Dissertation Abstracts

Sistema fonológico da Beira Interior
e algumas considerações sintáctico-semânticas.
(A phonological study of the Portuguese language
variety spoken in Beira Interior Region.
Some Syntactic and Semantic Considerations)

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1. Introduction

This PhD dissertation proposes a model for a phonological description of the speech patterns observed in the Portuguese language variety spoken in the Beira Interior (BI) region (in the municipality of Fundão). Our major goal was to present the main phone prototypes, which could be considered in the description of the Portuguese language, taking into account minority speech.

Until the preparation of this thesis, the linguistic identity of Portuguese BI regional speech had only been studied in a piecemeal manner. In fact, the few analyses to which we had access were characterized by details of more immediate interest than to theoretical postulations. These analyses are basically limited by two factors: 1) they were confined to noting certain linguistic phenomena in terms of regional specificity, and especially subjected to a relationship that levels them in the overall scope of Portuguese (e.g. Barbosa, 1994 and Mateus *et al.*, 2003); 2) they were not supported by an explanatory model which justifies the phonological system as a structure that

characterizes the Portuguese language spoken in the BI region (e.g. Vasconcellos, 1987).

To achieve our goal, the phonological domain was particularly considered for the linguistic status of 'variety'[1]. By phonological analysis we mean description of the phonetic traces of the Portuguese BI regional speech, resulting in the description of units (phones), the place the units occupy in that Portuguese spoken language variety, and of the relations that the units establish in a speech act. With this intention, we isolated all the characteristics that were found to be used constantly by the speakers surveyed. All the characteristics were analysed statistically to discover new prototypes. The thesis is that the phonological and phonetic basis of the Portuguese variety spoken in the BI contributes ultimately to extending (or redefining) our linguistic knowledge of the Portuguese language.

2. Methodology

2.1. Delimitation of study object

Mainly, we clarified all phonological operations tested by oppositions with the distinctive features/units and (allo)phone occurrences in which we considered latitudes of variation, optimal-centre-of-gravity region, dispersion fields and boundary regions. We agreed that those analytical parameters gave us the immediate percentage indices to evaluate the most productive realizations. We also explored the view that Quantal Theory (Stevens, 1972) and Optimal Theory (Kager, 1999; McCarthy, 2001) could support phonological representation sets of phone-inventories. We sought to explain how, for a given input, a hierarchy of functions chooses the optimal form from a set of output candidates; and we made clear the perceptual-magnet effect in which more recurrent perceptible output phones correspond to optimal-centre--of-gravity (or a prototype of phoneme manifestations).

2.2. Theoretical framework

Based on phonological explanation theory, which is consistent with functionalism studies (Barbosa, 1983; Martinet, 2001) and generativist premises (Mateus and d'Andrade, 2000), our speech sound inventory referred directly to the finer-grained categories provided by phonetic theory. We

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[1] However, as we were describing a variety which allows the intercommunication between speakers, we also analysed some particularities concerning the syntactic and semantic relations of the verbs and the personal pronouns. Although this domain has played a secondary role, it described the significant of the verbs combined with the modifiers of the tense and aspect, and also of the personal pronouns. All this syntactic and semantic formal information and its informative status were presented in statistical form.

assessed the phoneme as a sound class with similar pertinent features and those pertinent features were the phonetic elements detectable from categorical perception testing (e.g. Fry, 1970; Harnad, 1987; Pisoni, 1994). We described the perceptible (allo)phone which reveals standardized distribution, according to phonetic context. We presented a standardized description of (allo)phones' load rate considering their occurrence in a syllable context. With this approach, we asserted that it would be possible to discriminate the most used allophone, the least used allophone and the allophone that was in boundary regions. Through the analysis of the occurrence load rate, the phoneme's realizations in the optimal-centre-of--gravity were distinguished from those in the phonetic-category boundaries. We also assumed a speech categorical perception model as an operational stage and established it as both a result of a stimulus/percept dichotomous process which was correlated with the reviewing capabilities of discrimination and perceptual constancy, and a process correlated with an acoustic signal's perceptual activity in which most central structures of linguistic events were implicated. Based on those methodological guidelines, we assumed that a distinctive unit (as a phonemic pertinent feature) was one category recognized perceptibly in a speech continuum procedure.

