

«Well, they spoke odd, if I remember». On time-related changes in sociolinguistics

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Abstract:

The paper discusses a number of innovative qualitative interpretations of quantitative approaches to the sociolinguistic variable «time», with special attention on language decay and/or maintenance. Namely, the «Sharp Arrow method», the «InterGenerational Variation Index» and the Smooth/Curved Arrows method» are here described and proposed, in order to measure the cross-linguistic shifting by comparing different linguistic situations on the basis of the data drawn on from three multilingual areas in Europe: the Dolomites region, the Aosta Valley (both situated in Northern Italy) and Latgalia/Latgale, one of the four historical and cultural regions of Latvia.

Key words: Sociolinguistics – Variable «time» – Methods of description – Multilingual areas – Northern Italy – Latgalia – Aosta Valley

1. One of the main axis of language variation is of course time – entire branches of the discipline are devoted mainly to the study of the relationships between time and language. Nonetheless, this is maybe less obvious for sociolinguistics, or at least it has been so since quite recently: spotted on the reflexes of social conditions to the linguistic behaviour of the speakers, sociolinguistics has put aside the question of diachronical changes intercurring in the linguistic habits of speech communities. Here I would like to evaluate the efficacy of a quantitative approach in analysing how the sociolinguistic profiles of communities evolve over time. It will be illustrated how appropriate treatment of quantitative linguistic data can show interesting patterns of sociolinguistic change, shedding light on the direction and intensity of the trends characterising a given community. Some predictive statements emerging from the analysis will be put forward at the end of the paper.

The data discussed are drawn from a number of large-scale sociolinguistic surveys conducted by the *Centre d'Etudes Linguistiques pour l'Europe* over the past ten years¹. The paper examines three multilingual areas of Europe, displaying different sociolinguistic characteristics:

a. THE LADIN VALLEYS OF THE DOLOMITES: a territory with \pm 30,000 inhabitants, where the spoken codes are Italian and German as well as Ladin, Bavarian (Germanic), Venetian and Trentine (Romance) dialects; the survey was completed by over 3,200 respondents, distributed across 18 geographical units and 4 age groups.

The region straddles the Germanic-Romance linguistic border and its population considers to speak five linguistic varieties. Generally, High German and Italian – used mainly in written and formal communication – are considered to be «languages». The autochthonous spoken Romance varieties are considered to be «dialects» of the Ladin language and go by several local names in addition to Ladin (such as Gherdëina, Badiot, Fascian and so on); the other Romance varieties typical of the neighbouring areas – but sometimes also spoken by members of the Ladin community – are called dialects: Trentin in the province of Trento and Veneto in the homonymous region, independently of their internal linguistic structure. The Austro-Bavarian Germanic varieties of South Tyrol, normally called Dialekt, Südtirolisch or Taitsch (but never Austrian nor Bavarian) are considered to be dialects of German.

b. THE AOSTA VALLEY: home to \pm 112,000 inhabitants; Italian, French, Francoprovençal and Piedmontese are spoken in the valley; the

¹ The *Centre d'Etudes Linguistiques pour l'Europe* has been directed by Gabriele Iannàccaro and Vittorio Dell'Aquila, since its foundation in 1998. For further details on the surveys reviewed here see Iannàccaro-Dell'Aquila 2003, 2006a, 2006b, 2007, 2008a, 2008b, 2009a, 2009b, 2010, 2013; Lazdiņa 2009; Lazdiņa-Šuplinska 2009. Other parallel surveys were conducted by the *Centre d'Etudes Linguistiques pour l'Europe* in the Walser communities of the Southern Alps and in the city of Milan, as well as in individual geographical units located in Europe, South America and Africa.

survey was completed by over 7,250 respondents, from 79 geographical units and 6 age groups.

The region boasts two official languages, Italian and French; French is never or almost never used as a code for spoken communication within the community, although it is an important symbol of identity. The main territorial language is so-called Francoprovençal, locally known as *patoué*. Where it is spoken, it is regarded mainly as a dialect, although, curiously enough, it is more likely to be accorded «language» status in the areas where it is at risk of extinction. In the southernmost part of the valley, Piedmontese dialect (originally spoken in the south) is gaining ground as a code for low-status interchanges. In the north-eastern area there are two Walser communities who speak an Alemannic dialect. The town of Aosta (which accounts for nearly half the total population of the Valley) is monolingual in Italian, with a strong presence of Southern Italian dialects (Calabrese, Apulian).

c. THE REGION OF LATVIA KNOWN AS LATGALIA/LATGALE: ± 330,000 inhabitants; the languages spoken are Latvian, Russian, Latgalian, [Belarusian, Polish]; the survey was completed by over 9,000 respondents, from 74 geographical units and 4 age groups.

Latgale, the south-eastern area of Latvia bordering with Russia and Belarus, is home to a sizable Russian community which dates from the Middle Ages and has been further augmented by recent immigration during the Soviet era. Latgalian was claimed to be a separate Baltic variety distinct from Latvian – disregarding its official status as a dialect of Latvian – as early as the late 18th century. After the independence of Latvia, these claims are gaining momentum. Religion plays a major role in the linguistic landscape of the area: Latvians are traditionally Protestant whereas Latgalians are Catholic; the Russian speaking community is divided into Oldbelievers (*starovery*, mainly descendents of the medieval settlers) and Orthodox (those who came in Soviet times)².

In short, the aim of quantitative surveys such as these is to acquire coherent and complete knowledge of the current sociolinguistic profiles of the areas under analysis, by examining the levels of use and the knowledge rate of the spoken codes as well as the social, ideological and identity factors linked to the various languages. The large sample sizes and the controlled sampling methods ensure a very high level of representativity for the selected variables (i.e. geographical unit, age and sex): the statistical methods applied were defined in collaboration with the official Statistics Offices (which were also involved in the practical elaboration of the questionnaires, although they were not responsible for the linguistic design or the translations of the questionnaires into the various languages),

² In the area, religion shapes the distinction between Poles and Belarussians: although these two groups speak more or less the same variety (a mid-west Slavonic dialect), members of the Orthodox Church often claim to speak Belarusian while Catholics often regard themselves as Poles. On the Language/Religion interaction, see Iannàccaro, Lazdiņa, Šuplinska & Dell'Aquila 2011.

drawing on their vast experience in the field. Accordingly, data should be devoid of statistical errors and lend themselves to an objective analysis (as opposed to an arbitrary interpretation) of the sociolinguistic variables under study.

The surveys were administered by means of printed questionnaires, designed so as to fit both local linguistic practices and the scientific goals of the project. The questionnaires were written in the official languages or in the main languages spoken within the community; they were personally delivered by the research assistants to the respondents, who were allowed to choose the language to fill in the questionnaire. The selected choice provided the researchers with an indication of which language was really preferred by the informant, independently of the levels of language use he/she had declared in the answers to the survey. Additionally, the choice provided information on the difference between the perceived as opposed to the real linguistic landscape. The questionnaire was left to the respondents for a couple of days. The research assistants were young people (20-30 years old) recruited from the local population of each village and able to speak all the languages in use amongst the community members³.

The (± 100) questions investigated the respondents' perceptions of the linguistic panorama of the area. As may be expected from this type of field research, ideological statements are more likely to emerge than objective descriptions. On the one hand, the researcher cannot verify the reliability of the answers; on the other, the respondents may not be able (nor even willing) to describe their linguistic behaviour in an objective manner. What we ultimately obtain is a declaration of «opportunity of use», a good measure of the status and subjective vitality of the languages in the surveyed area. Which allows us to make some predictions about the future evolution of the codes. Nevertheless, the wide range of questions and the highly representative sample can actually provide quite a realistic overview of the current linguistic situation, both from a social and a geographical point of view⁴.

2. For the purposes of this study, the answers to three questions have been analysed, namely the language(s) spoken when talking to one's partner, small children, and older relatives. The questions, translated into English, read as follows:

- What languages and/or dialects do you speak when talking to small children?⁵

³ In Latgale assisting the respondents in completing the questionnaire proved necessary for the research assistants, especially in the case of elderly people.

⁴ The methodology used for the surveys is discussed in detail in the literature cited in Note 1.

⁵ Actual questions: Ladinia (Ladin / Italian / German): Te cie lingac y/o dialec rejoneise pa con pici mutons? / In quali lingue e/o dialetti parla con i bambini piccoli? / In welchen Sprachen und/oder Dialekten sprechen Sie mit kleinen Kindern?; Vallée d'Aoste (Italian / French): In quali lingue e/o dialetti parla con i bambini piccoli, nel suo comune? / En quelles

- What languages and/or dialects do you speak when talking to your partner/husband-wife?⁶
- What languages and/or dialects do you speak when talking to elderly relatives?⁷

These three questions were chosen in an attempt to build an intergenerational picture of linguistic use within the community. The answers do not represent the particular linguistic habits of three generations, but are meant to show the perceived language use of each respondent when in conversation with age-defined members of the community, whom we assume here to be representative of their age groups. The respondents' ages range from a minimum of 12 to a maximum of 80; therefore, we have excluded questions on family roles, such as the language spoken with «grandparents» or «own children», since these labels can refer to people of very different ages, depending on the age group of the respondent. For instance, the children of the oldest informants may themselves be old, whereas the «external» labels in our selected questions should provide an indication of absolute age. For the same reason the question relating to the older generations is not focused on grandparents, but on a precise and unambiguous category: «elderly relatives». We also preferred «partner» to labels such as «brother» or «sister»: apart from the possibility of large age differences between brothers and sisters, sibling linguistic relationships are characterized by a longer continuity of speech, and may be influenced by the speakers' former roles. «Partner», on the contrary, is a more current and future-oriented role.

