UNIVERSITÀ DEGLI STUDI DI VERONA

DIPARTIMENTO DI CULTURE E CIVILTÀ

SCUOLA DI DOTTORATO DI STUDI UMANISTICI

DOTTORATO DI RICERCA IN LINGUISTICA

XXVIII CICLO

CONSONANT CLUSTERS
AND SONORITY
IN THE GERMANIC AND ROMANCE VARIETIES
OF NORTHERN ITALY

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ABSTRACT

This survey aims at describing and analysing onsets and codas – with special focus on consonant clusters – of selected Germanic and Romance varieties spoken in the language contact area of Trentino-Alto Adige/Südtirol. We will try to determine a) what dialects can reveal about syllable theory and the universality of the sonority scale and b) whether varieties which are in contact influence one another so as to allow for similar clusters. The corresponding standard varieties (Standard German and Standard Italian) will be taken as a reference in order to identify which similarities and, more importantly, which differences the dialects under investigation exhibit with respect to them. The collected data will reveal that, generally, the examined Germanic and Romance dialects conform to the sonority scale proposed for Standard German and Standard Italian, respectively – the only exception being found in the case of Tyrolean. It will also emerge that the investigated Germanic and Romance dialects behave differently with respect to the grammar of consonant clusters. Dialects turn out to be generally more permissive than their correspondent standard varieties since they allow for lower thresholds under which their clusters are considered as illicit in sonority-related terms. Furthermore, differences will be identified within the various Germanic and Romance dialects. Indeed, it will be shown that, on the one hand, the same grammar is shared by some varieties of the Germanic group and by some varieties of the Romance group. On the other hand, other varieties will prove to be more stringent and will display their own grammar.

1. INTRODUCTION

The present survey focuses on syllable structure. In particular, we will concentrate on the onset and coda position of some Germanic and Romance varieties which are spoken in the administrative Italian region Trentino-Alto Adige/Südtirol: Tyrolean, Mòcheno, Cimbrian; Venetan-Trentino, Lombardo-Trentino, and Ladin. The study will be focused on consonant clusters. Languages differ in their phonotactics: some only allow for simple syllable margins; some others allow for both simple and complex syllable margins; and some others do not allow for any codas at all. With respect to this, we will see, for instance, that Standard Italian does not tolerate any word-final codas in comparison with Lombardo-Trentino dialects, which exhibit word-final codas of a certain complexity.

The examined varieties will be discussed with regard to universal principles of sonority. The Sonority Sequencing Generalization (henceforth, SSG; Selkirk 1984a and seq.) ranks segments along a sonority hierarchy so that a rise in sonority must take place from the onset to the nucleus and decrease from the nucleus to the coda. However, although the SSG is generally observed cross-linguistically, languages seem to vary with respect to the restrictions on consonantal clustering. Furthermore, they require that the adjacent segments in a consonant cluster observe a minimum sonority distance (MSD; see Zec 2007, among others). In light of this, the MSD turns out to be more stringent than the SSG.

What can dialects reveal about syllable theory and the universality of the sonority scale?
Do varieties which are in contact influence one another so as to allow for similar clusters?

To answer these questions, for each variety it will be determined what well-formed consonant sequences look like. In order to do this, Optimality Theory (Prince/Smolensky 2004 [1993]) will serve as our theoretical framework. It will be shown that constraints on sonority distance interact with faithfulness constraints, which require that the underlying form and the surface form be identical in their segment sequencing. Answering this question will enable us to determine how the varieties under investigation differ from one another with respect to sonority. Indeed, it will be shown that a given dialect can be more tolerant than another in allowing for lower sonority distances (SD) between the segments constituting its cluster inventory. Furthermore, this will prove that the dialects in question present a slight difference in constraint-ranking, which gives rise to variation. From this perspective, a dialect can be more permissive than another if it allows for a lower threshold for sonority distances. It seems, therefore, that clusters passing the SSG might not pass the MSD, but clusters passing the MSD always pass the SSG (unless MSD= 0 or -x).

Our survey is structured as follows. After providing a definition for consonant clusters, the key concept of sonority will be discussed. This will be done with the help of the SSG, requiring for clusters to rise from the onset to the nucleus and decrease from the nucleus to the coda. Of relevance will also be the sonority hierarchy, which organizes segments on a scale displaying obstruents as the less sonorous elements, and vowels as the most sonorous elements. We will introduce the requirements for the sonority scale as formulated by Parker (2011) and provide his proposal for organizing segments on this hierarchy. In particular, Parker (2011) assigns a sonority index (SI) to every natural class of segments. These values will be necessary for the count of the sonority distances between the segments of the various examined consonant clusters throughout our study. In this respect, a suggestion for modifying Parker's sonority hierarchy will be made. Indeed, it will emerge that not all segments can be placed on a definite step of the scale. Concerning our survey, this is the case of /r/. It will emerge from the analysis of the investigated Germanic and Romance varieties that different realizations of this segment and the characteristic of freely combining with any consonants of any articulators (labial, coronal, and dorsal) speak in favour of treating /r/ as a *point* on Parker's sonority hierarchy rather than a segment displaying a fixed SI for each of its realizations (see Wiese 2003). That is to say, if trill [r] and uvular fricative [ʁ] are assigned SI= 8 and SI= 6 on Parker's scale, the homogeneous behaviour of /r/ in the examined Germanic and Romance varieties (also in a cross-linguistic comparison – Tyrolean and Gardenese Ladin, for instance) will be an indicator for placing it – in all its realizations – on the same level. Within liquids, /r/ seems to be more sonorous than /l/, which leads us to assume that is is found immediately under vowels – more or less, equalling approximants (SI= 11).

Chapter 2 provides a brief account on studies about consonant clusters. The consulted sources and the methodological approach along with the presentation of the tested varieties are the focus of chapter 3. Before turning to the presentation and analysis of the data, an outline on the classification of the Germanic dialects along with the most relevant characteristics of the investigated varieties is provided (chapter 4). The same is done for

Romance varieties (chapter 5). Chapters 6-9 are devoted to the presentation of Germanic onsets, Romance onsets, Germanic codas, and Romance codas, respectively. These will be analysed from a non-OT perspective. Here, the proper focus regards licit onset clusters and coda clusters for the investigated varieties, and the restrictions that each of them imposes on clusters. For instance, it will be shown how the examined varieties agree on forbidding onset clusters consisting of an obstruent and a nasal; or the same behaviour of Germanic varieties, Lombardo-Trentino dialects and Gardenese Ladin with respect to coda clusters, allowing for very low sonority distances (SD= 2). The lowest values for each variety are analysed in OT-terms in chapter 10, where we will see how the constraints on SD interact with faithfulness of the outputs to the input, determining differences from a variety to another. Here, we provide an account on how each variety builds its grammar by showing the interaction between markedness constraints and faithfulness constraints, showing that these varieties differ minimally with respect to the position filled by faithfulness constraints. For instance, Standard German does not allow for onset clusters exhibiting less than SD= 5, turning out to be the most important requirement to satisfy. In this respect, the possible outputs will conform to the input segments or will choose to operate some change in order not to violate requirement on SD= 5 (thus violating faithfulness constraints). It will emerge that a violation of faithfulness constraints is better than violating the constraint on SD=5. The position of faithfulness constraints in each variety will determine the cut-off point of the allowed SD for a specific variety. Finally, chapter 11 summarizes the results.

1.1 Consonant clusters: a definition

Before going into details, it is necessary to define what a consonant cluster is. From a phonological point of view, Vennemann (2012: 11) describes a consonant cluster as "[...] an uninterrupted sequence of two or more consonants within some well-defined unit of language, such as syllable, word, or phrase."[1] However, our study not only investigates uninterrupted sequences of segments – those occurring in morphologically simple forms –, but also those found in morphologically complex forms. In particular, we ill see how varieties such as Tyrolean display combinations which do not characterize Standard German. These sequences, such as [kf, ps], fill the onset position as the result of schwa-syncope in verb prefixes *ge-*, *be-*, a process typical of Tyrolean (see chapter 4), but absent in Standard German. Likewise, it will be shown how the examined Romance dialects exhibit

[1]For different definitions see, for instance, Kreitman (2012).

coda clusters which Standard Italian does not allow for (especially in word-final position: *ca[lt]* 'hot', *ve[rm]* 'worm' vs. Standard Italian *caldo*, *verme*, respectively; see chapter 5).

1.2. Sonority

Cluster phonotactics mostly draws on the Sonority Sequencing Generalization (SSG; also known as the Sonority Sequencing Principle, SSP), a possible definition of which is given below:

(1) Sonority Sequencing Generalization (see Selkirk 1984a:116)

In any syllable, there is a segment constituting a sonority peak that is preceded and/or followed by a sequence of segments with progressively decreasing sonority values.

Sonority is a central characteristic of segments, and determines the possible clusters within a syllable. Only those onset sequences whose sonority rises towards the nucleus will be allowed; likewise, only those coda clusters whose sonority decreases from the nucleus to the syllable margin will be fine. In light of this, all languages, more or less, satisfy the SSG.[2] However, in some cases it may be violated[3]. This is why sonority turns out to be a universal *tendency* rather than a phonological universal (see Morelli 1999: 8; Cavirani 2015: 4).
The different approaches proposed to treat sonority have led to the constitution of sonority scales[4] on which segments are organized. Linguists seem to agree on the fact that there is something like a sonority hierarchy, in which segments are ranked according to the model shown below:

(2) Sonority hierarchy (cf. Parker 2011: 1162)
vowels > glides > liquids > nasals > obstruents (“>” means “more sonorous than”)

The sonority scale in (2) shows that vowels occupy the top of the scale, being the most sonorous segments, whereas obstruents are at the bottom of the hierarchy, since they are the less sonorous segments. However, attention has been drawn on whether sonority scales are

[2]However, consider Russian *rta*, 'mouth', where sonority decreases from the liquid to the plosive; or of sonority plateaux, in which sonority remains the same from C1 to C2.

[3] Let us think of sibilants in Tyrolean onset clusters, where in cases such as *[kʃt]ohln* 'stolen (p. p.)' a rise in sonority from the plosive [k] to the sibilant occurs, but sonority decreases from the sibilant to the second plosive [t]. It is for this reason that sibilants should be given a special status in such varieties. Similarly, Standard German *[ʃpʀ]ache* ‘language’ presents decreasing sonority from the sibilant to the plosive, which is not allowed according to the SSG – that is why sibilants are assigned an extrasyllabic status.

[4] In the present study, “sonority scale” and “sonority hierarchy” are used as synonyms.

universal (Selkirk 1984a, Clements 1990, Butt 1992) – in which case there is only one sonority scale common to all languages – or, rather, language-specific (Steriade 1982) – in which case languages would enjoy a certain degree of freedom in the assignment of sonority values to the various segments (see Morelli 1999: 5). In light of this, refinements of the scale have been made.[5] The most recent implementation has been proposed by Parker (2011), according to which the following characteristics should apply to the sonority scale:

(3) Requirements for the sonority scale (see Parker 2011: 1176; his emphasis)

a. it should be *universal* (= "it potentially applies to all languages")
b. it should be *exhaustive* (= "it encompasses all categories of speech sounds")
c. it should be *impermutable* (="its rankings cannot be reversed, although they may be collapsed or ignored)"
d. it should be *phonetically grounded* (= "it corresponds to some consistent, measurable physical parameter shared by all languages")

In light of these characteristics, Parker proposes the universal hierarchy presented below:

(4) Universal hierarchy of relative sonority (following Parker 2011: 1177)

Natural class	**Sonority Index (SI)**	**Natural class**	**Sonority Index (SI)**
low vowels	17	trills	8
mid peripheral vowels (not [ə])	16	nasals	7
high peripheral vowels (not [ɨ])	15	voiced fricatives	6
mid interior vowels ([ə])	14	voiced affricates	5
high interior vowels ([ɨ])	13	voiced stops	4
glides	12	voiceless fricatives (including [h])	3
rhotic approximants ([ɹ])	11	voiceless affricates	2
flaps	10	voiceless stops (including [ʔ])	1
laterals	9		

[5] Among the various proposals, finer distinctions among segments are derived from sonority-independent parameters such as voicing or coronality (see Morelli 1999: 5). For instance, Clements' (1990) universal sonority scale for consonants only presents four major natural classes: obstruents (O) < nasals (N) < liquids (L) < glides (G). On the contrary, Butt (1992) separates voiceless from voiced obstruents: Voiceless O < Voiced O < N < L < G < V. Finally, Selkirk (1984a) further distinguishes within the obstruents and the liquids: p, t, k < b, d, g < f, θ < v, z, ð < s < m, n < l < r. See Morelli (1999: 5) for brief discussion.

The sonority hierarchy formulated by Parker shows that each natural class of segments is placed on a fixed step, and is assigned a fixed sonority index. However, it seems that not all segments may be organized on fix steps. In particular, we believe that this is the case of /r/, which will be briefly presented taking German as an example.

On the sonority hierarchy, this segment is found between laterals and vowels (see, for instance, Wiese 1996: 260 for German). In Standard German codas, /r/ turns into vocalized [ɐ]. This segment fills the word-final position as well as the syllable-final position, regardless if, in the latter context, it is followed by one or more consonants (see Alber 2007: 70-75 for further discussion): *[hɛɐ]* 'mister', *[hɪɐ.tə]* 'shepherd (pl.)', *[ʔaɐm]* 'arm', *[tsɔɐn]* 'anger', *[kʰɛɐl]* 'type', *[hø:ɐst]* 'hear; listen to (2nd sing.)' (see Alber 2007, and Wiese 2001). As Wiese (2003: 35) points out, there is quite some variation in the realization of /r/ in coda position. This fact is confirmed by other variants of German such as that of the Lower Rhine area, in which /r/ is realized as the voiced fricative [ʁ] when found before laterals and nasals in the coda position, whereas it is realized as the voiceless fricative [χ] when it is preceded by a short vowel and followed by a voiceless coronal obstruent. In light of this, we find, for instance, *[ʔaʁm]*, *[tsɔʁn]*, *[kɛʁl]*, and *[haχt]* 'difficult', *[mɔχt]* 'murder', *[hɪχʃ]* 'deer'.

