



# **2016 Paris-Cologne Collaborative Meeting**

**November 22-23, 2016**  
**Université Paris Diderot-Paris 7**

## **Abstracts**

**Prosodic and phonotactic adaptation of non-native consonant sequences**

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Previous work shows that listeners tend to perceive an illusory vowel inside consonant clusters that are illegal in their native language [1],[2]. But few studies have been concerned with the perception of tones in connection with non-native phonotactics, specifically for native speakers of tone languages.

This talk will discuss how speakers of a tone language (Mandarin) perceive the clusters of an unknown language without tone (Russian). The issue that we address is how the perception of non-native phonotactics relates to the perception of tones. Some studies of loanwords showed that speakers of languages preferring simple CV syllable structure insert an illusory vowel as well as an illusory tone inside illegal consonant clusters [4], [5]. This study investigates experimentally the interaction of phonotactic and prosodic adaptation for Mandarin. For this purpose we tested the perception of non-native clusters by monolingual Mandarin speakers. The participants were asked to transcribe each stimulus they heard in Pinyin, including tones. Different types of transcription errors (e.g. epenthesis, metathesis) were observed and analyzed statistically. Preliminary results show that the illusory vowel is always perceived as short central [ɤ] (akta->akɤta), except after a labial (ipta->iputa). And the tone quality corresponds to the low F0 in the prestressed syllable, and to the falling F0 on the post-stressed syllable, respectively. In addition, the start of the F0 rise is influenced by the consonant type in word-initial position #CCVCV [3]: after a voiceless stop F0 rises in the following vowel, while after a sonorant stop F0 falls. The results suggest that the perception of illusory tones as prosodic adaptation in stimuli of an unknown language accompanies the perception of illusory vowels as phonotactic adaptation. In both phonotactic and prosodic adaptation, listeners show sensitivity to fine acoustic phonetic detail.

[1] Berent, I., Lennertz, T., Jun, J., Moreno, M. A., Smolensky, P. (2008). Language universals in human brains. *Proceedings of the National Academy of Sciences*, 105(14), 5321–5325.

[2] Dupoux, E., Kakehi, K., Hirose, Y., Pallier, C., & Mehler, J. (1999).

Epenthetic vowels in Japanese: A perceptual illusion? *Journal of Experimental Psychology: Human Perception and Performance*, 25 (6), 1568- 1578.

[3] Hombert, Jean-Marie (1978). Consonant types, vowel quality, and tone. In Fromkin (1978). 77–111.

[4] Silverman, D. (1992). Multiple scansion in loanword phonology: evidence from Cantonese. *Phonology* 9. 289 – 328.

[5] Ufomata, T. (1991). Englishization of Yoruba phonology. *World English* 10, 33-51

**Session I Nov. 22**

**Non-natives, Non-neurotypicals and other individuals: Prosody in second language speech and Asperger Syndrome**

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In this talk, I want to discuss my ideas for a comparative analysis of the communicative and prosodic characteristics of learners of a second language and those of speakers diagnosed with Asperger Syndrome (AS).

I will give an insight into the motivations for this novel approach of comparing second language learners and speakers with AS and show what implications this work could have on practical aspects, such as training and sensitisation, as well as theoretical aspects, such as the interplay of cognitive and linguistic factors and the notion of what defines an “atypical” speaker.

After a brief overview of my previous work on the backchannel productions of L2 German speakers and speaker-specific analyses of native speakers of German and Egyptian Arabic, I will lay out my plans to combine these directions in future experiments by eliciting and examining (semi-)spontaneous speech from L2 and AS subjects.

All of this is done with the broader conceptual perspective of individual specificity in mind, that is, of focussing on each speaker’s unique strategies for fulfilling certain communicative functions and, more specifically, their choice of prosodic cues to do so. This is particularly important here as the kinds of speakers under investigation tend to evince a lot of intra- and interindividual variability. Therefore, a blunt averaging of data and heavy-handed grouping of subjects would be particularly detrimental, both to a real understanding of speaker- and listener-specific behaviour and to a critical examination of the validity of labelling an individual’s speech as “non-native” or “non-neurotypical” at all.

**Session II Nov. 22**

**Prosodic focalization in interpreted speech in French**

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In this talk I will present my thesis work on prosodic focalization – the highlighting of a constituent to fulfill the functions of focus marking or expressive emphasis – in interpreted speech, or the oralisation of a memorized text. I will show that prosodic focalization is more frequent in interpreted speech than in read aloud and spontaneous speech, but that its realization doesn't differ significantly across the three types of speech. I will then turn to the realization of the various categories of focus marking and expressive emphasis. I will argue that the theoretical definition of these categories is problematic, and show that they are not clearly correlated to distinct realizations in French. I will finish by addressing the experimental limitations of this work, and also its applications and potential follow-up studies.

**Correlates of stress in Moroccan Arabic**

Anna Bruggeman  
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Moroccan Arabic (MA) stress has been subject to considerable debate (cf. Maas 2013), and claims vary from MA lacking lexical stress (Burdin et al. 2015), to the positing of all-encompassing rules (stress the final if heavy, otherwise the penult; Benkirane 1998). The disagreement about the existence and location of metrical stress, paired with inconsistent native speaker judgements (e.g. Boudlal 2001) led us to investigate the acoustic correlates of presumed stressed positions, in the absence of intonational events that might have confounded earlier results (notably Boudlal 2001).