To better understand the nature of our data, it should be kept in mind that the patterns of interchange between the surveyed age groups are somewhat overlapping: answers were collected from older respondents

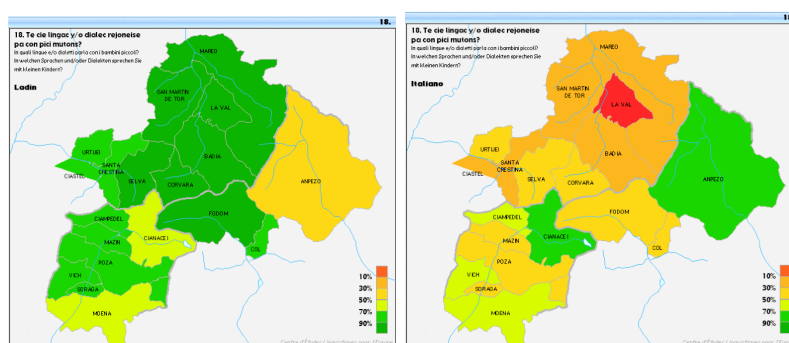
langues et/ou quels dialectes parlez-vous avec les enfants, dans votre commune?; Latgale (Latvian, Russian, Latgalian): Kurā valodā vai dialektā Jūs runājat ar Jūsu apkaimes bērniem? / Na kakom jazyke i(li) dialekte Vy govorite s det'mi vašej mestnosti? / Kurā volūdā voi dialektā Jūs runojat ar Jūsu apleicīņa bērniem?

⁶ Actual questions: Ladinia (Ladin / Italian / German): Te cie lingac y/o dialec rejoneise pa con vost om / con vosta femena o con vost partner? / In quali lingue e/o dialetti parla con il partner coniuge? / In welchen Sprachen und/oder Dialekten sprechen Sie mit Ihrem Ehepartner oder Partner?; Vallée d'Aoste (Italian / French): In quali lingue e/o dialetti parla con il partner coniuge? / En quelles langues et/ou quels dialectes parlez-vous avec votre conjoint/e?; Latgale (Latvian, Russian, Latgalian): Kurā valodā vai dialektā Jūs runājat ar dzīvesbiedru/-eni vai draugu/ draudzeni? / Na kakom jazyke i(li) dialekte Vy govorite s suprugom (suprugo) ili drugom (podrugo)? / Kurā volūdā voi dialektā Jūs runojat ar lauluotū ci draugu/ draudzeni?

⁷ Actual questions: Ladinia (Ladin / Italian / German): Te cie lingac y/o dialec rejoneise pa con vosc parenc plu vedli? / In quali lingue e/o dialetti parla con i parenti anziani? / In welchen Sprachen und/oder Dialekten sprechen Sie mit kleinen Kindern?; Vallée d'Aoste (Italian / French): In quali lingue e/o dialetti parla con i parenti anziani? / En quelles langues et/ou quels dialectes parlez-vous avec vos parents plus âgés?; Latgale (Latvian, Russian, Latgalian): Kurā valodā vai dialektā Jūs runājat ar vecākiem radniekiem? / Na kakom jazyke i(li) dialekte Vy govorite s rodstvennikami staršego pokolenija? / Kurā volūdā voi dialektā Jūs runojat ar vacuokim radnikim?

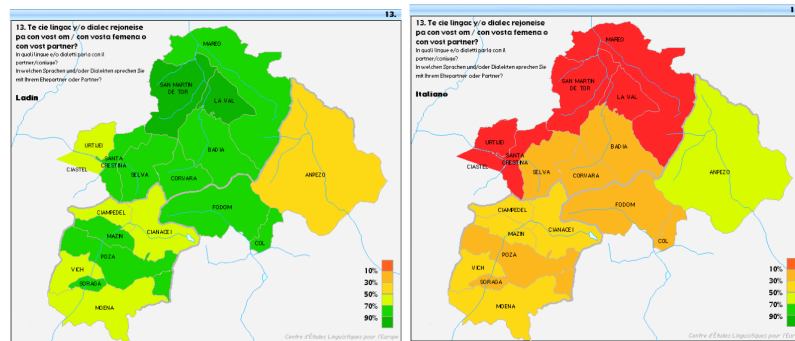
speaking with both elderly people and children, younger respondents speaking with both older people and children, and so on. For instance, an informant of 80 speaking with elderly people would be likely to view himself as a peer within that group and to have a partner from the same age group, while we would expect a 12-year-old adolescent to feel very distant from the «elderly relatives» category. The difference in size between the various demographic groups under scrutiny should also be noted: the majority of respondents have only one partner, a small and limited number of elderly relatives, but may encounter a potentially infinite number of young children in their everyday social environment. Social and identity roles should also be taken into account: the role of «partner» or «elderly relative» is typically in-group, while «children» can be both in- and out-group, as we will see for instance in the maintenance of Russian. Of course, as in any study of relative chronology, there are three different time planes, albeit synchronic. We could think of them as chronologically oriented, but only by a process of abstraction. Given the subjective nature of the answers, this abstraction gives us a better view of the future as compared to the past.

The first step in our discussion is to look at the rough data*:

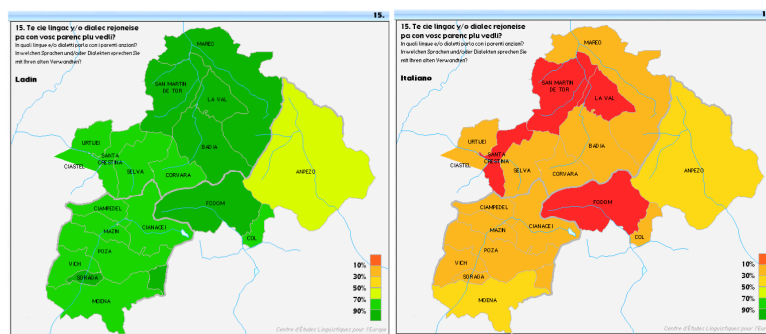


Map 1: What languages and/or dialects do you speak when talking to small children? [Ladin / Italian]

* All maps to be published in the electronic version of this paper will be in color (NdEd).



Map 2: What languages and/or dialects do you speak when talking to your partner/husband-wife? [Ladin / Italian]



Map 3: What languages and/or dialects do you speak when talking to your elderly relatives? [Ladin / Italian]

The maps show the percentage usage declared for the selected language by geographical region for each interlocutor's age group⁸. The range of percentage values is reflected by a single colour scale from red through yellow to green. Warm colours represent values below the threshold of 50%, cool colours the higher values, while yellow is considered as relatively neutral. In presenting linguistic scenarios, this type of colour scheme provides a visual impression of tranquillity (green) for

⁸ The geographical units here are the main administrative subdivisions of the territory («municipalities»).

languages with high rates of usage, and various levels of «alarm» (red, orange) for situations of threat or minority usage⁹.

The sociolinguistic scenario depicted in this set of maps is quite clear, and requires little comment: Ladin is spoken everywhere (with the partial exception of Cortina d'Ampezzo, due to a high proportion of non-Ladin residents) and is also well preserved across the age groups; Italian is used to some extent with small children in a couple of small villages, and never, or almost never, with elderly people. The maps also illustrate a basic difference in language use within the broader Ladin community: the northernmost valleys (Gardena, Badia) are part of Alto-Adige where German is an official language along with Italian and people in rural areas make extensive use of Bavarian dialects. Thus Italian is spoken very seldom in Gardena and Badia, and generally only by tourists or immigrants. In the Fassa Valley and within the communities of Fodom and Cortina d'Ampezzo in the South, German is not an official language, nor are Bavarian dialects used as codes of everyday communication alongside Ladin. Here, Italian is spoken, sometimes even in low and family domains.

3. This type of map provides a static vision of the use of codes over time, leading to make a merely «manual» comparison between different synchronic realities. It is possible however to analyse this relative chronology in greater depth: firstly, we can classify the different trends that may be obtained by sorting answers in order of decreasing age, i.e. from «elderly relatives» to «children». This provides us with rough patterns of code development. 6 combinations yield 6 different types of «movement» which can be applied to each of the codes:



Figure 1: «Sharp arrows»

1. constantly strengthening code: the language is spoken with the partner more than with elderly relatives, and with small children more than with the partner;

2. strengthening code: the middle age bracket reports lower usage than the two extremes, of which the younger displays higher values (recovering strongly after a decline in the second generation);

⁹ For an overview of the theory of linguistic cartography see Dell'Aquila 2010, Brunet 1987, Peters & Williams 1993, Slocum 1989.