At this point, it is clear that the quality of /r/ is heterogeneous, varying from vocalic to fricative. As Wiese (2001: 351) observes, it is these qualities which the sonority hierarchy relates to. The 'special' status of (German) /r/ leads us to assume that "the sonority hierarchy is nothing but an abstract ordering of *points* on a scale" (Wiese 2001: 356; my emphasis), and that "[T]he positions are defined not by their inherent segmental features (which seems impossible, at least in the case of /r/), but by nothing than their relative position in the scale." (*ibidem*). On Parker's scale, /r/ occupies a well-defined step, but the assigned level has nothing to do with its phonetic realization, according to Wiese (2003). In light of this, we will adopt Wiese's (2001, 2003) proposal according to which all realizations of /r/ fill the same position in the sonority hierarchy, namely that between /l/ and vowels. Operating in this direction, therefore, we will assign /r/ – in its different realizations – a sonority index which equals that of approximants (SI= 11). In doing so, we suggest to modify Parker's (2011) sonority hierarchy as follows:

(5) Sonority hierarchy revisited: a suggestion for /r/

Natural class	Sonority Index (SI)	Natural class	Sonority Index (SI)
low vowels	17	nasals	7
mid peripheral vowels (not [ə])	16	voiced fricatives	6
high peripheral vowels (not [ɨ])	15	voiced affricates	5
mid interior vowels ([ə])	14	voiced stops	4
high interior vowels ([ɨ])	13	voiceless fricatives (including [h])	3
glides	12	voiceless affricates	2
approximants and **/r/**	**11**	voiceless stops (including [ʔ])	1
laterals	9		

The sonority hierarchy presented above collects all *r*-sounds in SI= 11. As Wiese (2001) points out, assigning a position of its own to /r/ within the sonority hierarchy is supported by two arguments from German. Firstly, /r/ is found between a vowel and /l/ in coda position, and /l/ can occur between vowels and nasals. On the contrary, /lr/ and /nl/ are illicit coda clusters since /r/ is more sonorous than /l/ and /l/ is more sonorous than /n/, as shown in the sonority hierarchy. The second argument is provided by those sonorants [l, m, n] which, in certain syllable positions, can be syllabic, i.e., they can (but they do not have to) function as a nucleus after schwa-deletion – otherwise, they alternate with the sequence [ə]+sonorant. The syllabic status is obligatory for /r/ instead, which does not alternate with any vowel+/r/ sequence (obstruent+/r/: *[fa:.tɐ]* 'father', *[va.sɐ]* 'water'; obstruent+/l/: alternation *[ʃaɪtəl]* ~ *[ʃaɪtl̩]* 'parting', *[ʀa.səl]* ~ *[ʀa.sl̩]* 'rattle'; obstruent+nasal: *[vaʀ.t**ən**]* ~ *[vaʀ.**tn̩**]*[6] 'wait (inf.)', *[le:.z**ən**]* ~ *[le:.**zn̩**]*[7] 'read (inf.)'; see Wiese 2001: 353-358 for details and in-depth discussion). Heterogeneous realizations for /r/ will emerge also from the data of South Bavarian dialects (see chapters 4, 6, 8), for which the same position as here will be taken. In virtue of treating all *r*-sounds in the same way, we will include [r] – characterizing Standard Italian and the examined Romance varieties – in this perspective (see chapters 5 and 7).

[6]My example.

[7]My example.

If the SSG excludes many of the disallowed sequences, it is also true that the making-up of well-formed syllables has necessarily to cope with language-specific phonotactic requirements. For instance, while both coda clusters [nt] and [lm] satisfy the SSG and many languages allow for coda clusters of these types, those of the type [lm] occur much less frequently than the former. These constraints can be explained in terms of Minimum Sonority Distance (MSD; Vennemann 1972, Steriade 1982, Selkirk 1984a, Zec 2007, among others), the aim of which is to account for the differences observed in the sonority of the clusters for the various languages:

(6) Minimum Sonority Distance (adapted from Cavirani 2015)

Given a tautosyllabic two-member cluster C1C2, the sonority distance of C1C2 results from the difference between the sonority index of C2 and the sonority index of C1 in onset clusters, and from the difference between the sonority index of C1 and the sonority index of C2 in coda clusters.[8]

In other words, the segments forming a cluster must be separated by a minimum number of intervals on the sonority scale, under which the cluster is considered as ill-formed and not permitted in a certain language. In many languages, the coda cluster resulting from the combination of [n] and [t] is licit since the segments in question display a sufficient distance in sonority from one another ([n]: SI= 7; [t]: SI= 1, therefore 7-1= 6 intervals separating the two segments in sonority), and may therefore be combined. In Standard German, for example, word-final coda clusters [nt] (SD= 6) and [lm] ([l] (SI= 9) – [m] (SI= 7) = 2) are both fine (*brisa[nt]* 'burning'; *He[lm]* 'helmet') as they are in Lombardo-Trentino dialects (*gra[nt]* 'tall'; *o[lm]* 'elm'). This suggests that both varieties not only permit great sonority distances between the segments forming their clusters, but also small sonority distances.[9]

[8]In other words, C2-C1= SD for onset clusters; C1-C2= SD for coda clusters.

[9]For an overview of Minimum Sonority Distance language types see Zec (2007). The generalization which emerges from the considerations above is that, if a language permits clusters which exhibit a lower sonority distance, it also allows for clusters which display higher sonority distances (see Parker 2011: 1168).

2. PREVIOUS LITERATURE ON CONSONANT CLUSTERS

Within syllable structure, consonant clusters have been the focus of various studies dating back to the late 19th century up to present-day linguistics, covering up typology, production, and acquisition. Without going into detail and leaving apart works in which the importance of the syllable for phonology in pre-generative linguistics (Sievers 1901, Jespersen 1904, Hockett 1955, Haugen 1956, to name a few) up to the present (Pulgram 1970, Vennemann 1972, Hooper 1972, Kahn 1976, Clements/Keyser 1983, Hayes 1989a, Zec 1995, Wiese 1996, to name a few) has been recognized – after having gone through hard times in generative linguistics, as the denial of the existence of the syllable as a domain to account for phonological processes (Chomsky/Halle 1968) and being challenged again in more recent studies (Steriade 1999a, Blevins 2003, among others), we will limit ourselves to provide an overview of the most representative and (if possible) recent surveys.

In the interaction between phonology and typology, Greenberg (1978a) provides generalizations on cluster well-formedness, claiming, for instance, that syllable-initial obstruent+nasal sequences are more marked than obstruent+liquid in the same context. Indeed, languages displaying the latter pattern are considerably more numerous than those exhibiting the former pattern. Furthermore, the existence of syllable-initial obstruent+nasal clusters implies the existence of syllable-initial obstruent+liquid clusters in a given language. In her OT-account, Morelli (1999, 2003) analyses the typology of obstruent clusters in a sample of languages by means of the interaction between the manner and the place features, arguing that markedness relationships occur among obstruent clusters (fricative+stop, fricative+fricative, stop+fricative, stop+stop), and that s+stop sequences turn out to be the best-formed of all the investigated clusters since they are unmarked both with respect to the manner and to the place dimensions. Recently, Morelli 's (1999) bi-dimensional proposal has been challenged by suggesting that consonant cluster formation and consonant cluster well-formedness require a further scale, namely that of voicing, to interact with the scale of manner of articulation and place of articulation and defining the acceptability of tautosyllabic consonant clusters (Tzakosta 2012). Further recent contributions on typology have aimed at defining consonant cluster complexity resorting to preference laws – which claim that the more complex the cluster is, the less preferred it is

(Vennemann 2012); and have focused on the interaction between the features [sonorant] and [voice] applied to cross-linguistic typological surveys, from which it has emerged that, in word-initial onset clusters, the two features are not closely related, making predictions of the typological patterning of consonant clusters impossible, resulting in the fact that a language can be of a certain type in terms of the feature [sonorant], but of another type in terms of the feature [voice] (Kreitman 2012). Concerning production, Hermes/Grice/Mücke/Niemann's (2012) articulatory approach in the investigation of coordination of Italian word-initial consonant clusters has shown that these sequences are coordinated similarly to the way clusters are coordinated in languages displaying complex onsets, in that timing is adjusted according to the number of consonants found in a given cluster. Acquisition studies dealing with consonant clusters range from analysing the strategies (cluster reduction, vowel epenthesis, coalescence, metathesis) children resort to in order to simplify the production of sequences (Bloch 2011), to short-term memory tasks investigating recognition of non-words of high and low phonotactic probability – where the former proved to be faster than the latter (Boll-Avetisyan 2012); to consonant production of children with SLI, showing the phonological complexity of consonant clusters at the syllabic level, which creates problems for SLI speakers (Ferré/Tuller/Sizaret/Barthez 2012).

The interaction between phonology and dialectology is certainly not new. Among the most recent surveys to our knowledge, Wiltshire/Maranzana's (1999) analysis of Piedmontese resorts to the sonority hierarchy and makes use of onset constraints related to sonority distance which interact with faithfulness constraints applied to /s/+C(C) onsets. Concerning the varieties spoken in Alto-Adige/Südtirol, Alber/Lanthaler's (2005) contribution investigates onset clusters in past participle formation of selected dialects and the strategies (vowel epenthesis, assimilation) which each variety resorts to in order to avoid any violations of the sonority hierarchy. Mòcheno and Cimbrian are described within the OT-framework in Alber (2014), providing an analysis of the distribution of voiced and voiceless obstruents in the grammar of final devoicing and in that of Stress-to-Weight effects. What is new in our study lies in the investigation of cluster phonotactics comparing a group of Germanic and Romance varieties spoken in a language contact area which display not only differences, but also similarities – which will be shown in OT-terms with respect to the grammar characterizing the various dialects. In all this, the hope is to pave the way for future research in this field.

3. SOURCES AND METHODOLOGY

3.1 Sources

For the purpose of our survey, data result from indirect as well as direct sources.

For Tyrolean, the major indirect source were the *Wenkerbögen* (WB; see appendix), the result from the enterprise which has its origin in Georg Wenker (1852-1911)[10]'s interest in language diversity, first arisen from his doctoral thesis. The WB consist in about 50.000 questionnaires sent by mail from 1876 to 1887 to public school teachers asked to record the dialect of their students in order to find dialect borders within the German-speaking territory[11] on the basis of the various phonetic realizations of 42 (which later on were reduced to 40) pre-formulated Standard German sentences. Teachers assisted school children and wrote the translations down. The sentences were created in a way so that typical phonetic and selected grammatical aspects concerning the dialects under investigation were expected to emerge from the translations. For our purpose, the questionnaire contains more than 150 words in which at least one schwa appears – either word-initially, word-internally or word-finally. A quick look at the sentences reveals that the WB abound in past participles built with the prefix *ge-*. Substantives beginning with *ge-* and past participles built with the prefix *be-* are rare here – but useful for our analysis, since cluster also arise from these. Wenker's 'indirect method' of data collection is not free from problems. If, on the one hand, these data turn out to be very useful since they cover up a great number of geographical points in a huge area, on the other hand they may not be fully reliable. As a matter of fact, this method of investigation is not based on face-to-face phonetic transcriptions. Rather, it was up to the teachers to discriminate sounds and "translate" them using the traditional orthography.[12] In other words, the WB must be interpreted. Wenker's questionnaires have been digitalized since 2001, and are available at

[10] For more information about Georg Wenker and his enterprise see, for instance, Martin (1933), Rabanus/Lameli/Schmidt (2002),Veith (2006) and Rabanus (2009).

[11] Wenker's Rheinish homeland was the area chosen for the first stage of the data collection (1877). This constituted the starting point for the enlargement of the area of investigation. In 1878 the whole *Rheinland* was depicted on a dialect atlas, whereas northern and central Germany were investigated in 1881. Southern Germany was investigated in 1887. The other German-speaking areas within the 'Deutsches Reich' were investigated between 1888 (Luxemburg) and 1933 by Wenker's successor Ferdinand Wrede (1864-1934) (Austria, Switzerland, South Tyrol, Liechtenstein, Sudetes, linguistic islands in Northern Italy, Russia). Cf. Veith (2006: 550) and Schmidt/Herrgen (2001) under www.diwa.info.

[12] See Veith (2006: 550-551). For a brief overview of the advantages and disadvantages of the various methods of investigation, see Niebaum/Macha (1999). For an overview of the various problems which may arise during phonetic transcription, see Almeida/Brown (1982).

www.diwa.info. A further support for indirect data collection was provided by dialect dictionaries. For Tyrolean, Schatz (1955-1956) was consulted in order to verify and have a confirmation of which consonant clusters occur in the WB. The same was done by resorting to Haller/Lanthaler (2004) for the Passeier variety.

For Mòcheno, we consulted Rowley (1986)'s monograph and *'s kloa be.be.* (2009) – a dictionary which is also available at www.bersntol.it; for Cimbrian, Tyroller (2003)'s monograph and the Cimbrian dictionary by Panieri et al. (2014) – also available in digital form at www.zimbarbort.it. The digitalized versions of the latter two dictionaries enable the user to carry out computationally searches by typing the desired sequence (for instance, *pl** if we want to verify whether the varieties in question display any words containing word-initial /pl/). Many words may be heard here in the realization made by native speakers.

Concerning the examined Romance varieties, our major indirect source was the *Archivio Lessicale dei Dialetti Trentini* (*ALTr*; Cordin 2005), a project which has been carried out since 2001 by a team of researchers from various universities and institutes with the purpose of collecting in only one database (to the present, it contains about 40.000 lexical entries) traditional dialect dictionaries. In the *ALTr* Trentino, Lombardo and Ladin varieties are found – following a criterion which refers to administrative boundaries exclusively. The data were not collected *ex novo*; rather, they come from what other scholars had investigated[13]. The innovative side of the database lies in the fact that the single items are articulated in various sections and are equipped with all the necessary elements to enable users to make complete inquiries with respect to the various fields. To the user, the greatest advantage of this database probably lies in the fact that segment sequences can be computationally searched (for instance, by typing *br* in order to obtain all entries containing this sequence in word-initial, word-medial, and word-final position). On the other hand, the *ALTr* does not contain all the written sources which it is based on – some dictionaries have been only partially digitalized.

For Venetan-Trentino and Lombardo-Trentino, clusters were collected by typing in the database the sequences that we wanted to test. All potential combinations of two-member consonant clusters were checked so that one could get a clear picture of what to expect and what to exclude from the inquiry. Although the *ALTr* turned out to be very useful, some problematic steps arose along the way. In particular, being the database based on written

[13] So far, the areas whose dialectal data have been digitalized are Val di Cembra (source: Aneggi 1984); Trento and surroundings (source: Groff 1955); Primiero (source: Tissot 1976); Valsugana (source: Prati 1960, letters A-C); Val di Non and Val di Sole (source: Quaresima 1964, letters A-C). See Cordin (2005).

sources, it was quite difficult sometimes to be able to identify at once the various clusters. The problem arose in the case of sibilants [s, z, ʃ] and of affricates [ʦ, ʣ, ʧ, ʤ] in the phase of combining them in order to get a picture of which clusters were to be expected in the database. For Ladin, Forni's (2013) *Dizioner Ladin de Gherdëina - Talian* was used also in digital form (available at http://forniita.ladinternet.it/), where the search for clusters was carried out in the same fashion as for the search in the *ALTr*. Furthermore, we could hear the realization of words thanks to the recordings made available to the user.

