The impact of geofactors on the formation of language islands and minority languages: The case of Cimbrian, Ladinian and Sardinian

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Abstract

This contribution aims to highlight the geofactors which determine the development and continuity of language islands and the territories of minority languages. The focus of this research is therefore primarily on the geomorphological conditions of a specific language area and the interaction of natural factors, such as landform configuration, quality of soil and climate, with sociological and political factors. This approach will offer a new perspective on the genesis of these specific speech areas by taking into consideration the geographical conditions from the beginning of the first settlements through the history of further language propagation and language contact. The case studies chosen to substantiate this theory are the Cimbrian community and the Ladin-speaking valleys in the Alps (Northern Italy) as well as different minority languages spoken in Sardinia, where hilly landscapes alternate with plains, both bordered by the sea. All these languages became minority languages in remote areas, though the determining factors, geographical as well as socio-linguistic, were quite different.

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Introduction and theoretical background

The main interest of the present article is to focus on geofactors (Broll et al., 2017: 294), such as the geomorphological structure of the landscape and the climate, as important reasons for the formation of language islands and for the formation of a certain language area (cf. fr. *aire linguistique*, it. *area linguistica*, germ. *Sprachraum*) in general.[1] The idea to take these factors into consideration is not new and has its origin in traditional dialectology.[2] However, with this new approach we want to switch the perspective and shift the focus to geofactors as important parameters which determine the extension of a language. Furthermore, we offer a systematization of these factors, which, until now, had only occasionally been mentioned in the course of a general description of a language and its speech area.[3] In our approach, we consider these factors to be primary because the shape of the landscape and its climate exist chronologically before human settlement and determine the further development of a settlement, village or city and, therefore, also affect the expansion or the decline of a certain speech area or variety of a language. As far as these 'geofactors' become relevant for the development and extension of a speech area,[4] we can also call them 'geolinguistic factors'. These 'primary geofactors' then interact with the 'secondary socio-cultural factors', in other words with the human factors, such as social, cultural and political (as well as legal, administrative, etc.) conditions, and the possible change of these conditions.[5]

The role of geofactors

Considering the historical development of different cultures and territories, particularly in European civilizations, geofactors are able to play an important role in the formation of settlements and dominions (their expansion and diminution) and, in consequence, in the constitution of language areas (Mitzka, 1952: 115–125; Schöntag, 2019a: 21–24):

- Natural disasters, such as floods (at the coast or near rivers), rockslides, devastation and climate changes, can provoke migrations; people give up their settlement and move to other places, bringing their language with them (e.g. migration period in the Early Middle Ages; Little Ice Age; Great Famine).
- Migration can also be triggered by the economic exploitation of resources, such as mineral ores, salt, oil, gas and water. People have to move to places where these treasures of the soil exist, where they must found temporary or permanent settlements, which, consequently, can change the respective language area (of the original and target language community).
- Regions where the climate is favourable and the soil is fertile offer incentives for new settlements and can also provoke militant migration. The attractiveness of wealthy regions, which became wealthy because of geofactors favourable for settlement and trade, always brings other people, who try to possess this land by fair means or by military expeditions. As a result, language areas can also change their expansion due to these kinds of migration processes.

- Regions with a certain climate and soil, which do not allow agriculture or animal husbandry, experience little settlement or no settlement at all. This is the case for arctic regions, deserts, coastal cliffs, karst plateaus, marshlands, glaciers and high mountains (e.g. in Europe above 2000–3000 m in height).

Geofactors also interact with cultural factors, as already known from traditional dialectology. However, this is not only true for local dialects and their borders but for languages and their speech areas in general. Expansion and reduction of a speech area often depend on geofactors in interaction with cultural and socio-linguistic developments.[6] Geofactors, which can influence the size and the character of a speech area, are:

- mountains (different kinds of valleys and mountains; e.g. Rhaeto-Romance languages; Germanic–Romance, Romance–Slavic and Germanic–Slavic borders in the Alps; Spanish–French border in the Pyrenees)
- marshland/moorland (e.g. Saterland Frisian)
- rivers (e.g. the Danube as the Romanian–Bulgarian border, the Drava as the Hungarian–Croatian border)
- forests (e.g. the Bavarian Forest as the Germanic–Slavic border)
- islands (e.g. Sardinia, Corsica, Sicilia, Iceland and Gotland with their own languages or varieties)
- peninsulas (e.g. Brittany and Cornwall with their own languages)
- deserts (e.g. Sahara as the border between Arabic and Nilo-Saharan languages)

These factors often play an important role in defining political territories and their borders. This is especially the case for mountains and rivers[7] that are often taken as borders for an administrative unit (e.g. commune, town, parish, county or shire) or a certain sovereignty such as a duchy, an earldom, a kingdom, a national state, a diocese, a bishopric, etc. As political borders can influence language borders and, therefore, affect the development of a speech community, the geofactors can indirectly influence these changes (Schöntag, 2019a: 25–29).

Even if it seems to be the case that modern-day humans are no longer dependent in the same way on climatic and geomorphological conditions, as we are obviously able to build skyscrapers in mountain villages, like Alpe d'Huez or Lac de Tignes, and we build bridges over rivers, gorges and straits, we still do not have any big cities on cliffs, in canyons, on steep slopes, on glaciers or on high and rough mountains. The main settlements, historically grown, are still in fertile plains, in wide valleys or hollows, along trade routes and often nearby a river or a lake to secure subsistence living. Settlements in remote areas are normally smaller, much more limited in their size and even more determined by their geographical environment. Language areas develop in the historical contexts of settlements, their demographic development and structure being in correlation with their economic, political and cultural growth or decline. In this sense, the territory of a language is highly dependent on geographical factors which directly

determine the kind of settlement. We now present different examples of speech areas in Italy to illustrate these dependencies.

