.dig** **IDEO.dig** **IDEO.dig** **IDEO.dig** **IDEO.dig-RED**
'Kurug kurug kurug kurug kurug kurug kurug kururug (a dog is digging a tunnel)'. 21.146