III School of Prosody

The mission of the III School of Prosody is to promote a privileged space for discussing and learning about speech prosody, taking into account the importance that this topic has acquired in the international scenario and the need to build knowledge of language prosody and employ this knowledge in the development of speech technology products, which allow for an advance in the means of communication between men and machines, as well as a social impact on populations with different kinds of disabilities.

Studies on Speech Prosody are crucial to build speech synthesis and recognition systems and systems for man-machine interaction that can be used in foreign language teaching-learning, speech pathologies description and treatment, language documentation and the like. Hence their technological interest, in view of current and potential markets, which comprehend both land-line phone services and the internet.

The presence of renowned national and international researchers in the Speech Prosody field makes this event an opportunity for training, improvement and professional update. This gathering of competences from inside and outside the country offers a space that stimulates both the training of researchers in the field and the integration of research groups and discussion of current matters.

For students, besides learning from the courses, there will be the possibility to contact professionals, which may contribute with their future insertion in the wide field of actuation and research involving Speech Prosody and its experimental aspects. The III School of Prosody, firstly held in the Pontifical Catholic University in São Paulo (October, 2010) and secondly held in the Federal University of Espírito Santo (October, 2012), will be held in Campinas from the **18th through 29th of August** and will encompass basic courses, as well as advanced courses.

Organizing committee

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Tommaso Raso (UFMG)
Anders Eriksson (Univ. of Stockholm, Sweden)
Oliver Niebuhr (Christian-Albrechts-Universität zu Kiel, Germany)
Hansjörg Mixdorff (Beuth-Hochschule für Technik Berlin, Germany)
António Teixeira (Univ. de Aveiro, Portugal)
Daniel Hirst (Univ. de Provence, France)

Planned Activities

First week – Conferences and Basic Courses in Portuguese (18th through 22nd of August , 2014)

- **Four conferences** by Volker Dellwo (University of Zurick. Switzerland), Philippe Boula de Mareuil (LIMSI, France), Catarina Oliveira (Univ. de Aveiro) and Hansjörg Mixdorff (Beuth-Hochschule für Technik Berlin, Germany)
- **Two distance basic courses** about Acoustic Phonetics (Dr. Miguel Oliveira Jr, UFAL) e the use of *Praat* (Dr. Pablo Arantes, UFSCAR)
- **One presencial basic course:** Introduction to Forensic Phonetics, taught by two Master's degree students

Programme

All courses in Portuguese

First Week: Lectures and basic courses					
TIME	**MON**	**TUE**	**WED**	**THU**	**FRI**
8:30 to 10 h	Lecture: Hansjörg Mixdorff	Lecture: Philippe B. de Mareuil	Lecture: Catarina Oliveira	Lecture: Volker Dellwo	
10 to 13 h	Course Acoustic Phonetics	Course Acoustic Phonetics	Course Acoustic Phonetics	Course Acoustic Phonetics	Course Acoustic Phonetics
14 to 17 h	Course Praat/Intro	Course Praat/Intro	Course Praat/Intro	Course Praat/Intro	Course Praat/Intro

	Forensic Phonetics	Forensic Phonetics	Forensic Phonetics	Forensic Phonetics	Forensic Phonetics

Conferences:

Hansjörg MIXDORFF: Auditory-visual Perception of Prominence
Philippe B. de MAREUIL: New approaches to variation in speech
Catarina OLIVEIRA: Variation and articulation of European Portuguese Vowels by elderly speakers
Volker DELLWO: Rhythmic variability between speakers

Second week (25th through 29th of August, 2014)

Second week: presencial courses					
TIME	**MON**	**TUE**	**WED**	**THU**	**FRI**
8:30 am - 11:30 am	Courses 1 and 2	Courses 1 and 2	Courses 1 and 2	Courses 1 and 2	Courses 1 and 2
11:30 am - 1:30 pm	**LUNCH**				
1:30 pm - 4:30 pm	Courses 3, 4 and 5	Courses 3, 4 and 5	Courses 3, 4 and 5	Courses 3, 4 and 5	Courses 3, 4 and 5
4:30 pm - 5 pm	**COFFEE-BREAK**				
5pm - 8 pm	Courses 6 and 7	Courses 6 and 7	Courses 6 and 7	Courses 6 and 7	Courses 6 and 7

