ProVar – Workshop on Prosodic Variation is the 2nd Workshop of the project Interactive Atlas of the Prosody of Portuguese (InAPoP). We welcome contributions from all areas of research on prosodic variation, such as prosodic phrasing, intonation, and rhythm, in any language(s) or language varieties. Abstracts on any topic related to the study of prosodic variation, from a phonetics and/or phonology point of view, as well as from a language processing or interface perspective can be submitted for either oral communication or poster format. The workshop aims to provide a forum for discussion of prosodic variation in language, by bringing together the InAPoP team and all those interested on Prosody in language, seeking to understand the properties of prosodic systems and the extent to which they vary across and within languages.

Abstracts Booklet
Tuesday 9th July

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ProVar - Workshop on Prosodic Variation
2nd Workshop of the project Interactive Atlas of the Prosody of Portuguese
9th July, 2015

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PTDC/CLE-LIN/119787/2010
Program
09.15 On-site registration
09.45 Opening
10.00 Carlos Gussenhoven
   Radboud University Nijmegen
   Geographical variation in intonational phonology and phonetics in the Netherlands
10.50 Ben Hermans
   Meertens Institute
   Maintaining a tone universal
11.20 Coffee break
11.40 Sam Hellmuth, Rana Almbark
   University of York
   Question prosody in Arabic dialects: a first overview
12.10 Verónica Crespo-Sendra, Marisa Cruz, Joelma Castelo, Sónia Frota
   Universidade de Lisboa
   Asking questions across European and Brazilian Portuguese varieties: information-seeking and
counterexpectational yes-no questions
12.40 Lunch
14.00 Marco Barone¹, Joelma Castelo²
   ¹UFPE, Recife/Universitat Pompeu Fabra
   ²Universidade de Lisboa
   High pre-tonic falls in Northeastern Brazilian varieties: may a prenuclear high target spreading
rightward re-categorize as a nuclear leading tone?
14.30 Kalyan Das, Shakuntala Mahanta
   Indian Institute of Technology Guwahati
   Variation in Prosodic Phrasing in Bodo
15.00 Flaviane Fernandes-Swartman¹, Nádia Barros², Vinicius dos Santos¹, Joelma Castelo²
   ¹Universidade de São Paulo
   ²Universidade de Lisboa
   Intonational phrasing across varieties of Portuguese
15.30 Coffee break & Poster session
16.30 Giuseppina Silvestri
   University of Cambridge
   Epenthesis of -/a/ prosodically licensed: evidence from southern Italian dialects
17.00 Marina Vigário, Nuno Paulino, Pedro Oliveira

Univesidade de Lisboa

Prosodic Variation in EP: the contribution of Vowel Sandhi and Glide Insertion

17.30 Sónia Frota, Pedro Oliveira, Marisa Cruz, Marina Vigário

Univesidade de Lisboa

P-ToBI: tools for the transcription of Portuguese prosody

18.00 Pedro Oliveira1, Pedro Palma2, Nádia Barros1, Bruno Neto1, Marisa Cruz1, Sónia Frota1

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2Centro de Estudos Geográficos, Universidade de Lisboa

Mapping variation in European Portuguese: intonation, phrasing, and rhythm

18.30 Closing session

Poster session

1 Anna Kutscher

Bielefeld University

Adverbs as stress clash preventable units in the syntax-phonology-interface

2 Lucia Masa Rodriguez & Gorka Elordieta Alcivar

University of Basque Country

Intonation in Fala and its comparison with Spanish, Portuguese and Galician

3 Asim. I. Twaha & Shakuntala Mahanta

Indian Institute of Technology Guwahati

Prosody of contrastive focus in two varieties of Assamese

4 Doina Jitca

Institute of Computer Science of Romanian Academy, Romanian Academy Iasi Branch

From ToBI phonological events to functional melodic forms at the communicative level

5 Yu-Chun Lin, Jon Schoenbeck & Hanyong Park

University of Wisconsin-Milwaukee

The Acquisition of Coda Stops by S’gaw Karen Learners of English

6 Rosa Kwok1, Claire Delle Luche2, Samantha Durrant3, Allegra Cattani1, Caroline Floccia1, Kirsten Abbot-Smith4, Andrea Krott5, Debbie Mills6, Kim Plunkett7, Caroline Rowland3

1University of Plymouth, 2University of Essex, 3University of Liverpool, 4University of Kent, 5University of Birmingham, 6Bangor University, 7University of Oxford

Linguistic distance between languages and exposure affect the development of vocabulary in bilingual toddlers: a large-scale study
Invited Talk
Geographical variation in intonational phonology and phonetics in the Netherlands

Carlos Gussenhoven
Radboud University Nijmegen

For the purposes of prosody, the Netherlands consists of two zones. Zone I is the southern half of the province of Limburg in the south east of the country, which represents 6% of a tonal area covering adjacent regions in Germany and Belgium. It is characterized by wide display of tonal/intonational grammars, varying in the choice of TBU, number of intonation contours and phonological rules, while all having a privative lexical tone contrast. In Zone II, the remainder of the territory, a phonologically uniform intonation system is used which is largely identical to that of English, despite considerable variation in the segmental phonology (Hollandic, Frisian, Saxon). Based on recent work with Jörg Peters and Judith Hanssen, there is evidence of a U-shape in the phonetic measurements taken from six varieties in locations that form a geographical crescent along the north sea coast. The explanation would appear to be that the centre of the crescent, which is the prestigious heartland of the country, has innovated the phonetic shape of the neutral H*L pitch accent, making it higher and later. In addition, two striking realizations of H*L H% and H*L were found, in the southwest and Amsterdam, respectively.
Oral Sessions
Maintaining a tone universal

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According to a well known universal there are no tone languages in which high vowels are accompanied by phonological high tones, whereas non-high vowels are accompanied by phonological non-high tones (Hombert 1976, among many others). There seems to be one exception. The most important rule that gave birth to phonological tone in the Limburgian dialects was a rule whereby high long vowels received Accent2 (basically a level high tone on the stressed syllable), whereas mid and low long vowels received Accent1 (a falling tone on the stressed syllable). This rule operated in the 9th century, approximately, but its traces are still clearly visible in the modern dialect. The following data are from the dialect of Roermond; Kats 1939).