The perception of geofactors

The feeling of remoteness is often associated with geographical conditions such as mountains, rivers and seas. However, existing topographical landscape conditions are not only classified as limiting and thus provide protection for human settlements. These factors can also have a 'connecting function' (Schöntag, 2019a: 26): serving as places of trade with people located beyond the settlements. For example, mountain villages are relatively isolated, but at the same time they are accessible via mountain passes. Rivers separate settlements and linguistic areas, but their shores also present important trade and exchange points. Islands are not necessarily isolated as loose territorial entities in the sea, but are closely tied to the geofactor 'sea' as a transport and trade route.

Historically, human settlements have mainly emerged where the existing landscape factors enabled cultivation, trade and/or defence and protection (Schöntag, 2019a: 25–29, 36–61). Conversely, this means that survival was difficult in areas in which these geo-structures were less prevalent, and these areas were thus less attractive as places for settlements. However, especially in the last centuries, problematic geo-factors that complicate human life could often be overcome by agricultural and technical intervention. One thinks of the draining of wetlands, the diversion of rivers, the building of dams, the blasting of rocks, the clearing of forests, etc.

In modern times, these interventions are also closely linked to political decisions: one thinks of the wetlands affected by malaria in Italy, which were drained in the course of Fascist reclamation with the aim of enabling settlement (Farinelli, 2013). Isolated mountain villages are now accessible through modern infrastructural development (such as the construction and maintenance of roads, the creation of tunnels, etc.) and connected to valley communities and their schools and services. However, today's opportunities for infrastructural development and reclamation have not necessarily led to a higher willingness among people to populate areas that are characterized by life-complicating geofactors. Life in isolated places – even though it is far more comfortable today – clashes with the demands, wishes and lifestyle of modern society as well as the modern professional fields in the tertiary sector.

Nevertheless, even though geofactors like mountains still have connotations of being 'obstructive' and 'isolating', for those whose everyday life is less determined by geofactors (for example city dwellers), they elicit romanticized notions of the traditional ways of life or are closely tied to pursuing a hobby (such as hiking, climbing, mountain biking, skiing, snowboarding or paragliding). By offering holiday homes in remote and deserted villages, tourism agencies attract people from outside who are looking for a short amount of quiet time or a special location to practise their sport. They offer peace, isolation and opportunities for outdoor activities, and the holidays can be booked via the Internet and reached by modern roads.

As we can see, geofactors always have two sides. These depend on the internal and external perspectives and on the perception of the people who are confronted with these factors in their daily lives and of those who are only temporarily exposed to them.

The speech area of the Cimbrians

The community of the Cimbrians (cimb. *tzimbarn*, germ. *Zimbern*, it. *cimbri*) is located north of Verona and Vicenza in the Southern Alps. Cimbrian (cimb. *tzimbar*, germ. *Zimbrisch*, it. *cimbro*) is home to a Germanic language, mainly based on the Central Bavarian dialect (germ. *Mittelbairisch*) which itself is based on the historic level of Middle High German and that of Old High German. This is a minority language in Italy and consists of two separated speech areas, the *Seven Communities* (cimb. *Siben Komoin*) and the *Thirteen Communities* (cimb. *Dreizehn Komoin*), which are spread out on the high plateaus of the Lessine Alps (it. *Prealpi / Monti Lessini*) and the adjacent Vicentine Alps (it. *Prealpi / Monti Vicentini*). Additionally, we find the Cimbrian language spoken in the village of Luserna (cimb. *Lusérn*, germ. *Lusern*) near the communities of Folgaria and Lavarone († 19th/20th century)[8], northeast of Rovereto, where Cimbrian was also once spoken. These settlements are the result of migration which dates back to the 11th and 12th centuries, when peasants, mainly from the sovereignties of the monastery Benediktbeuren and the diocese Freising, near Munich, migrated to the territories of Trento, Verona and Vicenza, which were related to Bavaria in various ways at the time. During the main period of the Cimbrian settlement and culture (14th–18th centuries), when they could preserve a certain autonomy within the Republic of Venice (see *Federation of the Seven Municipalities*, *Federation of the Thirteen Municipalities*), and even develop their own written language,[9] the population was probably around 20,000. The decline of the language began in the 19th century, as more and more speakers searched for work outside their ancestral territory: cf. seasonal or permanent migration,[10] mainly to Northern Italy, Switzerland and Germany. After the First World War (1914/1915–1918), when the Austrian-Hungarian monarchy lost the last part of this region to Italy, the Cimbrian-speaking population counted only about 3700 speakers (in 1921) (Rowley, 1996: 265–267; Schöntag, 2014: 83–85).

Nowadays, we can estimate that between 500 and 2000 active speakers remain in the area, including those who live in the nearby cities of Verona, Vicenza, Trento and Rovereto or abroad and probably only have a passive competence of their language. In general, the reduction of the speech community and the appearance of so-called semi-speakers are partly caused by the lack of regular contact with other speakers. In this situation, the dominant language Italian is more and more present in daily life and there are only a few occasions left for speaking Cimbrian, which gradually leads to a loss of language skills (cf. 'language attrition', Thomason, 2001: 227).[11] An example of a contact-induced phenomenon, which also shows the attrition of the language, is the increasing replacement of morphological and lexical structures (with Italian or Standard German forms and structures). For example, cimb. *gelaich*

'immediately' is replaced by it. *lo stesso*: in cimb. *herta di lo stessegen laüt* 'always the same people', it. *stesso* is integrated by the Cimbrian suffix *-ig* and it. *lo* is used as a new prefix in analogy to cimb. *ge-* (Kolmer, 2012: 69). An example of this phenomenon detected in the language use of semi-speakers is the following: cimb. *Biar len di naråntz att'n tisch* instead of *Biar len di naréntze af'n tiss* 'We lay the orange on the table'; in this case, cimb. *tiss* is replaced by Standard German *Tisch* and the plural form (*naréntze*) is reduced to a singular (*naråntz*) (Bidese, 2012: 165).