Historical grammars (Rohlfs 1966, Tekavčić 1980) and modern descriptions of dialects (Cordin 1997, Loporcaro 2009, Salvi 1997, among others) completed the survey of indirect data.

3.2 Methodological approach

The consultation of various types of sources was done in order to find consonant clusters. The examples that we found were used for carrying out fieldwork. In order to obtain a high number of words in which we expected onset clusters and coda clusters to be realized and to provide a sample of data as complete as possible, we added items for clusters which were not found in the indirect sources that we had consulted.

We created a questionnaire for Tyrolean consisting in about 300 utterances (sentences as well as isolated words) which native speakers were asked to realize in their local dialect. Each sentence/isolated word contained entries with the prefixes *be-* and *ge-*, which we expected to be realized without schwa so as for onset clusters to emerge.

For Mòcheno and Cimbrian, we created a list of isolated words (about 150 and about 50, respectively) in which the production of onset clusters were expected. The same was done for Romance varieties (about 200 for Venetan-Trentino and Lombardo-Trentino; about 100 for Gardenese Ladin), but the target here were coda clusters. Indeed, it will be shown how Venetan-Trentino, Lombardo-Trentino, and Ladin differ form one another with respect to vowel-apocope, responsible for coda clusters to arise (see chapters 5 and 9).

In order to identify which consonant clusters arise in the whole Tyrolean area, we selected four points within the dialect region which we wanted to test by making interviews. The points (which correspond to different valleys) are Merano/Meran (Burggrafenamt/Burgraviato), Ritten/Renon (Renon plateau/Altopiano del Renon), Klausen/Chiusa (Eisacktal/Valle Isarco), and Deutschnofen/Nova Ponente (Eggental/Val d'Ega). For Mòcheno, Palai/Palù was chosen; for Cimbrian, we selected the variety of Lusérn/Luserna. The tested points for the Romance varieties are Borgo Valsugana (Valsugana, South-Eastern Trentino; a Venetan-Trentino dialect), Mori (Val Lagarina, Southern Trentino; a Lombardo-Trentino dialect which also exhibits Venetan-Trentino features, therefore occupying an intermediate position), Bleggio (Giudicarie, Western Trentino; a Lombardo-Trentino dialect), Tret (Val di Non, Northern Trentino; a Lombardo-Trentino variety which displays some Ladin traits); and Gardenese Ladin (Gherdëina/Wolkenstein/Selva di Val Gardena).

For each point, 1 to 3 informants – both male and female of any age – were interviewed. They had to meet the requirement of being native speakers of the dialect in question, and were asked to translate sentences/isolated words from Standard German (for Tyrolean) or Standard Italian (for all other varieties, including Germanic ones) into their local dialect. The fact that Standard Italian – not Standard German – was chosen for creating the questionnaires for the Germanic varieties Mòcheno and Lusérn Cimbrian lies in the intention of avoiding any influence on the realization of the tested words. The recruitment of the informants was made thanks to the staff at local libraries, professors and acquaintances, which also gave us a helping hand in making arrangements with the informants.

Sometimes some informants had to face the inconvenience of words which either they do not use in their dialects because they use a word from the corresponding standard variety, or simply because they do not exist in their dialect (for instance, the case of *abbonamento* ‘pass’ in Nones). The interviews, which developed in a relaxed and informal environment, were recorded. Each of them lasted about 30 minutes. The meetings were supposed to be just one for each tested locality.

4. CLASSIFICATION OF THE DIALECTS OF GERMAN

4.1 Introduction

This chapter focuses on a general outline of the dialects of German and their classification, with a special focus on the area of investigation for the analysis of the Southern Bavarian varieties of Tyrolean, Mòcheno and Lusérn Cimbrian. Since the discussion will be made in introductory terms, the reader will find in-depth information as well as other characteristics in the sources that were consulted (and references therein). Among the many surveys and proposals which have been made to classify the various dialects of German, Wiesinger's (1983, 1990) and Schirmunski's (2010) [1956] seem to us to be the most fine-grained and exhaustive ones. In order to provide a clear picture about the main characteristics of the examined dialects, it is important to take a look at the whole German-speaking territory first, so as to understand which peculiarities the area of our interest displays.

The German-speaking territory is traditionally[14] divided into two major areas in virtue of the extent to which the Second Germanic Consonant Shift (*Zweite Lautverschiebung*, presented in the following subsection) has affected them: Low German (*Niederdeutsch*) and High German (*Hochdeutsch*), each incorporating various dialects. The Low German varieties (which are the northernmost ones) have been named after the plain morphology of the land and the absence of mountains, whereas the High German varieties (the southern ones) are called as such because of the mountainous features of the area. The most relevant outcomes of the Second Germanic Consonant Shift constitutes the border between Low German and High German, and it is known as the *Benrather Linie*. This border runs Western of Köln up to North-East, and it is characterized by the realizations *ik* (Low German)/*ich* and *maken* (Low German)/*machen* (High German). On its turn, High German is subdivided into Middle German (*Mitteldeutsch*) and Upper German (*Oberdeutsch*) according to the shift of *p*, in virtue of which Middle German preserves [p] in geminates (*appel* 'apple'), whereas Upper German realizes [pf] (*apfel*). This border is known as the *Germersheimer Linie* (*appel/apfel-Linie*), and runs from South-West to North-East. Finally, the Western part of

[14]The first attempts at subdividing the dialectal characteristics of German date back to the Middle Age, as Hugo von Trimberg describes in "Der Renner" a group of dialects by characterizing each of them with pregnant words. However, it is only in the 19th century that scientific classifications arise – thanks to the work of J. A. Schmeller (1821), K. Bernhardi (1844), O. Behaghel (1891), O. Bremer (1892) and, most of all, G. Wenker (1876-1888). For an overview of the various attempts, see Niebaum&Macha (2005: 80-85).

Middle German (*Westmitteldeutsch*) and the Eastern part (*Ostmitteldeutsch*) are identified according to the realization *pfund* (*Westmitteldeutsch*) vs. *pund* (*Ostmitteldeutsch*) 'pound'. This border is known as the *pfund/pund-Linie*, and runs from North to South. Low German, Middle German and Upper German (the latter two forming High German) include various dialects, as shown in the map below. Low German is subdivided into West Low German (*Westniederdeutsch*, embracing *Ostfriesisch*, *Nordniedersächsisch*, *Niederrheinisch*, *Westfälisch* and *Ostfälisch*) and East Low German (*Ostniederdeutsch*, covering up *Ostpommersch*, *Mecklenburgisch-Vorpommersch*, *Nordmärkisch*, *Brandenburgisch*, *Mittelmärkisch*, and Südmärkisch). West Middle German includes *Mittelfränkisch* (covering up *Ripuarisch* and *Moselfränkisch*) and *Rheinfränkisch* (embracing *Pfälzisch*, *Hessisch* and *Niederhessisch*); whereas East Middle German covers up *Schlesisch*, *Obersächsisch*, and *Thüringisch*. The Upper German area includes Alemannic (embracing *Hochalemannisch*, *Höchstalemannisch*, *Niederalemannisch*, *Schwäbisch*, and *Elsässisch*), East Franconian (*Ostfränkisch*), and Austrian-Bavarian (*Bairisch-Österreichisch*). The latter embraces Northern Bavarian (*Nordbairisch*), Central Bavarian (*Mittelbairisch*), and Southern Bavarian (*Südbairisch*).
At this point, a classification of the various dialects with respect to the most salient features can be provided.

4.2 Relevant characteristics for the classification of the dialects of German

4.2.1 Changes affecting the consonantal system

In virtue of the Second Germanic Consonant Shift, Germanic voiceless plosives *p t k* changed to the affricates [pf ts kx], respectively, in word-initial context or after a consonant; and to the fricatives [f s x], respectively, in final context or after a vowel. This change has affected the various areas to a different extent. As a matter of fact, *t* > [ts] is found in the whole Middle German and Upper German areas. The same holds for *p* > [pf] (with only a very few exceptions), whereas *k* > [kx] has only involved Bavarian and Alemannic (see Schmidt 2007: 230-231 for details). The shift from *p t k* to [f s x], respectively, has spread through the whole High German territory, but it has not reached the Lower German area. The second stage of the shift, in virtue of which *b*, *d*, *g* turned into voiceless [p, t, k], respectively, has only involved Bavarian and Alemannic (East Franconian only exhibits the shift *d* > [t]; see Schmidt 2007: 232). Some examples illustrate the process:

(7) Second Germanic Consonant Shift (examples from König 2007, and Schmidt 2007)

Consonant	Germanic	OHG	Bavarian	German cognate	Gloss
[p] > [pf]	*plegan (König 2007)	pflëgan	pflegen	[pf]legen	'care (inf.)'
	*appla (König 2007)	apful	apfel	A[pf]el	'apple'
[t] > [ts]	*taiknam (König 2007)	tseihhan	tseichen	[ts]eichen	'sign'
	*settjan (König 2007)	setsen	setsen	se[ts]en	'set (inf.)'
[k] > [kx]	*korna (König 2007)	kchorn	kchorn	[k]orn	'seed'
	*werka (König 2007)	wërkx	wërkch	Wer[k]	'opus, work'
[b] > [p]	berg (König 2007)	berg	perg	[b]erg	'mountain'
	geban (Schmidt 2007)	këpan	këpan	ge[b]en	'give (inf.)'
[d] > [t]	dag (Schmidt 2007)	tag	tag	[t]ag	'day'
	bindan (Schmidt 2007)	pintan	bintan	bin[d]en	'bind (inf.)'
[g] > [k]	god (Schmidt 2007)	got	kot	[g]ott	'God'
	hruggi (Schmidt 2007)	ruki	hruki	Rü[k]en	'back'
[p] > [f]	*slēpan (König 2007)	slāfan	slāfan	schla[f]en	'sleep (inf.)'
[t] > [s]	*etan (König 2007)	ëȥȥan	ëȥȥan	e[s]en	'eat (inf.)'
[k] > [x]	*ik (König 2007)	ih	ih	i[ç]	'I'

The distribution of sibilants also contributes to distinguish the various areas. According to the context, /s/ is realized in different ways in German. When found word-initially in pre-vocalic position or before a consonant, palatal [ʃ] occurs, which is the outcome of OHG /sk/ and is preserved in Modern Standard German. In word-medial position, Modern Standard German only realizes [s], whereas in Upper German dialects we find [ʃ]. In word-final context, [ʃ] is realized both in Upper German and in Modern Standard German. The following table collects examples for this trait:

(8) /s/ in German (examples from Duden 1996, König 2007, Schmidt 2007, and my fieldwork)

OHG	MHG	Upper German	German cognate	Gloss
skoni (Schmidt 2007)	[ʃ]öne	[ʃ]öne	[ʃ]öne	'pretty (pl.)'
smal (König 2007)	[ʃ]mal	[ʃ]mal	[ʃ]mal	'slim'
giswestar (Duden 1996)	geswi[s]ter	Geschwi[ʃ]ter[15]	Geschwi[s]ter	'siblings'
fleisk (Duden 1996)	vlei[ʃ]	Flei[ʃ]	Flei[ʃ]	'meat'

[15]The realizations *Geschwi[ʃ]ter* and *Flei[ʃ]* for the Upper German area are taken from my fieldwork in Meran.

4.2.2 Changes affecting the vowel system

Among the processes characterizing vowels, syncope – defined as the loss of an unstressed vowel (typically [ə]) in word-medial position – turns out to be the most relevant to our survey. As will be shown in the discussion of the data for German dialects, many interesting sequences result from this process, which are not found in Modern Standard German. The subdivision of the German-speaking territory in dialect areas is a first indicator of the emergence of the clusters through historical vowel-deletion. As a matter of fact, German dialects syncopate the more southern we move. Syncope already arose in early stages of the language (the first proofs date back to the 9th century, and it strongly imposed in the 11th and 12th centuries; see Schmidt 2007: 295), taking place in OHG in the *Präteritum* form of weak verbs of the first class containing a long stem vowel or a diphtong (OHG *hôren* – *hôrta* < *hôrita*, 'hear (inf.)' – hear (p.)'); and in MHG affecting participle forms beginning with the prefix *ge*- in pre-vocalic context and before sonorants /r, l, n, w/ (OHG *gilouben* > *glauben* 'believe (inf.)', OHG *gi*-, *ganâda* > MHG *g(e)nâde* 'mercy'), whereas it more rarely affected the prefix *be*- (OHG *bilîban* > MHG *belîben*, *blîben* 'stay (inf.)'; see Schirmunski 2010 [1956]: 217, and Schmidt 2007: 295). Nevertheless, it will be shown that many onset clusters are generated through schwa-syncope in this prefix, particularly in Tyrolean varieties (see chapter 6).

