Distribution of Surnames and Linguistic-Cultural Identities in Western Slovenia

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ABSTRACT

The following study compares the distribution of surnames in the populations of Western Slovenian municipalities, which were part of the Italian state until the end of the Second World War. The analyses have been carried out firstly by assessing the similarity of different populations to one another so as to verify possible aggregations; secondly, by figuring these relationships of similarity in a representation through unrooted tree (NJ); finally, by applying spatial autocorrelation to the distribution of surnames in the territory so as to highlight possible processes in the diffusion of people in the area under examination. On the whole, it seems likely that the population living in the area is geographically quite stable, although some differences may be noted depending both on the geography of the territory, particularly in the northern part, and on peculiar historical and socioeconomic conditions, which at the same time have characterized and modified the demographic structure of some of these municipalities.

Key words: *spatial autocorrelation, surnames, index of similarity, population, Slovenia*

Introduction

Surnames are words which include the history and the culture of their bearers and their transmission, in our society, occurs by the male line: they are inherited by the male line and they can be likened to the neutral alleles of a locus transmitted by means of the Y chromosome[1–3]. Surnames satisfy the expectations of the theory of the neutrality of evolution as described by casual genetic drift, mutation and migration[4], so we can apply to them the specific techniques of population genetics. Surnames, due to their high polymorphism, permit an effective characterization even when populations belong to a geographically limited area, while biological markers, in similar cases, usually provide poor differentiations[5].

Surnames are a distinctive cultural as well as biologIcal mark at the same time; for this reason, they can help identify the ethnic-linguistic constituent element involved in their origin; however, they are also effective in the analysis of the similarities between different human groups that live in a certain area, just as, in the same way, they can possibly mirror such evolutionary processes as genetic drift and migration. In any case, the written form of surnames can never be taken as the sole indication of the language spoken by their bearers, i.e., they can never be used to define ethnic membership altogether. As a matter of fact, even though surnames have been fixed in their forms since the late Middle Ages and the Renaissance[6], it is well known that for centuries parish priests, registrars or other government officials tended to register surnames in forms that signified a particular culture or a definite linguistic membership[7]. This was particularly evident in the borderlands, as can be seen in the peoples of the Dolomitic valleys, whose Ladin-root surnames were handed down partly with an Italian spelling and partly with a German spelling, depending on the language spoken by the priest that kept the parish registers[8]. A typical case was the province of Trieste in the 1920s: in this area, which is nowadays subdivided between Italy and Slovenia, the foreign-looking surnames of thousands of people were compulsorily italianized by a decree of the prefect, so that a large number of Slavic-root surnames were drastically changed in the way they were written[9,10].

Slovenia is a central European country bordering on Austria to the north, on Hungary to the north-east, on

Croatia to the south and south-east, on Italy to the west (Figure 1). An independent republic since 1991, Slovenia is subdivided into 12 districts with a total population just below two million inhabitants. In particular, the western part includes several localities that belonged to Italy for almost twenty years, from the end of the First World War to the end of the Second World War. After the conflict, with the peace treaty of Paris in 1947, these places were joined to Yugoslavia and, at present, they are represented by 21 different municipalities belonging to three different districts.

The Slovenes descend from Slav peoples moving westwards as a consequence of the invasions of eastern Asian Avar tribes bearing down on Western Europe between the end of the VI and the beginning of the VII century A.D.[11]. The arrival of Slav and Avar people in
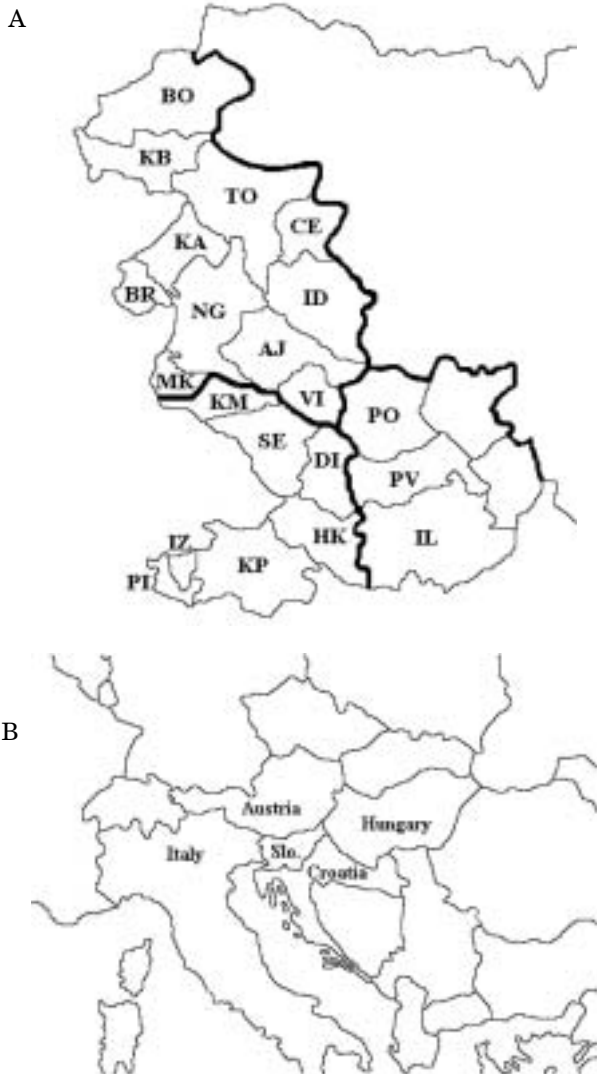