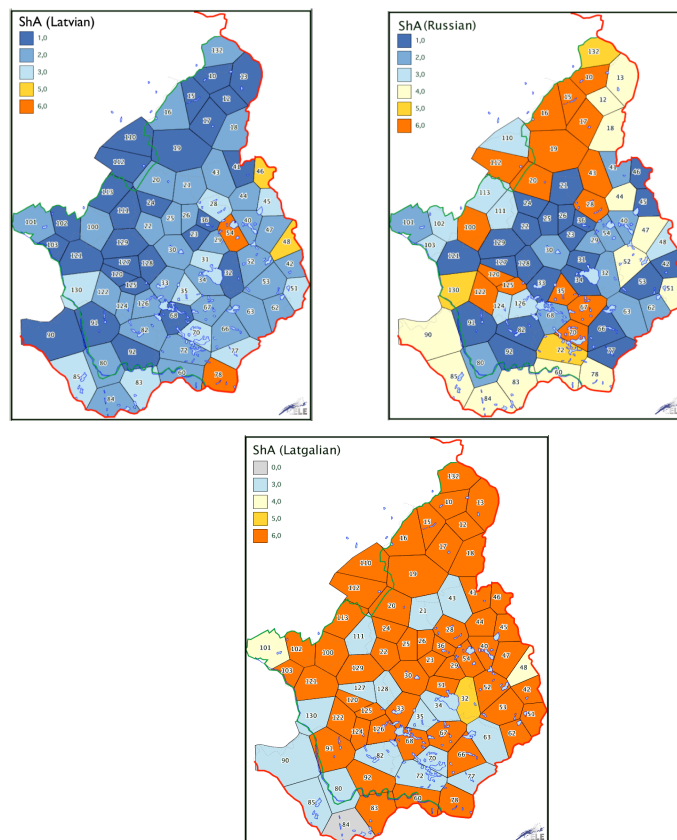
3. strengthening code: the middle age bracket reports lower usage than the two extremes, of which the younger displays lower values (recovering weakly after a decline in the second generation);

4. weakening code: the middle age bracket reports higher usage than the two extremes, of which the younger displays higher values (decreasing after a strong rise in the second generation);

5. weakening code: the middle age bracket reports higher usage than the extremes, of which the younger displays lower values (decreasing after a weak rise in the second generation);

6. constantly weakening code.

Types 4, 5, 6 are the reverse of 1, 2, 3. (Note that type 3 [a weak recovery after a strong decline] is a very common situation for Italian Romance dialects.) The patterns emerging from this type of analysis may be iconically expressed using sharp arrows (to which appropriate colours are assigned), and can subsequently be socio-geographically analysed with the aid of maps. These are graphical abstractions of sociolinguistic scenarios in flux. The maps below represent the situation in Latgalia:



Maps 4, 5, 6: Sharp Arrows [Latvian / Russian / Latgalian]

A few general remarks are required. Firstly, this tool enables us to represent the direction of sociolinguistic change, i.e. whether a code is strengthening or weakening, but neither the rate nor the extent of the change. In other words, the stronger colours on the maps (corresponding to the straight arrows) must be read correctly: they only show that there is constancy in the direction of change, with all generations continuing the trend found in the previous generation, but do *not* show the extent of the rise or fall.

Secondly, in terms of high status or standard code scenarios, types 1, 2 and 3 are less meaningful. As a rule, respondents declare a higher usage of standard codes with children, thus yielding rising arrows. In a minority language community, it is common for an adult or elderly person to assume that a child is monolingual (particularly, monolingual in the standard code): the informants therefore declare that they address the

children in the language they assume them to use. There is thus inequality in the linguistic marketplace, so to speak, which is strongly in the child's favour: the adults adjust their choice to the language they believe the child speaks more readily. Agreement (or even bargaining) about the code to use in verbal interaction occurs much more frequently between «all adult» speakers than between adults and children, as adults feel constrained to speak to children in (what they believe to be) their (presumed) typical code. In fact, it may even be that this mechanism itself is a factor of language change across generations, given that children are more often addressed in a standard variety. We may call this «standard language bias».

Thirdly, in the situation «speaking with children», respondents indicate that they use a greater number of languages, due to their perception that in out-group situations the unmarked language (which in communities like those under study corresponds to the official language) should always be included. In contrast, trend types 4, 5, 6 are particularly striking and significant for standard languages: they show that these languages are rejected by the speakers. We may now turn to the situation in Eastern Latvia¹⁰.

a. The general impression to be gained from colour coding is that of an overall strengthening of Latvian – the sole official language of Latvia, it should be remembered. Levels of usage are rising all over the region, except for some isolated geographical units. In some areas, Latvian is strengthening after a (usually slight) decrease in the second generation. In parallel, the usage of Latgalian is falling in most areas¹¹.

b. It is of interest to note that Russian is not suffering a parallel decline across the entire region: instead there is a core area where the usage of Russian is increasing. Russian is the language of education (for those requesting schooling), and although it is frequently the object of a «post-Soviet» prejudice, it remains the language of significant areas of high culture. In particular – as will be discussed again below – declared usage of Russian with small children is very high (indeed it is higher than an out-group observer might record on the field). This is due to the «standard language bias», active for Russian even where the Russian community is quite strong and Russian is clearly an in-group code. A further factor may be that Latgalian (the language for low-status interchanges) is socially considered to be a dialect of Russian: declared use of Russian may mask a situation in which both Latgalian and Russian are spoken as in-group languages, and Russian is in a way the *Dachsprache* of Latgalian.

¹⁰ Point 84 (Demenes) is coloured grey on the Latgalian map because there is no Latgalian present in the second and third generations.

¹¹ The geographical units are *pagasti* (namely «parishes»), the main administrative subdivision of the territory.

c. Note the southern, and to some extent, the eastern areas: the *pagasti* are home to mainly Russian, Polish or Belarusian communities, within which the use of Latvian is now growing, thanks to its status, as the only official language. Thus, the type 4 arrow, here, does not imply a real loss of Russian as the main language of the Russian-speaking population; instead it shows the decline of Russian as a means of communication for Latvian and particularly Polish or Belarusian communities following their independence from the Soviet Union. In border areas such as the southern and eastern periphery of Latvia, where ethnic and social identity is still an issue, the practice of speaking Russian is nowadays often seen as «Soviet-oriented». In the south, the use of Latgalian is also rising.

The general impression is that multilingual competence in standard languages is increasing: in fact, there is a growth in the use of both Russian and Latvian, with only Latgalian showing a decrease – to what extent, we cannot tell from the data analysis carried out so far.

A closer look at a couple of areas can reveal some interesting local peculiarities, as in the following two examples:




	LTV	RUS	LTG
Elderly	44.1	19.2	87.2
Partner	50.3	22.6	81.5
Children	59.1	31.5	74.9
			

Table 1: Intergenerational shift in Galēnu

Point 129, Galēnu, is a typical Latgalian village. The use of Latvian is increasing here, with Latgalian broadly holding its position. As a Latgalian village, Galēnu has a significant presence of Russian, which has always been part of the linguistic landscape of the area; Russian is also strengthening, since it is spoken with children as a standard language and is no longer a «socially proscribed code» following on the breaking up of the Soviet Union. Note also that the arrows for Latvian and Russian are the same, despite the difference in starting conditions and in the extent of change for each of these codes.

	LTV	RUS	LTG
Elderly	44.8	92.6	49.9




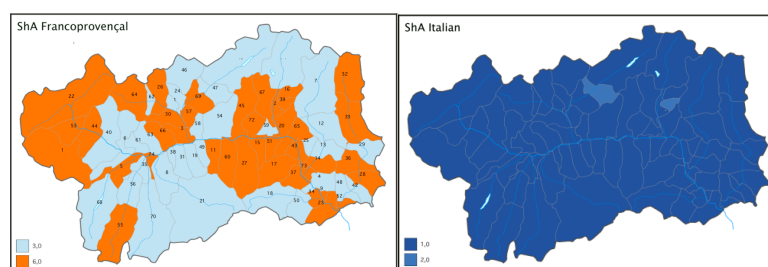
Partner	42.3	89.3	43.8
Children	35.1	95.6	22.7
			

Table 2: Intergenerational shift in Cirimas pagasts

Point 54, Cirimas *pagasts*, is a typical Russian settlement. Latvian is used – amongst adults – for administration purposes, while schooling is through Russian; Russian is therefore by far the preferred code when speaking with children. Latgalian is still used with elderly people, and we may infer that it was once necessary to communicate with the people of the neighbouring villages as a mesolect. This could explain the relatively strong position enjoyed by Latvian in the past, since the two codes could easily overlap (for a Russian speaker). Note however that (apart from Latgalian) the shifts are small in absolute terms, despite the strong orange colour code assigned to the geographical unit; on the contrary, once again the same type of arrow has been assigned to both Latvian and Latgalian, despite the difference in starting conditions and in the extent of change for each of the codes. In other words, in order to facilitate accurate judgement and analysis, we require a method which is able to measure the extent of the change, and not just its direction.

