

A PHONETICALLY BASED VALIDATION OF THE CLASSIFICATION OF FRIULIAN DIALECTS

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ABSTRACT

This paper aims at validating the traditional classification of Friulian dialects by means of cluster analyses and cluster determinant analyses carried out with *Gabmap* (Nerbonne et al., 2011), a dialectometric online tool. The dataset used for the analyses includes 30 segmental phonetic features and 19 morphological features for each of the 23 local varieties of Friulian (Francescato, 1966; Frau, 1984). The results show that the clustering based on phonetic features largely coincides with the traditional classification of Friulian dialects, whereas the clustering based on morphological features does not. Overall, thus, one can say that the traditional classification of Friulian dialects is mostly –although not completely– based on segmental phonetics.

Keywords: segmental phonetics, cluster analysis, dialectometry, Friulian

1. INTRODUCTION

The beginnings of the study of dialectal variation of Friulian –the easternmost Rhaeto-Romance language– can be traced back to Graziadio Isaia Ascoli’s (1873) *Saggi Ladini*. However, it is only in the 20th century that this discipline experienced a greater development, which resulted in the publication of a considerable number of studies including dialectal data for Friulian, but very few attempts to classify the dialects of that language. The most important classifications were put forward by Francescato (1966) and Frau (1984), who present a concordant description of the dialects of Friulian (Figure 1). All works by other authors (Iliescu, 1972; Marcato, 2001; Vicario, 2005; Heinemann, 2007; Roseano, 2015, i.a.) agree with such classification. Both Francescato (1966) and Frau (1984) base their classification of Friulian dialects on a limited number of isoglosses. Such isoglosses correspond to about fifty linguistic features to which the authors in question attribute particular importance. Such features have to do mainly with the phonetic implementation of phonological categories and, to a lesser extent, with morphology and lexicon (while other aspects of the language, such as syntax, are not taken into consideration).

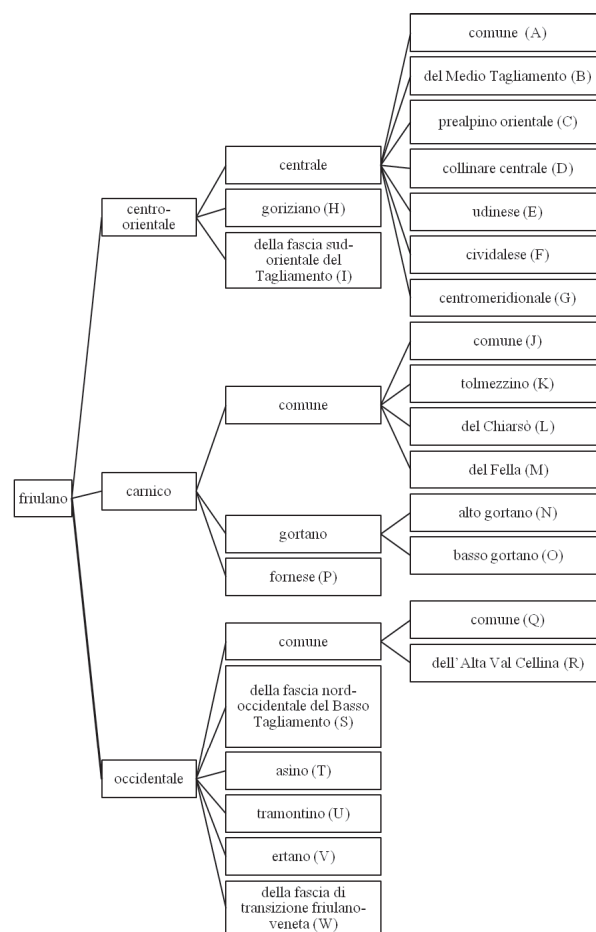


Figure 1: The classification of Friulian dialects according to Francescato (1966) and Frau (1984), adapted from Roseano (2015).

