

PERSISTENCE OF PROSODIC FEATURES BETWEEN DIALECTAL AND STANDARD ITALIAN UTTERANCES IN SIX SUB-VARIETIES OF A REGION OF SOUTHERN ITALY (SALENTO): FIRST ASSESSMENTS OF THE RESULTS OF A RECOGNITION TEST AND AN INSTRUMENTAL ANALYSIS

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ABSTRACT

The aim of the work to be reported here is to attempt to verify that some dialectal varieties of a restricted area show sensible differences in their prosody and that normally the same differences characterise the prosodic system of speakers when performing sentences in Italian.

To verify these hypothesis two kind of experiment were carried out: a perceptual recognition test based on sentences differing only by prosodic cues and uttered in Italian by different speakers of the region; a detailed phonetic inspection of the acoustical makeup to detect which cues are most likely to be responsible for the listener success in the recognition task.

1. INTRODUCTION

The purpose of the research we are carrying out is to survey the prosodic structures of the dialects and of the regional Italian spoken in the Salento, the south-east peninsula of the "Italian boot" which constitutes a relatively homogeneous linguistic area (The Salento covers only about 5800 sqkm of a mostly plain territory and counts more than 150 towns and villages and 1,000,000 inhabitants most of which currently speak Italian and a romance dialect, except for ten towns, defining, 9 of them, the *Grecìa*, a linguistic island where a Greek dialect similar to modern Greek is spoken too, and one being an isolated town where traces of an Albanian dialect survive).

1.1. Variability of intonational patterns in Italian

In the literature on Italian intonation there have been a number of approaches to the issue of which Italian intonation to describe. Different authors base their account of Italian intonation on the pronunciation of speakers from various places, making generalisations about a number of varieties.

As a matter of fact the Italian intonation system vary significantly with space and often authors draw considerations only for the most widespread regional varieties ([1], [2]).

Canepari ([3]) made an ample description of a lot of varieties basing his observations on his auditory impressions. However, he considered only an Apulian variety ignoring the existence of a main dialectological

frontier in this region between the Apulian area and the Salento one.

This work follows the approaches of Grice ([2]) and Contini & Profili ([4]) who specialise their field of interest on specific Italian varieties. The latter shows results of the analysis of prosodic structures of some varieties from a phonetic point of view and compares them on the basis of an instrumental analysis.

Only a few perceptual studies exist for the prosodic aspects of Italian ([5]). One of the first results of this research has already highlighted ([6]) the existence of an important variability of the prosodic system within the same restricted area that could be locally recognised by listeners.

1.2. Our contribution

A perceptual experiment described in [6] was carried out for some varieties of Salentino in order to evaluate when and how much the average listener is able to distinguish different "accents" of the region on the basis of the perception of prosodic cues (this idea finds a precursor in the experiment described in [7]).

A fundamental question which we try to answer involves the persistence of dialectal markers in regional Italian and the possibility of detecting cues about speaker origins by instrumental inspection of prosodic features.

A corpus of sentences in dialect and in standard Italian was prepared. The sentences, containing a representative set of intonational patterns, were chosen so that they would show some distinctive feature.

The first step was to build the test corpus based on on-site fieldwork.

In a second phase, we acquired the raw numerical data from the experiments and performed instrumental analysis of some of the more representative realisations.

The collected data show, on one hand, the relative facility of listeners in distinguishing the regional sub-varieties in the absence of segmental cues and, therefore, on the basis of an opposition in the prosodic space.

On the other hand these data confirm in almost all cases the presence (or the persistence) of some prosodic markers common to regional varieties of the standard language and to the dialects spoken in the same area.

The results shown here are not based on impressionistic criteria but on statistical and instrumental evidence, and they could be framed in the larger perspectives of a study on the geographical variability of intonational patterns.

2. METHOD

2.1. Choice of the varieties and acquisition of the corpus

Until now no survey has ever been conducted on the intonation of the varieties of Italian of this region and the existing data about the intonation of different dialects are very limited (some interesting remarks have been made by Mancarella ([8]) who, following other authors, also proposed a detailed subdivision in dialectal areas on phonetic, lexical and syntactic bases; some other impressionistic observations have been drawn in [9]). Therefore we proceeded to a subdivision in "intonational" sub-areas by taking into account a classic dialectal subdivision ([8]) and the results of previous unpublished inquiries. The areas of interest are characterised by some differences of secondary order with respect to the gross differentiation between the patterns of the Apulian dialects and those of the Salento. We deal here with sub-varieties of the Salentino.