A

B

Fig. 1. The 21 Slovenian municipalities analysed (A) and the location of Slovenia in Europe (B) (see Table 1 for the municipality signs). The dividing line marks the three districts (regije) of Western Slovenia (Table 1).

the area of the upper Drava and the upper Sava was probably favoured by the crisis of the Longobard power, dating between the years 584 and 590 A.D.[12] under the reign of Autari, who also had to fight hard against the Francs and the Byzantines. The Avars settled in the plains and the valley of the Carpathians as well as on the neighbouring slopes, whereas the Slav tribes they had conquered and dragged along in the invasion of Pannonia, in their turn penetrated the whole of Noricum and northern Pannonia, thus creating around the Avar settlements a circle that became wider and wider and that extended westwards as far as the Alps and also as far as the valleys of the Danube, the Drava and the Sava[13]. The alpine Slavs soon reached a wide expansion settling over vast areas in central Europe and moving as far as the Gail valley and the upper valleys of Drava and Isonzo[14]; at beginning of the VII century A.D. they rose against the Avar empire[15]. Lastly, it is apparent that »Carniola« (*Krajnska*) – the historical-geographical region presently bounded by Austria, Slovenia, Croatia, Istria and Friuli – had definitely become the habitual dwelling place of alpine Slavs before 744 A.D.[16], the year when king Liutprand died and the Longobard power in Italy started to decline.

In the light of the information above, it can be observed that the area where Slovenian is spoken roughly corresponds to the Alpine region, except for northern Istria, and that there are about ten basic varieties of dialect, each of which can be further subdivided[17]. Taking into consideration only this area, the following groups of dialects can be found from north to south: 1) the »*obsoška*« group, including »*bovško*« and »*kobariško*«, whose epicentres are Bovec and Kobarid; 2) the »*rovtarska*« group in the areas mostly belonging to the ex-Italian province of Gorizia and which includes, among others, »*tolminsko*«, »*cerkljansko*« and »*črnovrško*«, whose respective epicentres are Tolmin, Cerkno and Črni vrh near Idrija, and which also partly takes in the municipal territory of Nova Gorica; 3) the »*brda*« group, situated near Dobrovo (municipality of Brda), which represents the so-called »Collio« dialect common in the hilly region of the same name north-west of Gorizia, which also includes some neighbouring Italian municipalities; 4) the »*kraško*« group, i.e., the unitary Karstic dialect, located in the areas adjacent to Gorizia and above Trieste, which includes part of the municipal territory of Nova Gorica and Sežana along with the municipalities of Kanal, Miren-Kostanjevica and, above all, Komen; 5) the »*notranjsko*« group, i.e., the dialect of inner southern »Carniola« (*Krajnska*), spoken over a very wide area including the whole valley of the Vipava/Vipacco (Ajdovščina and Vipava), the Karst north-east of Trieste – and so the most part of the municipality of Sežana – as well as Divača, Postojna and Košana (municipality of Pivka), reaching as far as Jelšane (municipality of Ilirska Bistrica), Materija (municipality of Hrpelje-Kozina) and in the area east of Koper; 6) the »*šavrinsko*« group, spoken south of Koper, at Izola and Piran[18–20]. Finally, it is important to state that also the »*kraško*« and »*notranjsko*« groups stretch well into the Italian provinces: the first

one in the areas of Gorizia and Trieste, the second one in the lower strip of the province of Trieste[21]. It cannot be overlooked, either, that on the coast of Slovenia and its hinterland, Italian was definitely commonly spoken until the end of the last world conflict.

As for the demographic point of view, it is useful to remember that the Slovenian and Croatian populations of »Venezia Giulia« – the historical region which includes Karst and Istria – have been interested by strong emigratory movements in the period between the two World Wars[22]. Moreover, from the second half of the 1940s further changes have taken place in the structure of the population of Slovenia, which was however considered one of the most homogeneous federal republics of ex-Yugoslavia[23]. In the first place it should be reminded that at the end of the Second World War, with the peace treaty of Paris in 1947, most of the hinterlands of Gorizia and Trieste along with the provinces of Pola, Fiume and Zara (Pula, Rijeka and Zadar) were joined to Yugoslavia and that such annexation caused thousands of Italians to flee en masse back within national boundaries[24,25]. The flight was outstanding, even though difficult to assess, but it is thought that out of about 500,000 people living in the territory passed over to Yugoslavian rule, approximately inbetween 200,000 and 350,000 people were refugees; in particular, in the Karst around the areas of Trieste and Gorizia, there were about 24,000 Italian refugees[26]. Nowadays, there are more or less 3,000 Italians living in the area according to the 1991 official Yugoslavian census – the last taken before the birth of the new countries, when exactly 3,063 people belonging to the Slovenian Italian-speaking minority were registered[27]: these inhabitants are basically concentrated in the coastal region, i.e., Koper/Capodistria, Izola/Isola d'Istria and Piran/Pirano[28]. In the decades following the end of the World War and, above all, between 1971 and 1981, a lot of immigrants moved on to Slovenia on economic grounds, mostly people coming from different regions of ex-Yugoslavia, and especially from the less poorest ones[29]. In particular, some demographic changes took place in the most urbanized areas, for instance that of Ljubljana, but also in the coastal towns of Koper/Capodistria, Izola/Isola d'Istria and Piran/Pirano: having sea trade and industry developed in the coastal region ever since the 1950s, it became the most heterogeneous in Slovenia from an ethnic point of view, although it had originally been densely populated by Italians[30].