The picture which emerges with respect to schwa-deletion is diversified and complex. Schirmunski (2010 [1956]: 214-217) identifies various areas, in which syncope takes place to different extent:

a) Middle and Lower Franconian; Lower and Upper Hessian; East Middle German dialects: schwa-preservation regardless of the consonant which follows (*g[ə]bonə*[16] 'bind (p.p.)', *g[ə]foɐn* 'drive (p.p.)', *g[ə]worfə* 'throw (p.p)', *g[ə]loyə* 'lie (p.p)', Standard German *g[ə]bunden*, *g[ə]fahren*, *g[ə]worfen*, *g[ə]logen*; see Schirmunski (2010 [1956]: 214);

b) South Hessian and Palatinate: [ə]-deletion when preceding voiceless fricatives, which change to *b*-, *g*-, and [b, g] combined with [h] turn into strong aspirated [pʰ, kʰ], respectively (*gfloyə* 'fly (p.p.)', *bšnairə* 'cut (inf.)', *[pʰ]olde* 'keep (inf.)', *[kʰ]onge* 'hang (p.p.)', Standard German *[gə]flogen*, *[bə]schneiden*, *[bə]halten*, *[gə]hangen*, respectively). Schwa-preservation is found in all the remaining cases (*[gə]baud* 'build (p.p.)', *[gə]wis* 'certain', Standard German *[gə]baut*, *[gə]wiß*, respectively; see Schirmunski (2010 [1956]: 214-215);

[16]In the provided examples, the phonetic transcription is Schirmunski's.

c) South Franconian, East Franconian, and Lower Alsatian: same contexts of deletion as in a) and b). In addition, [ə] falls when preceding sonorants (*glēgt* 'put (p.p.)', *grunə* 'flow (p.p)', Standard German *[gə]legt*, *[gə]ronnen*, respectively) and *w* (*[gv]isə*, Standard German *[gə]wiesen* 'point (p.p)'; see Schirmunski (2010 [1956]: 214-215));
d) Swabian, Upper Alsatian and Bavarian: [ə]-syncope when preceding obstruents. In this respect, the whole prefix is deleted (*[gf]onde* 'find (p.p.)', *[k^h]alde* 'hold (p.p.)', Standard German *[gə]funden*, *[gə]halten*, respectively), whereas in the remaining cases syncope occurs as in c). Furthermore, this process affects the prefix *zu-* (*[ts]friede*, Standard German *zufrieden* 'happy, satisfied'; see Schirmunski (2010 [1956]: 215)), as it will be confirmed by Tyrolean varieties in the analysis of complex onsets;
e) Upper Alemannian: reduction of [ə] in pre-stressed prefixes conserved as in d). In addition, reduced *be-*, *de-*, *ge-* change to strong *p-*, *t-*, *k-*, respectively (*[ph]alte* 'hold (p.p.)', *[kh]ulfe* 'help (p.p.)', *[pr]äuche* 'incense (p.p.)', Standard German *[bə]halten*, *[gə]holfen*, *[bə]räuchern*, respectively; see Schirmunski (2010 [1956]: 215-216).
With respect to the Lower German dialects, *ge-* undergoes deletion in every area already in the Middle Lower German stage, except for Brandenburg and Eastphalia, where [ə] is preserved (being the consonant the only segment which falls in the prefix). In Lower German, words beginning with *ge-* are more recent loans from Upper German (*gəbet* 'prayer', *gəšpensd* 'ghost'; see Schirmunski (2010 [1956]: 216).
An accurate and systematic inspection of Georg Wenker's questionnaires, particularly of words containing material for the formation of the clusters, has enabled to trace a picture of the whole territory which confirms Schirmunski's (2010) [1956] classification. As a matter of fact, Lower German dialects do not syncopate: [ə] does not fall in the pre-stressed prefixes *ge-* and *be-*, therefore no consonant clusters arise. Central German dialects display a quite widespread tendency to syncopate, whereas this occurs almost systematically in the whole Upper German area.
Schwa undergoes deletion also when found in word-final context, in which case we have apocope: Upper and Lower German realize, for instance, *müd[ə]* 'tired' and *ich fahr[ə]* 'I drive' as *müd* and *ich fahr*, respectively, whereas schwa is preserved in the Central German area (see König 2007: 159).
Other relevant processes are the Early New High German Monophtongization (*Frühneuhochdeutsche Monophtongierung*), and the Early New High German

Diphtongization (*Frühneuhochdeutsche Diphtongierung*), *Rundung*, and *Entrundung*. The Early New High German Monophtongization targets MHG diphtongs *ie*, *uo*, *ye*, which change to NHG monophtongs [i:, u:, y:], respectively (MHG *lieb* > NHG *l[i:]b* 'dear', MHG *huon* > NHG *h[u:]n* 'hen', MHG *syeze* > NHG *s[y:]ß* 'sweet'; see Schmidt 2007: 363), and affects the Middle German area and East Franconian (see König 2007: 147).
In virtue of the Early New High German Diphtongization, MHG long vowels such as [i:, u:, y:] turn into the diphtongs [ai, au, ɔi], respectively, in NHG (MHG *z[i:]t* > NHG *Z[ai]t* 'time', MHG *m[u:]s* > NHG *M[au]s* 'mouse', MHG *n[ü:]n* > NHG *n[ɔi]n* 'nine'; see Schmidt 2007: 360). This process originated in Southern Bavarian and gradually reached Middle German (see König 2007: 147), whereas Lower German, Alemannic, Ripuarian as well as some areas of Thuringia and Assia were not affected (see Schmidt 2007: 361).
Historical *Rundung* – the realization of MHG unrounded /e/ as rounded [ø] and of unrounded /i, ie/ as rounded [y] (MHG *leschen* > NHG *l[ø]schen* 'erase (inf.)', MHG *wirde* > NHG *W[y]rde* 'worth'; see König 2007: 149) – took place especially in the Upper German area; and historical *Entrundung* – the realization of MHG round vowels [y, ø] as unrounded [e, i], respectively – affects most of the High German area (*v[i]rsten* for *F[y]rsten* 'lord (pl.)', *k[e]pfe* for *K[ø]pfe* (head (pl.)'; see König 2007: 149).
We will move on now to an outline of the general characteristics which Bavarian exhibits.

4.3 General Bavarian dialect traits

Before dealing with the varieties of our interest, it is useful to present the most salient characteristics which Bavarian dialects share (for the full list of features, see Wiesinger 1990: 452-456). As pointed out in Wiesinger (1983: 837), Bavarian began to distinguish itself from the other varieties in the 11th century, and nowadays is characterized by many small dialect areas. Nevertheless, these dialects still exhibit some common structural traits (which Alemannic varieties do not display), the most relevant of which are found in the vowel system. Since the present study does not focus on vowels, we will restrict ourselves to briefly mentioning these features, leaving discussions apart (the reader will find them in Wiesinger 1983, 1990, König 2007, Schmidt 2007, and references therein).
The area embraces Upper Bavaria (*Oberbayern*), Lower Bavaria (*Niederbayern*), Upper Palatinate (*Oberpfalz*) in Bavaria; Austria (leaving out *Vorarlberg*); and South Tyrol (*Südtirol*).

4.3.1 Vowels

The most relevant features of Bavarian with respect to the vowel system are collected in the table below:

(9) General Bavarian dialect traits: vowels (examples from König 2007, and Wiesinger 1983, 1990)

Feature	Example(s)	German cognate	Gloss
e-deletion in unstressed final syllables	Aug (Wiesinger 1990) Ochs (Wiesinger 1990)	Aug[ə] Ochs[ə]	'eye' 'ox'
Entrundung: MHG [y, ø] > [e, i]	Sch[i]ssel (Wiesinger 1990) k[e]pfe (König 2007)	Sch[y]ssel K[ø]pfe	'dish' 'head (pl.)'
Verdumpfung: MHG [a], [a:] > [ɑ], [ɑ:]	g[ɑ]sn h[ɑ:]sn	G[a]sse H[a:]se	'street' 'rabbit'
Senkung: MHG [ɛ] > [a, a:]	f[a]ßl (Wiesinger 1983) k[a:]s (Wiesinger 1983)	F[ɛ]ßchen K[ɛ:]se	'keg' 'cheese'
MHG [e:, ø:, o:] > [ɛɒ, ɔɒ] (Sbav)/[ɛ:, ɔu] (NBav)	Kl[ɛɒ] h[ɔɒ]ch Gl[ɛ:] t[ɔu]t	Kl[e:] r[o:]t Kl[e:] t[o:]t	'clover' 'high' 'clover' 'dead'
MHG [ou] > [a, a:] before labials	b[a:]m (Wiesinger 1990) r[a]fen (Wiesinger 1990)	B[au]m r[au]fen	'tree' 'scrap (inf.)'
MHG [ai] > [ɔi] (Nbav)/ [ɔɒ] (SBav)	l[ɔi]ta/l[ɔɒ]ta (Wiesinger 1990) br[ɔɒ]t (Wiesinger 1990)	L[ai]ter br[ai]t	'ladder' 'wide'

Schwa-apocope and *Entrundung* have been presented in 4.2.2 – this is why we will not deal with these processes here. A further typical process of Bavarian varieties, *Verdumpfung*, consists in the change of [a], [a:] to [ɑ], [ɑ:], respectively, as the examples above show. *Senkung* affects MHG [ɛ], which lowers to [a, a:] in Bavarian.

The development of MHG [e:, ø:, o:] has produced different realizations in Bavarian, where we find [ɛɒ, ɔɒ] in South Bavarian varieties, whereas [ɛ:, ɔu] characterize Northern/Central Bavarian dialects. Southern Bavarian and Northern/Central Bavarian also differ with respect to the outcomes of MHG [ai], realizing [ɔɒ] and [ɔi], respectively (see Wiesinger 1983: 838 for details). Finally, Bavarian realizes [a, a:] from MHG [ou]. The picture which emerges is not homogeneous throughout Bavarian varieties, which leads us to isolate Southern Bavarian from other Bavarian varieties within the purpose of our survey. This may also be observed with respect to the consonantal system.

4.3.2 Consonants

As mentioned in 4.2.1, the developments produced by the Second Germanic Consonant Shift have affected the Upper German area, where *t* > [ts], and *p* > [pf]. These outcomes are generally shared in all Bavarian varieties, as it is for the change of *b*, *d*, *g*, to [p, t, k], respectively (*bett* > *[p]ett* 'bed', *dohter* > *[t]ohter* 'daughter', *got* > *[k]ot* 'God'; see König 2007: 63). A further typical process of these varieties is *s*-palatalization in word-medial context, where we find, for instance, *Dur[ʃ]t* 'thirst' and *Ra[ʃ]pe* 'rasp' for Standard German *Dur[s]t* and *Ra[s]pel*, respectively (see Wiesinger 1990: 479).

Despite the features shared by Bavarian dialects, the picture which emerges is not homogeneous. Indeed, as shown for the vowel system, Bavarian dialects differ from one another with respect to some processes – which distinguish Northern and Central Bavarian on the one hand, and Southern Bavarian on the other hand. To our study, the most salient among these traits is the development *k* > [kx] as the result of the Second Germanic Consonant Shift. This outcome is only found in Southern Bavarian, and is still preserved nowadays. Some examples for this process are given below:

(10) *k* > [kx] in South Bavarian (examples from Wiesinger 1990)

OHG	**Southern Bavarian**	**German cognate**	**Gloss**
kneht	[kx]necht	[k]necht	'servant'
hacchōn	ho[kx]n	ha[k]en	'chop (inf.)'
spek	spe[kx]	Spe[k]	'lard'

The example provided above reveal the conservative behaviour of Southern Bavarian, which retains the features resulting from the Sound Shift. On the contrary, Northern and Central Bavarian exhibit [g] (*[g]necht*, *spe[g]*), [k] (*ho[k]ar*).

When found especially in word-initial context preceding a nasal or a liquid, Southern Bavarian preserves the opposition [g] ~ [kx] (*[gl]ai* 'same', *[kxl]aim* 'bran', Standard German *[gl]eich*, *[kl]eie*, respectively), whereas Northern and Central Bavarian neutralize the this opposition by merging it into [g] (*[gl]ai*, *[gl]aim*). Southern Bavarian distinguishes among [kx, k, g], preserving it from MHG *kch*, *kk*, *g* (*pu[kx]n* 'bend (inf.)' ~ *ru[k]n* 'back', *pe[kx]* 'baker' ~ *e[k]* 'corner', *ho[k]n* 'hook' ~ *so[g]n* 'say (inf.)', *[kx]upfer* 'copper' ~ *[k]upf* 'head'; Standard German *bü[k]en* ~ *Rü[k]en*, *Bä[k]er* ~ *E[k]e*, *Ha[k]en* ~ *sa[g]en*, *[k]upfer* ~ *[g]upf*, respectively), whereas Northern and Central Bavarian neutralize these sounds in

[g] in word-initial context and after long vowels (*[g]ubv*, *ho:[g]n*); and in [k] word-medially after short vowels (*bu[k]a = ru[k]n*, *be[k] = e[k]* (see Wiesinger 1983: 841-842, and Wiesinger 1990: 457-458).
Finally, Southern Bavarian also preserves the distinction [t] ~ [d] both word-initially (*[t]ir* 'door' ~ *[d]ir* 'you (dat.)') and word-medially (*wei[t]er* 'more' ~ *Schnei[d]er* 'tailor'; Standard German *[t]ür ~ [d]u*; *wei[t]er ~ Schnei[d]er*, respectively), whereas Northern and Central Bavarian neutralize it to [d] (*[d]ir = [d]ir*; *wei[d]er = Schnei[d]*er; see Wiesinger 1990: 458). We will now move on to an overview on the examined dialects – Tyrolean, Mòcheno, and Lusérn Cimbrian.

4.4 South Bavarian: Tyrolean, Mòcheno, and Lusérn Cimbrian

The present subections have been conceived as an overview on the most relevant peculiarities of the investigated varieties, also with respect to their cluster inventories. In light of this, the reader will mostly find characteristics which pertain to cluster formation and to the consonant system of each variety. Consequently, features regarding the vowel system such as historical changes have only been sketched (if not relevant to our survey). For an in-depth discussion of these traits, see Rowley (1986), Panieri et al. (2014), Tyroller (2003), and Wiesinger (1990).

4.4.1 Tyrolean dialects

Due to the strong inner variation that Tyrolean presents, one cannot speak of one Tyrolean dialect. Rather, it is much more reasonable to collect the varieties spoken in the various valleys under the label "Tyrolean *dialects*" (Alber&Lanthaler 2004: 79; my italics). Among the traits which characterize these varieties, fortition, preservation of the velar affricate [kx], *s*-palatalization, and [ə]-syncope turn out to be relevant to our study.
Before presenting the various characteristics, it is useful to sketch the major features of the plosive system in order to highlight the differences with respect to Standard German. In Tyrolean, obstruents contrast in word-initial position, and undergo restrictions related to syllable weight in word-internal context: they contrast after heavy (H) syllables, whereas they are neutralized to voiceless segments after light (L) syllables. Word-finally, plosives are devoiced. The following table illustrates this for the variety of Meran:

(11) Plosives in Tyrolean (examples from Alber 2013, and my fieldwork)

Context	Example	German cognate	Gloss
word-initially: contrast	[t]ir ~ [d]ir (Alber 2013) [k]ern ~ [g]ern (Alber 2013) [f]ein ~ [v]ein (Alber 2013)	[t]ür ~ [d]ir [k]ern ~ [g]ern [f]ein ~ [v]ein	'door' ~ 'you (dat.)' 'core' ~ 'gladly' 'fine' ~ 'wine'
word-medially after H syllable: contrast	o:[p]er ~ o:[b]er (Alber 2013) pe:[t]n ~ pe:[d]n (Alber 2013) vir[g]n ~ vir[k]n (Alber 2013)	a:[p]er ~ a:[b]er be:[t]en ~ bo:[d]en wür[g]en ~ wir[k]en	'snow-free'' ~ 'but' 'pray (inf.)' ~ 'ground' 'choke (inf.)'~ 'affect (inf.)'
word-medially after L syllable: voiceless	Klu[p]m (Alber 2013) re[t]n (Alber 2013) Le[f]l (Alber 2013)	--- re[t]en Lö[f]el	'clothes peg' 'save (inf.)' 'spoon'
word-finally: devoicing	ge:[b]en → gi[p] Frain[d]e → Frain[t] Beschlä:[g]e → Beschla:[k]	ge:[b]en → gi[p] Freun[d]e → Freun[t] Beschlä:[g]e → Beschla:[k]	'give (inf.; imp.)' 'friend (pl.; sg.)' 'fitting (pl.; sg.)'