The talk will discuss whether correlates of 'lexical stress' as opposed to correlates of 'postlexical enhancement' in MA can be observed. To test this, an experimental design was used based on the one first employed by Bouchhioua (2008) for Tunisian Arabic. Subjects were 12 non-Berber speaking native speakers of Casablancon Moroccan Arabic. They produced single repetitions of carrier sentences containing 10 target syllables. These target syllables are predicted to be either stressed or unstressed according to Benkirane's generalisation (mu in /'mu.ka/ 'owl' and in /mu.'kat/ 'owls') and the words they occurred in were either contrastively focused or postfocal in a scripted mini-monologue, the latter condition serving to investigate acoustic enhancement effects due to postlexical intonation. Preliminary results indicate that in the postfocal condition (used for testing correlates of lexical stress proper), duration (but not intensity or vowel quality) is a consistent cue to the distinction between stressed and unstressed syllables, which suggests that lexical stress indeed exists.

References

- Benkirane, T. (1998). Western Arabic (Morocco). In: Hirst, D. & Di Cristo, A. (eds.) Intonation systems.
- Bouchhioua, N. (2008). The acoustic correlates of stress and accent in Tunisian Arabic. PhD thesis, University of Carthage.
- Boudlal, A. (2001). Constraint interaction in the phonology and morphology of Casablanca Moroccan Arabic. Unpublished doctoral thesis, Université Mohammed V.
- Burdin, R. S. et al. (2015). Variation in the prosody of focus in head-and head/edge-prominence languages. *Lingua*, 165, 254-276.
- Maas, U. (2013). Die marokkanische Akzentuierung. In: Kutty, R. et al. (eds.) Nicht nur mit Engelszungen.

**Session III Nov. 22**

**Can hand movements reveal continuous sensitivity to subphonemic variation?**

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Research on speech perception has yet to reach a consensus on how listeners manage to rapidly transform a continuous and exceedingly variable acoustic signal into discrete perceptual units like phonemes. Traditional accounts propose that perceptual processes effectively discard non-distinctive variability along the physical dimensions of the speech signal and only retain prototypical phonemic information, resulting in categorical perception. However, more recent work has been able to show listeners' gradient sensitivity to intra-category phonetic detail. In this talk, I will discuss data from a recent pilot study employing a mousetracking paradigm in order to elicit continuous, multi-dimensional data from participants' motor output during on-line phoneme recognition. The study examines VOT as a preeminent acoustic cue to voicing in stop consonants, a measure firmly rooted in theories of categorical perception. My aim is to show whether the trajectories of listeners' arm and hand movements during the perception of VOT can be indicative of gradient sensitivity to fine-grained, subphonemic detail.

**Session III Nov. 22**

**Rethinking sonority: A new proposal for the role of pitch intelligibility in prosody**

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In this talk I present my research goal — to uncover the role of the human sensation of pitch (pitch intelligibility) in linguistic terms that comply with the notion of sonority. A distinction is made between pitch in perception and its acoustic source in the form of measurable periodic and aperiodic energies in the speech signal. This integration of acoustic data that reliably implies pitch intelligibility yields a "standard" sonority scale. Furthermore, the treatment of sonority in terms of perception of acoustic quality leads the way for a novel analysis of universal syllabification phenomena that are commonly attributed to sonority. Alignment between sonority peaks and syllabic nuclei is taken to be the product of competition for attraction of syllabic nuclei by pitch-intelligible peaks in the signal. This model of Nucleus Attraction subsumes and outperforms previous sonority-based principles such as the Sonority Sequencing Principle (SSP), the Minimum Sonority Distance (MSD), the Sonority Dispersion Principle (SDP) and the Syllable Contact Law (SCL). Taken together, this proposal attempts to describe a functionally motivated role for pitch perception in prosodic systems, in which syllables serve as potential anchors for various linguistic pitch events (e.g. lexical tone and intonation).

## Session IV Nov. 23

### **Perceptive and prosodic study of Hispanic-speaking politicians: 'Revolutionary' vs. 'conservative'**

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Politicians' speech styles can be distinguished by their prosodic realizations. Generally, we can recognize a 'revolutionary' or a 'conservative' politician by just listening to a few minutes' discourse; in this study, I first realized 3 perceptual experiments to get a cross cultural politicians' classification. Then, in two extreme opposite cases, I made an acoustic analysis to show which prosodic features enable us to do so. I compared the phono-style of two politicians, Hugo Chávez (HC) from Venezuela and José Luis Rodríguez Zapatero (Z) from Spain, in the same 'phono-genre': public 'spontaneous' speeches. Moreover, I will show the differences between HC's productions in two different 'phono-genres': an interview and a 'spontaneous' public speech. Philippe Martin's 'melodic slope contrast' model has been used to describe the prosodic structure and its relation with the syntactic one. The acoustic analysis confirms that two main types of phono-style can be established: a populist's phono-style and a conservative one. The results illustrate the fact that the phono-styles of these political leaders differ in a similar 'phono-genre', mainly in (i) the realization of continuation contours, (ii) the F0 range, and (iii) the lengthening of final intonation phrases words, while the construction of the intonation phrases is of the same type. A short study of imitators' production has been added to show how artists are able to select the right pertinent prosodic features to replicate these characteristic 'phono-styles'.



**Session IV Nov. 23**

## **Prosodic phrasing in Moore**

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This study investigates the role of prosody in Moore (a tone language mainly spoken in Burkina Faso). It deals with the phrasing function of prosody i.e. how prosody is used to divide the stream of speech into phrase groups. Since both elements, intonation and tone, make use of the same acoustic parameter, pitch; the central question raised here is: how does intonation work in a tone language?

The purpose of the study is therefore to determine acoustic cues which signal prosodic phrasing in Moore. Following the approach of Martin (2009), I assume that the prosodic organization of speech relies on the existence of prosodic events, located at phrases boundaries. Thus I focus on acoustic parameters accompanying units' boundaries.

The results suggest that 3 acoustic parameters (final lengthening, the resetting of fundamental frequency and pauses) are used as marker of the prosodic phrase boundary.