Material and Methods

Western Slovenia (Figure 1) is subdivided into three districts that in the recent past, and for almost thirty years, were part of Italy. The area is characterized by diverse environment: actually, there are mountains in the north, calcareous uplands (the Karst/*Kras*) in the south, and a short strip of coast in the north-west of the Istrian peninsula. Besides, as described above, there are different Slovenian dialects that basically follow the geogra-

phical regions in the territory. Considering all these elements, as well as the distribution of surnames, this work aims at analyzing the relationships existing between the different municipal populations. The objective is assessing how much historical events have a bearing on these relationships, what effects follow from the presence of certain dialects, but also what possible differences may be rooted in the geography of the place and the demographic-socioeconomic development of the past decades in the region.

In this study we have considered the distribution of surnames in the 21 municipalities of Western Slovenia: on the whole, 63,351 subscribers have been taken down, bearing 10,062 different surnames (Figure 1, Table 1). The lists of surnames have been found in the Slovenian telephone directory, printed by Telekom Slovenije, referring to year 2001. This collecting of data, without considering the headings of firms, organizations, hotels, etc., lists only private individuals and so it reflects the family surnames present in the considered territory. As a matter of fact, telephone directories are a primary source of surnames, so this collecting of data was useful in various studies, some of them were pertinent to a whole national territory. For instance, to estimate migration rates in some Italian provinces and then compare them with corresponding estimates from by official demographic sources[31], to identify five main clusters in which more than one hundred Italian towns are subdivided[32] and to determine the effects of Italian internal migrations, especially from southern to northern regions, on the basis of geographical, historical and socioeconomic interpretation[33].

The 21 municipalities at issue can be divided into three groups, on the basis of the Slovenian districts: the northern-central group, represented by Goriška, which includes the municipalities of Ajdovščina, Bovec, Brda, Cerkno, Idrija, Kanal, Kobarid, Miren-Kostanjevica, Nova Gorica, Tolmin, Vipava; the southern group, that is the coastal area Obalno-Kraška, which includes the municipalities of Divača, Hrpelje-Kozina, Izola, Komen, Koper, Piran, Sežana; and, the inland group Notranjsko-Kraška, which includes five municipalities, although only the three that were once part of Italy, i.e., Ilirska Bistrica, Pivka and Postojna, have been taken into consideration. It is also important to point out that the single towns of Koper and Nova Gorica – but not the other localities on their municipal territory – have been discarded owing to their high population figures as compared with the other towns under examination.

The lists of data which derived by telephone directory served for estimating the similarity between the municipal populations by using the R_{ij} index[34], or index of »standardized isonymy«, by the formula:

$$R_{ij} = \frac{\sum p_{ik}\,p_{jk}}{\sqrt{\sum p_{ik}^2\,p_{jk}^2}}$$

where Rij represents the coefficient of similarity between two populations i and j, p_{ik} and p_{jk} the frequencies in them of the k-th surname; the total is extended to all

TABLE 1

LIST OF WESTERN SLOVENIAN MUNICIPALITIES (OBČINE) WITH THE CORRESPONDING SIGNS USED IN THE ANALYSIS. TO EACH MUNICIPALITY CORRESPONDS THE NUMBER OF SUBSCRIBERS AND SURNAMES OBTAINED FROM THE 2001 OFFICIAL TELEPHONE DIRECTORY. IN THE TABLE ARE ALSO LISTED THE MUNICIPAL SEATS AND THE CORRESPONDING DISTRICT

Municipality (*občina*)	Sign	Subscrib.	Surnames	Municipal seat	District (*regija*)
Ajdovščina	AJ	4481	992	Ajdovščina	Goriška
Bovec	BO	954	343	Bovec	Goriška
Brda	BR	1579	435	Dobrovo	Goriška
Cerkno	CE	1364	305	Cerkno	Goriška
Divača	DI	1283	562	Divača	Obalno-Kraška
Hrpelje-Kozina	HK	1471	502	Hrpelje	Obalno-Kraška
Idrija	ID	3457	737	Idrija	Goriška
Ilirska Bistrica	IL	4261	916	Ilirska Bistrica	Notranjsko-Kraška
Izola	IZ	4768	2459	Izola	Obalno-Kraška
Kanal	KA	1753	542	Kanal	Goriška
Kobarid	KB	1320	347	Kobarid	Goriška
Komen	KM	1327	438	Komen	Obalno-Kraška
Koper	KP	5927	2256	Koper	Obalno-Kraška
Miren-Kostanjevica	MK	1018	365	Miren	Goriška
Nova Gorica	NG	7275	1656	Nova Gorica	Goriška
Piran	PI	6052	3204	Piran	Obalno-Kraška
Pivka	PV	1735	587	Pivka	Notranjsko-Kraška
Postojna	PO	4371	1691	Postojna	Notranjsko-Kraška
Sežana	SE	3815	1269	Sežana	Obalno-Kraška
Tolmin	TO	3438	820	Tolmin	Goriška
Vipava	VI	1702	446	Vipava	Goriška