Roughly, we can state that the speech community diminished radically in the last 100–200 years, due to migration and language loss, because many speakers switched to the majority language, Italian. In consequence, the speech area shrank to a minimum and nowadays the only stable and active speech community left can be found in the village of Luserna (colonized by the bishop of Trento from Lavarone in the 15th century). In the other towns and villages of the former Cimbrian speech area (it. *Sette e Tredici Comuni*) there are only a few speakers left:

- Luserna (cimb. *Lusérn*): c. 300 resident speakers + c. 600 non-resident speakers (reg. *Trentino-Alto Adige*, prov. *Trento*)
- Roana (cimbr. *Robaan*), Mezzaselva (cimb. *Tobálle*) (VII C.): c. 10–30 resident speakers (reg. *Veneto*, prov. *Vicenza*)
- Giazza (cimb. *Ljètzan*) (XIII C.): c. 4–60 resident speakers + c. 30–60 non-resident speakers (reg. *Veneto*, prov. *Verona*) (Schöntag, 2014: 88).[12]

In what ways did geofactors influence the development and decline of the speech community of the Cimbrians? First of all, the migration of the 11th and 12th centuries was triggered by bad harvests and a hunger period in Southern Bavaria. The land these settlers could occupy after their emigration was not the land of the fertile plains in Northern Italy, but instead a rather remote region, where there was only scarce settlement of a Romance-speaking society or no cultivation and exploitation at all at that time. Hence, they were forced to take this peripheral location of the dominions, which allowed their settlement. This high plateau of the Monti Lessini and Vicentini favoured a certain isolation, which was a decisive factor for keeping their own language over the next centuries (Baum, 1983: 7–49; Bidese, 2004: 5–6).

Settling in this remote region also determined the economic outcomes (Rowley, 1996: 265). The geographic location, the climate, the vegetation and the poor quality of the soil determined the kind of agriculture (mainly animal husbandry; e.g. the wool trade) they could practise and their specialization in wood (e.g. charcoal burning, supply of timber, carpentry). Their experience with woodworking, for example, was important for the Republic of Venice, which had a permanent demand for lumber as a raw material and for skilled workers to build their ships (Panieri et al., 2005: 100–101).

The isolation and a certain economic importance, however, helped to sustain the political rights the Cimbrians were granted by the 'Serenissima', not the least because they were seen as a rampart or stronghold against adversarial neighbours (e.g. Habsburg, Visconti/Sforza) – cultural factors and geofactors are clearly interacting

in this case. We can state that certain geofactors, especially the remoteness of the mountains, favoured the 'language maintenance' (Thomason, 2001: 22–23) of the Cimbrians.[13]

On the other hand, if we take a closer look at this region, we can also observe how and where the erosion of this speech area began (cf. 'language decay', 'language death').[14] If we first look at the Germanic speech area in this region south of the Germanic–Romanic border (e.g. Salurner Klause), especially Trentino, we can state that the people of settlements in valleys which are in or nearby the main valley of the Etsch (it. *Adige*) were the first who gave up their language in favour of the majority society (e.g. Noriglio, †16th century; Val Ronchi, †17th century; Besenello, †18th century). In a second step since the 19th century, the villages of the Monti Lessini (Tredici Comuni) and the Altopiano di Asiago (Sette Comuni) began to lose their native speakers as well as those on the plateaus of Lavarone (†19th century) and Folgaria (†20th century) (Rowley, 1996: 270–275; Schöntag, 2013: 140–141).

In these cases, Italian was the dominant language of this region (and the state) and, therefore, superseded Cimbrian and finally replaced it. This occurred for two general reasons. On the one hand the general mobility and supraregional communication increased and on the other hand Italian speakers moved up from the plains along the main valley to the Altopiani and Italian was the major language for commerce, which therefore began to undermine the Cimbrian language. As the infrastructure got better and the remoteness of these settlements diminished, the 'splendid' isolation got lost. The last community which could preserve the Cimbrian language, Luserna, is characterized by a special kind of remoteness (Schöntag, 2013: 151–152). There is only one main point of access, because the village is situated on a very small high plateau at the edge of a very steep canyon in which the river Astico is found. Luserna is difficult to reach from the main valleys Val d'Adige and Val Sugana even today.

As the example of the Cimbrian community demonstrates, it is not only necessary to consider the general remoteness, but the full range of geofactors, which determine the development of the speech area, in this case of a language island.[15] In other words, it is not enough to state that there are mountains; one also needs to consider how these mountains and valleys are structured (e.g. height, steepness, length, passes and plateaus). Furthermore, it is essential to consider the natural vegetation and the quality of soil (pastures, fields, woods, lack thereof) as well as the microclimate in the respective area. As a result, it can be concluded that these villages had no or only limited economic value, while their strategic significance was negligible, at least in comparison with the wealthy regions in the Bassa padana or the Val d'Adige. In the case of this minority language, geofactors – in interaction with socio-cultural and political factors (e.g. migration, sovereignty, economic wealth, literacy) – have a decisive influence on linguistic developments, such as language maintenance or language shift (with language obsolescence) and in some cases language death with the preceding phenomena language decay and language attrition.