The data presented above show that Tyrolean behaves like Standard German: the contrast between voiceless and voiced obstruents may be observed word-initially and word-medially after heavy syllables. They are realized as voiceless when found after light syllables and in word-final context. On the other hand, the contrast between word-initial voiceless and voiced plosives does characterize Standard German labial [p] ~ [b], whereas Tyrolean varieties neutralize them to voiced [p] in this context (see Alber 2013: 25 for details):

(12) Word.-initial labial plosives in Tyrolean dialects (examples from Haller/Lanthaler 2004, and my fieldwork)

OHG	Tyrolean	Variety	German cognate	Gloss
betti	[p]ëtt	Passeier	[b]ett	'bed'
būtil	[p]aitl	Passeier	[b]eutel	'sachet'
brief	[p]riaf	Meran	[b]rief	'letter'
verblüejen	fer[p]liën	Passeier	ver[b]lühen	'wither (inf.)'
brüelen	zua[p]rilln	Meran	zu[b]rüllen	'shout (inf.)'

As previously shown, the change of [b d g] to [p t k], respectively, has strongly affected Bavarian, and it is found both word-initially and word-medially. In light of this, sequences such as [bl, bʀ] do not pertain to the Tyrolean onset cluster inventory (see chapter 6)[17]. In addition, dialectal dictionaries do not contain any entrance of words beginning with <b>. This has been confirmed by our informants, who realized [p]. Neutralization is also found

[17]The process is also found with respect to [d] > [t], although Tyrolean does not display it as regularly as [b] > [p]. As a matter of fact, the entries with <d> contained in dialectal dictionaries are many. Furthermore, our informants have mostly realized [d] instead of [t], showing that fortition [d] > [t] takes place depending on the speakers and, probably, on the region/valley in which a dialect is spoken (Meran: *zu[tʀ]inglich*; Klausen, Ritten: *zu[dʀ]inglich*, Standard German *zu[dʀ]inglich*, 'intrusive').

with respect to sibilants, where voiceless [s] and voiced [z] are realized as [s] both word-initially and word-medially (see Alber 2913: 19; 25 for details):

(13) /s/ in Tyrolean dialects (examples from my fieldwork)

OHG	Tyrolean	Variety	German cognate	Gloss
sagēn	[s]ogn	Meran	[z]agen	'say (inf.)'
sih	[s]ich	Ritten	[z]ich	'self'
zasamane	zu[s]åmmen	Ritten	zu[z]ammen	'together'
gisamanōt	ge[s]åmt	Meran	ge[z]amt	'total'

The data above show that, in pre-vocalic word-initial and in intersonorant context, Tyrolean always realizes voiceless [s], whereas Standard German exhibits [z]. In Tyrolean, sibilants only contrast with respect to [s] ~ [ʃ], not [z]. Postalveolar [ʃ] is found as the outcome of Germanic /sk/ (OHG *sc*), which also characterizes Standard German. Furthermore, Tyrolean exhibits it as the result of *s*-palatalization when preceding consonants in all contexts, a feature which is typical of Bavarian varieties (see Wiesinger 1990: 479 for details). Some examples illustrate the process:

(14) *s*-palatalization in Tyrolean (data from my fieldwork)

OHG[18]	Tyrolean	Variety	German cognate	Gloss
scōno	[ʃ]on	Meran	[ʃ]on	'already'
scāphare	[ʃ]äfer	Klausen	[ʃ]äfer	'shepherd'
spil	[ʃ]piel	Ritten	[ʃ]piel	'game, match'
stān	[ʃ]tehen	Ritten	[ʃ]tehen	'stay (3rd pl.)'
fenstar	Fen[ʃ]ter	Meran	Fen[s]ter	'window'
gispensti	Kschpen[ʃ]t	Klausen	Gespen[s]t	'ghost'
---	hå[ʃ]	Ritten	ha[s]t	'have (2nd sg.)'
fleisc	Flei[ʃ]	Deutschnofen	Flei[ʃ]	'meat'

In the data above, Tyrolean varieties realize postalveolar [ʃ] not only in word-initial pre-vocalic position and word-finally, but also word-medially before obstruents, where Standard German always exhibits [s].

A further typical Bavarian trait found in Tyrolean is the preservation of dorsal affricate [kx], which has evolved from Germanic *k* and is nowadays only preserved in South Bavarian and Swiss German:

[18] OHG data are taken from Duden (1996).

(15) *k* > [kx] in Tyrolean dialects (examples from Alber/Lanthaler 2004, Schmidt 2007, and my fieldwork)

OHG[19]	**Tyrolean**	**Variety**	**German cognate**	**Gloss**
kazza	[kx]otz	Meran	[k]atze	'cat'
kind	[kx]int	Meran	[k]ind	'child'
kneht	[kx]necht	Passeier	[k]necht	'fellow'
---	der[kx]naißn	Passeier	---	
---	der[kx]liëbm	Passeier	---	
gesmac	Kschmå[kx]	Meran	Geschma[k]	'taste'

The data above reveal that the change *k* > [kx] has affected Tyrolean varieties, but it has not been preserved in Standard German – which realizes velar plosive [k] in all positions.
A further typical South Bavarian trait which is found in Tyrolean is assimilation of the suffix *-t*. This may be observed in the 2nd person singular suffixes and in past participles, where *-t* is assimilated to the obstruent of the root (see Wiesinger 1990: 496 for details):

(16) *-t*-assimilation in Tyrolean dialects (examples from my fieldwork)

Example	**Variety**	**German cognate**	**Gloss**
hå[ʃ]	Klausen	ha[st]	'have (2nd sg.)'
kxo[p]	Deutschnofen	geha[pt]	'have (p.p.)'
kfro[k]	Meran	gefra[kt]	'ask (p.p.)'
kså[k]	Deutschnofen	gesa[kt]	'say (p.p.)'

As shown above, the process of *-t*-assimilation has not affected Standard German, which preserves both obstruents in coda position.
Concerning sonorants, the inventory of *r*-sounds in Tyrolean covers up a wide range of realizations. Indeed, the elicited data reveal that uvular trill [ʀ], uvular fricative [ʁ], vocalized /r/ [ɐ], and apical [r] occur. As in Standard German, uvulars fill the pre-vocalic position in free variation. This emerges especially in the variety of Meran which, however, shows a tendency towards the realization of uvular fricative [ʁ]. This is also true for the word-final context, conferming what has emerged from recent studies on phonetic allophony of /r/ in the dialect in question, where [ʁ] turns out to be the most context-independent realization (Vietti/Spreafico/Galatà 2015). The data that we elicited reveal that word-internal simple and complex onsets as well as complex codas only exhibit [ʀ] in the variety of Meran. With respect to the other examined dialects, we may observe a

[19]OHG data are taken from Duden (1996).

homogeneous behaviour in the dialects of Klausen and Ritten. Indeed, both are characterized by a strong presence of uvular trill [ʀ] in simple word-initial and word-medial pre-vocalic onsets, in word-medial complex onsets as C2, and in complex codas as C1. Symmetry also occurs in simple codas, where the speakers of these dialects realize vocalized [ɐ], as in Standard German ([ʀ, ʁ] emerge only in a very few words in Ritten: *Ti[ʁ]* 'door', *ve[ʁ]letzt* 'hurt (p.p.)', *Kinde[ʁ]* 'child (pl.)'). Of all the tested varieties, that of Deutschnofen is the only one displaying apical [r]. This is strongly found in word-initial and word-medial simple onsets, whereas it alternates with uvular trill [ʀ] when filling C2 in word-internal onsets. Concerning simple codas, [ɐ] and [r] may be identified, whereas [ʀ] is the only one occurring as C1 in complex codas. It emerges, therefore, that Tyrolean is characterized by great variation with respect to the realizations of /r/, with uvular trill [ʀ] and vocalized [ɐ] occurring in all the investigate varieties; uvular fricative [ʁ] and apical [r] as typical only of certain dialects. Examples for the various *r*-sounds are illustrated below:

(17) /r/ in Tyrolean dialects (examples from my fieldwork)

Context	**Example**	**Variety**	**German cognate**	**Gloss**
word-initial pre-V	[ʁ]echtzeitig	Meran	[ʀ]echtzeitig/[ʁ]echtzeitig	'on time'
	[r]eden	Deutschnofen	[ʀ]eden/[ʁ]eden	'talk (inf.)'
	[ʀ]einer	Klausen	[ʀ]einer/[ʁ]einer	'mere (m. sg.)'
	[ʀ]oss	Ritten	---	'horse'
word-initial post-C	F[ʀ]aint	Meran	F[ʀ]eund/F[ʁ]eund	'friend'
	g[r]oas	Deutschnofen	g[ʀ]oß/g[ʁ]oß	'big; tall'
	F[ʀ]eizeit	Klausen	F[ʀ]eizeit	'free time'
	b[ʀ]aves	Ritten	b[ʀ]aves	'good (n.)'
word-medial pre-V	Me[ʀ]an	Meran	Me[ʀ]an	'Meran (place name)'
	zu[r]uck	Deutschnofen	zu[ʀ]ück	'back'
	be[ʀ]ühmt	Klausen	be[ʀ]ühmt	'popular'
	Wa[ʀ]en	Ritten	Wa[ʀ]en	'merchandise'
word-medial post-C	zud[ʀ]inglich	Meran	zud[ʀ]inglich	'intrusive'
	best[r]åfn	Deutschnofen	best[ʀ]afen	'punish (inf.)'
	zuf[ʀ]ieden	Klausen	zuf[ʀ]ieden	'happy; satisfied'
	bef[ʀ]iedigen	Ritten	bef[ʀ]iedigen	'satisfy (inf.)'
simple coda	gehoie[ʁ],daue[ʁ]hååft	Meran	geheu[ɐ]	'creepy'
	Ti[r], Ne[r]ven	Deutschnofen	Tü[ɐ], Ne[ɐ]ven	'door', 'nerve (pl.)'
	Lehr[ɐ], we[ɐ]dn	Klausen	Lehr[ɐ], we[ɐ]den	'teacher', 'become (inf.)'
	hetzig[ɐ], kfe[ɐ]lich	Ritten	hetzig[ɐ], gefe[ɐ]lich	'funny', 'dangerous'
complex coda	Ko[ʀ]p	Meran	Ko[ɐ]b	'basket'
	Pa[ʀ]k	Deutschnofen	Pa[ɐ]k	'park'
	Ko[ʀ]p	Klausen	Ko[ɐ]b	'basket'
	Pa[ʀ]k	Ritten	Pa[ɐ]k	'park'

The emergence of apical [r] in Tyrolean dialects might be interpreted as a contact-induced feature due to the influence of Romance varieties. However, this may be contested if we adopt the arguments adduced in Alber (2013: 19). Firstly, the great variability of the realizations of /r/ in the various languages, as observed in Wiese (2003). Secondly, the presence of apical [r] in South German dialects still in the 1930s, which is common nowadays to many Bavarian varieties. The strong emergence of the apical realization in Deutschnofen proves that [r] has not been completely undone in Tyrolean.

Schwa-syncope[20] is the most relevant feature for the formation of consonant clusters in Tyrolean. Indeed, "new" sequences arise, differentiating the Tyrolean inventory from that of Standard German. Syncope mostly affects the syllables *ge- [gə]* and *be- [bə]*. This is found when preceding both obstruents and sonorants – which in Modern Standard German does not occur, as illustrated below:

(18) Schwa-syncope in Tyrolean (data from Alber/Lanthaler 2004, and my fieldwork)

Tyrolean	**Variety**	**German cognate**	**Gloss**
[gə]bli:bn	Klausen	[gə]blieben	'stay (p.p.)'
[gə]tailt	Deutschnofen	[gə]tailt	'split (p.p)'
[kf]ällig	Klausen	[gə]fällig	'pleasant'
[kx]op	Deutschnofen	[gə]habt	'have (p.p.)'
[gv]esn	Deutschnofen	[gə]wesen	'be (p.p.)'
[ks]içt	Ritten	[gə]sicht	'face'
[kʃ]äft	Ritten	[gə]schäft	'shop'
[gm]ocht	Meran	[gə]meint	'mean (p.p.)'
[gn]umən (Alber/Lanthaler 2004)	Meran	[gə]nommen	'take (p.p)'
[gl]axtɐ	Meran	[gə]lächter	'laughter'
[gʀ]aontst (Alber/Lanthaler 2004)	Meran	[gə]raunzt	'grumble (p.p.)'
[bə]trochtn	Klausen	[bə]trachten	'observe (inf.)'
[bə]friedigen	Klausen	[bə]friedigen	'satisfy (inf.)'
[bə]haglich	Klausen	[bə]haglich	'comfortable'
[ps]unders	Ritten	[bə]sonders	'particularly'
[bə]nutsn	Klausen	[bə]nutzen	'use (inf.)'
[bə]leidigend	Meran	[bə]leidigend	'offensive'
[bə]rühmt	Ritten	[bə]rühmt	'popular'

The data presented in the table above reveal the double behaviour of Tyrolean with respect to schwa. On the one hand, the examined varieties syncopate when *ge-* is followed by

[20]Apart from the cases presented here, schwa-syncope is also found in attributive forms such as *a[lts]*, Standard German *alt[ə]s* 'old (neutre); see Wiesinger (1990: 505).

fricatives, sibilants, nasals, and liquids – with assimilation in voicing to the voiceless fricative or sibilant. If the stem following schwa begins with [h], it blends with *g-* into the velar affricate [kx]. On the other hand, Tyrolean does not delete schwa if the stem begins with a plosive. The reason may lie in the need not to incur any violations of the SSG, which would occur in [gb, gt] if schwa was deleted. The picture for the prefix *be-* is partly similar to that for *ge-*: schwa falls when preceding a sibilant – to which the plosive assimilates with respect to the feature [voice] –, but it is preserved when followed by plosives, voiceless fricatives, *and* sonorants[21]. As shown for Bavarian (subsection 4.2.2), Tyrolean also syncopates with respect to the prefix *zu-*, (Passeier: *[tsm]orgits* 'in the morning', *[tsn]icht* 'mean', see Haller/Lanthaler 2004; Meran: *[tsʀ]uck* 'back'), a trait which Standard German does not display (realizing *zu Morgen*, *zunichte*, *zurück*, respectively).