(1) high vowels mid/low vowels
[wiːt] ’far’ [breːf] ‘letter’
[viːvɔː] ‘pond’ [eːdɔr] ‘everybody’
[tuːn] ‘fence’ [hoːt] ‘hat’
[buːtɔ] ‘outside’ [roːmɔ] ‘Rome’

[drɔ:t] ‘thread, SG’
[nɔːibɔr] ‘neighbor’

We propose an analysis that maintains the universal. We suggest an explanation in terms of the interaction between a vowel’s sonority degree and its syllabification. Consider the schematic structure of a bimoraic syllable:

(2) A bimoraic syllable

\[ \sigma \]
\[ \mu \]
\[ \mu \]

The first mora is the syllable’s head, whereas the second mora is the syllable’s dependent. In Limburgian, at least at the time of the tonogenesis, the second mora, being a dependent, could not house a highly sonorous vowel, that is, the second half of a long mid or low vowel; only (the second half of) a high vowel could be located in that position. That being the case, a long mid or low vowel had to be syllabified as a sequence of two syllables, whereas a long high vowel could simply be syllabified as one syllable only. There were therefore two ways to syllabify long vowels, depending on the quality of the vowel:

(3) long high vowels long mid/low vowels

\[ \sigma \]
\[ \mu \]
\[ \mu \]
\[ \sigma \]
\[ \sigma \]
\[ \mu \]
\[ \mu \]

These two syllabifications had an impact on the way the intonational melodies where mapped (and are still mapped) on the string. One syllable can house one element of the intonational melody. Monosyllabic long vowels could (and still can) therefore only function as an anchor for one intonational element, whereas bisyllabic long vowels could (and still can) house two intonational elements. This is illustrated with the words [buːtɔ] ‘outside’ and [roːmɔ] ‘Rome’.
Accent1 is a tonal drop within the domain of one ‘phonetic’ syllable, because at the phonological level this syllable really is two syllables. Accent2, on the other hand, is a tonal drop at the beginning of the second ‘phonetic’ syllable.

This analysis allows us to maintain the universal. We will motivate this approach on independent grounds, with the synchronic stress system of the dialects and with a historical process of vowel loss. Phonologically, then, Accent1 is two syllables, and Accent2 is one syllable.
Despite claims of linguistic universals involving high pitch (Bolinger 1978), the prosodic realisation of interrogatives varies cross-linguistically (Rialland 2007). This paper contributes to the task of establishing the extent of cross-linguistic variation in the prosodic realisation of questions, by presenting the results of prosodic analysis of read speech interrogatives in a range of syntactically related spoken Arabic dialects. We then offer a case study of the presence vs. absence of focus marking of wh-words in different Arabic dialects, in the context of theoretical debate regarding the prosodic spell out of semantic and/or syntactic features in interrogative contexts (Truckenbrodt 2013).

The Intonational Variation in Arabic (IVAr) corpus [www.york.ac.uk/res/ivar] comprises recordings from up to 12 speakers (6M/6F) each in a range of geographically dispersed colloquial Arabic dialects: Morocco, Tunisia, Egypt, Jordan, Syria, Iraq, Kuwait, Oman, Yemen. Data were collected in fieldwork locations in the Middle East, and comprise a range of speech styles: read speech, read and retold narratives, a map task and spontaneous conversation. We present here the results of prosodic annotation of read speech interrogatives elicited by means of a scripted dialogue task (Author1 & Author2, in preparation). This task yields lab speech realisations of different utterance types including up to six lexically distinct tokens per speaker of: broad focus declaratives (dec), wh-questions (whq), yes-no-questions (ynq) and coordinated questions (coo).

The utterances are elicited within an extended dialogue, with questions produced in context and yielding (scripted) answers. The information structure context in which the question was produced is thus known, and we can, for example, observe variation in the prosodic realisation of questions of a single type (e.g. ynq) depending on whether the following scripted answer is positive or negative. The position of the accented syllable in the last lexical item of each utterance is systematically varied (final, penult, antepenult) to facilitate phonological analysis of the nuclear accent contour. The last lexical item in each utterance is segmentally parallel across all dialects, permitting cross-dialectal comparison of nuclear contours in different utterance types. Prosodic annotation was performed by two transcribers for each dialect, using annotation labels based on the Tones and Break Indices (ToBI) annotation system (Beckman et al 2005; Prieto & Frota 2014), using a train-test annotation protocol (inter-transcriber agreement reported).

Results indicate that the means of prosodic marking of questions in Arabic is diverse. In many dialects a ynq is typically indicated by choice of nuclear pitch accent category (e.g. Yemen: use of nuclear L+H* instead of H*), rather than by choice of final boundary tone (H% instead of L%). There is evidence of distinct patterns in the slope of the overall pitch register, in different question types, e.g. in Egyptian Arabic (cf. Dalton & Chasaide 2003). Our main case study explores interaction of syntactic and prosodic variation in placement of main prominence: an obligatorily fronted wh-word typically displays obligatory focus prosody (increased f0 excursion), whereas there appears to be variation in the prosodic realisation of wh-phrases realised in-situ. We compare the predictions of parameter-based vs. contact-induced explanations of these findings.
References


Author1 & Author2 (in prep.). Intonation in spoken Arabic dialects. Ms., University of York.


Asking questions across European and Brazilian Portuguese varieties: information-seeking and counterexpectational yes-no questions

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Recent research on yes-no question intonation in European and Brazilian Portuguese suggests that there is a high variety of nuclear patterns of yes-no questions not only between European and Brazilian varieties but also across European Portuguese varieties (Frota et al. 2015, Silva 2014, Cruz et al. 2014, among others). However, there is a lack of studies that include a detailed description and comparison of yes-no questions in different varieties of Portuguese. The first goal of the current study is to describe the intonation of yes-no questions in European and Brazilian Portuguese (EP and BP, respectively) by analyzing a wide range of utterances and regions covered within the project Interactive Atlas of Prosody of Portuguese. Considering the fact that interrogatives can have different pragmatic functions, we decided to analyze yes-no questions also from a pragmatic point of view, thus looking at neutral and focused yes-no questions. Studies have shown that speakers can signal the difference between neutral and focused questions intonationally, in various languages (Frota 2002, Savino & Grice 2007, Lee et al. 2008, Truckenbrodt 2009, Crespo-Sendra 2011). Some studies have found a gradient contrast between the two types of questions, while other studies indicate that the contrast is expressed categorically. Therefore, the aims of this paper are: a) to analyze and compare phonologically the nuclear configuration of neutral and focused yes-no questions across Portuguese varieties; and b) to investigate the strategies that EP and BP speakers use to distinguish between neutral and focalized yes/no questions.