The 23 local varieties of Friulian (indicated with letters from A to W in Figures 1 and 2) are traditionally grouped into 3 dialectal clusters: Northern Friulian (marked in blue on the map in Figure 3), Western Friulian (marked in red), and Central Friulian (in yellow).

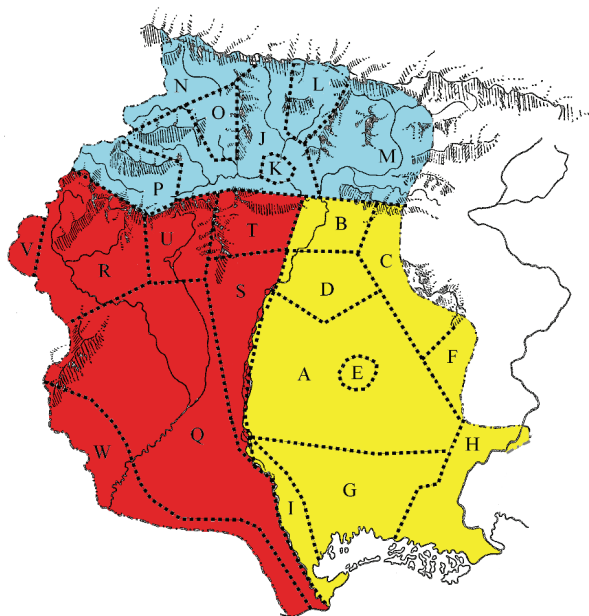


Figure 2: Map of the 23 local varieties and the 3 dialectal clusters of Friulian according to Francescato (1966) and Frau (1984).

A critical aspect in the studies about the classifications of Friulian dialects is the limited number of attempts to use dialectometric techniques (Lazard, 1985; Goebel, 1988; Bauer, 2010, i.a.). In addition to their limited number, all such studies aim at classifying Friulian within the Romance-speaking area (using data from few Friulian localities and other languages), while no attempt has been made to classify the dialects of Friulian themselves. The lack of a proper dialectometric analysis is due to the fact that the most important linguistic atlas for Friulian, the *Atlante storico-linguistico-etnografico friulano* (Pellegrini, 1972-1986), has not been transformed into a computer database yet. On the other hand, since linguistic atlases containing data about prosodic features of Friulian varieties are digitalized, there are several dialectometric analyses of this language based on suprasegmental data (Roseano, 2012, i.a.).

The goal of this paper is checking whether (and, if so, to what extent) the classification of Friulian varieties put forward by previous studies can be justified

statistically on the base of the phonetic and/or morphological features of such varieties.

2. METHODOLOGY

To check whether the classification of Friulian dialects can be validated on the base of the phonetic features of the local varieties of this language, we carried out cluster analyses by means of *Gabmap* (Nerbonne et al., 2011), an online dialectometric tool. Our analyses may not be defined dialectometric *stricto sensu* because in dialectometry the variables are lexical items, whereas in our database we have phonetic and morphological features. The dataset used for the dialectometric analyses, in fact, includes 30 phonetic features and 19 morphological features for each of the 23 local varieties of Friulian. The features are described in detail by Francescato (1966) and Frau (1984), and listing them would exceed the limits of this paper. As an example of a phonetic features we can cite the lengthening of stressed vowel before a rhotic (e.g. /'ar/ is realized as ['a:r]); as an example of morphological features we can mention the suffix of 1pp of imperfect indicative (which can be [-'in], [-'on] or [-'en], depending on the variety).

The analyses in *Gabmap* were run using Ward's method, and the software was programmed so that it created 3 clusters (which is the number of dialectal areas described in the previous section). The results were plotted by means of dendrograms created by *Gabmap* and then transposed on dialectal maps adapted from Roseano (2015) by means of *Giphy*.

3. RESULTS

3.1. Analysis with phonetic and morphological features

The analysis carried out with both phonetic and morphological features produces three clearly identifiable clusters (see dendrogram in Figure 3).