Other salient characteristics of Tyrolean dialects (which, however, are not of relevance to us in the present survey since they do not play any role in cluster formation) are *Entrundung* (from my fieldwork: *T[i]r* 'door' (Deutschnofen), *f[i]r* 'for' (Meran), *h[e]r auf* 'quit (imp.)' (Klausen), *k[e]nnen* 'can (3rd pl.)' (Meran) vs. Standard German *T[y]r*, *f[y]r*, *h[ø]r auf*, *k[ø]nnen*, respectively), *Verdumpfung* (from my fieldwork in Meran: *Auftr[ɔ:]g* 'task', *w[ɔ:]s* 'what'; Standard German *Auftr[a:]g*, *w[a]s*, respectively), and the change MHG [o:] > [oɒ] (*st[oɒ]sen* 'kick (inf.)', Standard German *st[o:]sen*; see Wiesinger 1990: 453).

4.4.2 Mòcheno

As belonging to South Bavarian dialects, Mòcheno exhibits fortition and *k*-affrication – which are also found in Tyrolean. However, it also displays features which do not characterize other South Bavarian varieties (most importantly, Tyrolean). Among them, fricative voicing, *s*-affrication, and assimilation, reveal the emergence of consonant clusters which are not part of the Standard German inventory (see chapter 6).

Before presenting the various features, it is useful to outline the major characteristics of the plosive system. This will help understand the differences which Mòcheno displays with respect to Tyrolean dialects. Concerning plosives, Mòcheno exhibits a contrast in word-initial position, whereas in word-medial context they are subject to restrictions on syllable weight, which impose a contrast after heavy syllables, and neutralization to voiceless

[21]In their analysis of onsets in five Tyrolean dialects, Alber/Lanthaler (2004: 77-78) claim that [ə] (and [ɩ] for some varieties) is epenthetic, pointing out that the sonority hierarchy does not account for epenthesis since it were not necessary before liquids and nasals. In this respect, [bl, br] in our data are well-formed onsets in Standard German. The reason for inserting a vowel may be to separate the prefix from the stem more clearly. However, repair strategies are not our major concern here; therefore, we will leave this subject apart.

segments after light syllables. In word-final position, plosives undergo devoicing:

(19) Plosives in Mòcheno (examples from Alber 2013, Rowley 1986, and *'s kloa be.be* 2009)

Context	**Example**	**German cognate**	**Gloss**
word-initially:	[p]auch (*'s kloa be.be* 2009)	[b]auch	'belly'
contrast	[b]olf (Rowley 1986)	[v]olf	'wolf'
	[t]iaf (*'s kloa be.be* 2009)	[t]ief	'deep'
	[d]eck (*'s kloa be.be* 2009)	[d]ecke	'blanket'
	[kx]erz (*'s kloa be.be* 2009)	[k]erze	'candle'
	[g]obl (Alber 2013)	[g]abel	'fork'
word-medially	la:[p]ɐr (Alber 2013)	Lau[b]er	'foliage'
after H syllable:	kxel[b]ɐr (Alber 2013)	Käl[b]er	'calf (pl.)'
contrast	tɛa[t]n (Alber 2013)	tö:[t]en	'kill (inf.)'
	no:[d]l (Alber 2013)	Na:[d]el	'needle'
	trin[k]n (Alber 2013)	trin[k]en	'drink (inf.)'
	lu:[g]n (Alber 2013)	lü:[g]en	'lie'
word-medially	tri[p]m (Alber 2013)	---	'tripe'
after L syllable:	vli[t]erl (Alber 2013)	---	'butterfly'
voiceless	pru[k]n (Alber 2013)	Brü[k]e	'bridge'
word-finally:	gi[p] (*'s kloa be.be* 2009)	gi[p]	'give (imp. 2nd sg.)'
devoicing	rei[t] (Alber 2013)	rede[t]	'talk (imp. 2nd sg.)'
	ta[kx] (Alber 2013)	Ta[k]	'day'

The data collected above reveal that Mòcheno behaves similarly to Tyrolean: plosives contrast when occurring word-initially and word-internally after heavy sillables, whereas they are neutralized to voiced when found after light syllables. On the other hand, Mòcheno differs from Tyrolean with respect to the contrast [p] ~ [b]. The former is the outcome of historical fortition affecting [b], and the latter results from historical fortition of MHG *w* (see Rowley 1986: 116-117; 178). On the contrary, Tyrolean dialects display neutralization to [p] (see 4.4.1). Examples for these changes are illustrated in the following table, which collects data both for the word-initial as well as for the word-internal context:

(20) Fortition in Mòcheno (examples from Rowley 1986, *'s kloa be.be* 2009, and my fieldwork)

MHG[22]	**Mòcheno**	**German cognate**	**Gloss**
boum	[p]a:m	[b]aum	'tree'
bitten	[p]ittn	[b]itten	'beg (inf.)'
blic	[p]lick (*'s kloa be.be* 2009)	[bl]ick	'look'
verbrennen	ver[p]rennen (*'s kloa be.be* 2009)	ver[b]rennen	'burn off (inf.)'
wolf	[b]olf (Rowley 1986)	[v]olf	'wolf'
wîb	[b]aib (Rowley 1986)	[v]eib	'female'
zwei	ts[b]oa	ts[v]ei	'two'

[22]MHG examples are from Duden (1996).

gewinnen	ga[b]inner	Ge[v]inner	'winner'
swīn	s[b]ain	Sch[v]ein	'pig'

As Tyrolean but unlike Standard German, Mòcheno displays the velar affricate [kx], resulting from *k* in virtue of the High German Consonant Shift (see Rowley 1986: 176, and Schmidt 2007: 231; 288 for a brief discussion). The affricate occupies both the word-initial and the word-internal context:

(21) *k*-affrication in Mòcheno (examples from *bersntol.it*, and Rowley 1986)

OHG[23]	**Mòcheno**	**German cognate**	**Gloss**
kiricha	[kx]irch (*bersntol.it*)	[k]irche	'church'
kneht	[kx]necht (Rowley 1986)	[k]necht	'servant'
ackar	o[kx]ar (*bersntol.it*)	A[k]er	'field'
schinke	schin[kx] (Rowley 1986)	Schen[k]el	'leg'

Fricatives deserve special attention in Mòcheno. Differently from Tyrolean, the variety in question exhibits a threefold distinction with respect to sibilants: alveolar /s/, postalveolar /ś/, and palatoalveolar /ʃ/ (see Rowley 1986: 127-142 for in-depth discussion). As a result of the Consonant Shift, /s/ has evolved from MHG *t* (graphically <ʒ>: *weʒʒeren* > *ba[s]ern*, Standard German *wä[s]ern* 'water (inf.)'); /ś/ stands for MHG coronal fricative <s> (*huoste* > *hua[ś]t*, Standard German *Hu[s]ten* 'cough'); and /ʃ/ stands for MHG palatoalveolar <sch> (*visch* > *vi[ʃ]*, Standard German *Fi[ʃ]* 'fish'; see Alber 2013: 18, and Rowley 1986: 127-140 for details). In light of this, the threefold distinction is considered as a conservative trait for Mòcheno, whereas Tyrolean only displays /s/, /ʃ/ (see 4.4.1). Sibilants contrast in voicing in Mòcheno. As pointed out in Alber (2013: 19), voicing in alveolar fricatives has an allophonic significance, but voiced /z/ does pertain to the inventory – whereas, in Tyrolean, it has been neutralized to /s/ (see 4.4.1). In word-medial position, complementary distribution [s] ~ [z] can be observed. As pointed out in Alber (2013: 19), the contrast is considered as a conservative feature since it was also found in MHG:

[23]OHG examples are from Duden (1996).

(22) /s/ in Mòcheno: word-medial context (examples from Alber 2013, and Rowley 1986)

OHG/MHG[24]	Mòcheno	German cognate	Gloss
grüeʒen	gria[z]n (Rowley 1986)	grü[s]en	'greet (inf.)'
bīʒen	pai[z]n (Rowley 1986)	bei[s]en	'bite (inf.)'
wiʒʒen	bi[s]n (Alber 2013)	wi[s]en	'know (inf.)'
beʒʒer	pe[s]er (Rowley 1986)	be[s]er	'better'

When occupying the word-medial intersonorant context, sibilants are in complementary distribution with respect to voicing in Mòcheno. Indeed, they are realized as voiced when following heavy syllables; and as voiceless when following light syllables (see Alber 2013: 20, and Rowley 1986: 130; 132). On the contrary, Standard German (and Tyrolean) always exhibits voiceless [s]. When filling the word-initial pre-vocalic position, sibilants are always voiced [z] in Mòcheno:

(23) /s/ in Mòcheno: word-initial context (examples from Alber 2013, *bersntol.it*, and my fieldwork)

OHG/MHG	Mòcheno	German cognate	Gloss
sūber	[z]auber (*bersntol.it*)	[z]auber	'tidy'
sunna	[z]un (Alber 2013)	[z]onne	'sun'
sehan	[z]echen	[z]ehen	'see (inf.)'

Word-initial pre-vocalic [z] is also found in Standard German, whereas Tyrolean realizes [s] (see 4.4.1). The voicing of fricatives has also targeted labial [f] in Mòcheno, which turns into [v] both in word-initial position and in word-internal intersonorant context:

(24) Labial fricatives in Mòcheno (examples from Alber 2013, *bersntol.it*, Rowley 1986, and my fieldwork)

OHG/MHG	Mòcheno	German cognate	Gloss
funf	[v]inf (*bersntol.it*)	[f]ünf	'five'
fiohta	[v]aicht (*bersntol.it*)	[f]ichte	'fir tree'
fleisc	[v]laisch	[f]leisch	'meat'
frī	[v]rai	[f]rei	'free'
slapan	schlo:[v]n (Alber 2013)	schla[f]en	'sleep (inf.)'
helfen	hel[v]en (Rowley 1986)	hel[f]en	'help (inf.)'
werfen	ber[v]n (Alber 2013)	wer[f]en	'throw (inf.)'
bevrīen	ver[v]raien[25]	be[f]reien	'set free (inf.)'

[24] OHG/MHG examples are from Duden (1996).

[25] Word-internal [vl] is only found in *knou[vl]a* (< MHG (*knobelou(c)h*) 'garlic' (see *bersntol.it*).

leffel	le[f]l (Alber 2013)	Lö[f]el	'spoon'

The data collected above show that OHG/MHG *f* changes to [v] in word-initial pre-vocalic and pre-sonorant context. When occurring word-internally, [v] is found after heavy syllables. When following light syllables, we find [f]. As suggested by Alber (2013, 2014), the complementary distribution of fricatives with respect to voicing may be explained as the outcome of a historical process of sonorization between sonorants which is blocked by metrical limitations after light syllables. Historical fricative voicing is described by Paul (1881 [2007]: 122) under the name of *Althochdeutsche Spirantenschwächung*, and affects Germanic voiceless fricatives such as */f/, */s/ from the 8th century – initially when occupying the word-internal intervocalic and intersonorant positions. In a later stage (9th century), the process was extended to all pre-sonorant contexts, including, therefore, the word-initial one. On the one hand, Mòcheno exhibits [v] in all contexts (except for the restriction on light syllables). Modern Standard German does not apply fricative voicing, realizing [f] instead. Furthermore, the process has been extended to the fricative inventory as a whole in Mòcheno – including, therefore, those resulting from the Consonant Shift, sibilants (except for [ʃ], which is always voiceless; see Alber 2014: 21). Mòcheno and Modern Standard German share the voiced realization of [z] in word-initial position-- which is the only relic of the *Althochdeutsche Spirantenschwächung* in Modern Standard German (see Alber 2014: 20 for details).

To sum up, pre-sonorant voicing of fricatives turns out to be productive in Mòcheno, which has preserved the effects of the historical *Althochdeutsche Spirantenschwächung* and has extended it to *all* fricatives – the “old” ones; and the “new” ones, resulting from the Sound Shift. It follows that, on the one hand, Mòcheno is conservative since it still exhibits the effects of a process which is not found in Modern Standard German. On the one hand, the innovative side of Mòcheno lies in applying the process to the fricative inventory as a whole – including those generated by the High German Consonant Shift (see Alber 2014: 21)[26].

Mòcheno differs both from Standard German and Tyrolean with respect to *r*-sounds. When found in pre-vocalic context, Standard German and Tyrolean realize uvular trill [ʀ] or uvular fricative [ʁ], whereas Mòcheno always displays alveolar [r]. As pointed out in Alber (2013: 19), the fact that this realization is a contact-induced phenomenon related to neighbouring

[26]As observed in Alber (2014: 22), the productivity of word-initial fricative voicing in Mòcheno seems to be weakened by loanwords, which often preserve voiceless [f, s] when integrated into the native system or nativized.

Romance varieties is only apparent. Indeed, various factors speak against this view. Firstly, the great amount of realizations of /r/ in the languages of the world, as Wiese (2003) observes. Furthermore, apical [r] was found in South German varieties in the 1930s, and is found nowadays in many Bavarian dialects. It follows, therefore, that the alveolar realization of [r] may be interpreted as a conservative feature of Mòcheno, which has been undone in the neighbouring Tyrolean dialects.

Mòcheno differs from Standard German and Tyrolean also with respect to traits found in past participle formation, such as *s*-affrication to [ʧ]. The process regularly applies to MHG words beginning with *be-s.../be.sch...* (MHG *besinnen* > *[ʧ]binnen* 'think (inf.)', MHG *beschmutzen* > *[ʧ]baizn* 'dirty (inf.)'; see Rowley 1986: 438), and has been generally extended to words containing sibilants:

(25) *s*-affrication in Mòcheno (examples from Rowley 1986, *s' kloa be.be.* 2009, and my fieldwork)

MHG[27]	**Mòcheno**	**German cognate**	**Gloss**
geschmach	[ʧ]mòch (Rowley 1986)	Ge[ʃ]mack	'taste'
swuor	[ʧ]beir	[ʃ]wur	'swear'
smutzen	[ʧ]baisn (Rowley 1986)	be[ʃ]mutzen	'smear (inf.)'
swelen[28]	au[ʧ]belng (Rowley 1986)	auf[ʃ]vellen	'swell (inf.)'
gesunt	[ʧ]unt	ge[z]und	'healthy'
setzen	[ʧ]etzt (Rowley 1986)	ge[z]etzt	'put (p.p.)'
sehen	[ʧ]ehen (Rowley 1986)	ge[z]ehen	'see (p.p.)'
snīden	[ʧ]nitn (Rowley 1986)	ge[ʃ]nitten	'cut (p.p.)'
slapan	[ʧ]lovn (Rowley 1986)	ge[ʃ]lafen	'sleep (p.p.)'
stōʒen	[tʃ]toazn (Rowley 1986)	ge[ʃ]toßen	'kick (p.p.)'
stān	au[ʧ]tanen (Rowley 1986)	aufge[ʃt]anden	'get up (p.p.)'
sleht	[ʧ]lecht (Rowley 1986)	[ʃ]lecht	'bad'
wunsch	bun[ʧ] (Rowley 1986)	Wun[ʃ]	'wish'

The data presented above show that /s/ changes to [ʧ] both in word-initial as well as in word-medial context. The process takes place before sonorants, obstruents, and vowels. If /s/ occurs after a morpheme boundary as in past participle formation with the prefixes *be-* and *ge-*, these fall (see Rowley 1986: 143; 146 for details).