The data analyzed in this study consisted of 10 neutral and 9 focused yes-no questions with different stress position in the nuclear word (final, penult and antepenult stress). Focused yes-no questions include both early and late focus targets. The materials were elicited by the presentation of written contexts (i.e. a reading task), and were pronounced twice by three female native speakers from 9 urban regions in Portugal (7 continental regions - Braga, Porto, Lisbon, Castelo Branco, Beja, Évora, Faro, and 2 in the islands of Madeira and Azores), and from 8 urban regions of Brazil, along the Atlantic coast (Paraíba, Sergipe, Bahia, in the North; Minas Gerais, São Paulo, Rio de Janeiro, Santa Catarina and Rio Grande do Sul in the Centre-South). Thus, a total of 540 neutral yes-no questions (10x3x2x9) and a total of 486 focused yes-no questions (9x3x2x9) for EP, and a total of 420 neutral yes-no questions (10x3x2x7) and a total of 378 focused yes-no questions (9x3x2x7) for BP were analyzed. Semi-spontaneous data obtained by means of a Discourse Completion Task were also analyzed and compared with the results of the reading task. Pitch measurements were performed and extracted using Praat software (Boersma & Weenink 2014) and annotated with the ToBI labelling system for Portuguese (Frota 2002, 2014).

Our results show that neutral yes-no questions for EP are divided in four groups (Fig. 1, top panels): the first group (1), Lisboa, is characterized by a falling nuclear pitch accent (H+L*), followed by a complex boundary tone (LH%); the second group (2), Braga, Porto, Beja and Faro, produce this type of questions with a all-rising contour – L* H% and L*+H H% (in Braga, the low tone can be preceded by a high pretonic syllable – (H+)L*); the third group (3), corresponding to Castelo Branco so far, presents a rising tone (L*+H) and a falling boundary (L%), and the last group (4), Évora and the islands, shows a all-falling nuclear configuration, i.e., a low tone that can be preceded by a high pretonic syllable ((H+L*), followed by a low boundary (L%). As for the neutral questions of BP, the results demonstrate more homogeneity and contiguity across varieties than in EP: Brazilian varieties can be divided into two different groups (Fig. 1, bottom panels): the first one covers the 3 regions of the North and is characterized by a rising pattern (L* H% and L*+H H%); and the second one includes the 5 regions of the Center-South since they all present questions with the same basic melody (LHL). However, the H can be associated to the pitch accent or to the boundary tone depending on the region. Interestingly, truncation globally applies in BP varieties of group (2), whereas in EP varieties tune-text accommodation strategies are more common by means of vowel epenthesis, vowel split or vowel lengthening, confirming previous
analyses (cf. Frota et al. 2015 for a review). Finally, preliminary results about focused yes-no questions (Fig. 2) indicate that EP speakers change the nuclear configuration in almost all the four groups, by using a different pitch accent and/or boundary tone (Faro and Azores are the exception). By contrast, in BP focused questions are produced with the same neutral pattern. Our next step is to investigate whether phonetic differences may cue the two pragmatic meanings when the distinction is not conveyed by contrastive tonal patterns.

![Figure 1](image1.png)

**Figure 1.** Schematic diagrams of the neutral yes-no questions intonation. Top panels show the groups of European Portuguese, and bottom panel the Brazilian Portuguese.

![Figure 2](image2.png)

**Figure 2.** Schematic diagrams of the focused yes-no questions intonation in European Portuguese.

**References**


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High pre-tonic falls in Northeastern Brazilian varieties: may a prenuclear high target spreading rightward re-categorize as a nuclear leading tone?

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The intonation of northeastern Brazilian Portuguese shows a nuclear falling pitch accent in statements, with a salient high-pretonic rise (Cunha & Colamarco, 2005; Silvestre, 2012), which was labeled in literature as H+L* (Moraes, 2008). This contour was also documented in Recife (PE) and in João Pessoa (PB), through different elicitation tasks, by the authors of the present paper.

A recent study on the Italian variety of Pescara (Barone, upcoming), using the Discourse Completion Task (Blum-Kulka et al., 1989), finds this accent in narrow noncontrastive focus SVO statements. For further investigation, the author adds sentences with a compound postverbal object phrase and systematically finds a “hat” plateau pattern, with a prenuclear rise to a high target, spreading (Gussenhoven, 2004) forward until the nucleus, followed by a nuclear fall. This shows that the high pretonic fall is nothing but a degenerating plateau of length zero in absence of segmental material between the first and last tone bearing units of the narrowly focused salient constituent (“beve [una tAZZA DI Latte]” vs “bevE-[IL Latte]”: Table 1a, compare Figures 1a vs 2a). This pattern stays identical in broad focus statements, because in absence of an informational focused phrase, a rule applies, with a mandatory “default” prosodic focalization on the post-verbal stretch, not necessarily corresponding to informational focus value, in the sense of Selkirk (1984). As to Brazilian Portuguese, Vigário & Fernandes-Svartman (2010) show that variability in prenuclear accentuation of compound phrases is also sensitive to the size of the prosodic word group, in the Southern variety of Campinas.

Four female and two male speakers from Recife aged between 23 and 31, with high school completed, participated in a questionnaire, aimed at eliciting 20 target broad focus statements with a nuclear sentence-final object phrase, varying in syntactic complexity (e.g. compound words, syntactically articulated phrases, phrases with an embedded relative clause) and in number of tone bearing units, distinguishing simple object (1 TBU) from compound object (2 to 5 TBU). Results show that on compound object phrases Recife speakers may use either the hat pattern (39%) or the pre-tonic rise (61%), which is allowed in Pescara only for simple object phrases (Fig. 1). The use of the pretonic rise instead of a hat pattern has proven to be sensitive to gender: 79% for women and 37% for men. This suggests that a productive rule

PLATEAU > PRETONIC RISE / (if only 1 TBU),

similar to Pescara, exists in Recife, but a process of prosodic reanalysis is occurring, led by young female speakers: as the simple object constituents are more frequent, the pre-tonic rise is being applied by analogy to all statements, independently of the number of TBUs, with the reanalysis of the right spreading of the trailing tone of a L+H* prenuclear accent as the leading tone of a nuclear accent. An upcoming analysis on female older speakers from Recife will help confirming this hypothesis. A cross-check with reading task data is also being done by the authors, to account for diaphasic variation. Finally, data from João Pessoa are being analyzed, in order to grasp the geographical scope of the phenomenon.
Tables 1a,b The hat pattern and the high pretonic rise in Pescara (1a) and Recife (1b)

Figure 1a.b The pretonic rise on simple object phrases in Pescara (1a: *beve una bibita* “she is having a drink”) and Recife (1b: *acho que eu vou pra Recife* “I think I am going to Recife”)

Figures 2a,b Compound phrases: the hat pattern (mandatory strategy in Pescara, 2a: *Maria beve il latte di mandorle* “Maria is drinking almond milk”) and the pretonic rise (preferred strategy in Recife, 2b: *ele veio pra comprar cadeia de rodas* “He came to buy a wheelchair”)