Let us now turn to the Aosta Valley and consider the situation of Francoprovençal:



Maps 7, 8: Sharp Arrows [Francoprovençal / Italian]

As the map (above left) illustrates, there are only two scenarios, either a slight recovery following on a decrease, or a continuous decline. At the time of the survey, in 2004, the linguistic panorama viewed all other

codes losing ground to Italian (as may be seen, above right, in the bright blue classification of almost the entire region). However, the situation is now partly changing, and the map shows that a new socio-linguistic border is probably forming, breaking the geographic dialect *continuum* between Italian and Francoprovençal. The linguistic profile of the individual municipalities may be divided into two categories, easily identifiable from the map – but disregarding the three Walser (Alemannic) communities in the east (Issime, point 36, and the two Gressoney villages, points 32 La Trinité and 33 Saint-Jean). The first area is made up of the town of Aosta (point 3), the tourist village of Courmayeur (point 22) and the municipalities on the road to Aosta running parallel to the Dora Baltea river (the light blue line running throughout the map). These areas are nowadays nearly monolingual in Italian, and what remains of Francoprovençal is rapidly fading out (Type 6 arrow).

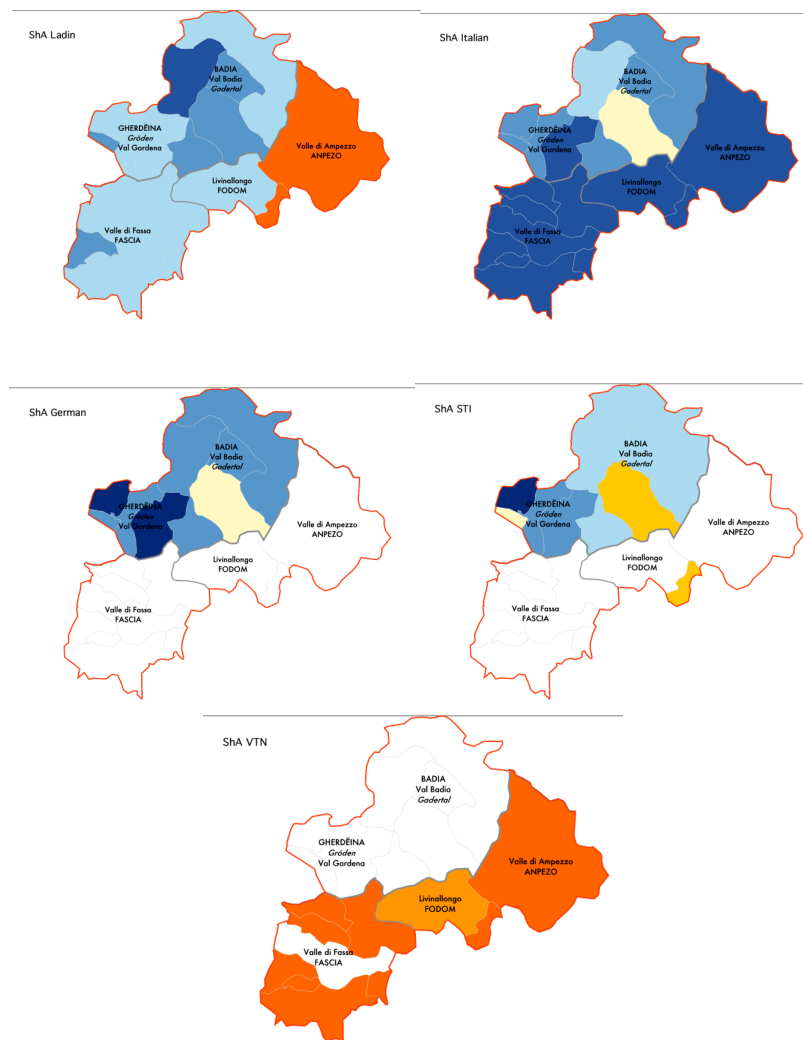
In the other – mostly peripheral – areas of the Valley, Francoprovençal is slowly regaining ground, having enjoyed major status and prestige in these zones for the past 25 years; where it is losing ground (see for instance points 64, 26, 69 or 55), this can be for two reasons:

1. the losses are small in absolute terms and «physiological» in nature, to be considered normal if the code is spoken and regarded as a dialect: this is particularly the case in remote areas conserving traditional life-styles and culture (for instance point 67, Torgnon);
2. Francoprovençal was already in a weak position and is now losing the status of community code, going in the direction of becoming a personal code no longer shared by the community (for example point 9, Bard).

Thus, the central part of the Valley is becoming monolingual, while the outskirts are experiencing an increase of multilingualism and even a strengthening of the traditional code. French is a different case, having traditionally played the role of a reference language, used for official documents and liturgical occasions but not actually spoken in everyday interchanges. Nonetheless, as one of the two official languages of the Aosta Valley since 1945¹², French is gaining ground as a tourist language, while simultaneously losing out to Italian in other usage contexts.

¹²

From 1860 to 1922 French was used as a tool for local administration; from 1922 to 1947 it was proscribed, and even place names were translated into Italian.



Maps 9-13: Sharp Arrows [Ladinia]

Compared to the other two regions, Ladinia presents a split profile. As a rule, each of the codes is evolving quite differently in different parts of the region. Additionally, more interestingly, different codes are spoken in different areas of Ladinia: in particular, South Tyrolean and German are only spoken in Alto Adige, and Venetian and Trentine dialects are mainly spoken in the provinces of Trento and Belluno. This is reflected in the

maps, where white areas mean that no data, or insufficient data, was collected for a particular code.

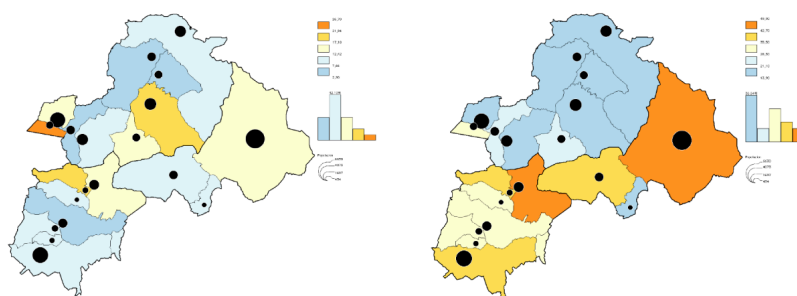
A Type 3 «recovery» situation seems to be typical of Ladin. This development mirrors the «*dialectophobia*» which had been characterizing Italian society and schools from the 1950s and 1960s up to 1980-85, followed by the current countertendency to promote and value dialects. In some cases, the upward trend is quite marked, indicating that new Ladin speakers have been gained (Type 2), while in Cortina d'Ampezzo and Colle Santa Lucia, coloured orange at the easternmost border, the decline is still ongoing. In Cortina this is due to the high level of tourism, bringing visitors from all over Italy and Europe. Colle is quite small, and Ladin has not yet attained a privileged status amongst the speakers themselves, who mainly regard it as a «normal» Italian dialect.

Italian is also expanding in the region, without detracting speakers from Ladin: apart from the municipality of Badia (the yellow area in the north of the map), it is apparently on the rise everywhere. Of particular interest is its recovery in Südtirol¹³, which may be due to recent immigration, but also to the greater tolerance currently to be found towards the main official language of Italy, after years of miscomprehension between Romance and Germanic speakers in the area. German, where significantly present, also shows a general tendency to grow. The position of *Dialekt* (i.e. South Tyrolean) is somewhat more varied depending on the valley and sometimes the village: it is extremely strong, as one might expect, in Ortisei, whereas it is markedly recovering in Gardena and is holding its own position in Val Badia. The non-autochthonous Romance dialects, where present and once used as mesolects, are dying out everywhere. The partial increase of Venetian in the middle generations in Fodom (the only light orange area) is interesting and could indicate a temporary loss of Ladin as a basilect, due to the social climate in the Belluno Province during the 1960s and 1970s when Ladin seemed to lack protection and be of little account, replaceable with the strong and invasive Venetian dialect.

Comparing the three situations in Latgalia, the Aosta Valley and Ladinia, it is easy to identify a common pattern with regard to what we may call the *outside official languages*: Russian in Latgalia and Italian in Gardena, both increasing in usage. Relationships among the different sectors of the communities may have been improving in recent years, with a consequent decrease in the ideological power and the political meaning of the codes. This leads to higher levels of multilingualism within society. The trend does not apply to French in the Aosta Valley, since there it was never actually used as a spoken variety.

¹³ Belong to Südtirol the northern valleys of Badia and Gardena.