A further process typical of Mòcheno is assimilation in voicing and place of articulation

[27]MHG examples are from Duden (1996).

[28]With respect to this form, Duden (1996) points out a Low German origin.

affecting the fricative of the verb stem, resulting in [pf]. In light of this, *p-vres-n* turns into *[pfr]essn* 'eat (of animals)', and *p-vro-k* changes to *[pfr]ok* 'ask' (vs. Standard German *ge-fressen* and *ge-fragt*, respectively; see Rowley 1986: 143-144). Finally, past participles display final -*t*-assimilation to the preceding labial nasal [m], turning into [p] (*kim-t* changes to *ki[m-p]* 'come (3rd sing.)'; see *s' kloa be.be* 2009). The process applies when etymological [t] underlies (cf. Standard German *ko[m-t]*; see Tyroller 2003: 38 for details).

With respect to the vowel system, Mòcheno displays the Bavarian traits of syncope in words introduced by the prefix *zu-*, schwa-apocope, *Entrundung*, *Verdumpfung*, and the change affecting MHG *ei* turning into [oɒ]. Vowel-syncope in *zu-* is only found in *[ts]nicht* (Standard German *zu nichte* 'mean'), generating a consonant cluster which Standard German lacks. However, this is the only case in which *zu-* syncopates: unlike Tyrolean, Mòcheno does not display [tsm, tsʀ] (cf. Tyrolean *[ts]morgits* and *[tsʀ]uck* in 4.5.1).

Examples for schwa-apocope are collected below:

(26) Schwa-apocope in Mòcheno (examples from *bersntol.it*, Rowley 1986, and my fieldwork)

MHG[29]	**Mòcheno**	**German cognate**	**Gloss**
köpfe	kepf (Rowley 1986)	Köpfe	'head (pl.)'
vlasche	vlos	Flasche	'bottle'
kirse	kersch (bersntol.it)	Kirsche	'cherry'
lerche	larch (bersntol.it)	Lärche	'larch'
verse	versch (bersntol.it)	Ferse	'heel'

The data above show that MHG final *e* has been deleted in Mòcheno, but Standard German preserves it.

Entrundung affects MHG rounded front vowels [ø, y] which change to unrounded [e, i], respectively – whereas Standard German preserves rounded vowels (MHG *dört* > *d[e]rt* 'there', MHG *hütte* > *h[i]t* 'cabin'; Standard German *dort*, *H[y]tte*, respectively; see Rowley 1986: 174). *Verdumpfung* applies to MHG *a*, which in Mòcheno turns into [ɒ]. Standard German preserves [a] instead (MHG[30] *katze* > *k[ɒ]ts* 'cat, MHG *hant* > *h[ɒ]nt* 'hand'; Standard German *K[a]tze*, *H[a]nd*, respectively; see Rowley 1986: 174). Finally, Mòcheno exhibits the change of MHG *ei* to [oɒ], as in MHG *stein* > *st[oɒ]* vs. Standard German *Stein* 'stone' (see Rowley 1986: 162; 174).

[29]MHG examples are fom Duden (1996).
[30]MHG examples are fom Duden (1996).

4.4.3 Lusérn Cimbrian

With South Bavarian varieties (especially with Tyrolean), Lusérn Cimbrian shares fortition, *k*-affrication, *s*-palatalization, vowel-syncope in the prefix *zu*-, and final devoicing. It also behaves very similarly to Mòcheno, displaying fricative voicing, *s*-affrication, and *t*-assimilation in verbs. On the other hand, Lusérn Cimbrian exhibits its own characteristics, such as the reduction of *pf* to [f].

As we did for Mòcheno, we will firstly sketch the major characteristics of the Lusérn Cimbrian plosive system in order to detect the differences with respect to Tyrolean dialects. In the plosive system, Lusérn Cimbrian reflects Mòcheno. A contrast is found in word-initial context, whereas word-medially plosives undergo restrictions on syllable weight, imposing a contrast after heavy syllables, and neutralization to voiceless segments after light syllables. In word-final position, plosives are devoiced:

(27) Plosives in Cimbrian (examples from Panieri 2014, Tyroller 2003, and *zimbarbort.it*)

Context	**Example**	**German cognate**	**Gloss**
word-initially:	[p]erge (Panieri 2014)	[b]erg	'mountain'
contrast	[b]aibe (Tyroller 2003)	[v]eib	'female'
	[t]age (Tyroller 2003)	[t]ag	'daytime'
	[d]iarn (Panieri 2014)	[d]irn	'blanket'
	[kx]albe (Tyroller 2003)	[k]alb	'calf'
	[g]abl (Panieri 2014)	[g]abel	'fork'
word-medially after heavy syllable:	åm[p]uz (*zimbarbort.it*)	Am[b]iss	'anvil'
contrast	hö:[b]e (Tyroller 2003)	Heu	'hay'
	hüa[t]n (Tyroller 2003)	hü[t]en	'watch (inf.)'
	hun[d]art (Tyroller 2003)	hun[d]ert	'hundred'
	trin[kx]an (Tyroller 2003)	trin[k]en	'drink (inf.)'
	na:[g]l (Panieri 2014)	Na[g]l	'nail'
word-medially after light syllable:	tri[p]m (Panieri 2014)	---	'tripe'
neutralization to voiceless	be[t]ar (Tyroller 2003)	We[t]er	'weather'
	ha[kx]an (Tyroller 2003)	ha[k]en	'chop (inf.)'
word-finally:	stoa[p] (Tyroller 2003)	Stau[p]	'dust'
devoicing	ban[t] (Tyroller 2003)	Wan[t]	'wall'
	ta[kx] (Panieri 2014)	Ta[k]	'day'

The data in the table above show that Lusérn Cimbrian behaves similarly to Tyrolean with respect to the contrast of plosives when filling the word-initial and the word-internal position after heavy syllables, whereas they are neutralized to the voiceless value when found after light syllables and word-finally. On the other hand, it differs from Tyrolean with respect to the contrast [p] ~ [b]. As in Mòcheno, the former is the outcome of historical fortition affecting [b] (OHG/MHG *perc* 'mountain'), and the latter results from historical fortition of MHG *w* (MHG *wîb* > *[b]aibe* vs. Standard German *[v]eib* 'female'; see Tyroller 2003: 38). On the contrary, Tyrolean dialects exhibit neutralization to [p] (see 4.4.1). Examples for these changes are collected in the following table, which shows data both for the word-initial as well as for the word-medial context:

(28) Fortition in Cimbrian (examples from Panieri 2014, *zimbarbort.it*, and my fieldwork)

OHG/MHG[31]	**Lusérn Cimbrian**	**German cognate**	**Gloss**
bach	[p]ach (Paneri 2014)	[b]ach	'stream'
blī	[p]lai (Panieri 2014)	[b]lei	'lead'
verbrennen[32]	vor[p]rennen	ver[b]rennen	'burn off (inf.)'
wec	[b]ege (Panieri 2014)	[v]eg	'path'
swīgen	s[b]aing (Panieri 2014)	sch[v]eigen	'be quiet (inf.)'
swester	sch[b]estar (*zimbarbort.it*)	Sch[v]ester	'sister'
vrevelen	fre[bl]ar	fre[v]eln	'whine (inf.)'

As Tyrolean but unlike Standard German, Lusérn Cimbrian preserves the velar affricate [kx], the result of *k* in virtue of the High German Consonant Shift (see Schmidt 2007: 231; 288, and Tyroller 2003: 46, and for a brief discussion):

(29) *k*-affrication in Cimbrian (examples from Panieri 2014)

OHG/MHG[33]	**Lusérn Cimbrian**	**German cognate**	**Gloss**
kopf	[kx]opf (Panieri 2014)	[k]opf	'head'
knie	[kx]nia (Panieri 2014)	[k]nie	'knee'
acker	a[kx]ar (Panieri 2014)	A[k]er	'field'
bank	pån[kx] (Panieri 2014)	Ban[k]	'bench'

In Lusérn Cimbrian, /s/ undergoes palatalization not only when resulting from Germanic *sk* in word-initial (**skaþan* > *[ʃ]ade* 'pity', *skipa* > *[ʃ]iff* 'ship') and in word-final context (**fiska* > *vi[ʃ]* 'fish', **diska* > *ti[ʃ]* 'table'), but also when filling the pre-consonantal word-medial position, conforming to the picture of Bavarian varieties (**raustijana* > *röa[ʃ]tn* 'roast (inf.)', **þurstu* > *dur[ʃ]t* 'thirst' vs. Standard German *rö[s]ten*, *Dur[s]t*, respectively;

[31]OHG/MHG examples are from Panieri (2014).

[32]*Zimbarbort.it* reveals that [bʀ] is rarely found in native words (word-initially: MHG *brief* > *[bʀ]iaf*, Standard German *[bʀ]ief* 'letter'; word-medially: MHG *überal* > *bo[bʀ]all*, Modern German *überall* 'everywhere').

[33]OHG examples are rom Duden (1996).

see Tyroller 2003: 43, and *zimbarbort.it*).

The Lusérn Cimbrian fricative system partly differs from that of Tyrolean. Indeed, the variety in question is characterized by a three-way distinction with respect to sibilants: alveolar /s/ (< MHG *ʒʒ*, *ʒ*; Germanic *t*), postalveolar /ś/ (< MHG *s*, Germanic *s*), and palatoalveolar /ʃ/ (< MHG *s*, *sch*, Germanic *s*, *sk*). Recent research on the field (Alber/Rabanus, i. p.) has suggested that the preservation of /ś/ is due to language contact, pointing out that a phonetically similar sibilant does emerge in the neighbouring Romance varieties (although in these dialects it is fixed in a two-way distinction which is similar to that characterizing Standard German). Tests focused on auditive evaluation of sibilants in three contexts (pre-vocalic initial, intersonorant, and postvocalic final) have revealed homogeneous realizations in the articulation of sibilants deriving from Germanic *t* (in all contexts), Germanic *s* (in initial and final position), and Germanic *sk* (in initial context). On the contrary, differences have emerged with respect to the correspondences of intersonorant *-s-* and final *-sk*. In the latter, variation between the speakers has been observed with respect to the level of palatalization. The correspondences for Germanic *s* (non-prevocalic initial) as well as those for Germanic *t* are never palatalized (*ai[ź]an* 'iron-made', *hau[ś]* 'house'; *e[s]en* 'eat (inf.)', *boa[z]an* 'know (inf.)', *pai[s]* 'bite').

In other contexts, a strong tendency for the articulations [ś, ź] of Germanic *s* has emerged (see Alber/Rabanus i. p.: 11). Postalveolar realizations [ś, ź] have also been detected in neighbouring Romance varieties for Latin /s/ (*[ś]al* 'salt', *o[ś]i* 'bone (pl.)', *gri[ź]i* 'grey (pl.)', *ro[ś]* 'red'). The three-way distinction is regarded as a conservative feature for the preservation of which language contact plays a role (see Alber/Rabanus i. p.: 25). As in Mòcheno, a contrast in voicing may be observed with respect to alveolar [s, z] in Lusérn Cimbrian. In word-medial context, [s] ~ [z] alternate, reflecting the picture which emerges for Mòcheno:

(30) /s/ in Cimbrian: word-medial context (examples from Alber 2013, Panieri 2014, and my fieldwork)

OHG/MHG	**Lusérn Cimbrian**	**German cognate**	**Gloss**
diser	di:[z]ar (alber 2013)	die[z]er	'this'
---	ni:a[z]an	nie[z]en	'sneeze (inf.)'
wazzer	ba[s]ar (Alber 2013)	Wa[s]er	'water'
bezzer	pe[s]ar (Panieri 2014)	be[s]er	'better'

When filling the word-medial intersonorant position, sibilants undergo restrictions imposed by syllable weight. They are realized as voiced when following heavy syllables; and as voiceless when following light syllables (see Alber 2013: 20). The same realizations may also be observed for Standard German. When occupying the word-initial pre-vocalic position, sibilants are always realized as voiced [z] in Lusérn Cimbrian (see Alber/Rabanus i. p.: 11):

(31) /s/ in Cimbrian: word-initial context (examples from Alber/Rabanus i.p., and my fieldwork)

OHG/MHG[34]	**Lusérn Cimbrian**	**German cognate**	**Gloss**
sē	[z]ea (Alber/Rabanus i.p.)	[z]ee	'lake'
singen	[z]ingen	[z]ingen	'sing (inf.)'
sunne	[z]unn (Alber/Rabanus i.p.)	[z]onne	'sun'

Word-initial pre-vocalic [z] is also found in Standard German, whereas Tyrolean exhibits neutralization to voiceless [s] (see 4.4.1). The voicing of fricatives has also affected labial [f] in Lusérn Cimbrian, which changes to [v] in word-initial position and in word-internal intersonorant position:

(32) Labial fricatives in Cimbrian (examples from Alber 2013, *zimbarbort.it*, and my fieldwork)

OHG/MHG[35]	**Lusérn Cimbrian**	**German cognate**	**Gloss**
varwe	[v]arbe (Alber 2013)	[f]arbe	'colour'
pfīfen	fai[v]an	pfei[f]en	'whistle (inf.)'
vlasche	[v]lasch (*zimbarbort.it*)	[f]lasche	'bottle'
zwīvel	zbai[v]lar (*zimbarbort.it*)	Zwei[f]el	'doubt'
frisc	[v]risch (*zimbarbort.it*)	[f]risch	'fresh'
slaffan	sle[v]re (*zimbarbort.it*)	schlä[f]rig	'sleepy'
schaffen	scha[f]an (Alber 2013)	scha[f]en	'order (inf.)'
treffen	tre[f]an (*zimbarbort.it*)	tre[f]en	'meet (inf.)'

The data presented above reveal that the labial voiceless fricative [f] undergoes weakening turning into its voiced equivalent [v]. However, the change is context-related. As seen for [s, z], voiced [v] fills the word-initial position and the word-medial intersonorant position when following heavy syllables. In word-medial intersonorant context, Lusérn Cimbrian preserves [f] when following light syllables. On the contrary, Standard German always exhibits voiceless [f]. As observed by Alber (2013, 2014) for Mòcheno, the complementary

[34]OHG/MHG examples are from *zimbarbort.it*.