References


This paper presents a production study of the way the prosodic contour of Bodo sentences is altered as a result of violating the normal syntactic order of phrases. Bodo belongs to the Tibeto-Burman group of languages and it lexically distinguishes L and H tones. Brahma and Sarmah (2012) shows that the H tone in Bodo is pronounced with a rising contour and the L tone with a falling contour. Bodo follows the SOV pattern of word order. The TBU in Bodo is the syllable and lexical tone surfaces on the rightmost syllable both in derived and non-derived disyllabic words (Sarmah, 2004). The study presented here is based on data collected from 4 male speakers of Bodo. The data set consisted of 195 scripted sentences, each eliciting a particular type of utterance with different lexical tonal pattern as well as of different length. Each iteration of the individual sentences is analyzed by extracting its pitch contour using the software- Praat 5.3.04_win32 (Boersma and Weenink, 2012). For all the iterations, time normalized f0 contours, mean pitch, max pitch, min pitch and duration are extracted using the script Prosody Pro (Xu, 2013). The results show that in sequences of lexical tones in Bodo, all except the ones occurring at the edges of Intonational Phrases (IP) preserve their underlying specification. In an IP consisting of a sequence of High tones, each successive tone undergoes non-automatic downstepping. Thus in a sentence consisting of four words specified with High tones like bieú bibarinú tʰaizou hɔrduŋ ‘He has given mango to Bibari’, the High tones are realized as H↓H↓H H where the last High tone succumbs to the L% (Figure 1). A detailed observation of the various sentence types has revealed that the pattern of non-automatic downstepping of successive High tones in Bodo operate within the domain of intermediate phrase (ip). A preceding High tone, forming part of another intermediate phrase, cannot initiate the process of downstepping of the following High tones. An all High tone sentence with a pre-posed topicalized constituent presents an instance of this process of inserting an ip boundary after the pre-posed element. Figure 2, with the indirect object pre-posed to the sentence initial position, shows how the second High tone is realized at a higher target than the first one. Another instance of prosodic variation is presented by ips which do not adhere to any syntactic organization. The f0 contour of a sentence like (1) shows that the noun daoduí ‘egg’ and zanaiá muzáj ‘eating is good’ form two different prosodic units, although the second ip here does not have any syntactic grounding. Based on acoustic evidence of similar nature, this paper describes how the global contour pattern in Bodo sentences vary both because of syntactic reorganization and prosodic factors. The global pattern of declination and downstepping in a Tibeto-Burman (TB) language like Kuki Thaadow has been described in studies like Kim (2005), and the findings presented in this paper also add more to the phenomenon of intonation in tone languages.
Figure 1: Pitch track of \textit{bi-eú} bibari-\textit{nú} t\textsuperscript{h}aizou\textit{ hør-duŋ\textsuperscript{h}}
he-Nom Bibari-Dat mango give-Prf
‘He has given mango to Bibari’

Figure 2: Pitch track of \textit{bibari-nú} \textit{bi-eú} t\textsuperscript{h}aizou\textit{ hør-duŋ\textsuperscript{h}}
Bibari-Dat he-Nom mango give-Prf
‘(It is to) Bibari, he has given mango’

(1) \textit{daoudú zà-naiá muzáŋ}
Egg eat-Nom good
Eating egg (is) good.

References:

Intonational phrasing across varieties of Portuguese

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Recent research on intonational phrasing in Portuguese shows some variation, namely different tendencies for (SVO) and (S)(VO) phrasing, as well as differences in the syntactic and prosodic factors which affect these patterns. Within the projects InAPoP - Interactive Atlas of the Prosody of Portuguese (PTDC/CLE-LIN/119787/2010) and Fraseamento prosódico em português: comparações entre as variedades brasileira e africanas (CNPq, 459634/2014-3), in interaction with Intonational Phrasing in Romance and IARI – Interactive Atlas of Romance Intonation, this research provides a preliminary comparison across three varieties of Portuguese: European Portuguese (EP), Brazilian Portuguese (BP) and Guinea-Bissau Portuguese (GBP).

A prosodic and intonational analysis of neutral declarative sentences from corpora previously constructed in order to study the prosodic phrasing in romance languages (Elordieta et al. 2005, D’Imperio et al. 2005) was made within the Prosodic Phonology (Nespor & Vogel 1986, 2007, Selkirk 1984,1986) and the Autosegmental Metrical approach to Intonational Phonology (Beckman & Pierrehumbert 1986, Ladd 1996, 2008, Frota 2000, 2014, i.a.). The nuclear contours and boundary tones were annotated in Praat (Boersma & Weenink 2015), according to P_ToBI (Frota 2014, Frota et al. 2015). Pause distribution was also annotated.

Recent studies on intonational phrasing across EP varieties show that in standard EP (SEP) (Frota 2000, 2014) and in Algarve (Alg) (Cruz 2013) (SVO) is the predominant phrasing pattern. In Northern European Portuguese (NEP) (Vigário & Frota 2003, Frota & Vigário 2007) and in Alentejo (Ale) (Cruz 2013) (S)(VO) is the predominant pattern. The present study was enriched with data from 5 regions: Porto, Braga, Coimbra, Castelo Branco and Évora. The results confirm previous findings: EP varieties differ in their patterns of intonational phrasing, with the most frequent pattern, (S)(VO), found for the Northern and Central-Southern varieties and (SVO) for SEP and Alg, but not in the type of boundary cues, with internal intonational breaks being usually marked by a High boundary tone, with presence or absence of pause, and the final IP showing the contour H+L* L%, the most frequent for neutral declaratives.

In BP, São Paulo (SP) and Rio Grande do Sul (RGS) display the phrasing pattern (SVO), with a falling nuclear contour, H+L* L%. The alternative phrasing (S)(VO), with IP boundaries marked by pause, shows higher frequencies in RGS, with L*+H H% being the most frequent nuclear contour.

In previous works on intonational patterns of GBP (Santos & Fernandes-Svartman 2014, Santos 2015), there is no detailed analysis of subject-verb-object phrasing tendencies. The present study shows that (SVO) is the most frequent pattern, with a falling or low nuclear contour – H+L* L% or L* L% –, both found in neutral declaratives across varieties of Portuguese. In (S)(VO) and (SV)(O), the non-final IPs show a rising contour – L*+H H% or L* LH% – mainly followed by pause. The least frequent (SV)(O) pattern is not attested in other Portuguese varieties so far.

Building on previous work, the current study contributes to the comparison and knowledge of variation in romance languages, with the major goal of mirroring prosodic variation in an intra and interlinguistic perspective.
References
Fernandes-Svartman, F. R. (Coord.). *Fraseamento prosódico em português: comparações entre as variedades brasileira e africanas*. (Funded by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), processo: 459634/2014-3).
Epenthesis of /-a/ prosodically licensed? Evidence from southern Italian dialects

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Several (upper) southern Italian dialects display the reduction into /-a/ as the outcome of the development of the original atonic final vowel system (Rohlfs 1939, I, 187), which in a few dialects exhibit the opposition /-a/ ~ /-/a/, the former being the only final vowel surviving, which mainly marks the related singular nominal class (1). Apparently, in several northwestern Calabrian dialects (Map1), the segment /-/a/ is optionally lost if the onset of the word’s last syllable is a (short/long) plosive or affricate. In this case the vocalic segment is absent and the articulation of the word final plosive might entail an aspirate appendix (2).