the surnames. The comparison between all the populations, taken in pairs, allows the construction of a square and symmetric matrix of similarity; by applying to it the »non metric multidimensional scaling« (nmMDS)[35,36], we can obtain a topological representation that graphically emphasizes the links among the populations objects of this study. This representation is easy to be interpreted and it respects the degree of similarity that exists between one population and all the others, thus reducing to a minimum the distortion necessarily introduced to express the phenomenon on a reduced number of dimensions.

A useful description of the relations between different populations can be inferred from the construction of tree-like representations. Accordingly, the matrix of distances between pairs of Western Slovenian populations, based on the frequency of surnames, has been obtained, and the representation through unrooted tree has been chosen, in its turn obtained by using the neighbor-joining (NJ) method[37], as supplied by the software Mega version 2.1[38]. This choice was made because the area under consideration, as already pointed out beforehand, is a borderland where different powers have ruled in the course of time and, consequently, a variety of culturally different peoples have lived in succession. Accordingly, the object of the research is not the process of differentiation of various peoples starting from a hypothetical original population; rather, it is the ways in which originally different peoples, subject in different times to a variety of strong pressures, started to develop relationships, and therefore similarities, with one another. From this point of view, the effect of stochastic processes of random differentiation however undoubtedly present, are relatively less important.

In the 21 Western Slovenian municipalities it was applied the analysis of spatial autocorrelation, which summarizes the genetic similarity between populations in relation to their geographical proximity. In particular, spatial autocorrelation shows up the similarity of values of a variable, i.e., the frequency of a surname, between pairs of localities within arbitrary classes of distance, whose kilometric air distance limits were chosen to make the number of comparisons as uniform as possible within each class.

The method was developed by Moran[39], perfected by Ripley[40], as well as by Cliff & Ord[41], whereas Sokal & Oden[42,43] were the first ones who applied it to biological problems. The coefficient of autocorrelation (Moran's *I*) is calculated with the formula:

$$I = n \sum_{i=1}^{n} \sum_{j=1}^{n} w_{ij}(p_i - p)(p_j - p) / W \sum_{i=1}^{n} (p_i - p)^2$$

where p_i and p_j are the frequency of surnames in the *i*th and *j*th localities, p is the mean frequency of the sur-

TABLE 2
LIST OF THE SURNAMES ANALYSED WITH SPATIAL AUTOCORRELATION AND THE CORRESPONDING MUNICIPALITIES WHERE
THEY ARE WITH HIGH FREQUENCY. TABLE 1 REPORTS THE SIGN OF EVERY MUNICIPALITY

Surname	Sign	Surname	Sign	Surname	Sign
Bizjak	PO	Kocjan	SE	Prinčič	BR
Božič	IZ, PI	Kocjančič	KP	Rebec	PV
Bratina	AJ	Komac	BO	Rijavec	NG
Cerkvenik	DI	Koren	KB	Rupnik	ID
Colja	KM	Kravanja	BO	Rutar	TO
Česnik	PV	Lapajne	ID	Simčič	BR
Dodič	HK	Leban	TO	Skočir	KB
Ferfolja	MK	Likar	AJ, ID	Skrt	KA
Ferjančič	VI	Mahnič	PI, SE	Špeh	PI
Franetič	DI	Marinič	BR	Šuligoj	KA
Furlan	VI	Marušič	MK	Švagelj	KM
Gabrijelčič	KA	Mihalič	HK	Tavčar	SE
Gregorič	NG	Milavec	PO	Tomšič	IL
Grmek	KM	Mlekuž	BO	Trošt	VI
Hrvatin	KP	Močnik	CE	Tušar	CE
Iskra	IL	Mozetič	MK, NG	Uršič	KB
Jazbec	KM	Pahor	MK	Valenčič	HK, IL
Jerman	IZ, KP	Penko	PV	Vidmar	AJ
Kavčič	TO	Peternelj	CE	Vodopivec	NG
Kleva	IZ	Požar	PO	Volk	DI

name in the n considered localities, w_{ij} is equal to 1 for all the pairs of localities ranged in the studied class of distance and equal to 0 for all the other pairs, and W is the sum of all w_{ij} values in that class of distance.