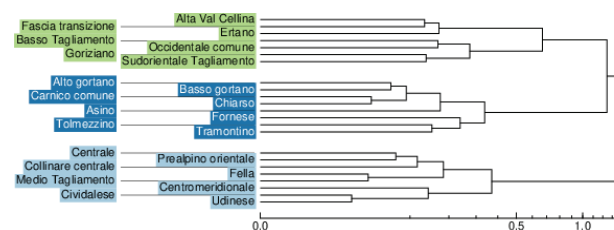


Figure 3: Dendrogram of the 23 local varieties of Friulian created with *Gabmap* using both morphological and phonetic features.

The three clusters roughly correspond to the three dialectal areas illustrated in Figure 2. Nevertheless, if we compare the clusters in Figure 2 with those in Figure 3, we detect that they do not match perfectly. In fact, 4 varieties out of 23 end up in a cluster different from the cluster where Francescato (1966) and Frau (1984) classified them. The differences can be plotted on two parallel maps (Figure 4): the one on the left is the same as in Figure 2, while the one on the right corresponds to the dendrogram in Figure 3. As one can observe, varieties labelled as U, T, M and H are clustered differently. The case of variety H is especially puzzling because, according to the dialectometric analysis we carried out, one cluster is split in two far-away geographic areas (in red in the panel on the right).

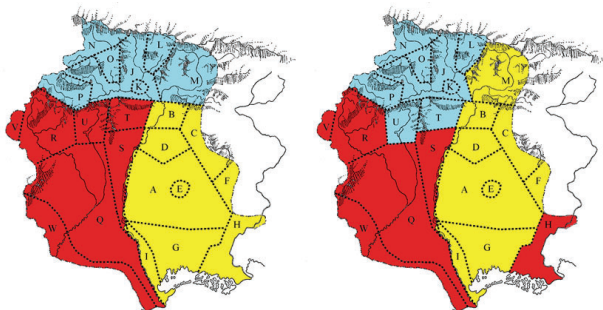


Figure 4: Maps corresponding to the traditional clusters of Friulian dialects (left panel) and to the dialectometric analysis carried out using phonetic and morphological features (right panel).

3.2. Analysis with morphological features only

The analysis carried out with morphological features generates the result illustrated in the dendrogram contained in Figure 5.

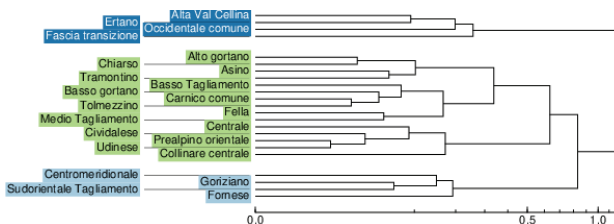


Figure 5: Dendrogram of the 23 local varieties of Friulian created with *Gabmap* using morphological features only.

If we compare the result with the traditional classification of Friulian dialects (by means of the parallel maps in Figure 6), we can conclude that using morphological data gives a much worse result: 10 varieties out of 23 end up in a cluster different from the cluster where Francescato (1966) and Frau (1984) classified them. In short, morphological

features are not a good criterion to validate the traditional classification of Friulian dialects.

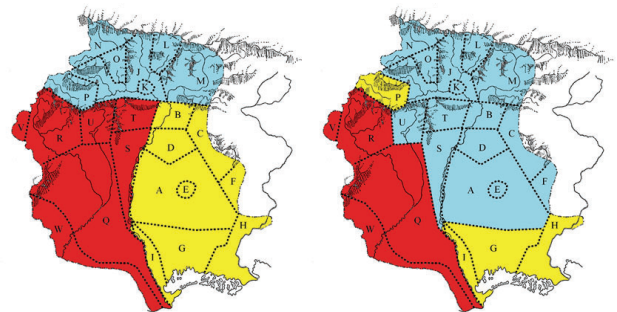


Figure 6: Maps corresponding to the traditional clusters of Friulian dialects (left panel) and to the dialectometric analysis carried out using morphological features only (right panel).