The speech area of Ladinian

The speech community of the Ladins has about 30,000 native speakers (Kattenbusch, 1996: 314). The area of this Rhaeto-Romance language (besides Romansh and Friulian) is situated in the Dolomitic Alps, mainly around the Sella group, in the Italian provinces of South Tyrol, Trentino (reg. Trentino Alto Adige) and Belluno (reg. Veneto). The Ladin language or Dolomitic Ladin (also 'ladino atesino') can linguistically be divided into five main varieties, which roughly correspond with the valleys where they are spoken:

- the Badiot/Gadera (lad. *badiòt*, it. *badiot(t)o*, germ. *Gadertalisch*) in the Badia/ Gadera valley (lad. *Badia*, it. *Val Badia*, germ. *Gadertal*) with the subvariety of Mareo (lad. *marèo*, it. *marebbano*, germ. *Ennebergisch*) in the side valley of Mareo (germ. *Enneberg*),
- the Gherdëina/Gardenese (lad. *gherdëina*, it. *gardenese*, germ. *Grödnertalisch/ Grödnerisch*) in the Gardena valley (lad. *Gherdëina*, it. *Val Gardena*, germ. *Grödnertal*),
- the Fashan (lad. *fascian*, it. *fassano*, germ. *Fassatalisch/Fassanisch*) in the Fassa valley (lad. *Fascia*, it. *Val di Fassa*, germ. *Fassatal*),
- the Fodom (lad. *fodóm*, it. *livinallese*, germ. *Buchensteinische*) in the Fodom valley (lad. *Fodom*, it. *Livinallongo*, germ. *Buchenstein*), which has the subvarieties of Moena (lad. *moenat*) in Moena, Brach (lad. *brach*) around Vigo in the middle part of the valley and Cazet (lad. *cazèt*) in the upper part around Canazei, and
- the Ampezzan (lad. *anpezàn*, it. *ampezzano*, germ. Ampezzanisch) in the Ampezzo valley (lad. *Anpezo*, it. *Val d'Ampezzo*, germ. *Ampezzotal*) (Kattenbusch, 1996: 312–313; Toso, 2008: 91–96).

Historically, Ladin varieties were also written (since the 16th/17th century), though at a rather modest level, until a general standard was created in 1999 by the initiative of Heinrich Schmid (cf. Ladin Dolomitan) (Heilmann and Plangg, 1989: 728). Additionally, there are transitional zones (e.g. 'ladino cadorino', 'ladino veneto') to different Italian dialects (Venetian, Lombard, Trentinian) and Friulian. As with the above-mentioned Cimbrians, Ladin speakers are at least bilingual, and often even plurilingual with German and/or Italian as an additional language, so that they have different standard (German/Italian/Ladin) and diatopic varieties (e.g. Southern Bavarian; Lombard/Trentinian/Venetian; Badiot, etc.) in use, dependent on in which valley they are located.[16] The speech area of Ladin is part of a formerly larger area of the Rhaeto-Romance language in the Alps (cf. 'questione ladina') (Haiman and Benincà, 1992: 16–17; Salvi, 2016: 154–156).

How do geofactors influence this minority language in this case? The Alps were traditionally a transition zone and only scarcely colonized because of the rough and difficult conditions for agriculture and settlement, due to an extreme and diversified climate, stony and barren soils and an unfavourable geomorphological structure (e.g. scarps, glaciers, ravines, rocks) (Bätzing, 2005: 25–79). Certain valleys and passes were of strategic interest for military expeditions and as borders; others

were important due to transregional trade between the commercial centres in the plains and the main valleys. In these cases, socio-political factors and geofactors interact on different levels.

The reason why a certain kind of Vulgar Latin could evolve into different Rhaeto-Romance idioms is surely the remoteness in the middle of the Alps, where mountains are high and valleys are not easily accessible from the plains. During the troubled times of the Migration Period (germ. *Völkerwanderung*), the Alps offered an area to retreat to, where the Romanic population could seek shelter from raids and pillaging. From the Middle Ages on, this formerly widespread area eroded, encroached upon from the north by Germanic invasion and expansion (Bavarians; 6th–11th centuries) and from the south initially also by Germanic speakers or at least sovereignties (Ostrogoths, Langobards, 6th–9th centuries) and at the same time and particularly later by Romanic (Italian) speakers (Kattenbusch, 1996: 314–316). The result is a contemporary language area with a concentration of the remaining speakers of Ladin around the Sella group, which is rather far away from the main valleys and trade routes of Etsch, Rienz, Drau and Piave – a kind of isolation in the midst of hardly accessible mountains, which offered only subsistence economic outcome over centuries (e.g. hardscrabble cultivation of crop, small-scale husbandry, utilization of woods, a little mining) (Pescosta, 2013: 44–84).