A sub-variety from the area of Brindisi was chosen as representative of the northern Salentino. In the centre, we defined the following areas: the area of Lecce; the area of Nardò; the area of Otranto; the area of Gallipoli. In the southern end of the peninsula we distinguish a final variety from the area of Leuca. In order to sample a significant set of intonational patterns from the current repertory of common speakers for whom geographically different patterns were predictable, we chose an oriented corpus of ten sentences. The sentences were recorded in the defined areas of investigation with samples of four speakers (17 to 64 years old) for each area. Several replicas of each sentence were obtained by context reconstitution, trying to artificially reproduce the conditions in which the sentence was really pronounced. Special care was taken to avoid the phrase prosodic structure being affected by occasional artificial attitudes of speakers and we paid attention to reduce the speaker tendency to neutralise the production as a result of his/her feeling of decontextualisation ([10]).

Three to four replicas of each sentence were acquired during one month of on-site fieldwork and under different conditions. For every sentence the dialectal version was first requested, followed by the one in standard Italian.

2.2. Experimental conditions

2.2.1. Stimuli

Among the clearest of the replicas, we selected the six dialect-Italian pairs of utterances, for each sentence, pronounced in a more relaxed and natural way, and we prepared a tape to be used in the perceptual testing of one sample of listeners. The task of recognising the geographical origin of the speaker being easy enough in the case of dialect utterances, only the 60 utterances in Italian were taken into account.

These utterances were characterised by an almost total absence of segmental cues. Only a few indications of

plosive aspiration exist in some examples; anyway this phonetic phenomenon seems to have an unpredictable social, cultural and geographical distribution and does not constitute a reliable cue.

2.2.2. Procedure

Every subject listened to the tape containing a random sequence of utterances in isolation with headphones. The utterances of the six speakers representative of the investigated sub-varieties, corresponding to each of the ten sentences of the corpus, were presented to the listener in random order asking him to freely note in a notebook his/her answers concerning the presumed place of origin of each speaker heard. A first test, with speech tokens organised by speaker, was aimed at training the listener to the test conditions. The second test, with speech tokens organised by sentence, required a considerable listening effort.

2.2.3. Subjects

Fifteen subjects were drawn from various places of the Salento and included undergraduate and graduate students, school teachers and local travellers which should have a minimal experience of different varieties.

None were involved in work related to linguistic researches of any kind. Three subjects, though living in the region, came from other Italian regions and had been settled there for a few years.

3. RESULTS INTERPRETATION

3.1. Perceptual test data analysis

The conclusions drawn are based solely on the 12 complete tests. The results obtained show that some varieties are distinguished more than others. The data were submitted to statistical processing to determine if the observed judgements were statistically significant.

The answers given by every listener were organised into confusion matrices: corresponding to the intonational systems of each of the sub-areas the matrix displays the percentages of recognition and of confusion with the other varieties that the realisations obtained.

Subjects not coming from this region got incomplete answer listings or confusion matrices showing rates only in the range of 12-17% and therefore indicating a random distribution of answers. These matrices were not taken into account. The superposition of the matrices obtained for the 12 autochthonous subjects, and the normalisation of the resulting matrix, in order to eliminate the weighting effect that some varieties received, yields the matrix in Figure 1. Even though the recognition rates are very low and the number of tests executed is very limited, we can say that local speakers obtained successful scores especially for some sentences (*wh*-questions, exclamations, and other particular emphatic patterns seem to be more marked by geographical differences).