Course 1 : Affective Prosody Measures & Stylisation

Albert Rilliard
LIMSI-CNRS (Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingénieur)
Université Paris-Sud – Orsay – France

Abstract
This course address some measures of the acoustic variations in prosodic functions linked to expressive behaviours for speech communication. It starts with an overview of the functional range of prosody, in order to define more precisely the kinds of objects it

is interested in – namely affective prosody, may it be the expression of emotions or attitudes, as well as some stylistic differences (news, fairy tales, etc.).

The acoustic correlates of prosody are then described, with the principle of their measure from speech signal. This critical point of any instrumental work on prosody is addressed through exercises based on sample of problematic prosodic variations. The exercises are based on the Praat program.

Raw acoustic data does not necessarily fit perception of prosodic variation. The basis of prosodic stylisation, through the works of Rossi, of the IPO, the MOMEL algorithm, models of tonal perception, prosodic feature extraction, etc. are detailed are criticised to expose their strength and weaknesses. Their possible use and implementations on the Praat program is then tested during exercises.

The objective comparison of such stylized prosodic variations is then considered. How can it helps to understand prosodic variations? What are the associated pitfall and limitations? Linked to objective comparison is subjective perception of prosodic differences. The evaluation of the relative role of prosody in the performance of these functions, relatively to other linguistic and behavioural agents, is detailed through the review of perceptual evaluation paradigms.

The course will end with the analysis of a corpus of speech – the students will have to analyse and stylize the prosodic variations found in the proposed data, in order to extract the more important features that characterize the style.

Course 2: Quantitative Intonation Modelling
Hansjörg Mixdorff and Plinio Barbosa

This course deals with two important quantitative models of F0: The Fujisaki model and the qTA model developed by Yi Xu. Both models aim at decomposing natural F0 contours into a parsimonious description using a small number of parameters. Their approaches, however, are fundamentally different. We wiI'll give an introduction to the basic concepts of the models and present research projects in which we made use of the model for either measuring F0 or manipulating it for perceptual tests. We'll give an in-depth account on the advantages and limitations of both models and compare them with some other methods for describing F0 such ToBI. We'll also present a corpus of German and Brazilian Portuguese on wich we extracted parameters for both models. In the practical part participants could work on the data in this and similar corpora which will be provided to them and apply the available automatic extraction methods for estimating the underlying model parameters.. Depending on time and interest, in a second stage, we can then create stimuli for a small perception experiment in which we test the perceptual validity of the measured parameters.

Course 3: The phonology, production and perception of lexical stress.
Anders Eriksson, Department of Philosophy, Linguistics and Theory of Science, University of Gothenburg, Sweden.

The course will give some insights into three aspects of word stress (or lexical stress) description – stress type classifications based on phonological analyses, the acoustics of word stress based on production experiments, and the perception word stress based on perception experiments.

The descriptions of word stress in different languages that we find in pronunciation dictionaries or in typological classifications are generally derived from theoretically based linguistic analyses rather than production or perception studies. Such descriptions form a logical starting point when we approach the question of what we mean by word stress and what different functions word stress may have like contrastive or demarcative functions. We should also be aware that not all languages utilize word stress. Taking a closer look at the linguistic analysis of word stress is a good starting point if one wants to get a better theoretical understanding of word stress. The first part of the course will therefore be an introduction to the phonology of word stress and typological descriptions of stress systems.

To what extent these descriptions agree with the results from production studies or perception studies is, however, not something that can be derived from theoretical considerations only but must be investigated separately. In the second and third parts of the course these aspects will be examined. Here we will use data and examples from a cross linguistic study of word stress in production and perception. We will also conduct our own little experiments to get a deeper understanding of both aspects.