The transitional zones of the so-called 'semi-ladino' varieties as in the Val di Non, Val di Sole, Val di Fiemme, Val di Cembra, Val di Zoldo, Cadore, Comelico and Agordino are an obvious hint at a formerly greater speech area as well as the known lost territories († 17th/18th centuries) of Welschnofen (lad. *Neva Ladina*, it. *Nova Levante*), St. Michael (part of Kastelruth, lad. *Ciastel*, it. *Castelrotto*), the Seiser Alm (lad. *Mont Sëuc*, it. *Alpe di Siusi*) and the Upper Val Venosta (germ. *Vinschgau*) (Goebl, 2003: 758; Pescosta, 2013: 186–187). It is remarkable that the erosion of the speech area progresses step by step in a certain direction. From the respective ends of the inner valleys of the Dolomites, which are closer to the main valleys (e.g. Puster, Adige), the majority languages conquer the zone of the minority language. So, from the North, German ('Südtirolerisch') is advancing and from the West, the South and Southeast, Italian and its dialects ('dialetto trentino' and 'bellunese') are advancing. However, the process of language shift and interference phenomena of language contact are not the same, as Italian is linguistically much closer to Ladin than German (such as lexical loans from both languages: e.g. it. *mestiere* 'craft' > lad. *mistier/mestier* instead of *ert/ért*; germ. *Dankeschön* 'thank you' > lad. *dòncscenn* instead of *dilan/dietelpai*; simplification: e.g. lad. *crëier/crëie* 'to believe' vs. *raté/aratè* 'to suppose' vs. *miné* 'to mean' > only *crëier/crëie*; Craffonara, 1997: 1392–1393). But, to be precise, the erosion of the speech area also takes place within this region as we have to consider immigration and emigration, general speaker mobility and other reasons for language shift.

We can state that it is not a coincidence that Ladin speakers only remained in these narrow and tortuous valleys in the midst of the Dolomites, and even there only in the upper parts of the valleys, no longer in the lower parts, the mouth or the regions close to a larger valley.[17]

The infrastructure as a human factor is also dependent on the geomorphological conditions. The particular remoteness of this speech area is still of importance, and even if the routes are faster and guarantee easier access than in former times, the claims and interests of today's infrastructure have also changed. Everything has to be faster, and as result the remoteness is still there, though in a different way since the valleys are no longer difficult to access but are still not near main transitional routes and do not have space for greater industrial settlement.

Also, it is not a coincidence that the single varieties of Ladin are distributed in the valleys around the Sella group (more or less one valley, one dialect), as this mountain and some neighbouring groups function as a border. There are passes, but these are very steep and high (mostly above 2000 m), hard to surmount and completely inaccessible during the winter.

As a result, we can state that the kind of remote settlement in these steep valleys made it possible for this kind of language to survive for a long time; the geofactors which are responsible for this development are mainly the repellent mountains and the unfavourable climate and soil. Cultural factors that have to be considered interact with the named geofactors. Due to the mentioned hard conditions for settlement, this region was never the focus of interest, either for economic or strategic or other political reasons. The area was mainly part of sovereignties (e.g. County of Tyrol, Republic of Venice) with a local administration, which resided in the main valleys or the alpine foreland (e.g. Bolzano, Trento, Verona, Belluno).

Today, the situation is in one important aspect slightly different in comparison to former times: the actual economic wealth of the region comes mainly from tourism, which takes place particularly in winter but also during summertime. The special character of these mountains, which was a disadvantage for a long time in the past, is nowadays the source of capital and a unique feature (it is a UNESCO World Heritage Site).[18] In this case, the geofactor 'landscape' changed its effect on the speech community. Again, geofactors influence the development of the speech area at least indirectly in interaction with socio-cultural factors. The new economic wealth from tourism guarantees on the one hand that people can remain in these remote valleys and continue to speak their language and even develop a positive state of mind for their own language (cf. language attitude, cultural identity); on the other hand, with a larger number of tourists and the increasing communication with other people who come seasonally or as permanent residents or employees, the danger of a language shift to the dominant Italian or German rises significantly. Nevertheless, Ladin can be treated as a small but relatively stable speech community, last but not least because of fairly strong political protection and its incorporation in the local school system.

The new perspective with its focus on the primarily existing geographical conditions shows which impact geofactors can have directly or indirectly on the development of a speech area. Generally speaking, people gather in settlements, which are determined by the landscape, and their subsistence depends on agriculture, trade or service industries (such as tourism), which are also closely related to the geographical conditions (including geomorphology, climate, soil fertility, etc.).

The speech area of Sardinia

With an area of 24,100 km^2, Sardinia is the second largest island in the Mediterranean after Sicily (Cattedra, 2016: 294). The diachronic development of the language landscape of Sardinia can be explained not only by political determinants but also by underlying geofactors. The local, geomorphologic characteristics of the island territory as well as the change of these by humans in the past and present significantly influenced the structure of the settlements as well as the population density and thus the development of the language varieties that can be found in Sardinia. As already mentioned, human settlements occurred mainly where the existing geofactors enabled cultivation, trade and/or defence and protection (Schöntag, 2019a: 21–24). The main geofactors that influenced the economic and political nature of the island and therefore also the development of the Sardinian language landscape are: 1) Sardinia's entity as an island in the Mediterranean, 2) its geographical proximity and geological similarity to the 'sister island' Corsica and 3) geomorphological conditions such as flat coasts, bays and steep coastlines; mountainous regions and flat regions in the inland; rivers, estuaries and swamps; different soil types and raw materials; the climate, vegetation and groundwater resources.