Resp.\Stim.	Leuca	Gallipoli	Otranto	Lecce	Nardò	Brindisi
"Leuca"	<u>35,38%</u>	8,02%	<u>21,06%</u>	<u>19,24%</u>	7,21%	9,08%
"Gallipoli"	7,87%	<u>39,09%</u>	6,43%	<u>21,40%</u>	14,26%	10,95%
"Otranto"	18,38%	9,40%	<u>22,36%</u>	10,85%	14,79%	<u>24,22%</u>
"Lecce"	9,21%	15,67%	<u>23,59%</u>	<u>22,31%</u>	17,02%	12,20%
"Nardò"	11,43%	9,72%	7,50%	16,02%	<u>30,58%</u>	<u>24,76%</u>
"Brindisi"	<u>28,29%</u>	11,25%	12,16%	2,62%	19,67%	<u>26,01%</u>

Figure 1. Normalised confusion matrix (stimuli in columns, responses in rows).

Naturally, listeners are more successful at making the distinction between own variety (or varieties similar) and one of another area as opposed to the distinction between varieties belonging to groups both different from the their own. Two listeners out of twelve performed a 90% recognition rate for sentences pronounced in their own variety. Another listener was able to discriminate 8 sentence out of ten pronounced in his own variety whereas five other listeners recognised their variety every time an emphatic non-declarative pattern was used (a description of similar behaviours can be found in [10]).

It is very important to underline that the recognition task proposed was very difficult because of the relative shortness of the passages to be judged; long passages can be better identified than short passages and in real life the possibility to recognise a speaker become easier because of the opportunity of collecting more cues during a continuous conversation.

A general reduced linguistic competence of subjects, who only know a limited number of varieties well, could be the cause of low recognition rates in the case of not well known varieties. Some listener gives very bad recognition rates corresponding to totally ignored varieties.

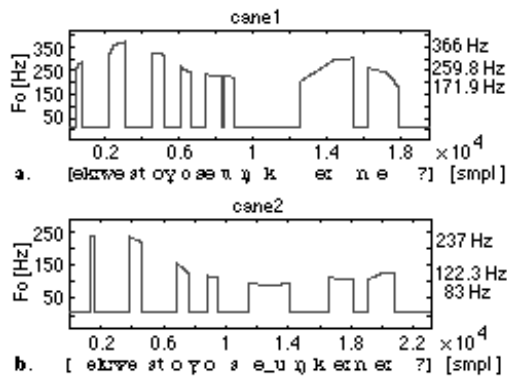


Figure 2. Fundamental frequency variations in two versions of the same sentence performed by two male speakers (only variations on vowels are considered). Radically different interrogation contours are bounded in two different areas. The examples shown here involve the interrogation patterns used to perform the Italian sentence "... e questo cos'è, un cane?!" (... and what is that, a dog?!). a. refers to the pattern used in the southern area (Leuca): a rising-falling final contour characterise the pattern. The penultimate syllable, carrying a phrase accent, is lengthened (150 ms vs. 100 ms for the last vowel). b. refers to the Gallipoli variety: a rising contour marks all interrogations and a prepausal lengthening is evident too, but also on the last vowel which shows the same duration of the antepenultimate (about 120 ms).

The matrices' superposition then results in a lowering of individual localised better performances since these low rates affect the average.

Evidence for the opposition of sub-varieties comes especially from interrogative phrases: sub-varieties of Gallipoli (mainly) and Nardò show an exceptional prepausal lengthening effect on the last vowel whereas the sub-variety of Leuca seems to refer to an "anomalous" intonational pattern respect to other varieties and to prestigious overregional varieties of Italian. Probably the perception of these features is responsible for the high rate of success of listeners in recognising these varieties.

Some declarative contours are widespread over all the region while two main interrogative contours (see Figure 2) seems to be possible in two restricted areas not well defined on the geographical map because of the low resolution of our sampling.

A rising-falling final contour seems to characterise the interrogation-exclamation patterns of the southern part of the peninsula whereas a continuous rising contour affects all questions and emphatic utterances of the central-western side. While the first feature influences the eastern varieties up to Otranto (and sometimes up to Brindisi), where a hybrid model could be observed, the second solution show a reduced distribution over the region around Gallipoli and Nardò (see Figure 3c. and 3d.), but seems to be a common way to realise unmarked question in all northern areas.

3.2. Instrumental analysis

Quantitative data obtained from our speech signal analysers showed close correlation between prosodic parameters of utterances in dialect and those in standard Italian. Obviously this conclusion cannot be generalised because various reactions are possible following different contextual condition and various degrees of articulation spanning from hypo- to hyper-speech.