Course 4: New approaches to variation in speech: applications to Romance languages

Philippe Boula de Mareüil
LIMSI-CNRS, Paris, France

The first day on general linguistics, phonetics and prosody terminology, will deal with analyses on both paradigmatic and syntagmatic axes, extending to phenomena such as vowel harmony and reduced speech in various languages, with a focus on Romance languages (including Portuguese). The second day will offer general information on variation in speech and its perception, as well as the methodology which will be developed later on, to address these issues, using automatic speech processing (recognition and synthesis), with applications to regional and foreign accents (in French, especially, but also in Italian). The third day will concentrate on the contribution of prosody to the perception of accents in French and Italian: the soc-called lower-class suburban accent and other accents in French; some regional and foreign accents in Italian; finally the Corsican, Occitan, Catalan and French in contact with these languages. The fourth day will study various styles in French: it will present a diachronic evolution of news announcers' style (since the 1940s) and a comparison between spontaneous/read speech and spoken/written language. The last day will be devoted to tutorials and practical work.

Course 5 [In Portuguese]
Métodos experimentais de análise entoacional
Luciana Lucente (UFMG)

O curso irá explorar métodos experimentais de análise entoacional utilizando ferramentas do software Praat. Serão exploradas no curso: medidas de

altura e gama de variação de frequência fundamental (f0); alinhamento entre fenômenos suprassegmentais (curva de f0) e segmentais (acento lexical); e padrão entoacional para diversas modalidades de sentenças do português brasileiro (PB). O objetivo do curso é, a partir do uso das técnicas experimentais, poder analisar corpora de fala espontânea e de laboratório – que sejam de interesse dos participantes – e a apresentação dos resultados desta análise ao final do curso. Para além disso também serão abordadas técnicas de obtenção de corpus e desenho de testes de percepção relacionados à entoação.

É importante que os participantes do curso tenham domínio intermediário* no uso do Praat e tragam, caso tenham, materiais aos quais desejam aplicar a análise entoacional.

* Por domínio intermediário entende-se segmentação de dados, criação de textgrids, ajuste de f0 de acordo com a frequência do falante e aplicação de scripts.

Course 6 [In Portuguese]

A fala espontânea: segmentação e análise

Tommaso Raso, Universidade Federal de Minas Gerais, Brasil

Abstract

O curso analisará textos do corpus C-ORAL-BRASIL com os objetivos seguintes:

a. mostrar quais são os critérios propostos na literatura para a segmentação da fala espontânea, qual critério foi adotado para o corpus C-ORAL-BRASIL e porqué;
b. mostrar as propriedades prosódicas e pragmáticas da unidade comunicativa mínima (enunciado) na fala espontânea e a sua relação com a noção de ilocução;
c. mostrar como é possível segmentar a unidade comunicativa mínima em unidades menores com função informacional;
d. mostrar as propriedades prosódicas e funcionais de algumas ilocuções e das principais unidades informacionais;
e. apresentar a variação diafásica na fala espontânea e como ela é a principal responsável pela maneira em que a estruturação do texto falado se articula.

Durante o curso serão realizados exercícios de segmentação da fala e de identificação das unidades informacionais.

Course 7: Theory and Practice in studying Temporal Coordination in Speaking

Fred Cummins

UCD School of Computer Science and Informatics!
University College Dublin, Ireland

Abstract

In this course, we will examine both theory and practice in the study of the macroscopic temporal structure of speech. Speech is exquisitely coordinated behaviour, both within an individual, and between conversational participants. We will adopt a dynamic and coordinative view of speaking, where coordination, rather than message-passing, is our principal concern. Students will be given a basic introduction to the vocabulary of dynamical systems theory, and a grounding in embodied approaches to behaviour. With this basis, we will explore the rhythm of speech, making links to musical rhythm and to quasi-rhythmic behaviours such as walking. Students will be given hands-on experience in measuring temporal intervals in speech, suited to a rhythmic analysis. Joint speech will likewise be studied, and the class will involve both measurement of joint speech, and the reflective consideration of joint speech behaviours in the student's own life and environment.