4. A further step in analysing the linguistic evolution of a territory involves calculating the difference between the highest and the lowest perceived usage values of a given code in relation to the generational variables (elderly relatives, partner, children). This allows us to quantify variations in the linguistic usage of the different generations or in the interchanges between the different generations (as in this study): low values indicate similar usage of the various codes across the different generations, while higher values indicate that linguistic usage becomes increasingly more diverse as a function of the speaker's age, although this relationship is not necessarily linear (the trend may be temporarily inverted with a higher or lower value in the middle generation not shown by this type of analysis). The following is an example from Ladinia:



Maps 14, 15: Raw variation range [Ladin / Italian]

Cool colour shades represent basically stable situations, that is, situations where there is little difference between the highest and lowest value; warm colours depict situations where there is significant change in linguistic use across the generations. From map 14, for instance, we learn that there is little or no variation in the use of Ladin across the three generations, while map 15 shows the dramatic change in the usage of Italian in Cortina d'Ampezzo. Of course these charts do not tell us which codes are actually being used, on what occasions and by which generations: what they provide is a general picture of the difference in declared linguistic usage across the demographic groups or the situations under analysis.

Since the values thus obtained are not weighted in relation to the level of usage of the various codes in the different municipalities, however, the output charts may not provide a completely accurate picture of intergenerational variation. In other words, absolute difference values do not show us the extent to which the language is spoken in real communicative situations. To understand this concept by analogy, let us

imagine a political party that loses 5 points in the elections: there would be a big difference between falling from 60% to 55% and falling from 6% to 1%; the two situations are not mutually comparable.

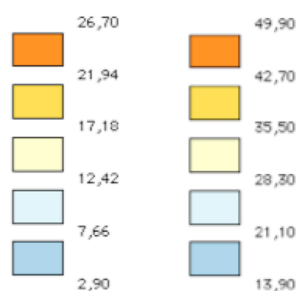


Figure 2: Enlarged keys of Maps 14, 15

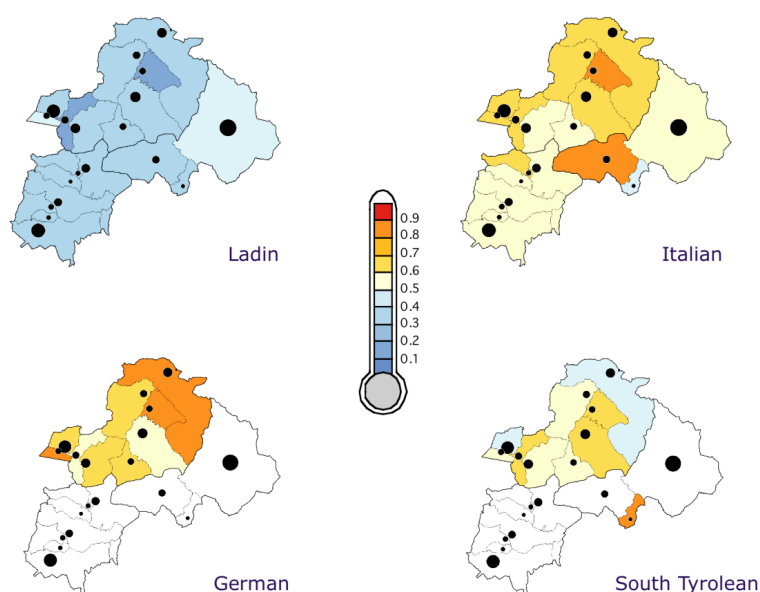
The non-comparability of data treated in this way is clear from the above Ladin example: the colour gradations are the same for both codes, but the underlying reality is very different, as illustrated by the numbers reported in the key, which range from a minimum of 3% to a maximum of 27% in the case of Ladin and from 14% to 50% for Italian. The difference is even more marked if we consider that Ladin is more widely spoken in the area, with values that are often over 90%, while the highest usage of Italian is in Cortina d'Ampezzo with values of around 50%.

In short, these numerical values are «rough», or too strongly linked to purely demographic variables. In order to use them for comparison purposes, it is desirable to create an index (which we will call IGVI, InterGenerational Variation Index) allowing us to compare variations between one code and another in a particular region, independently of their numerical size. The IGVI is the difference between the highest and lowest values obtained for each code, divided by the highest value recorded for that code. This enables us to compare the extent of variation, which is no longer dependent on the global number of communicative exchanges, but is intrinsic to the code under analysis. The generated values range from 0 to 1, where 0 implies no intergenerational variation at all in the use of the language in question, and 1 represents a total change of language use across the generations – or more specifically a complete change in language choice by the respondent in relation to a specific generation. In other words, 0 means that respondents use a particular code independently of the age of their interlocutor, while 1 means that the language is used only with a particular generation and is not used at all with members of other generations. Values close to 1 show that the principal factor of

change within the community is age; values of around 0.5 allow for a wider range of change factors.

The analysis based on the IGVI appears therefore to be complementary to the previous analyses, which enabled us to identify the direction in which a code was evolving, but not the extent of change. In other words, we could tell whether a code was being used more or less frequently than in the past, but not whether this tendency would bring about, say, the disappearance of the code within the space of one or ten generations. In contrast, IGVI analyses provide us with a measure of sociolinguistic change for one language or all the languages on the same territory. This may imply, as we shall see later, a shift in the relationships between codes. It should be noted that IGVI indicates whether the use of a language has undergone, is undergoing or tends to undergo considerable variation, but does not specify whether this variation is positive or negative in direction.

Let us first look at the situation in Ladinia:



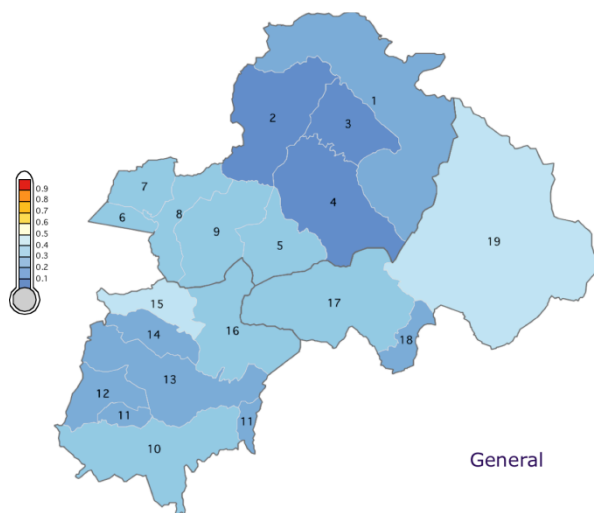
Map 16: IGVI [codes, Ladinia]

Here we have devised a «thermometer» to represent socio-linguistic change within the community: cool, blue colours (ranging from deep to light blues) – that is, IGVI values of less than 0.5 – represent basically

stable situations, while warm tones indicate that socio-linguistic patterns are «on the move» and may even reach boiling point. As already noted, what we do not know here is the direction of the movement, i.e. whether the code is growing or decreasing. Only two charts do not have white areas, confirming that only two codes (namely Ladin and Italian) enjoy a significant presence right across the region. The white areas indicate that the index has not been calculated because the percentage values were under 5% for all three demographic groups analysed.

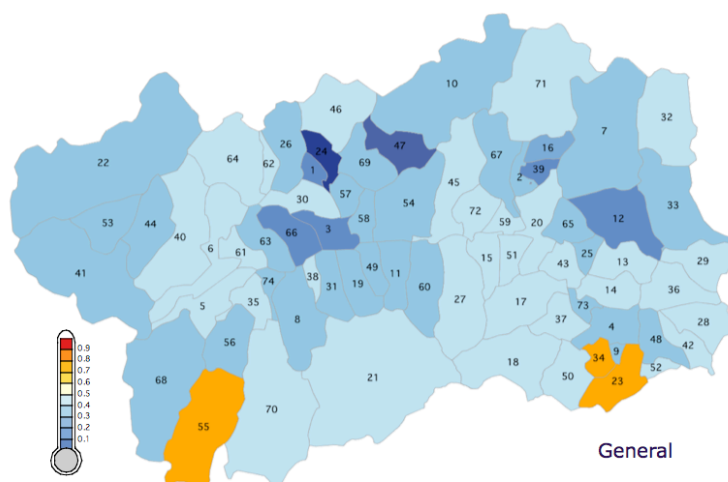
The maps illustrate the general stability of Ladin and the greater degree of variation affecting the other varieties. In particular, Italian and German, where present, display a high variation rate right across the region — or rather the choice of Italian or standard German as the language of communication across the generations is subject to binding sociolinguistic restrictions. In this respect, IGVI can be seen as a measure of the general constraints placed on the use of a certain language within the community. However, we will come back to this point later. The situation of the two non-official varieties in the area is also clear: change is underway in the use of South Tyrolean especially in Val Badia, while the use of Romance dialects appears to be undergoing significant upheaval (the chart is not provided here, but the reference values are extremely high, in most cases between 0.7 and 0.9).