A look at the geomorphologic features of the island reveals the following. Sardinia has few bays: inlets are the Gulf regions (Golfo di Cagliari, di Palmas, di Oristano, dell'Asinara, di Olbia, di Orosei), which are characterized by shallower coastal strips, while the rest of Sardinia's coast is rocky, partly with steep cliffs. Plains – some of which coincide with river estuaries – can be found in the Campidano, Valle di Cixerri, Sulcis, Nurra, Logudoro, Ozieri and Bonorva (Exel, 1986: 12–14) and – as we will see later – can be distinguished from the numerous high plateaus in several respects. More than two-thirds of the territory is made up of hills, and a fifth is characterized by plains (Tanca, 2016: 131). Since Sardinia is dominated by numerous impermeable rock types, there are few groundwater reserves in the plateaus. High plains served, and still partly serve, as grazing grounds for sheep and goat herds. Groundwater is only present on the surface in the plains (Campidano, Nurra, Sulcis, Sarrabus, Gallura, Baronia, Ogliastra). Sardinia was originally rich in raw materials. In the southwest, in Sulcis and Sarrabus, there were lead, zinc and silver deposits (Exel, 1986: 15, 18–19, 106–107).[19]

Sardinian is a Romance language and therefore has its origins in the Romanization and Latinization of the island, which started early on after the First Punic War (264–241 BC).[20]

The mere fact that Sardinia is an island is a major reason for its isolation, the low contact intensity and thus for the preservation of Latin archaisms in the Sardinian language (Marongiu, 2016: 113; Stefenelli, 1996: 77). The Romans took over the coastal cities founded originally by the Phoenicians and Carthaginians and created further settlements (Bonz, 1968: 27; Mastino, 2005: 168)[21] where mining (e.g. lead, zinc, silver) could be pursued or where groundwater reserves allowed farming (e.g. in the flatland of Campidano). Phoenician (8th century BC) and Punic (6th century BC) settlements had particularly emerged on the north, south and west coasts on foothills and smaller offshore islands and served as protected retreats as well as strategically

advantageous trading points (Bonz, 1968: 20; Brundu, 2013: 50). The Romanization proceeded from the coasts:

> The linguistic signs of Romanization are stronger in the most easily accessible coastal areas, where the port towns of *Cagliari*, *Olbia* and *Porto Torres* were founded and developed, and in the areas where they built an efficient road system to connect these three major towns of the island. (Marongiu, 2016: 114; emphasis in original)

By contrast, the interior of the island – the Barbaria – was less strongly Romanized at the beginning. Its original extent cannot be reconstructed exactly, but this area definitely had its own economic and cultural background (Mastino, 2005: 170):

> [...] deeply Latinized populations inhabited the coastal regions, where urban civilization and trade flourished, and the agricultural plains, important cereal producers, while the inner mountain areas were inhabited by autochthonous populations who, in spite of gradually absorbing the Latin language, retained distinctive socio-economic and cultural traits and were seen as 'Barbarians' by the Roman authorities. (Corsale, 2016: 65)

The local population living in the Barbaria was expelled, deported and decimated by the Romans. The area was then repopulated with released soldiers (Ingrassia and Blasco Ferrer, 2009: 33).[22] Finally, the island was completely Romanized. A high density of settlement was found where groundwater reserves allowed farming (e.g. in the flatlands) or where mines (e.g. lead, zinc, silver) could be operated. Furthermore, the coastal cities – strengthened by the foreign rulers – were densely populated, while numerous but poorly populated and isolated settlements, which served as a retreat, prevailed in the mountains (Bonz, 1968: 8).

The origins of the diversification of the language area in the two Sardinian macro varieties Logudorese and Campidanese, therefore, are in the Roman period: archaisms of early Latinity (2nd–1st century BC) could be preserved in the hardly accessible areas in the mountains, whereas in flatter regions (e.g. in the Campidano) and on the coasts, lexical innovations were later introduced (Guido, 2006: 273; Mastino, 2005: 194; Wagner, 2002 [1950]: 117). The influences of the subsequent ruling powers (Genoa, Pisa, Aragon) increased once again in the coastal cities. The Sardinian varieties, which had developed in the mountainous regions, were less affected by these linguistic innovations and thus were able to preserve archaic features.

After the end of the Roman Empire, the population mainly moved to the interior of the island to protect itself from diseases and from the Arabic and Saracen attackers (Brundu, 2013: 50–51; Salinari, 2013: 93): 'The vast majority of the population used to live in mainly self-sufficient agricultural and agropastoral settlements scattered across plains, hills and mountains, at a safe distance from the piracy and malaria-infested coast' (Corsale, 2016: 65).

Even in the Piedmontese times – when the coasts had become much safer – new factors like famine, vengeance and banditry (that often stemmed from the Aragonese

from the 14th century on) triggered the migration of people to the interior of the island (Brundu, 2013: 48, 51).

Campidanese, therefore, has considerably less dialectal fragmentation than Logudorese.[23] Because of its flat condition, the area of the Campidano shows fewer separate settlements, while mountain areas, due to their poorer accessibility, experienced less contact from the outside or their inhabitants left less frequently (Wehlmann, 1991: 58, 65). The flatland of Campidano was densely populated at an early stage and well developed infrastructurally, so that regular exchange between residents was possible. In addition, the faster and more homogeneous dissemination of linguistic innovations can also be explained by the influence of the prestigious city of Cagliari, which was exposed to the Tuscan influence of Pisa and the influence of Catalan (Wagner, 2002 [1950]: 68, 279).

