# Intonational differences between speech tasks in school context

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## Abstract

This paper investigates intonational differences between speech tasks from a corpus of spontaneous and prepared non-scripted speech collected in Portuguese high schools, in the last year of compulsory education. It offers evidence that speakers' choice of intonation contours varies depending on the degree of planning and specificity of scholarly oral presentations: non-falling contours are overall less common in spontaneous presentations than in prepared ones; there is a more balanced distribution of the main nuclear contours in prepared speech. Additionally, the speaker's status, age and gender are also a source of the observed variation.

Key words: intonational variation, oral presentations, adolescents.

## Introduction

It is recognized that intonational variation is a fundamental resource to differentiate types of speech (varying along the spontaneous-read *continuum*) and plays a major role in speaker adaptation to different speech situations (Blaauw 1995; Mata 1999; Hirschberg 2000, a.o.). This paper analyzes a subset of spontaneous and prepared presentations from a corpus of European Portuguese (EP) spoken by adolescents in school context, focusing on intonation contours in phrase-final position. It investigates to what extent student's contour types are affected by (i) the specific nature of the situation and (ii) inter-individual differences.

## **Data and methods**

The study uses a subset of the CPE-FACES corpus (Mata 1999), collected in Portuguese high schools, in the last year of compulsory education. This corpus consists of spontaneous and prepared non-scripted speech from 25 students (14-15 years old) and 2 teachers. The prepared nonscripted speech corresponds to oral presentations about a book the students have read, according to specific programmatic guidelines, whereas in the spontaneous ones they were unexpectedly asked to speak about a pleasant personal experience. Student presentations vary from about 1 minute to 25 minutes. CPE-FACES also includes the oral presentations made by the high school teachers – which vary from about 2 minutes to 50 minutes.

The subset analyzed comprises 5 spontaneous presentations and 5 prepared presentations, from 4 students (2 boys and 2 girls) and their female teacher. The first 60 seconds of each presentation were analyzed (mean number of intonational phrases, words and stressed syllables

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per utterance in spontaneous presentations: 3.2, 10.2, and 6.4, respectively; mean number of intonational phrases, words and stressed syllables per utterance in prepared presentations: 3.6, 13, and 7.6, respectively); a total of 496 intonational phrases (not included in interrogative utterances) were extracted and stylized representations (in ST) were defined for nuclear contours – according to the form, alignment and proportion of pitch movements in phrase-final position. Additionally, a prosodic annotation was done in the ToBI (Tones and Break Indices) system, according to the first proposal *Towards a*  $P_{-}ToBI$  (Viana *et al* 2007).

#### Results

Results show that, contrary to what would be expected based on previous studies, non-falling contours are overall less common in spontaneous speech than in prepared speech (Fisher Exact Test, p=.002) - spontaneous speech: 63% falling / 37% non-falling; prepared speech: 49% falling / 51% non-falling. In general, there is a more balanced distribution of the main contours used in prepared speech.



Figure 1. Percentage of falling / non-falling contours per speech task and speaker. T stands for teacher; B for boy and G for girl.

As Figure 1 shows, falling contours - e.g., H+L\*/L\*/H\*(+L) L% - are the most frequent nuclear contours in the spontaneous presentations of students, independently of gender (girls: 72%, 55%; boys: 64%, 83%); in general, the relative frequency of non-falling contours - e.g., (L+)H\*/L\*(+H) H%/!H%; H+L\* LH% - increases in the prepared presentations of students (girls: 41%, 43%; boys: 56%, 58%), and this is more evident for boys (Fisher Exact Test, *p*=.038). It is worth noting that the increase of non-falling patterns is not related to the inclusion in the dataset examined of the question-answer period that followed the oral presentations.

Comparing students vs. teacher, the teacher differs from all students (Fisher Exact Test, p=.006) by using more rising than falling contours in the spontaneous presentation (52% and 36%, respectively); there is a more regular distribution of the main subtypes of nuclear contours in the prepared situation, even more regular than the one observed for students (rising: 44%; falling: 30%; and falling-rising contours, with only 4% in her spontaneous presentation, increase: 24%). Figure not shown.



Figure 2. Schematic F0 contours based on mean values for all speakers. (Lines — indicate the stressed syllable; lines — indicate the post-stressed syllable.)

Although the repertoire of intonation patterns most commonly used by each student varies, the data shows that (i) H+L\*L% (common in EP) and L+H\* H% (virtually absent from lab speech in EP, see Viana *et al* 2007), realized respectively as a fall / rise mainly within the accented syllable (see figure 2), are the most frequent falling / rising nuclear contours in both situations – which may be regarded as an expected result, since that EP is a language known to extremely reduce and frequently delete unstressed vowels, particularly in post-stressed and final position; and that (ii), in the prepared situation, L+H\* and H+L\* are used in a similar manner by boys, unlike girls, who use H+L\* more often, as they do in the spontaneous situation. The data also shows that (ii) falling / rising nuclear contours that involve the phonetic realization or insertion of a reduced vowel in post-stressed position (and thus were tagged as H\*+L L% and L\*+H H%, see figure 2) are mainly used by students, most often in the spontaneous presentations. Their frequency can be interpreted as an age group mark; their decrease in the prepared presentations of students as an adaptation effect to the specific school task.

## Conclusion

Although based on a limited amount of data, the results reported in this paper indicate that the distribution of intonation patterns is affected by the degree of planning and specificity of the speech task. The increased regularity in the distribution of final falling /non-falling contours in typical school presentations and the intonational variation between prepared and spontaneous presentations may be interpreted as indicators of how students adapt to the speaking styles required in school context. The observed variation in final contour choices between teacher and students, and between boys and girls, also offers evidence to support the role of the speaker's status, age and gender in the selection of the intonation patterns available in the language.

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