The alleged optionality of these patterns is disambiguated in specific pragmatic contexts of the utterance, i.e. exclamative and interrogative sentences. Namely, if the word is sentence-final in an exclamative or interrogative utterance, a peculiar prosodic contour, bound to a specific intonation configuration, necessarily requires for the speaker to overtly realise the underlying final /-/a/, so causing (re-)insertion of the segment and re-syllabification.

As for interrogatives, the realisation of /-/a/ requires a falling-rising intonation, i.e. Low > High pitch, on the final word, whereas the same utterance with the word ending in aspirated plosive/affricate is normally articulated with an unmarked rising (High) final intonation. This prosodic configuration licenses a specific pragmatic interpretation, i.e. the speaker’s surprise or incredulity.

As for exclamatives, the articulation of /-/a/ results again in a re-syllabification. The intonation contour proves to be altered, as the additional syllable is articulated with an a final falling intonation unity, which follows the unmarked rising intonation (High>Low). The pragmatic entailment of this contour is a stronger affirmation of the utterance’s semantic content.

To sum up, the reinsertion of the /-/a/, i.e. a phonological (and etymologically justified) segmental item, proves to be driven by a specific intonation contour selected by speakers to convey a post-lexical or utterance-level distinctively marked pragmatic value for interrogatives and exclamatives. This fact is not surprising as, according to other domains of the linguistic analysis such as the formally syntactic evaluation of the sentence as a whole, questions and exclamations display a peculiar configuration, involving specific positions placed at the left periphery (Rizzi’s 1997 a.o.).

Based on the analysis of newly collected data of the dialect of Verbicaro (Cosenza), I shall propose an account for this complex interaction between phonological change involving /-/a/ and the two specific intonation configurations licensing such a change on the light of the sentence syntactic structure. I will follow the main theoretical assumptions of the syntax-
phonology interface (Selkirk 2011 a.o.) in order to account also for the (relative) prominence of those phrases expressing the focalised/new information in the sentence.

Relevant examples

(1)  

- ['fimmina] ‘woman’ F.SG  
- ['sinnika] ‘mayor(s)’ M.SG/PL  
- ['fimmina] ‘women’ F.PL

(dialect of S. Maria del Cedro)

(2)  

a. ['pat.tə] ~ ['pattb] ‘deal’  
b. ['ka.pə] ~ ['kapb] ‘heads’  
c. ['kac.cə] ~ ['kaceb] ‘noose(s)’

(dialect of Verbicaro)


Essential references


Prosodic Variation in European Portuguese: the contribution of Vowel Sandhi and Glide Insertion

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Sandhi/prosodic processes are not among the typical phenomena observed in dialectal studies (Boléo & Silva 1962; Cintra 1971; Saramago 2006; Carrilho et al. 2010 vs. Cruz 2013, Cruz & Frota 2013, Oliveira et al. 2013). Until recently this type of phenomena were typically limited to isolated observations in the literature (e.g. Lopo 1895, Pereira 1908, Segura 2013, for glide insertion between central vowels). The precise phonological conditions for sandhi phenomena, and in particular hiatus resolution processes, are thus largely unknown in Portuguese dialects and the exact geographical limits of dialectal specificities still to be determined.

It is well known that languages tend to avoid hiatus, i.e. sequences of adjacent vowels, in particular across words, and this may be achieved by various means (Casali 1997, 2011, Frota 2000, Cabré & Prieto 2005, Hall 2011, 2013). To the best of our knowledge, the exact strategies that are available for hiatus resolution across Portuguese dialects have not yet been investigated, although it is common knowledge that glide insertion between central vowels when V2 is stressed occurs in the North and Center of Portugal.

In this talk we will focus on hiatus resolution processes across Portuguese dialects, extending our previous observation of central vowels’ hiatus when V2 is stressed to hiatus formed by other vowels and in varying stress conditions (Oliveira, Paulino, Cruz & Vigário 2014; Paulino & Frota, 2014).

In the main part of the talk we will present our results for four different types of hiatus resolution (HR) processes: Vowel Merge (VM) between two central vowels /aa/, Glide Insertion and back vowel deletion (BVD) or semivocalization (SV). Our main goals are to identify (i) possible areas of variation across regions (2 in the North, 1 in the Centre, and 1 in the South), (ii) the prosodic domain of occurrence of each of these HR processes, (iii) the relevance of stress and clashing configurations for HR processes blocking. We conclude that in all regions the domain for HR is the IP, but variation is found in the frequency of occurrence of each type of process. The same strategies are available across dialects, except central vowel deletion when V2 is stressed, glide insertion and V2 deletion when V1 is stressed, which may occur in the Northern regions, but not in the Southern or in SEP. In all regions, unstressed sequences of vowels favour HR, when compared to sequences where V2 is stressed. In general stressed V1 blocks HR (except in the regions where V2 may delete). All regions possess means of HR under any stress clash condition, to the exception of the Southern region (Évora), where the hiatus must be kept when the result of HR would create a sequence of two adjacent phonological phrase heads.

In the second part of the talk we revisit glide insertion to break an hiatus formed by central vowels, where V2 is stressed (a aula > a[j]aula). Our main goal here is to discuss some of the previous results. Given a great variability in the data obtained so far, we hypothesize that glide insertion is a stigmatized process, of which speakers are enough aware to block it. We thus propose to employ a complementary method for collecting data on this specific process, based on speakers’ intuition and data collection by local people. The results of a pilot experiment following this method show that glide insertion is an IP span rule, i.e. it applies in all prosodic configurations as long V2 is a stressed central vowel and belongs to the same IP as the preceding central vowel.
P-ToBI: tools for the transcription of Portuguese prosody
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P-ToBI: tools for the transcription of Portuguese prosody is one of the outputs of the Interactive Atlas of the Prosody of Portuguese Project. The P-ToBI website offers a set of tools with three main goals. The first goal is the detailed description of the P-ToBI system for the transcription of the intonational and prosodic grammar of Portuguese. The system was developed within the autosegmental-metrical model of intonational phonology, using a large empirical database comprising several European and Brazilian varieties (and also a few data on African varieties). It thus aims to cover language-specific and variety-specific patterns that are part of the phonology of the language/variety. The present P-ToBI represents the current state of our knowledge of the intonational and prosodic grammar of Portuguese, which is continuously challenged as the intonational structure of the language is further understood due to the analysis of new data or more insightful analysis of old data.