2.3. Recordings/Corpus constitution

Our aim in collecting the corpus was to obtain a large number of examples of the specific pattern of BI Portuguese regional speakers, taking into account properties with representative statistical purposes. Thus, we decided to record sentences uttered by various BI Portuguese regional speakers, particularly with a specific pattern. Recordings were made both indoors and outdoors in quite surroundings, using a portable minidisc recorder Sony MZ-R700PC. A Panasonic unidirectional microphone recorded directly onto the minidisc. Utterances were recorded from various places in the BI region (only villages). Following official statistical information from the 2001 Census, there were 19,466 speakers. Taking a 17.3% illiteracy rate among those regional speakers, we considered 1,125 speakers (that means 56 speakers, 2 per village). Those speakers were of both sexes, native to the village and over 45 years of age, had poor schooling levels (or were illiterate), and good dental and mouth cavity configuration.

2.4. Method

For inventorying purposes, we looked for minimal pairs from the corpus: e.g. [ˈkazʲɐ] x [ˈkarɐ][2]. Considering the context, i.e., the place occupied by the unit in the word scope ([ˈkazʲɐ]), we examined the syllable context (e.g. [zʲ] in

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[2] Phone(me)s are displayed using the International Phonetic Alphabet.

the [VOWEL.**zʲ**+VOWEL] context) and, therefore, all consonant/vowel systems, stressed/unstressed syllables, post-stressed/pre-stressed syllable context, vowels in contact, consonants in initial syllable position and consonants in final syllable position. Based on this division, we inventoried 195 syllabic contexts and 142,043 allophones. The main idea was for the listener to decode the speech signal based on a segmentation and classification routine. This decoding is more reliable, since a given allophone in a given environment is the native-sound output expected. Our methodological options aim at describing pertinent features of sounds. Those pertinent features were named using articulatory traces (including place and manner features) which were detectable from categorical perception testing: e.g. [**zʲ**] is described as voiced, palatalized and sibilant, considering the vocal fold, the palatine veil and the mouth cavity physiology.

Then, we examined which allophones were more or less perceived in a speech continuum, and, considering allophone outputs, the most used phone would be considered the prototype (or the native-sound) of the phoneme's realization.

3. Results

The results cross-referenced information between percentages of occurrences and syllabic sub contexts. We presented the mapping from an input form to a set of candidate outputs, and an assessment measured by percentage, which selected the best realization of the candidate set as the output (e.g. Fig. 1). In fact, all listed allophone outputs (as [e], [ej], [eˠ], [eˠj]) represented the phonetic dispersion categories of phoneme manifestation in the measured context and the obtained percentage values indicated the perceptual surface that allowed us to identify which phones had the perceptual-magnet effect (in the example is [e]) and which phones were on phonetic category boundaries ([ej], [eˠ], [eˠj]). It means that, considering those values, we distinguished the optimal-centre-of-gravity of a phoneme's realization. The phone that was discernible in an optimal-centre-of-gravity is the one that is most perceived, the one that clearly represents the native-sound of a phoneme.
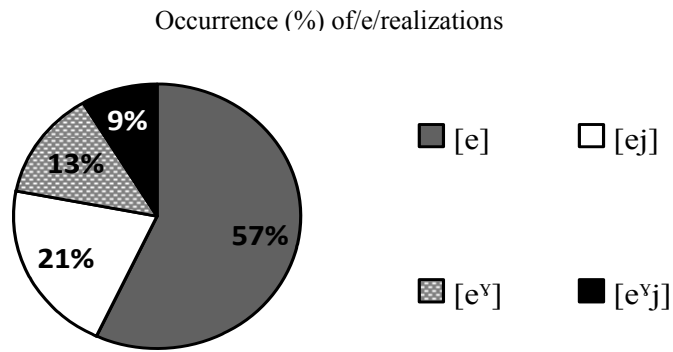
Occurrence (%) of /e/ realizations

Fig. 1 The Close-mid Front Unrounded Vowel in Stressed and Opened Syllable Position.

This graph diagram exemplifies a mapping form from /e/ input to a set of outputs ([e], [ej], [eˠ], [eˠj]). This shows also the percentage of the occurrences considering both the context syllable and the stressed position in the word.

4. Conclusion

All phonemic and phonetic units were inventoried in Portuguese BI regional speech and the productivity degree of all units was verified. We sought the percentage of the ideal realization for each unit, which is characterized by the convergence of optimal values (i.e., the optimal-centre-of-gravity) in which a number of realizations gravitate (dispersion field). Results were interpreted phonetically and we have verified that both Quantal Theory and Optimally Theory support them. The analysis reported all (allo)phone prototypes.

Acknowledgments

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