In a further step, IGVI data may be used to provide an overall picture of intergenerational variation taking into account all the codes used in the territory. To do this, a general IGVI is created, that is, an index encompassing all the codes used in the area as a function of their relative presence in each geographical unit. In other words, a general IGVI is a weighted mean of the individual IGVI. The values thus obtained indicate the degree of use of the different codes across the generations: 0 represents the purely theoretical situation of absolute stasis (no language change) and 1 indicates the equally theoretical situation of absolute language change, that is, a language change scenario in which all members of a community would use only code *x* with elderly people and only code *y* with children. In other words, everybody would have active competence in both *x* and *y* codes, and the choice to use one or the other would be solely determined by social intergenerational rules. A community in which each of two different age groups used their own code independently of the age of the interlocutor, that is, in which the older and the younger generations would both be actively monolingual in their respective codes with passive knowledge of the other language, would show an index of 0.5. Note that all the languages spoken within the community are taken into account to calculate the general IGVI. Naturally, minority languages will contribute less to the total value: the failure of the last Latgalian speakers in a non-Latgalian village to carry on intergenerational transmission may be a personal tragedy for them, but means little to society as a whole.



Map 17: IGVI [general, Ladinia]

A number of interesting remarks can be made about the map shown above: if we take 0.5 as the critical value above which one might talk about socio-linguistic change, it is obvious that the situation throughout the Ladin community is stable, with the partial exception of some border areas. The highest levels of stability are to be found in Lower Badia (points 2, 3, 4), an area where Ladin is traditionally extremely strong and where the codes have surely found their point of equilibrium – and in the central Fassa Valley (points 11, 12, 13, 14), where the balance seems to consist of an alternation between Ladin and Italian, presumably diglottic in nature.



Map 18: IGVI [general, Aosta Valley]¹⁴

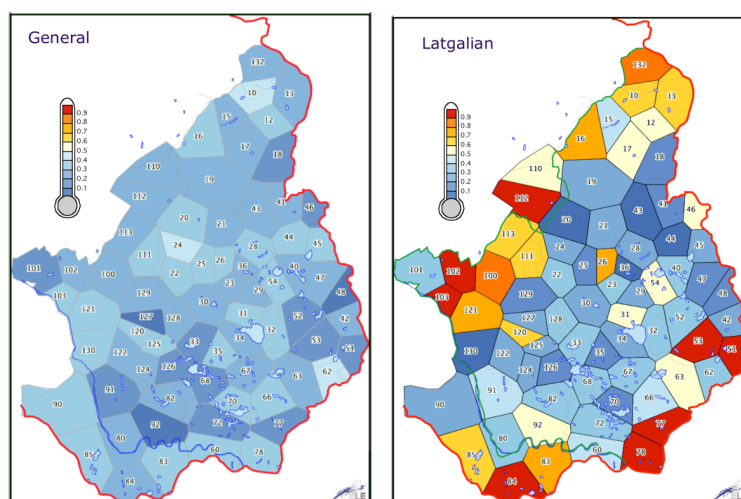
The same observation holds for the general IGVI of the Aosta Valley. Note that this index is sensitive to the number of codes involved in sociolinguistic change. Therefore it is not certain that, for example, Francoprovençal is more stable in point 66 (Sarre) than in point 70 (Rhêmes-Notre-Dame), although the values for Sarre are lower than the ones for Rhêmes-Notre-Dame. Despite the same degree of loss in terms of intergenerational transmission of Francoprovençal, in Sarre Italian might have peaked, while it may be still growing in Rhêmes-Notre-Dame.

Higher IGVI, then, reflect change in a number of codes within the speakers' repertoires – and, to a certain extent, greater flexibility in the rules governing correct usage of the different codes within the community. As already mentioned, IGVI may be considered as a measure of the sociolinguistic constraints determining code usage across the generations, that is, as a quantification of the constraints coming to affect interactional exchanges between generations in different places. Thus, a value of 0 would theoretically indicate a society in which the choice of the most suitable code (when more than one exist) for intergenerational relations is completely unrestricted at the social level. In contrast, a value of 1 would represent a society where the codes for use between different generations

¹⁴ Point 24 is not to scale due to a minor bug in the GIS ['Geographic Information System'] used to generate the map.

are strictly controlled by social rules. It should be remembered, however, that a more refined index could be derived not only on the basis of the three generational groups that we have chosen as an example, but also through a more refined categorization of the selected demological groups, to include a wider clustering of questions sensitive to the age variable. In fact, while the question about children concerns a fairly large sector of the population (the young children in one's town theoretically include all the children, whatever municipality they come from), the item about elderly relatives focuses on a much smaller group of people; moreover, the question about one's partner generally refers to one person only.

We may now turn to eastern Latvia:



Map 19, 20: IGVI [general, Latgalia / Latgalian]

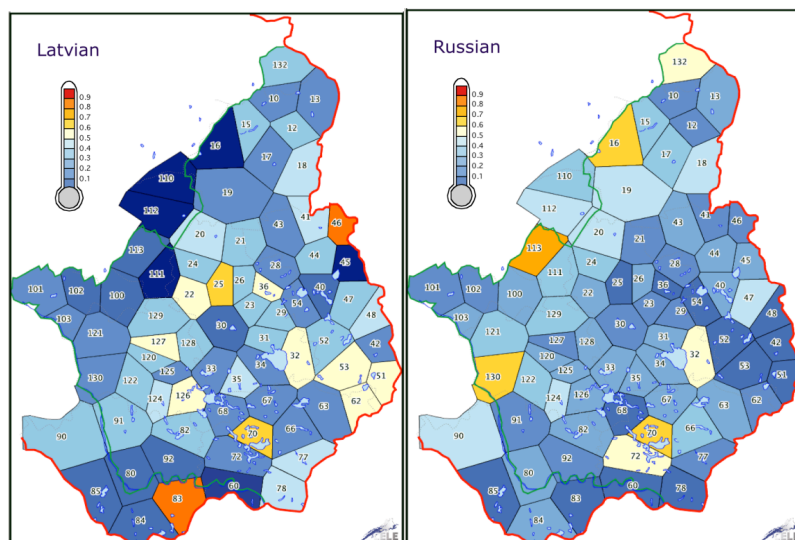
It seems that, apart from a small number of relatively static situations, the linguistic landscape in Latgalia is on the move everywhere, albeit slightly: most of the areas are coloured light blue, and it should be remembered that a value of 0.5 indicates a situation in which two demographic groups already use two different languages, that is, quite a dynamic scenario. The map for Latgalian shows that the variety is on the move in the outer areas, where it has traditionally been a mesolect – sometimes out-group (this is true especially for points 77, 78, 51, 84, where there are strong Russian / Belarusian settlements). There is however a core area (slightly to the north), where Latgalian is highly consolidated as a code for everyday life. Note also that the «red areas» in the southeast indicate a marked change in the level of usage, which seems likely to be a

loss, albeit from an already low starting point. The figures for point 78 (Robežneku *pagasts*), for instance, are as follows:

	LTV	RUS	LTG
Elderly	19.8	84.4	4.3
Partner	16.6	90.6	0.0
Children	23.1	97.9	0.2

Table 3: Intergenerational shift in Robežneku *pagasts*.

As already observed for point 54, Cirmas *pagasts* in § 3, Latgalian may have been of limited usefulness in the past as a code for interaction with out-group neighbours; now this function has been taken over by Latvian and especially Russian. It seems as though a higher order rule has come into play. In general, in the new «glocalised» Europe, speakers tend to seek linguistic competence in both high level and low level languages – the official, administrative language on the one hand, and the local, ethnic and identity-bound variety on the other. In the case of Robežneki, Russian is all at once the language of commerce, culture and identity, while Latvian is merely an external administrative tool. There is much less room for mid-level codes, once useful for interregional communication. To buy goods, for instance, a speaker in a rural area either goes to the local corner shop (low level) or to a large department store or shopping centre – or purchases directly online (high level). There is no need to go to the market in the neighbouring town. In this way Latgalian is losing speakers and domains, and so do Venetian and Piedmontese varieties – to choose examples from situations already discussed, even though this is a general tendency – which formerly acted as mesolects (such as Latgalian in Russian parts of Latvia, or Piedmontese in the Southern Aosta Valley) and are no longer useful.



Map 21, 22: IGVI [Latvian / Russian]

Latvian is gaining ground as a code for face to face exchanges, while Russian is more stable the more eastward and southward we move. These maps clearly show that there is a difference between Catholic and Protestant Latgalia. Catholic Latgalia (the prototypical Latgalia, in a way) lies south and east. Its languages are Latgalian and Russian, with Latvian – originally just one of the languages of administration – now also gaining ground in everyday life. Here the usage of Russian is still normal. In contrast to the west, in Protestant Latgalia Russian is still associated with «Soviet times», and so its use is socially discouraged. Catholic Latgalia is multi-ethnic and multi-religious and Orthodox and Russian identities coexist with Latgalian identity, while the Lutheran areas are becoming more and more Latvianised¹⁵.