The second goal of the P-ToBI set of tools is to offer a brief introductory course on prosody as part of the grammar of a given language or language variety, together with training materials that guide the user in the learning and testing of his/her knowledge of Portuguese prosody and his/her transcription skills. The course covers the main functions of prosody in language, focusing primarily on intonation, but necessarily also including phrase structure, stress, rhythm, and prosodic variation. The training section is designed to lead the user in the transcription as an analysis of the intonation system of the language under study, where the primary goal is to discover what the distinctive intonation categories of the target language or variety are. Perception plays a crucial role in this task, because sound-meaning relations are mainly structured through the perception of the ambient language. Thus the training includes identification and discrimination tasks, designed to train the user’s ears to the sounds of Portuguese prosody. Along the training, users get feedback and scores that allow them to monitor and improve their performance.

The third goal of the P-ToBI website is to offer a list of resources on prosodic variation in Portuguese (atlases, databases, webpages, publications), links to other ToBI systems and references to seminal work on prosody and intonation in language. It is thus expected that P-ToBI: tools for the transcription of Portuguese prosody could be used as a valuable resource for research, language learning and teaching (Portuguese as L1 or L2), speech technology applications, or applications in speech processing and language assessment. The website was designed to be accessible to users from various backgrounds, from the student, teacher or researcher in the field of language, to professionals in the areas of speech technology, speech pathology, forensics, or speech communication in general.

http://labfon.letras.ulisboa.pt/InAPoP/P-ToBI
Mapping variation in European Portuguese: intonation, phrasing and rhythm

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According to Goebl (2006, 2007) and Maguire & McMahon (2011), the choice of methods and models to use, how to quantify relations between dialects, or how many features are needed to define a dialectal area are key questions in the mapping of linguistic variation.

The present study uses data from the ongoing project Interactive Atlas of the Prosody of Portuguese (Frota (Coord.) 2012-2015) to address these questions, including different prosodic dimensions: intonation (Crespo-Sendra et al. 2014, Frota et al. 2015), phrasing (Elordieta et al. 2005, Cruz & Frota 2013, Barros in progress), and rhythm (Cruz & Frota 2014, Oliveira et al. 2014). The analysis covers 8 urban regions distributed along the territory of Portugal. ArcGIS for Desktop was used and proved to be an innovative system for mapping linguistic variation, since the software of GIS allows the computation of linguistic data combined with geographical and statistical information, providing an important contribution to the knowledge of areas of variation. Two procedures were used to map prosodic variation in European Portuguese (EP): (i) Huff model (for intonation and phrasing), testing the representation of nuclear contours (dominant and alternative) and the main phrasing pattern (Fig. 1); and (ii) Inverse Distance Weight method (IDW) for rhythm, using spatial interpolation methods for the representation of distinctions across varieties by combining two different quantitative rhythmic variables (%V and Δ%C).

Among the existing spatial interaction models, Huff was chosen for intonation and phrasing since it is one of the most used in the Geography field to analyze and predict patterns of spatial interaction (Cliquet 2006; Haynes & Fotheringham 1984) and to generate areas of influence/attractiveness of a given spatial point. As for rhythm, the IDW method was preferred because it is a robust method, thus a good estimator. In previous work (Oliveira et al. 2014), an index was manually computed to convert two dependent variables into a single one, using reference values for %V and Δ%C (Ramus et al. 1999, Frota & Vigário 2001), as well as their relative weight and impact on the rhythmic classification of each language/variety. However, in order to avoid a manual calculation of the index each time data are added to the model, a (automatic) solution was found thus reducing possible errors and improving data management. Thus, a Linear Regression Model was run to establish the equation behind rhythm, with rhythmic class as the dependent variable, and %V and Δ%C as predictors. The outputs of the statistical model provide the relative weight of each quantitative variable to the rhythmic classification. The resulting equation \[ \text{rhythm} = -1.99 + (0.09\%V) + (-0.05\Delta%C) \] was combined with the IDW method and the results are promising (mirroring the previous non-automatic findings), as shown in Fig. 1. For the phrasing representation, a Huff model was used with an added constraint – accessibility, given by the principal road network – in order to test the possible effect of population mobility in the geographical representation of language variation (Fig. 2).

The current study was enriched with more data points to strengthen the geospatial analysis (Huff and IDW), with methods of automatic computation of complex variables and with population variables towards the major goal of achieving more accurate geographic representation of prosodic variation.
Selected references

Figure 1. Rhythmic variation in EP, on the basis of two quantitative measures (%V and Δ%C) calculated for seven urban regions, labeled in the map. Left side: map obtained by means of a manually calculated index. Right side: map obtained by means of an automatic index, based on the equation behind rhythm.

Figure 2. Phrasing pattern across EP varieties variation calculated for eight urban regions, labeled in the map. Left side: simple map, without geographical constraints. Right side: map including a geographical constraint – accessibility, given by the principal road network.
Poster Sessions
Adverbs as stress clash preventable units in the syntax-phonology-interface

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Adverb placement is one of the frequently discussed but not yet resolved issues on word order variation. Numerous proposals have been made to explain the order of adverbs and other material based on semantic features or structural requirements.

The structural implementation of adverbs in the GB-tradition was made via adjunction. So adverbs undergo a quite free placement in this approach. Others (cf. Cinque 1999, Nilsen 1997) consider adverbs not as adjuncts but rather as specifiers of functional heads. This perspective leads to a more restrictive ordering of adverbs and other functional categories but also to a high amount of functional phrases. Only few authors (Nilsen 1997, Costa 2004, Erteshik-Shir 2010) considered phonological properties of adverbs and their surface positions, although various phenomena display an interface based word order and a phonologic effect on outcome for different surface structures, e.g. heavy NP-Shift (cf. Wasow 1997), object shift (Holmberg 1986), and prosodic movement (Zubizaretta 1998).

Such prosodic influences on adverb placement are of main interest for my talk. Results from a corpus study for spontaneous speech and a production task experiment show a strong correlation between the prosodic features and adverb placement for embedded clauses in German: Monosyllabic adverbs occupy preferably the first position of the Mittelfeld, heavier adverbs do not show such a strong tendency. The second prosodic factor can be seen in the prominence of adverbs compared to other constituents: they appear primarily deaccented. So, the question arises here is: Why do speaker produce additional material in a sentence without marking it prosodically? It does not seem to be economical to place new information into a sentence and handle it prosodically like given/already known material.

A deeper look at the prominences of adverb’s attendants leads to the assumption, that adverb placement has a prosodic function: besides various possible positions for adverbs, they are preferably placed preceding the highest prominence, namely the focused object in the majority of cases. And they follow another prominent constituent, usually the subject. I argue that this position for adverbs comes to prevent a stress clash of these two lexically headed and therefore informatively enriched phrases. The match between syntax and semantics requires a higher prosodic prominence on lexical categories plus the highest prominence for focused constituents. The prosodic structure itself dislikes stress clashes on the different prosodic levels and needs a rhythmic alternation, which leads to better contrasts and a faster parsing of important elements. To satisfy this alternation, material can be deaccented or reordered, if possible. So, the optimal word order for sentences in German is the one with accented lexical phrases (usually subject and object) and a non-accented adverb in between them.