The Sardinian-Corsican varieties Sassarese and Gallurese, on the other hand, are transitional varieties, whose hybrid structure stems from the implementation of Corsican varieties in the North-Sardinian region and the subsequent interweaving with Sardinian varieties.[24] As an example, the formation of the Gallurese speech area was influenced by the following factors: Gallurese developed in the course of several waves of Corsican migration throughout the last centuries – starting in the Trecento (14th century; Toso, 2012: 27–28) and evolving particularly in the Settecento (18th century) when Savoy promoted the settlement of Corsican ranchers who built and moved into scattered *stazzi* in Gallura (Farinelli, 2013: 63).[25] The geographic proximity that could easily be overcome by the sea route as well as geomorphological similarities of northern Sardinia and southern Corsica (e.g. closed regions in the mountains, similar vegetation) led to a smooth integration of the Corsicans into Sardinia. They were thus able to continue their work as farmers and shepherds (Wehlmann, 1991: 86), so that there was no need to move inland. The granite deposits in Gallura have always been beneficial to local and migrant populations as building material for houses. They were naturally present, and also served as shelter for farm animals (Melis et al., 2017: 354). Corsica and Gallura are geologically closely related and belong to the granite region of the 'Corsican Massif' (Bonz, 1968: 99). Sardinia and Corsica are therefore often referred to as 'sister islands'. Very often, Gallurese is not classified as a variety of Sardinian but is rather considered a South Corsican variety.[26]

However, the demographic situation and distribution of Sardinia has changed a great deal since the beginning of the 20th century and has had a major impact on the development of the language landscape.[27] Among other things, this development is based on a re-evaluation of the primary landscape factors: geofactors can be changed by human intervention and be perceived differently over the course of time.

Geofactors that initially kept people from settling in certain areas no longer posed a lethal threat. For instance, malaria-affected areas were either avoided or drained as part of the Fascist reclamation policy, such as the wetlands of the Nurra near Alghero, where the new city of Fertilia was built in the 1930s. The newly created settlement was initially populated almost exclusively with families from the town of Ferrara (Farinelli, 2013: 59). These measures for the creation of new settlement and

cultivation areas went hand in hand with the language policy of Fascism, which used the settlement of people from the mainland as '[...] a way to definitely Italianize the population of peripheral areas' (Farinelli, 2013: 57). The city of Alghero, which was populated with Catalans from 1354 on, is well known for its Catalan variety Algherese, which as a non-Italian minority language was not supported by the Fascist language policy (Farinelli, 2013: 71). From the 1960s on, more and more coastal areas experienced touristic development, which led to a higher population density especially in the summer months – like the north-eastern coastline Costa Smeralda:[28]

> In this case, rather than deterministic limitations, it is the 'advantage of insularity', 'the favourable climate', the beauty of the sea and beaches, the archaeological heritage and Sardinian folklore that are the elements on which the story of the island is based. (Cattedra, 2016: 301)

Geofactors which first encouraged human settlements for economic benefits were exhausted: the cities of Iglesias and Carbonia and their surrounding regions, which due to their natural resources had favoured the construction of mines since Roman times, have been affected by emigration since the decline of the mining activity (Cattedra, 2016: 299; Gentileschi and Barreca, 1981).[29]

Geofactors that once provided protection – such as the barely accessible mountainous regions – no longer serve this function today. While coastal cities are increasingly expanding due to their services, industries, educational facilities, modern occupational fields and tourism, remote mountain villages are becoming increasingly abandoned and have been characterized by an ageing population since the second half of the 20th century (Breschi, 2013: 35, 38; Brundu, 2013: 57; Corsale, 2016: 64, 68). In the 1970s, tendencies of 'language shift' had already affected the population of urban centres and progressively extended to the rural areas (Marongiu, 2016: 117). The result today is a sharp decline in the usage of the Sardinian varieties, which remain almost unused in the already fully Italianized cities of Sardinia like Cagliari, Sassari, Porto Torres and Olbia (Marongiu, 2016: 122).

Conclusion

The present contribution aimed to highlight the importance of geofactors which can generally determine the development and existence of speech areas and particularly influence the evolution of language islands and territories of minority languages. Against this backdrop, we tried to open a new perspective on the genesis and development of three specific speech areas by focusing on the underlying geographical conditions. In a second step, we also took into consideration how these geofactors interact with political and socio-cultural factors. Every language area is the result of complex and multifactorial processes and the evaluation of the underlying single factors cannot be carried out without taking into account the specific historical contexts of the language areas. However, geofactors are primary conditions and

cannot be ignored. These factors concerning landscape and climate are difficult to be changed by human beings, but they may be re-evaluated in the course of time. Nevertheless, geofactors still influence human settlement, exchange processes and communication.

Notes

1. The first, second, fourth and fifth sections were written by Roger Schöntag, the third and sixth by Laura Linzmeier and the final section by both authors.
2. See e.g. Mitzka, who describes the relevance of geographic conditions in dialectology: 'Nature determines dialect borders by mountains, forests, bodies of water, bogs, islands, types of soil. It has to be asked if nature determines significantly or even alone the borders and the areas of the dialects, or if cultural borders and areas coincide with the natural borders and areas. This is normally the case. It is necessary to estimate the possible role of nature in dialectology. Relict landscapes should be searched for behind the ramparts of nature' (Mitzka, 1952: 115; transl. RS).
3. This perspective should neither be limited to minority language situations, as e.g. in White (1991: 46–52), who offers a spatial typology of minority languages in Italy using only a few rough criteria (diffuse, close-knit, contiguous, non-contiguous). We instead try to consider the full range of geofactorial influence – potentially on every kind of speech area.
4. See the proposal to denominate this approach *Geofaktorielle Linguistik* ('geofactorial linguistics') (Schöntag, 2019a: 62).
5. This interaction of geographic conditions and human (especially political) factors has occasionally been mentioned in modern variation- and sociolinguistics as well: '[…] there is no doubt that many individual isoglosses coincide with both man-made boundaries (marking, for example, administrative districts, principalities or dioceses) and to a lesser extent natural ones (such as rivers or mountain ranges) and there appear to be too many instances of this for it to be dismissed as the result of chance' (Barbour and Stevenson, 1990: 68).
6. See Edwards (1992: 38–41), who e.g. considers the interaction of these factors, but neglects the multitude and variety of the geofactorial impact by following the rough spatial categorization of White (1991: 49). For general reasons why languages become endangered (e.g. conquest, economic pressure, negative attitudes, loss of linguistic diversity, language politics), see Thomason (2015: 32–37).
7. Even though rivers can change because they meander over time and are not stable in the same way as mountains, they are often taken as a natural boundary.
8. Cross symbol = extinction of language.
9. The first known Cimbrian document was a translation of the Italian catechism *Dottrina Cristiana breve* (1597) by Roberto Bellarmino (1542–1621) and had the title *Christlike unt korze dottrina* (1602) (Bidese, 2010: 61).
10. Regarding the different types of migration in historical language contact situations, see Schöntag (2019b: 17–20).
11. For reasons of language maintenance (e.g. endogamy, cultural identity, language attitude) in the Cimbrian community as well as the phenomena of language contact and language attrition (Kolmer, 2012: 58–69). For a specific example of Romance influence on Cimbrian, see Bidese (2011: 347–367).
12. In 2009–2011, Alber (2015: 20–21) met only three Cimbrian speakers in Giazza (and estimates that there are a maximum of 10 left, aged on average 70 years old) and two