Moran's I varies from –1 (negative autocorrelation) to +1 (positive autocorrelation); in the absence of spatial autocorrelation, the expected value is given by $–1/(n–1)$, where n is the size of the sample[44]. A significant negative autocorrelation indicates that the frequencies of a variable are dissimilar at a determined distance, while a significant positive autocorrelation indicates similarity between populations; a non-significant value shows no relationship between pairs of frequencies of a surname at a certain distance[45]. Autocorrelation coefficients were computed within five distance classes and the trend of the autocorrelation coefficients, whose overall significance is assessed by the Bonferroni test[46], can be schematically classifiable by descriptions in the literature[47,48]. For each of the 21 municipalities of Western Slovenia the three surnames with the highest frequency were considered, reaching the total number of 60 (Table 2), since some surnames were shared among some centers. As a matter of fact, if the surname of an individual has a high frequency, that individual most probably belongs to a permanent group of population[49], so it is probable that the analysis has concerned the autochthonous inhabitants. In practice, this analysis allows an estimation of the spatial distribution of the surnames in the whole territory considered, in order to emphasize the specific processes of diffusion of the individuals, independently from the migration rates of the different localities.

Results

The topological representation of Figure 2 was obtained through the application of nmMDS on the matrix of similarity for surnames; in this figure the 21 municipal populations are arranged on two dimensions in such a way as to respect the order and entity of the degree of similarity which exists among them, as described from the matrix. In this figure the disposition along the first dimension has been set on the axis of ordinates, the one along the second dimension has been set on the axis of abscissas: in this way, the correspondence to the original position of each population can be recognized more easily, still without changing the respective positions obtained through the software. The value of stress, a measure of departure from monotonicity in relationship between the dissimilarity in the original p-dimensional space and distance in the reduced k-dimensional ordination space, is equal to 0.20; RSQ, the average proportion of variance accounted for in all of the disparity matrices, is equal to 0.79. The three-dimensional representation provides a stress value equal to 0.134 and RSQ equal to 0.87; however, the bidimensional representation has been preferred because it is easier to read and, consequently, to interpret.
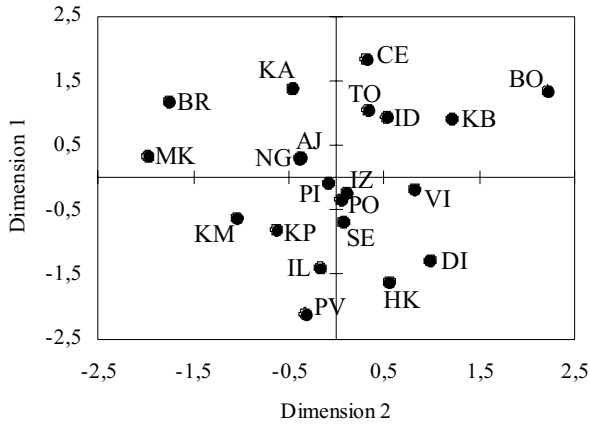
Fig. 2. Topologic representation of the relationships between the municipal populations of Western Slovenia. Each municipality is signed as in Table 1; their geographical position as in Figure 1.

The first dimension, set on the axis of ordinates, shows high values for the municipalities of Cerkno, Kanal, Bovec, Brda, Tolmin, Idrija and Kobarid, all of them placed in the northern region of the territory under examination, whereas the municipalities of Pivka, Hrpelje-Kozina, Ilirska Bistrica and Divača, all placed south and inland in the area considered, can be found in the lower part. It must be stated that the arrangement of the municipalities along the first dimension well represents the north-south direction: for this reason it has been set on the axis of ordinates. The second dimension, set on the axis of abscissas, keeps apart Kobarid and
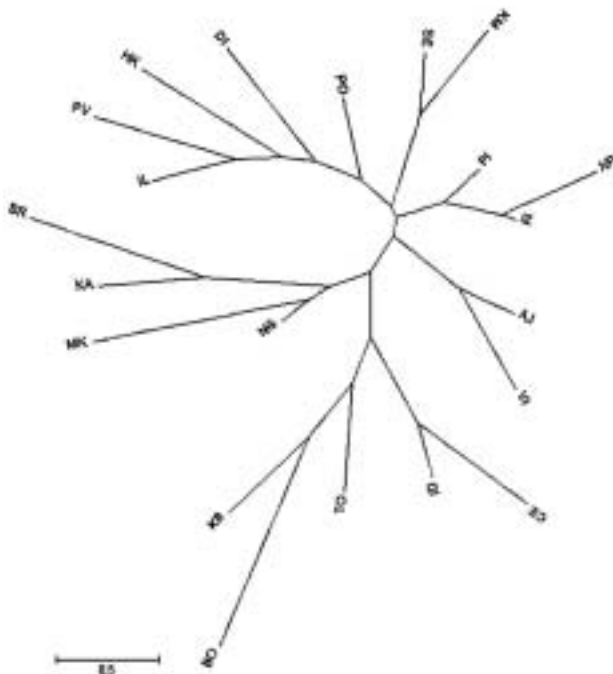

Fig. 3. Neighbor-joining tree of the populations of Western Slovenia. Each municipality is signed as in Table 1 and their geographical position as in Figure 1.

Bovec on the right-hand side, i.e, the municipalities farthest north, less served by major highways and therefore probably much more isolated than others, from Brda and Miren-Kostanjevica on the left-hand side, small municipalities on the Italian border. There are only slight differences among the other localities along the second dimension; however, it is possible to observe a thicker clustering of the municipalities in the middle of the graph, including Piran, Izola, Postojna, Sežana; this groups together the biggest municipalities which have had greater economic development and exerted greater attraction on immigrants. Instead, the dispersion of the points representing the other Karstic populations becomes greater as they lie further inland, particularly when less serviced by the main roads.