5. It has already been noted that «sharp arrows» and IGVI analysis are complementary to each other; it is also possible, however, to integrate these two kinds of output to obtain a prediction of the diachronic trend for each of the codes examined. To this end, let us combine the 6 types of code development into 4 types (conflating types 2 and 3 and types 4 and 5 – see Fig. 1). Each of these 4 types is then combined with the IGVI value of the code in two possible ways, depending on whether the IGVI is higher or lower than half the maximum score obtained for that code (for whichever

¹⁵ See Iannàccaro, Lazdiņa, Šuplinska, Dell'Aquila, 2011.

of the three selected generations the highest score was recorded). This value was chosen since it can be seen as a turning point for the categorisation of linguistic change within the community. In other words, a value of over half the language change ratio tells us that the global situation of the language is changing significantly. Eight categories emerge from this final step in our analysis, providing a classification of both the strength and direction of diachronic sociolinguistic change for each of the codes, which in turn allows us to make a number of predictions about the subsequent evolution of that code with regard to intergenerational transmission.

It is worth digressing a little here to focus on the epistemological differences between the latter operation and the two previous analyses of which it is a composite. It goes without saying that information acquired through alternative interpretations of reality is not always identical, and indeed one of the main tasks of a researcher is to choose which kind of information should be kept and which – for the purposes of a particular analysis – discarded. Analysing the types of linguistic evolution («sharp arrows») allows us to focus on the nature and direction of the change but not on its size; the IGVI shows the extent of sociolinguistic change, but does not provide information about either its direction or the particular form of change; the combined analysis just proposed will give an indication of direction, nature and size, but at a very general level. Some detail is lost, because the six types of sociolinguistic evolution (the sharp arrows) have been reduced to four and the eleven-stage scale of the IGVI has been simplified to a two-point scale (roughly: code moving / not moving). In sum, we have to do without valuable information about the precise nature of the change (specified in types 2 and 3, and 4 and 5), although we conserve information about the direction of change. Similarly, we must forego all the gradations in the scale of change provided by the IGVI, other than a general indication as to whether the change is broadly strong or weak in intensity. It would be possible to obtain a more finely-tuned combined analysis (in the above-specified conditions up to $11 \times 6 = 66$ arrow types), but in this case the categories would almost match reality (something which is to be avoided) and it would be impossible to visualize them on a map – there would be too many colour shades to be interpreted by the human eye.

Below are the «curved arrows» representing the eight new categories:

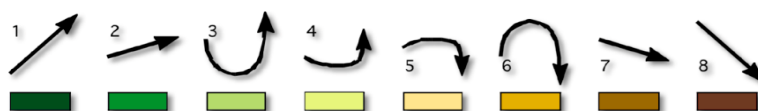
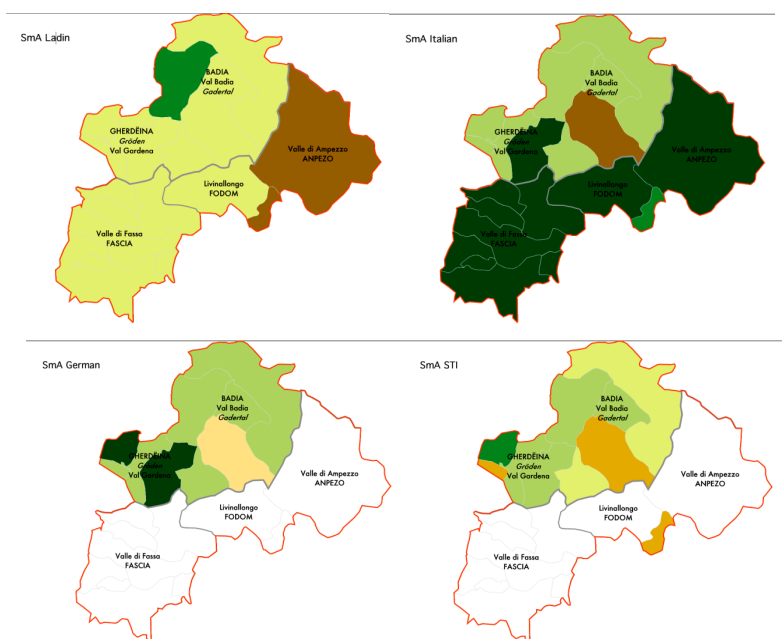
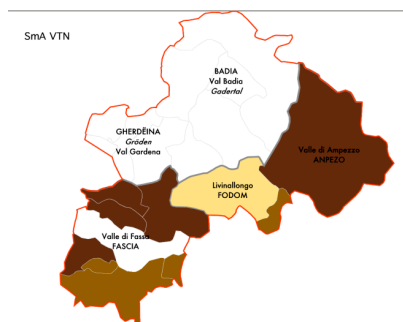


Figure 3: «Curved arrows»

1. code displaying a constant sharp increase (former type 1 combined with an $IGVI > (\text{Max Code}/2)$);
2. code displaying a constant gradual increase (former type 1+ $IGVI < (\text{Max Code}/2)$);
3. code displaying strong movement with an overall tendency to grow (former types 2 and 3+ $IGVI > (\text{Max Code}/2)$);
4. code displaying weak movement with an overall slight tendency to grow (former types 2 and 3+ $IGVI < (\text{Max Code}/2)$);
5. code displaying weak movement with an overall slight tendency to decline (former types 4 and 5 + $IGVI < (\text{Max Code}/2)$);
6. code displaying strong movement with an overall tendency to decline (former types 4 and 5 + $IGVI > (\text{Max Code}/2)$);
7. code displaying a constant gradual decline (former type 6+ $IGVI < (\text{Max Code}/2)$);
8. code displaying a constant sharp decline (former type 6+ $IGVI > (\text{Max Code}/2)$).

We may now observe some examples:

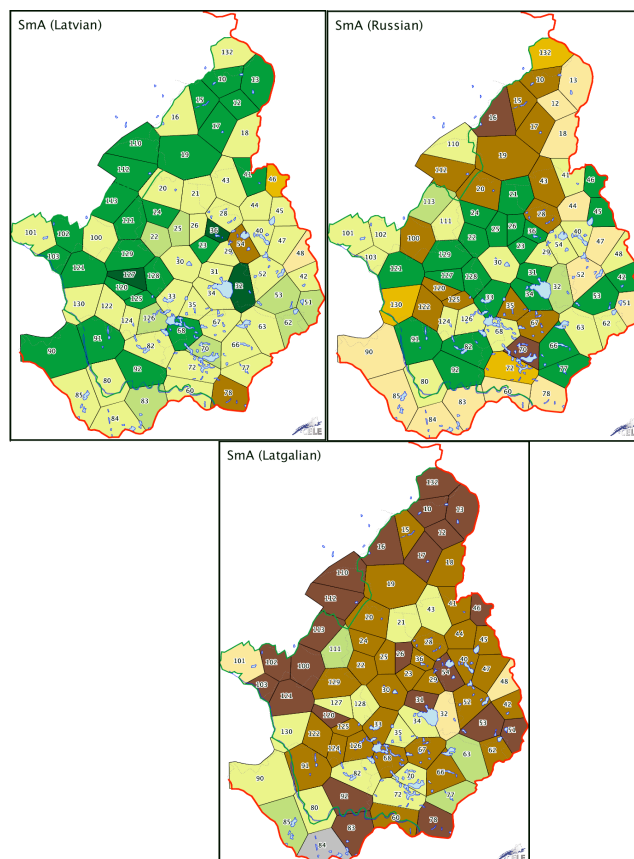




Maps 23-27: Curved Arrows [Ladinia]

As may be seen above, Ladin is in an overall situation of slight growth: we may neither expect a leap forward in the intergenerational transmission of Ladin in the near future, nor its disappearance. However, this data may describe different types of reality, as we can glean from a comparative interpretation of all the charts presented in this paper. In the Fassa Valley (south of the region) the data means that the characteristic concurrence of Ladin and Italian does not seem to be having a negative impact on Ladin, even though it will be not likely to recover significantly with respect to the loss of position incurred over the past decades. The same «colour» in Badia (North) represents a rather different situation, where Ladin is the main stable communicative code and for this reason is not liable to further growth. The picture is completed by the more problematic situations of Cortina d'Ampezzo and Colle Santa Lucia where intergenerational transmission is under constant threat (type 7, gradual decline).

Italian is rapidly gaining ground almost everywhere – except for the northern area, where it competes with German, particularly vital in the Gardena Valley (North-West); the Romance dialects, as expected, are (fast) disappearing.