in Roana (both aged over 90). In a recent geolinguistic project, the existing varieties of Giazza (province of Verona), Luserna (province of Trento) and Roana (province of Vicenza) are preserved by the digital *Atlante Sintattico d'Italia* (ASIt) (http://asit.mal-dura.unipd.it/), where linguistic data of the Cimbrian dialects are collected and annotated (Agosti et al., 2012; Di Nunzio and Rabanus, 2014).

13. Kolmer (2012: 58), for example, believes that the Cimbrian community was able to survive for a fairly long time as a language island due to three factors: 1) geographical isolation and as a result restricted mobility, 2) a self-subsistence economy and 3) endogamy.

14. For the different levels of danger (safe, endangered, extinct) regarding languages which could potentially suffer a language death, and their further categorization (viable, viable but small, endangered, nearly extinct, extinct or potentially endangered, endangered, seriously endangered, moribund, extinct), see Crystal (2000: 19–23). In this respect, Cimbrian can be classified as moribund or nearly extinct, with general phenomena of language decay (Schöntag, 2014: 98).

15. See the schemes of different types of mountain remoteness and the categories of language islands in Schöntag (2013: 131–156).

16. Concerning the actual situation of plurilingualism in the different parts of the Ladin language area and the language policy of the single provinces, see Siller-Runggaldier (2014: 172–181).

17. In the Early Middle Ages (6th–9th centuries), it can be assumed that a Romanic–Germanic bilingualism in the Puster Valley existed (germ. *Pustertal*, it. *Val Pusteria*), which is an important valley in an East–West direction, north of today's Ladin speech area (Pescosta, 2013: 76).

18. See the homepage with all data concerning landscape, geology, flora and fauna, as well as customs and traditions: http//:www.dolomitiunesco.it (accessed 16 June 2019).

19. 'Throughout the island, the Sardinian granite landscape is characterized by rugged mountains cut by deep gorges, vast uplands scattered with block piles, and large hills covered by Mediterranean scrub. Indented coasts, shaped into promontories, bays and small islands border the ancient granite masses that rise from the sea' (Melis et al., 2017: 351).

20. For an overview of Sardinia's language history and language landscape, see Linzmeier (2018: ch. 1.1; 2019: ch. 2).

21. The coastal settlements of Cagliari, Nora, Chia, Sulci, Enosis, Tharros and Cornus were important trading points during the Carthaginian times (Memoli, 2016: 155).

22. Today's Barbagia extends over the very mountainous Nuorese (Guido, 2006: 51–52).

23. Logudorese has the following subdialects: Common Logudorese, Northern Logudorese, Nuorese and Barbaricino (Marongiu, 2016: 112).

24. On the development of Sassarese, see Linzmeier (2018: 43–47; 2019: ch. 4.3). Moreover, in the North-Sardinian centres (e.g. Sassari) it was particularly the Genoese – less the Pisans – that left further linguistic traces (Maxia, 2006: 519).

25. The habit of building scattered *stazzi*, however, seems to have started early on and was already widely used by Corsican immigrants in the Gallura during the Cinquecento and Seicento: 'Nel corso del Cinque e del Seicento il territorio appare infatti tutt'altro che disabitato, ma il popolamento, dopo la crisi tardo-trecentesca, era andato riorganizzandosi secondo la pratica degli insediamenti sparsi (gli *stazzi* appunto) che caratterizzavano un'immigrazione còrsa della quale si hanno in realtà tracce documentarie piuttosto precoci' (Toso, 2012: 26).

26. The Gallura and the Gallurese language area are bounded in the west by the Coghinas River, in the south by the Olbia-Oschiri valley and in the east and north by the sea (Bonz, 1968: 99). Roughly speaking, the course of the Coghinas River also coincides with the isoglosses separating Gallurese from Castellanese, a transitional variety between Sassarese and Gallurese. Maddalenese – spoken on the island of Maddalena – is often assigned to the Corsican-Genovese variety spoken in Bonifacio that was transferred to the *Maddalena* Archipelago by Corsican immigrants since the Seicento (Toso, 2012: 10).
27. Furthermore, in the 18th and 19th centuries substantial reforms were undertaken in the field of healthcare, safety, agriculture and mining, infrastructure and settlement programmes (Brundu, 2013: 51–54).
28. See Iorio (2016) on the development of Sardinia's seaside tourism.
29. Carbonia was founded by the Fascist regime in 1937 (Corsale, 2016: 66, 71; Memoli, 2016: 165).

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