In sum, adverbs do not have restricted positions and can be placed randomly; thus, speaker put them in between prominent phrases to avoid stress clashes. Hence, the output structures rely not only on syntactic requirements, but rather on interfaces to semantics and prosody.
References


Intonation in Fala and its comparison with Spanish, Portuguese and Galician

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Fala is an underdocumented Ibero-Romance language spoken in the northwestern corner of Cáceres, Spain. In this paper, we focus on a hitherto untreated aspect of this language: its intonation. We describe the types of pitch accents and boundary tones in declarative, absolute and partial interrogative utterances, and we compare the degree of similarity with its contact language Spanish, with neighboring Portuguese and with Galician.

Four speakers from each of the three towns where Fala is spoken have been recorded (two male and two female, 12 speakers overall). The speakers engaged in semi-spontaneous conversations with an interviewer. First, the subjects responded to questions made by the interviewer. Then, the subjects posed the same questions to the interviewer. That way, declaratives and absolute and partial interrogatives were collected. From each speaker we selected 20 declarative utterances, between 3 and 12 absolute interrogatives and between 3 and 19 partial interrogatives (434 utterances). We also obtained 540 read speech utterances, from 5 sentences of each type of sentence, rendered 3 times by each speaker (15x3x4x4). Following the AM model of intonational analysis, we transcribed prenuclear and nuclear accents and boundary tones. A total of 5866 pitch accents and boundary tones were analysed.

In read speech, the coincidence between Fala and Spanish is almost complete, for all sentence types. As for spontaneous speech, there are no intonational studies of Spanish in this speech style, so a comparison is only tentative, but there are a few slight differences. In declaratives in Fala, both L+H* and L+>H* (i.e. with delayed peaks) appear most commonly in nuclear position, whereas in Spanish L* appears in nuclear position (together with H+L*, cf. Beckman et al. 2003, Face 2008 and Estebas-Vilaplana & Prieto 2010). In absolute interrogatives, L+H* L% is the most common nuclear accent in Fala, contrasting with L* H% in Spanish.

With Galician there are also similarities, but there are more differences than with Spanish, even in read speech. In Galician declaratives the nuclear accent is reported to be H+L* (Escourido, Fernández Rei, González & Regueira 2008), a pitch accent which is not common in Fala. An interesting fact is that absolute interrogatives in southern Galician and Fala have a rather similar nuclear contour, L+H* L%.

With Portuguese there are virtually no shared properties.

In sum, Fala is closest intonationally to Spanish and then to Galician. The absolute coincidence in read speech with Spanish suggests the influence of Spanish instruction on Fala speakers. And the fact that Galician and Fala have the same nuclear contours for absolute questions could be a remnant of Galician intonation.
References


In this paper we have studied the prosodic aspect of how Contrastive focus (henceforth CF) is marked in SCA (Standard Colloquial Assamese) and NVA (Nalbariya Variety of Assamese), two varieties of Assamese, a head-final eastern Indo-Aryan language (Goswami, 1982) with SOV as canonical word order. In our study we have found that these two varieties employ the same pitch accent (L*+H) and boundary tone (H*) to demarcate both focused and non-focused phrases; the final phrase (verb) cannot be focused. When the phrase length is limited to two to three syllables, the trailing tone of the pitch accent is left unrealized, and pitch pattern becomes L*HP. A focused phonological phrase differs from a non-focused one in terms of increased pitch range [(F0max at the right boundary – F0min at the first syllable)]. Following Ladd’s Free Gradient Hypothesis (Ladd, 1994; Gussenhoven, 1999), we propose here that in SCA and NVA pitch range is used in a categorically distinct way rather than in a gradient way. Similar to the phonological implementation of pitch range in the languages like Catalan (Borras-Comes, Vanrell, & Prieto, 2014), English (Ladd D. R., 1994; 1996), Spanish (Prieto, 2004) among others, pitch range may potentially be represented phonologically in the Assamese varieties.

In SCA and NVA, non-final prosodic phrases (henceforth φ-phrase) have a rising contour and on the final phrase pitch drops smoothly [1(A) & 2(A)]. In case of non-final φ-phrases, L(ow) tone (pitch accent: L*/ L*+H) is assigned on the first syllable as it is generally the most prominent syllable, and the φ-phrase is delimited by a prosodic boundary on the right edge (H*). In an Intonational Phrase (henceforth IP), the final φ-phrase (i.e. the verb) does not show significant tonal turning point.

SCA marks focus prominence with an increased F0 range on the focused constituent. Whereas in NVA, apart from an increased pitch span on the focused constituent, decreased duration value of the pre- and post-focal constituents highlights the prosodic prominence of focus.

In the two varieties, a contrastively focused constituent forms a φ-phrase overriding syntactic phrasing [2(B)]. Phrasing due to focus is evident from the Right alignment of the focused constituent with a φ-phrase. The focused constituent is followed by prosodic (φ-phrase) boundary which delimits the focus.

In both SCA and NVA, a contrastively focused constituent behaves as the last accented φ-phrase in an IP which shows a rising pitch contour (L*H*). Post-focally the F0 contour undergoes compression and drops smoothly [1(B) & 2(B)].

The phrasing induced by CF is also supported by phrase internal assimilation processes like /r/ deletion internally within φ-phrases. Nevertheless the two varieties employ different /r/ deletion strategies: in SCA /r/ deletion is compensated with vowel lengthening and in NVA it gets assimilated with the following coronal consonant.

**SCA:**

```
-door-GEN key-SUB give
door-gen key give
Give me the door key.

 [[door-GEN key-SUB give]]
```

**NVA:**

```
elder brother’s-GEN beard-SUB long-COMP happen-PAST
elder brother’s beard has grown longer.

 [[elder brother’s-GEN beard-SUB long-COMP happen-PAST]]
```

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Figures:

1. SCA:

2. NVA:

Reference:


The paper proposes an intonational description which uses functional pitch contour elements relevant at the information structure (IS) level. A hierarchical view transforms utterances into hierarchies of communicative units (CUs) with own IS. The proposed intonational analysis consists in the utterance partitioning into information packaging units (CUs) and in applying functional labels to the CU constituents in order to describe the IS of all CUs within the utterance hierarchy.

The CU description uses a two level information structure model. Steedman also used two levels for the information structure description aiming to correlate different intonational contour forms with functional elements of information structure within utterances [1].