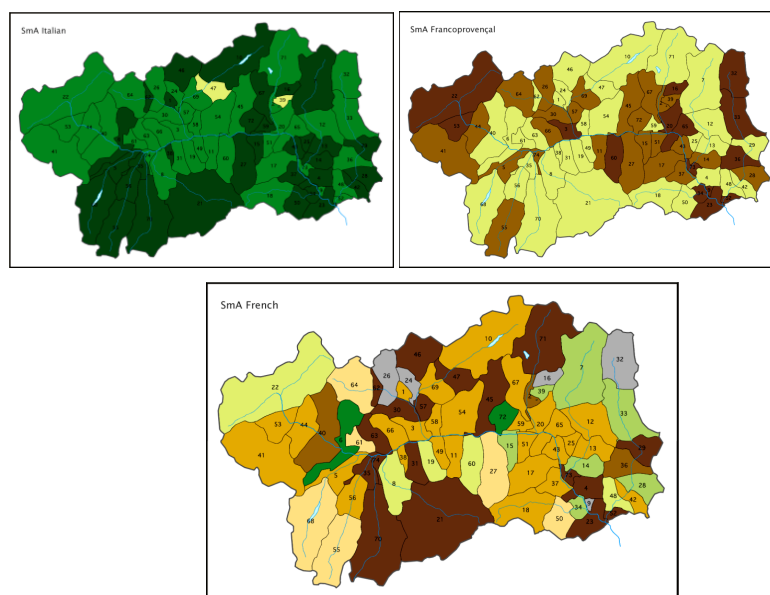
Maps 28-30: Curved Arrows [Latvian / Russian / Latgalian]

The maps for Latgalia appear to confirm our earlier analysis: as previously stated, multilingualism in the standard languages is increasing, but in part this is due to the «standard language bias»: in a multilingual situation such as that in Latgalia, speakers feel free to use their preferred language with a grown up interlocutor, but prefer to use standard varieties with children. However, the new standard and national language is gaining ground everywhere: if we look at the map for Latvian, it shows only 4 areas where this code is decreasing. In two of these areas, points 46 (Goliševa) and 48 (Brīgu *pagasts*), the use of Russian with children is growing (a trend which may be explained by proximity to the Russian border).

The most interesting development regards Russian, and confirms the division of Latgalia already proposed above. Russian is increasing in

the centre and south of the country, where there is a Catholic majority, and is decreasing in the west in the Latvianised Protestant area. It seems as though, after the independence from the Soviet Union, Latgalia is splitting into two main parts: the westernmost territories, strongly identified with Latvia and increasingly de-Russified and de-Latgalianised, and the heart of the country, where there is a return to a balanced mix of Latgalian and Russian, restoring the situation as it was in the 19th and the first half of the 20th centuries¹⁶.

In point 84 (Demenes), Latgalian has already disappeared and appears as grey on the map; however, it has always been outside the border of historical Latgalia. Other exceptional situations are to be found in point 54 (Cirimas, see above) and point 78 (Indra): Indra is an almost wholly monolingual Belarusian community (the only such community in the survey) and is undergoing a «Belarusian pride» movement¹⁷, while Cirimas is emphasising its Russian identity to defend itself from its Baltic neighbours.



Maps 31-33: Curved Arrows [Italian / Francoprovençal / French]

If we now turn to the Aosta Valley we will see that apart from Italian, which is gaining ground throughout the region, the other codes are

¹⁶ See Iannàccaro, Lazdiņa, Šuplinska, Dell'Aquila 2011.

¹⁷ See for instance Lazdiņa 2008.

subject to interesting phenomena. The general picture for Francoprovençal is very similar to that shown by the Sharp Arrows. In a number of areas there is a direct correspondence between the loss of French (it should be remembered, already scarcely spoken), and the growth of Francoprovençal. This could be an outcome of the new focus on minority languages in Italy and Europe in recent years: people from the Aosta Valley no longer have to rely on French as a spoken language to be different and to be perceived as different. French is losing out all over the region, with the exception of point 22, the tourist resort Courmayeur, and a small number of villages which are home to local French activists. French remains, nonetheless, an important code for symbolic identification purposes, but mainly as a written language and above all in ideological terms.

From what we can see here, the future of Francoprovençal could be similar to that of the Romance varieties in Grisons, that are scattered across the territory in isolated pockets. For these codes, maintenance and/or change in language usage is based on the socio-geographical position of the community: socio-linguistic change is low overall, but strengthening (or at least maintenance) of the code appears to take place in less-populated areas, non tourist oriented and away from the main roads.

REFERENCES

- BRUNET Roger, 1987: *La carte mode d'emploi*, Paris: Fayard, Montpellier: Reclus.
- DELL'AQUILA Vittorio, 2010: «GIS and sociolinguistics», in: Alfred Lameli, Roland Kehrein, and Stefan Rabanus (ed.), *The Handbook of Language Mapping*, Berlin: Mouton de Gruyter, p. 457-476.
- IANNACCARO Gabriele, DELL'AQUILA Vittorio, 2003: «Investigare la Valle d'Aosta: metodologia di raccolta e analisi dei dati», in: Rita Caprini (ed.), *Studi offerti a Michele Contini*, Alessandria: Edizioni dell'Orso, p. 221-243.
- , 2006a: *Survey Ladins, usi linguistici nelle Valli Ladine*, Trento: Regione Autonoma Trentino-Alto Adige.
- , 2006b: «La lingua è l'italiano, il dialetto è il dialetto, perché ogni paese ha la sua usanza. Nomi delle lingue e situazioni sociolinguistiche», *Bollettino Linguistico Campano* 9/10, p. 59-95.
- , 2007: «Metodi statistici per la misurazione del plurilinguismo sociale e dei rapporti tra i codici», in: Jeroen Darquennes (ed.), *Contact Linguistics and Language Minorities / Kontaktlinguistik und Sprachminderheiten (= Plurilingua XXX)*, Bonn: Asgard, p. 77-89.
- , 2008a: «Misurare il plurilinguismo: comunità e lingue nelle valli dolomitiche», in: Gabriele Blaikner-Hohenwart, Evelyn Botolotti, Rita Franceschini, Emese Lörincz, Leander Moroder, Gerda Videsott, Paul Videsott (ed.), *Ladinometria. Festschrift für Hans Goebel zum 65. Geburtstag / Miscellanea per Hans Goebel per il 65° compleanno / Pubblicazioni in onore di Hans Goebel en gaudiu de si 65 agn*, Salzburg-Vich: Universität Salzburg - Freie Universität Bozen - Institut Cultural Ladin «Majon di fascegn» - Institut Ladin «Micurà de Rü», p. 229-258.
- , 2008b: «Jazyki v Vostočnoj Latvii: metodologičeskije voprosy», in: Šuplinska & Lazdiņa 2008, p. 34-69. ['Les langues en Lettonie orientale: questions méthodologiques']
- , 2009a: «Cartographical tools for sociolinguistic analysis. The Survey Latgale», in: Lazdiņa & Šuplinska 2009, p. 239-272, 327-466.
- , 2009b: «Calcolare distanze sociolinguistiche: interpretazioni geolinguistiche», in: Pierangela Diadori, Carlo Consani (ed.), *Alloglossie e comunità alloglotte nell'Italia contemporanea. Teorie, applicazioni e descrizioni, prospettive: Atti del XLI Congresso Internazionale di Studi della Società di Linguistica Italiana (Pescara, 27-29 settembre 2007)*, Roma: Bulzoni, p. 215-237.
- , 2010: «Pre-vedere il cambiamento: analisi e previsione dell'evoluzione degli usi dei codici in territori plurilingui», in: Maria Iliescu, Heidi Siller-Runggaldier, Paul Denler (éd.), *Actes du XXV^e Congrès International de Linguistique et de Philologie Romane*.

- (Innsbruck 3-8 septembre 2007) I: *Multilinguisme synchronique et diachronique, social, individuel, institutionnel et politique*, Berlin, New York: De Gruyter 2010, p. 173-184.
- , 2013: *Plurilinguisme administratif et scolaire en Vallée d'Aoste*, Vasa/Vaasa: Centre d'Etudes Linguistiques pour l'Europe.
- IANNÀCCARO Gabriele, Sanita LAZDIŅA, Ilga ŠUPLINSKA, DELL'AQUILA Vittorio, 2011: «Language, religion and ethnic identity: a case-study from Eastern Latvia», *Sociolinguistica* 25, December 2011, p. 94-111.
- LAZDIŅA Sanita, 2008: «Valodas Latgalē: funkcionalitāte, attieksme, nākotnes perspektīvas», in: Šuplinska & Lazdiņa 2008, p. 5-32.
- LAZDIŅA Sanita, ŠUPLINSKA Ilga (ed.), 2009: *Valodas Austrumlatviā: pētījuma dati un rezultāti / Languages in Eastern Latvia: Data and Results of Survey*, Rēzekne: Rēzeknes Augstskola (Via Latgalica pielikums 1)
- PEETERS Yvo, WILLIAMS Colin (ed.), 1993: *The Cartographic Representation of Linguistic Data*, [s.l.:] Staffordshire University.
- SLOCUM Terry A., 1999: *Thematic Cartography and Visualization*, UpperSaddle River: Prentice Hall.
- ŠUPLINSKA Ilga, LAZDIŅA Sanita (ed.), 2008: *Acts of the International Conference «Etniskums Eiropā: sociālpolitiskie un kultūras procesi / Etniskums Eiropā: sociālpolitiskie i kulturys procesi / Ethnicity in Europe: Sociopolitical and Cultural Processes»*, Rēzekne 2007 gada 24.-26.maijs / 24-26 May 2007, Rēzekne: Rēzeknes Augstskola.