On the whole, three main clusters can be observed. The largest one lies at the bottom of the representation, and shows some localities set at the centre of the distribution, while others lie all around them crown-like. This subcluster includes two coastal municipalities, Piran and Izola, together with the other municipalities placed on the main roads of the area, i.e., Nova Gorica, Ajdovščina, Postojna, Sežana. Also Koper and Vipava, although slightly removed from the previous ones, can be included in this group. In a more peripheral position as compared with this core group, there are other municipalities: Hrpelje-Kozina, Divača on the right-hand side, Ilirska Bistrica and Pivka at the bottom, Komen on the left-hand side. On the top left-hand side of the topological representation, the group of the northern-central municipalities closer to the Italian border can be found, i.e., Miren-Kostanjevica, Brda, Kanal; on the top right-hand side of the graph, instead, still along the second dimension, there are the municipalities of the upper Soča/Isonzo valley and of its left tributary, the Idrijca, i.e., Cerkno, Tolmin, Idrija, as well as those farthest north than all others, Kobarid and Bovec.

The NJ tree (Figure 3) shows groupings similar to the ones seen in the topological representation (Figure 2). One branch includes the localities of Kobarid, Bovec, Tolmin, Idrija and Cerkno, represented on the top right-hand side of the nmMDS; another branch includes Brda, Kanal and Miren-Kostanjevica, the northern-central municipalities on the Italian border, placed further up on the left-hand side of the topological representation. The remaining localities all belong to the same branch, where the closest relations can be observed among Piran, Izola and Koper, between Ajdovščina and Vipava, between Sežana and Komen. The methods employed for the representations are affected by the distortions necessarily introduced in the representation of complex phenomena on a reduced number of dimensions. However, they show results, which practically coincide: the slight differences bring out specific situations, which will be analyzed in the discussion.

The percentage of patterns which are statistically significant, resulting from the spatial autocorrelation analysis, is not very elevated, indeed it reaches 26.7% of the total of 60 surnames which were examined (Table 2):

TABLE 3

AUTOCORRELATION COEFFICIENTS (MORAN'S *I*) FOR THE MAIN SURNAMES OF WESTERN SLOVENIA (TABLE 2) AND RELATIVE CLASSIFICATION OF THE STATISTICALLY SIGNIFICANT PATTERNS

Surname	Distance class					Overall Significance	Classification
	1	2	3	4	5		
Česnik	0.14**	−0.03	−0.24**	0.06*	−0.18	0.016	DF
Furlan	0.38**	−0.20	−0.34**	−0.30*	0.21**	0.000	D
Hrvatin	0.20*	−0.18	0.22*	−0.03	−0.46**	0.001	DF
Jerman	0.22**	−0.22	−0.06	0.03	−0.22	0.027	DF
Kocjančič	0.12**	−0.17	−0.02	0.10*	−0.27**	0.018	DF
Lapajne	0.05*	0.03	−0.14	−0.18**	−0.01	0.037	D
Leban	0.01	0.00	0.10*	−0.11	−0.25**	0.037	I
Milavec	0.19**	−0.02	−0.22*	0.00	−0.20*	0.003	DF
Mozetič	0.18**	−0.20*	−0.18	−0.16	0.11*	0.027	D
Penko	0.15**	−0.04	−0.21**	0.03	−0.17	0.002	DF
Požar	0.22**	0.09	−0.24*	−0.03	−0.29*	0.028	DF
Rupnik	0.05*	0.02	−0.07	−0.21**	−0.04	0.012	D
Rutar	0.07*	0.06	0.00	−0.21**	−0.17	0.037	D
Tomšič	0.26**	−0.03	−0.25*	0.01	−0.24*	0.002	DF
Tušar	0.06	0.16**	−0.10	−0.21*	−0.16	0.027	DF
Uršič	0.01	0.04	0.04	0.04	−0.39**	0.000	LDD

Distance class (km): 1 (0.0–17.1), 2 (17.1–45.7), 3 (45.7–63.4), 4 (63.4–79.6), 5 (79.6–113.6).

* = $0.01 < p \leq 0.05$, ** = $0.001 < p \leq 0.01$

Classification: D (Depression), DF (Different), I (Intrusion), LDD (Long-Distance Differentiation).

there are few patterns with a trend of the autocorrelation coefficients schematically classifiable and, for the rest, there are patterns which show no evidence of the presence of characteristic processes of diffusion of individuals within the studied territory (Table 3).

Discussion

The geographical area taken into consideration has always been a meeting point for peoples of different origins and of different cultures: in the course of history, these have been under the rule of different powers which have also favored, or imposed, radical choices, often leading to migrations. The differences of the actual populations with one another and, above all, the extent of similarity nowadays existing among them, based on the distribution of surnames, is therefore the result of diverse historical-political situations following one another, rather than the effect of genetic drift; this, perhaps, may have become apparent in those communities that have lived more isolated and in the mountainous part of the territory under consideration.