One level refers to a relational givenness-newness structure which is usually defined as topic-focus structure [2]. At this level all observations about nuclear, pre- and post nuclear accents are useful in order to identify the local and global topic and focus constituents.

The second IS level refers to the referential givenness-newness structure [2]. At this level IS regards the CU constituents as references of the communication “object”. Each CU has at the referential IS level one constituent which bears the “general reference” of the “object” and another one(s) which bear(s) the “added reference(s)”. The “general reference” constituent is an important element of enounce because it is the predicate at the enounce level, predicațul enunțării in Romanian [3]. Consequently, we analyze the referential IS at the CU level in terms of predicate and argument(s), and we name them CU-predicate and CU-argument(s).

The intonational analysis which targets the IS description has to be based on a set of intonational marks for topic (T), focus (F), CU-predicate (P) and CU-argument (A) functions. The marks involved pitch accent types or prosodic word patterns that link the IS description with the phonological description into a more complete characterization of the intonational contours.

This paper presents intonational contours as outputs of the communicative organization after processing the constraints imposed by the syntax, semantic and discourse structures of the text. The paper illustrates this view by presenting the utterance partitioning of several Romanian broad focus and narrow focus statements, and exclamatives. The constituents correspond to prosodic words or phrases at the prosodic level.

The examples illustrate topic-focus and focus-topic partition realizations at the relational givenness-newness IS level of utterances, as well as argument-predicate and predicate-argument partition realizations at the referential givenness-newness IS level.

The paper demonstrates that one type of pitch events (e.g. L+H* or H+L*) can not be exclusively associated with a T-mark or a F-mark. There are cases where the H+L* or L+H*pitch accents produce topic functions and others where they generate focused constituents.

I conclude that the prosodic analysis has to include a communicative perspective. The utterance tree building needs to identify elementary and non-elementary units with complementary functional constituents linked into a hierarchical structure. The functional contrast, conveyed by a tonal contrast, at each communicative unit level of the utterance hierarchy is the essential aspect in organizing the communication.


The Acquisition of Coda Stops by S'gaw Karen Learners of English

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This paper is to investigate the acquisition of underlying vowel lengthening rules in L2 interlanguage. The current study examines the production of English coda stops by L1 speakers of S'gaw Karen (SK), a Sino-Tibetan language spoken by over a million members of an ethnic minority in Myanmar with no coda consonants. The duration of the preceding vowel is an important cue to the voicing feature of word-final consonants in English. We claim that S’gaw Karen speakers of ESL interpret the phonemic difference (for example, final consonant voicing) as an allophonic difference while they make the allophonic difference (vowel duration) as phonemic. That is, the coda voicing contrast is realized as allophonic vowel lengthening, even though the [voice] feature is not realized. Karen speakers of ESL are sensitive to vowel length in spite of final coda devoicing, deletion, or coda substitutions with other consonants.

Interlanguage (IL) (Selinker, 1972) is a L2 system subject to the learners’ own interpretation of how to perceive and produce aspects of the L2. In L2 acquisition, learners reinterpretation of phonological distinctions. L2 learners may interpret the phonemic as an allophonic difference, and the allophonic difference as phonemic. Variation in IL is not the result of imperfect, flawed, or incomplete language learning, but rather that L2 variation, like variation in L1, is governed by system-internal constraints (Tarone, 1985).

The results verify the claim that L2 learners reinterpret the target language. The tokens from one production experiment in this study were transcribed by L1 English speakers and were acoustically analyzed for vowel duration. Acoustic analysis revealed that the SK subjects maintained the same hierarchy of vowel duration (CV >CVCvoiced > CVCvoiceless) in target-like tokens as L1 English speakers. This hierarchy also held for non-target-like utterances.

References:
How many words is a typically-developing bilingual 2-year-old supposed to know or say in each of her languages? To answer this question we embarked on the first extensive study of the interaction between four potentially critical factors for language development in bilingual toddlers: i) relative exposure to L1 and L2 (measured through a parental questionnaire developed by Cattani et al., 2014); ii) mode of exposure; iii) family SES; iv) linguistic distance between L1 and L2. Our aim is to estimate the vocabulary of 300 bilingual 2-year-olds in the UK learning English and one of 12 target languages, to get a snapshot of the bilingual lexicon at this particular age. Within a period of 2 weeks around the child’s second birthday, parents who have joined the project are invited to fill in Communicative Developmental Inventories (CDI) for the two languages online, along with a family questionnaire (developed by the UK-CDI project team) and a language exposure questionnaire (Cattani et al., 2014).

Here we present the data collected halfway throughout the project, insisting on the links between vocabulary knowledge, amount of exposure and linguistic distance between L1 and L2. The first analysis was to investigate the role of exposure in English vocabulary acquisition. Result indicated that amount of exposure is a significant factor of the English words that children understand and say ($t (153) = 7.35, p < .001$, Figure 1). The bilingual participants were then separated into two groups based on the linguistic distance between English and additional language. Languages prosodically and/or lexically close to English (in our sample: Dutch, German, Italian, Spanish, French) were separated from all other languages (7, including Bengali, Mandarin, Portuguese, Welsh). Result indicated that Linguistic Distance is a significant factor of English words that children can understand ($F(1, 150) = 13.24, p < .001$, Figure 2). Children in the linguistic-distant group had a significant lower vocabulary in English (mean = 21) than those who were in the linguistic-close group (mean = 32). Regression analyses showed that linguistic distance made a significant contribution to English vocabulary over and above the amount of exposure to English.

Our data, which capture the well documented effect of exposure (Cattani et al., 2014; Hoff et al., 2012) across a wide range of languages, should allow us to develop a clinically-relevant tool to identify children at risk of a language disorder. The effect of linguistic distance remains to be further investigated, first by increasing our sample in some languages (e.g. Dutch only has 7 children), and examine what this concept uncovers in the case of early language development. To this day, effects of linguistic distance on second language acquisition have been mainly documented in the adult or older children literature (Chiswick
& Miller, 2005; Swan, 1997; Nassaji, 2003), and it remains to be seen whether the same metrics of linguistic distance can apply to predict early bilingualism learning curves.

(476 words)

Reference


Figure 1. The positive correlation between the amount of exposure and the English words that children can understand and say (number of participants in each group, French = 17, German = 29, Italian = 11, Bengali = 3, Cantonese = 5, Dutch = 7, Hindi = 7, Mandarin = 4, Polish = 13, Portuguese = 5, Spanish = 14, Welsh = 38)

Figure 2. The effect of linguistic distance in English vocabulary acquisition (number of participants in each group, French = 17, German = 29, Italian = 11, Bengali = 3, Cantonese = 5, Dutch = 7, Hindi = 7, Mandarin = 4, Polish = 13, Portuguese = 5, Spanish = 14, Welsh = 38)