3.3. Analysis with phonetic features only

The analysis carried out with phonetic features only generates the result illustrated in the dendrogram contained in Figure 7.

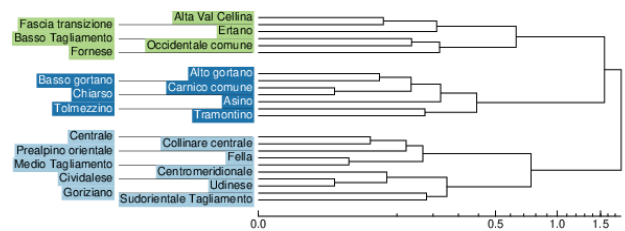


Figure 7: Dendrogram of the 23 local varieties of Friulian created with *Gabmap* using phonetic features only.

The comparison of this clustering with the traditional classification of Friulian dialects (see parallel maps in Figure 8) shows that phonetic features are more effective for validating the classification of Friulian dialect which is accepted by all dialectologists.

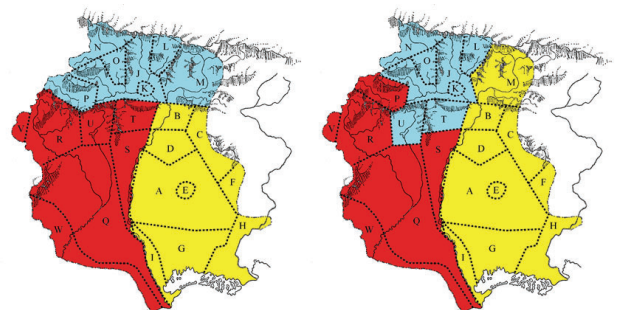


Figure 8: Maps corresponding to the traditional clusters of Friulian dialects (left panel) and to the dialectometric analysis carried out using phonetic features only (right panel).

In fact, 4 out of 23 varieties end up in a cluster different from the one that dialectologists expect. This is the same number of misplaced varieties as in Figure 4 (right panel); nevertheless, differently from what happens in Figure 4, no dialectal cluster is split in two. In this sense, the results of Figure 8 are better from a geolinguistic point of view.

3.3.1. Cluster determinant analysis

In order to find which phonetic features are characteristic of each of the three clusters, a cluster determinant analysis has been carried out. The method used for this analysis is the distance-based one (see Prokić et al., 2012, for an account of the method). The phonetics features that best characterize each dialectal cluster are the following:

- Northern Friulian: presence of word-final long vowels (e.g. Northern Friulian ['fa:] 'to do', instead of the form ['fa] commonly found in the other two areas);
- Western Friulian: presence of the diphthong ['ou] instead of the long vowel ['u:] commonly found in the other two areas (e.g. Western Friulian ['kouɾ] 'heart' instead of ['ku:r] predominant in other areas);
- Central Friulian: presence of [ɲ] instead of [n] in the context known as "*j illegittima*" (Francescato 1966, 62-64) (e.g. Central Friulian ['ɲot] 'night' instead of ['not] found outside the Central Friulian area).

4. CONCLUSIONS

In the previous sections we have summarized the main results of an attempt to validate the traditional classification of Friulian dialects (Francescato, 1966; Frau, 1984) by means of a cluster analysis carried out with *Gabmap* (Nerbonne et al., 2011), a dialectometric online tool. We have shown that the cluster analysis carried out with the morphological features does not give a satisfactory result, insofar as the clusters are pretty different from the three dialectal areas accepted by dialectologists: only 56.5% (13 out of 23) of the local varieties end up in the expected cluster.

On the other hand, the cluster analysis carried out with the segmental phonetic features described by Francescato (1966) gives a better result, in the sense that the local varieties of Friulian end up in the expected cluster in 82.6% (19 out of 23) of the cases. Overall, thus, one can say that the traditional

classification of Friulian dialects is largely based on segmental phonetics.

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