The level of similarity of Western Slovenian municipal populations with each other depends to a large extent on their geographical placement, and this fact is mirrored in the mutual position of the various localities in the topological representation (Figure 2). This applies, above all, to the central-northern municipalities,

characterized by an alpine or pre-alpine setting. Generally speaking, a subdivision can be noted that basically follows the structure of the land, starting from the Italian borderline; however, a lot of municipalities are separated from one another despite the fact that they belong to the same cluster in the topological representation. This is why endemic surname peculiarities are likely to be found in each of them[50,51]; actually, some surnames that are clearly localized in certain municipalities can be found out easily: they are characterized by a high frequency in a town but, at the same time, they are virtually absent from the rest of the area taken into consideration, for instance »Marinič« at Brda and »Mlekuž« at Bovec.

The remarks above may highlight the reason why some of the municipalities bordering on Italy (Miren-Kostanjevica, Brda, Komen, Kanal), and positioned on the top left-hand side of the topological representation, are rather apart from one another: this probably depends on some of the features of their typical surnames, though they belong to the same dialect group. In particular, Kanal tends to get closer to the cluster lying on the upper, right-hand part of the graph, which includes the municipalities further inland than the borderline; actually, this also happens because of the position of this town in the middle of the Soča/Isonzo valley, where – going upstream – Tolmin, Kobarid and Bovec can be found in succession. In the topological representation, Kobarid and Bovec are separated from the neighboring towns,

perhaps owing to their greater geographical isolation as compared with the other Slovenian localities. It can also be assumed that these towns may not have been able to draw immigrants owing to their modest economic development; this could be the reason why only autochtonus as well as typical surnames are represented there. Furthermore, both present some linguistic peculiarities, which might point to slight cultural differences, as they are included in the so-called »obsoška« dialect group, which is different from the neighboring »rovtarska«. The other three municipalities of the same cluster belong to the latter dialect group: Idrija, placed the banks of the river Idrijca, a left-hand tributary of the Soča/Isonzo, Cerkno, an adjacent municipality situated some kilometers more in the north, and Tolmin, close to the Italian border.

As regards the large cluster lying at the bottom of the topological representation, Pivka, Ilirska Bistrica, Hrpelje-Kozina and Divača can be noted in the lower position: this is not the position expected according to the actual east-west direction (Figure 1), all the same it mirrors the place where these municipalities lie in the south of the area considered, so differentiating a southern group. Quite a different matter regards the localities that form the central kernel of the topological representation, as the positions of the various municipalities concerned do not exactly correspond either to their geographical location or to the dialect subdivisions of Western Slovenia: in fact, they rather show a subdivision that, in any case, may be interpreted taking other aspects into account. In the first place, a group of municipalities set on the coast or reached by the local highways (Izola, Piran, Postojna, Sežana, Nova Gorica, Ajdovščina) can be observed. These are mainly those resorts that have undergone greater socioeconomic development and, consequently, have become magnets for the people from other areas[52]. Very likely in the past years, there were immigrants that brought about some demographic changes in those places; for this reason, the main surnames of the whole area under consideration are represented in this group and, consequently, it occupies the central position in the topological representation. Koper is slightly apart from the central kernel, but it should always be kept in mind that only the outer municipal territory has been taken into consideration, and not the actual town itself, owing to its size. If the contribution of the town had also been taken into consideration, Koper would probably have moved still further towards the inner core of the graph. Another municipality, somewhat detached from those mentioned above, is Vipava; however, to interpret its position some historical remarks become necessary. The wide valley of the Vipava/Vipacco stretches from Nova Gorica south-east and has as main towns Ajdovščina and Vipava. Over the centuries, it has been a passageway for numerous peoples, including the Turks who passed through it to plunder Friuli and to reach the mountain pass of Postojna[53]. Besides, it is a very fertile region: actually, its rich fields were one of the main reasons why a lot of German and