Several considerations could be drawn from the on-site fieldwork after having observed how people speak in real life and how they modify their natural attitudes in laboratory conditions and/or in the presence of strangers.

The dialectal utterances have always been spontaneous. Even the Italian utterances were often performed spontaneously but this happened mainly soon after the execution of the corresponding dialectal ones.

When the required utterance was in Italian, the speaker has recourse to variable patterns, perhaps often influenced by exotic models offered by TV channels or experienced during brief exposure to other linguistic varieties (travels, relations with people of other places and so on).

Other causes of the observed pattern alteration could be related to a kind of mimicry towards the interviewers or to the recourse to particular stylistic patterns used for professional purposes ("martial" or "didactic" intonation of teachers, "rhetorical cadence" of some professionals etc, see details in [6]).

From these observations we can conclude that, in all cases of emotive stress, a lot of utterances are produced by using various and unpredictable models.

Nevertheless we wish to show here some graphical evidence that, in the natural and spontaneous conditions we inspected, intonational patterns as well as duration values of the Italian messages match those of the dialectal ones (see Figure 3).

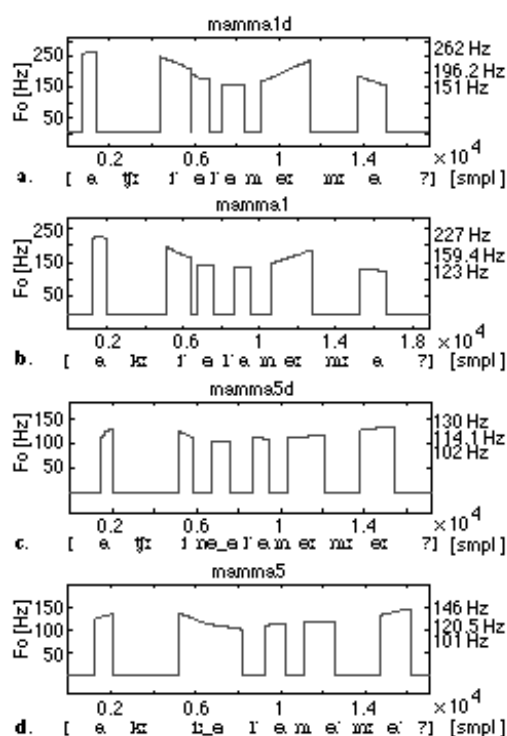


Figure 3. Two different patterns characterise the two dialectal varieties of Leuca (a.) and Nardò (c.) and the differences between them persist in the corresponding Italian utterances (b. for Leuca, d. for Nardò). This is the case of the Italian sentence "A chi, alla mamma?" (*To who, mum?*) here performed by two male speakers. What is to be noticed here is that, besides the different segmental structure between the utterances of the pairs a.-b. and c.-d., the global contours matches. Moreover, duration relations between syllables at the end of the declination line remains more or less the same passing from one code to the other. A lengthening of the last syllable is evident for c. and d. as for the Gallipoli's patterns and represents a particular feature of both these areas. Note that the speaker of a. and b. shows some tendency to use a higher/louder register when speaking in dialect than in Italian; this phenomenon seems not to be systematic.

4. CONCLUSIONS

The interpretation of the results of the tests has confirmed the existence of some well-defined prosodic sub-varieties that are easily recognised.

The sub-variety chosen for the northern Salentino did not show prominent cues. The Gallipoli and Nardò varieties seem to be characterised by well-marked prosodic features and therefore they are easily detected by the listener; the southern variety of Leuca is well opposed to the former and shows an "anomalous" interrogative rising-falling final contour.

For the other varieties from the areas of Otranto and of Lecce we noted that they were rarely distinguished in the tests (and they were often confused with other varieties). Given that these areas do not display overly marked features and that instead they show by instrumental analysis some patterns common to some other areas (of the northern and the southern extremes), we labelled them Pansalentin.

These results are confirmed by comparison with the quantitative data of duration, intensity and fundamental frequency obtained by the instrumental analysis. Results showed tight correlation between the utterances in dialect and those in Italian in terms of durational and intonational patterns and could highlight that, in spontaneous performances, a strong tie between dialect and regional Italian does exist.

5. REFERENCES

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