Italian aristocrats acquired landed property here like, for instance, the Lanthieris from the area of Gorizia, who settled in the Vipava/Vipacco valley in the second half of the 15th century[54]. These landowners brought along working staff from Germany, Italy and Friuli, so the valley has always been far less homogeneous from an ethnic point of view than other areas, such as the upper Isonzo valley (Tolmin, Kobarid, Bovec) and other localities in Karst[55]. A proof of all this can be found in the telephone directory, which includes surnames both like »Furlan« and »Rodman« or »Nusdorfer«: the former, which is third in Vipava and ninth in Ajdovščina in number, is typical of people originally coming from Friuli who settled in Slovenian-speaking areas[56], whereas the latter are clearly German-root surnames. This situation is definitely clearer in Vipava than in Ajdovščina in relation to the number of surnames and their higher frequency; however, this does not imply that a whole category of Slovenian surnames, which is endemic in the aforesaid valley is absent, one good example could be the surname »Premrl«[57]. All this might explain the comparatively distinctive position of Vipava but, to look thoroughly into the matter, comparing the nmMDS (Figure 2) and the NJ tree (Figure 3) may be useful. As a matter of fact, in the topological representation Ajdovščina and Nova Gorica are unmistakably similar to each other, as their points on the graph are practically superimposed; on the contrary, in the NJ tree Ajdovščina is close to Vipava, whereas Nova Gorica is situated in the branch including Miren-Kostanjevica, Kanal and Brda. These results can be explained by taking into account the fact that Ajdovščina is the most important town in the valley of the Vipava/Vipacco and that a main road leading to the other localities in the municipality of Nova Gorica branches off from there; and it can not be forgotten, either, that the town of Nova Gorica has been left out of this analysis, while Vipava, just few kilometers from Ajdovščina, is the point of arrival of the above-mentioned highway. It follows that Ajdovščina will probably have a more variously mixed population, thus being more similar to both Nova Gorica and Vipava, and this can be inferred from the two representations. In any case, it is just as clear that Nova Gorica may also be partly similar to the three towns that lie closest to its municipal territory, i.e., Miren-Kostanjevica, Brda and Kanal. Another peculiarity regards Sežana: in the nmMDS it comes close to the coastal municipalities and to Postojna (Figure 2), whereas in the NJ tree it pairs up with Komen (Figure 3). These results, either, do not contrast with each other, in fact, they support each other: as a matter of fact, Postojna and Sežana can be expected to be similar and to come close to the localities of the coast as they have undoubtedly enjoyed greater socioeconomic growth and are therefore comparable to other quite important municipalities as regards the population number. However, the fact that the municipality of Sežana falls within two different dialect groups – »kraško« and »notranjsko« – should also be considered: the former includes the above-mentioned Komen, the latter Postojna, and this

shows that, to a certain extent, it has a basically heterogeneous culture. In any case, it should be pointed out that linguistic subdivisions can be better observed in the municipalities lying further north, which are relatively isolated geographically speaking, whereas a similar correspondence comes out less clearly in the southern-central part of the area under scrutiny.

The fact that the towns belong to the three different regions of Western Slovenia seems to be only of secondary importance: as a matter of fact, the municipalities on these regional borders cluster in terms of what has been explained above and often quite apart from their position in one or another of the Slovenian regions.

The analysis of the spatial autocorrelation shows a not too high percentage (26.7%) of surnames whose distribution patterns are statistically significant. Their incidence, on a total of 60 surnames taken into account, is lower than the one found in analogous surveys carried out in different north-eastern Italian regions, i.e., in the Ladin municipalities of the Dolomites, with a 46.5%[58], or also in the Slovenian-speaking communities as well in the Carinthian German-speaking oases, with a 32.6% and a 30.3% respectively[59]. A perfect correspondence in number can only be observed with the results obtained for the Italian »Cimbro-Mòcheno« communities[60], who live relatively isolated. Furthermore, there are no patterns bearing out processes of simple diffusion of individuals within the area under examination, such as – for instance – the cline distribution, where a monotonic decrease, which passes from positive to negative values of autocorrelation, in relation to distance, may lead to suppose the existence of migration processes[61]. Consequently, the fact that the Western Slovenian population is basically stable from a geographic point of view can be rightly assumed. In other words, although some immigration certainly took place in the past – for instance, from other ex-Yugoslavian regions and, in any case, mostly towards, some specific areas like the coast[62] – it was for the most part a case of settlements in specific municipalities. This moving of human groups entailed some changes in the local population, but they did not bring about such flows of people as to leave onomastics remains in the towns involved in the phenomenon. All this could explain the current existence of peculiar surnames in some municipalities, particularly in the peripheral ones, where the above-mentioned events were less relevant. As already illustrated, the coastal area that includes Piran, Izola and Koper is an exception; to this group, Sežana and Postojna, which lie further inland, may be added, i.e., those centers that, owing to economic reasons, were most affected by the demographic changes and, as a results, by a change in the original structure of their surnames.

In short, the results of the examination of the distribution of Western Slovenia surnames show peculiar affinities of the various municipal populations with one another: these can be explained by means of the geographic setting, the history and the socioeconomic factors that were characteristic of this territory. The population seems to be mostly geographically stable, so much so that a basically permanent surname structure can be assumed, with the exclusion of some towns that had greater sociodemographic development. The analysis has also shown that drawing from different sources is necessary to interpret a definite situation of the population and, in relation to this fact, surnames and their double role – cultural in its origin and biological in its transmission – represent a valid starting point for this type of survey.

Acknowledgments

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RASPORED PREZIMENA I JEZIČNO-KULTURALNIH IDENTITETA U ZAPADNOJ SLOVENIJI

S A Ž E T A K

U radu je prikazana usporedba prezimena u populaciji općina zapadne Slovenije koje su bile pod talijanskom vlasti sve do kraja Drugog svjetskog rata. Analiza je provedena proučavanjem sličnosti različitih populacija i potvrđivanjem mogućih agregacija; proučavanjem njihovih odnosa sličnosti korištenjem metode »unrooted tree« (NJ); konačno, primjenom prostorne autokorelacije na distribuciju prezimena na proučavanom području da bi se pronašli mogući procesi difuzije ljudi. Sveukupno, čini se da je populacija koja živi na ovom području prilično stabilna, iako se neke razlike mogu primjetiti posebice u sjevernom dijelu, i uz neobične povijesne i socioekonomske karakteristike koje su istovremeno opisivale i modificirale demografsku strukturu ovih regija.