[35]OHG/MHG examples are from *zimbarbort.it*.

distribution of fricatives with respect to voicing may be explained as the result of historical sonorization between sonorants which is blocked by metrical restrictions after light syllables. The process is the same described for Mòcheno, the *Althochdeutsche Spirantenschwächung* which affects */f/, */s/ initially when found in word-internal intervocalic and intersonorant positions, and later extended to all pre-sonorant contexts, including, therefore, the word-initial one (see 4.5.2). As discussed for Mòcheno, Lusérn Cimbrian has applied the process to the fricative inventory as a whole – including those resulting from the Consonant Shift, sibilants (the only exception being [ʃ], which is always voiceless; see Alber 2014: 21). Lusérn Cimbrian only shares with Modern Standard German the voiced realization of word-initial [z] – explained as the only relic of the *Althochdeutsche Spirantenschwächung* in Modern Standard German (see Alber 2014: 20 for details). Pre-sonorant fricative voicing turns out to be a productive process in Lusérn Cimbrian, which has conserved the effects of the historical *Althochdeutsche Spirantenschwächung* and has extended it to *all* fricatives (the "old" ones; and the "new" ones, the outcomes of the Consonant Shift). This reveals a twofold picture. On the one hand, the conservative behaviour of Lusérn Cimbrian lies in exhibiting the effects of a process which is not found in Modern Standard German (except for word-initial [z]). On the one hand, the innovative Lusérn Cimbrian behaves innovatively since it applies the process to the fricative inventory as a whole (including those resulting from the High German Consonant Shift; see Alber 2014: 21)[36].

In Lusérn Cimbrian, /s/ turns into [ʧ] only in *[ʧ]ell* (MHG *geselle*), where the prefix *ge-* falls (Standard German *Ge[z]elle* 'fellow, mate'; see Panieri 2014). In word-final context, assimilation takes place in verbs, where the underlying etymological *t* assimilates in place of articulation to the preceding labial nasal (*ni[mp]* vs. Standard German *nimm-t* 'take (3rd sg.)'; see Tyroller 2003: 38).

A further typical characteristic which Lusérn Cimbrian displays is simplification of historical [pf] to [f] in word-initial context (see Tyroller 2003: 39-40 for discussion):

[36]As for Mòcheno, Alber (2014: 22) points out that the productivity of word-initial fricative voicing in Lusérn Cimbrian seems to be weakened by loanwords, which often conserve voiceless [f, s] when integrated into the native system or nativized.

(33) Simplification *pf* > [f] in Cimbrian (examples from Panieri 2014)

OHG/MHG[37]	Lusérn Cimbrian	German cognate	Gloss
pfīfe	[f]aif	[pf]eife	'whistle'
pfanne	[f]ånn	[pf]anne	'pan'
pfeffer	[f]effar	[pf]effer	'pepper'
pfluoc	[f]luage	[pf]lug	'plough'
pfluegen	[f]luagn	[pf]lügen	'plough (inf.)')
pfrūme	[f]roum	[pf]laume	'plum'

As noted in Alber (vs. Modern German .2014: 22), the process under investigation[38] "forms a source for voiceless [f] in this context"[39] – blocking the productivity of fricative voicing in word-initial position.

A further characteristic of Lusérn Cimbrian is found in the various realizations of *r*-sounds. The investigated variety exhibits uvular trill [ʀ], uvular fricative [ʁ], and apical [r]. The data that we elicited and those that were consulted in the digitalized sources reveal that the word-initial context is filled by [ʀ, r], whereas [ʀ, ʁ, r] are found in word-final position. The three of them also occupy the word-medial context when preceding a consonant. When following a consonant, only [ʀ, r] emerge. Some examples are provided below:

(34) /r/ in Cimbrian (examples from *zimbarbort.it*, and my fieldwork)

Lusérn Cimbrian	German cognate	Gloss
[ʀ]aif (*zimbarbort.it*)	[ʀ]eif, [ʁ]eif	'ripe'
[r]echts	[ʀ]echt, [ʁ]echt	'right'
ta[ʀ]p (*zimbarbort.it*)	---	'moth'
bi[ʁ]t (*zimbarbort.it*)	Wi[ɐ]t	'host'
gu[ʀ]k (*zimbarbort.it*)	Gu[ɐ]ke	'cucumber'
bu[ʀ]f (*zimbarbort.it*)	Wu[ɐ]f	'throw'
bi[ʀ]s (*zimbarbort.it*)	---	---
a[ʀ]m (*zimbarbort.it*)	a:[ɐ]m	'poor'
dia[ʀ]n (*zimbarbort.it*)	Di[ɐ]ne	'maiden'

[37]OHG/MHG examples are from *zimbarbort.it*.

[38]*[pf]unt* (< MHG *pfunt*, Standard German *[pf]und* 'pound') is the only entry exhibiting word-initial [pf] in Panieri (2014) and *zimbarbort.it*. Likewise, *skram[f]* (Tyroller 2003: 40) is the only word displaying word-final reduction [pf] > [f] – which is ascribed to the influence of Romance varieties (see Tyroller 2003: 133).

[39]Tyroller (1992: 133) suggests that this process might be due to interference of the Romance-speaking area.

zagatta[r]n	---	'struggle (inf.)'
t[ʀ]inkan	t[ʀ]inken, t[ʁ]inken	'drink (inf.)'
gev[r]ingat	[ʀ]ing, [ʁ]ing	'ring'
k[ʀ]aft (*zimbarbort.it*)	K[ʀ]aft, K[ʁ]aft	'strength'
k[r]ablar	K[ʀ]abbe, K[ʁ]abbe	'shrimp'
konk[ʀ]	---	'cancer'
meka[ʁ]	---	'beat'
vo[r]	vo[ɐ]	'for'

Lusérn Cimbrian word-initial [ʀ, r] are realized as [ʀ, ʁ] in Standard German. Word-medially before a consonant, Lusérn Cimbrian [ʀ, ʁ] turn into vocalized [ɐ] in Standard German, whereas it displays [ʀ, ʁ] when following a consonant. Word-finally, Standard German always realizes vocalized [ɐ]. As shown for Mòcheno, apical [r] may be considered as a conservative characteristic of Lusérn Cimbrian due to its emergence in South German varieties in the 1930s and in some Bavarian dialects nowadays (but not in the Tyrolean varieties presented in 4.4.1).

With respect to vowels, both syncope and apocope occur in Lusérn Cimbrian. The former process affects the prefix *zu-*, as seen for Bavarian (see 4.2.2.). However, only one word was found in which this takes place (*[ts]nicht* vs. Standard German *zu nichte* 'mean'), as it was shown for Mòcheno. The result of *u*-deletion is a consonant cluster which Standard German lacks. The following table compares schwa-apocope when found after obstruents and sonorants in Lusérn Cimbrian to schwa-preservation in Standard German:

(35) Schwa-apocope in Cimbrian (examples from *zimbarbort.it*)

Lusérn Cimbrian	**German cognate**	**Gloss**
gurk	Gurk[ə]	'cucumber'
lerch	Lärch[ə]	'lerch'
pürst	Bürst[ə]	'brush'
scher	Scher[ə]	'scissors'
gerst	Gerst[ə]	'barley'

The next chapter is devoted to the Romance part of our survey. We will provide a description of the dialects of Italy focusing on the Northern Italian ones, and proceeding, more or less, in the same fashion adopted in this chapter.

5. CLASSIFICATION OF THE DIALECTS OF ITALY

5.1 Introduction

This chapter provides a general outline of the dialects of Italy and their classification, with a special focus on the area of investigation for the analysis of the Romance varieties of Borgo Valsugana, Mori, Bleggio, Tret, and Gardenese Ladin. As for the chapter about the dialects of German, the discussion will be made in introductory terms. In-depth information as well as further characteristics for each dialect area will be found for the interested reader in the sources that were consulted (and references therein).

The modern scientific classification of the dialects of Italy is accredited to Ascoli's article *L'Italia dialettale* (1882-1885), whose merit has been ascribed to an approach which takes into account linguistic features (not only geography and history, as was done in the previous proposals; see Loporcaro 2009: 60-61 for details) and in which isoglosses play a decisive role, becoming the framework of the classification. The approach, based on historical linguistics, focuses on the various developments of the examined dialects as compared to Latin. Nevertheless, a syncronic perspective has been considered, taking Tuscan – the variety which is most close to Latin – as a reference point. The diachronic distance which the other dialects reveal with respect to Latin and the synchronic distance with respect to Tuscan allow Ascoli to detect a) dialects depending on Neo-Latin systems not peculiar of Italy (Provençal, French-Provençal, Ladin); b) dialects which are different from the system of Italian, but do not belong to any Neo-Latin system unrelated to Italian (Gallo-Italic, Sardinian); and c) dialects which, along with Tuscan, may form a system of Neo-Latin dialects (Venetan, Central and Southern dialects, Corsican). In later classifications, the central importance of Tuscan has been preserved, but these differ with respect to other traits such as the position occupied by Venetan – which is nowadays included in the Northern Italian group along with Gallo-Italic (see Loporcaro 2009: 62 for details).

The classification of the dialects of Italy used as reference nowadays is Pellegrini's *Carta dei dialetti d'Italia* (1977a), according to which the following areas can be identified:

a) Northern dialects: Gallo-Italic varieties (Emiliano, Lombardo, Piedmontese, Ligurian); Venetan varieties;

b) Friulian dialects;

c) Tuscan dialects;

d) Central-Southern dialects (middle varieties, Mid-Southern varieties, Lower Southern varieties);

e) Sardinian dialects.

The Italian-speaking territory is traditionally divided according to various isoglosses which group together to form the La Spezia-Rimini line (or, according to Pellegrini 1977a, the Massa Carrara-Senigallia line[40]) and the Roma-Ancona line. The former runs along the Appennine crest between Emilia and Tuscany. This line represents the border which separates Western Romance from Eastern Romance, identifying dialects which exhibit apocope (defined as the loss of an unstressed vowel in word-final context), lenition of intervocalic voiceless obstruents, and degemination (Western Romance, north of the line, including Northern Italian dialects, French, French-Provençal, Occitan, Romanche, Catalan, Spanish, Portuguese) and those (Eastern Romance, south of the line, embracing Central and Southern Italian dialects, and Romanian) which have not been affected by these changes. Among the involved varieties, the latter group includes Tuscan (and, hence, Standard Italian, which is Tuscan-based).

The Roma-Ancona line marks the border between dialects of Central Italy and dialects of Southern Italy. Among the various traits which form this line, the isoglosses include metaphony (*denti* → *dienti* 'teeth', *aceto* → *acitu* 'vinegar'), lenition of voiceless obstruents when following nasals (*montone* → *mondone* 'ram'), the placing of the possessive adjective after the noun (*l'amico mio* vs. *il mio amico* 'my friend'), enclitic forms of possessive adjectives (*fratemo* vs. *mio fratello* 'my brother'), and the use of the verb *tenere* vs. *avere* 'to have'. All these characteristics are found in the map above (and in the appendix).

Before turning to the detailed description of the most relevant features for classifying the dialects of Italy, is is useful to shortly present the Latin vowel and consonantal inventories. Indeed, the historical changes which took place in the shift from Latin to Italian turn out to be crucial for defining the various Romance varieties and for distinguishing the ones from the others.

[40] As pointed out in Loporcaro (2009: 119), Pellegrini's suggestion to define the line as *Massa Carrara-Senigallia* is due to the fact that Northern dialects are still spoken both Southern of La Spezia (in Lunigiana) and Southern of Rimini (in the Pesarese area).

5.2 Relevant changes from Latin vowel and consonantal systems

5.2.1 Changes affecting the vowel system

The Classical Latin stressed vowel system exhibits ten sounds and a threefold height distinction according to which vowels are high, medium, or low. Each vowel is realized in two quantitative versions – long and short: *ī*, *ĭ*, *ū*, *ŭ* (high), *ē*, *ĕ*, *ō*, *ŏ* (medium), *ā*, *ă* (low). The dipthongs /au, ae, oe/ complete the inventory. In the vernacular Latin stage, the distinction based on quantity disappears in favour of a distinction centered on quality, in virtue of which long vowels turn into close vowels, and short vowels change to open vowels. The resulting simplified system includes seven vowels and four levels of openness (close, open, mid-low, mid-high), and corresponds to that of Tuscan-based Italian and of the Western Romance-speaking territory (see Zamboni 2000: 155). The change from the Classical to the vernacular vowel system is illustrated below:

(36) Classical vs. Vernacular Latin stressed vowel system (see Patota 2007: 49)

Classical Latin	**Vernacular Latin**
ī	i
ĭ, ē	e
ĕ	ɛ
ā, ă	a
ŏ	ɔ
ō, ŭ	o
ū	u

The system resulting from the shift to vernacular Latin and the loss of vowel quantity characterize all dialects of Italy (see Loporcaro 2009: 75 ff. for discussion). In addition, changes also affect diphtongs, producing monophtongization in vernacular Latin. In virtue of this, /au/ turns into lax mid /ɔ/ (*aurum* > *[ɔ]ro* 'gold'), /ae/ changes to lax mid /ɛ/ (*maestum* > *m[ɛ]sto* 'sad'), and /oe/ turns into tense /e/ (*poena* > *p[e]na* 'pain, suffering'; see Krämer 2009: 30, and Patota 2007: 56).

In the shift from Latin to Italian, diphtongization affects stressed *ĕ*, *ŏ* when found in open syllables, resulting in [jɛ, wɔ], respectively (*pĕde(m)* > *p[jɛ]de* 'foot', *tepĭdu(m)* > *[tj]epido* 'lukewarm', *cŏquum* > *[kw]oco* 'cook', *bŏnu(m)* > *b[wɔ]no* 'good', *fŏcu(m)* > *[fw]oco* 'fire',

**vocĭtu(m) > [vw]oto* 'vacuum'; see Patota 2007: 50); whereas they change to [ɛ, ɔ], respectively, when found in close syllables (*pĕr.do > p[ɛ]r.do* 'lose (1st sg.)', *cŏr.pus > c[ɔ]r.po* 'body'; see Patota 2007: 50; 56-57). It emerges that the Italian stressed vowel system displays two more changes than those characterizing vernacular Latin.

As observed in Loporcaro (2009: 82), the changes in final unstressed vowels are extremely important for the subdividivision of the various Italo-Romance dialect areas. In the vernacular Latin unstressed vowel system, open vowels are absent. Indeed, unstressed *ĕ*, *ŏ* change to [e, o], respectively (see Patota 2007: 52 for details). The unstressed vowel system of Italian coincides with that of vernacular Latin, and are illustrated below:

(37) Vernacular Latin and Italian unstressed vowel systems (see Patota 2007: 52)

Classical Latin	**Vernacular Latin, Italian**
ī	i
ĭ, ē, ĕ	e
ă, ā	a
ŏ, ō, ŭ	o
ū	u

The picture changes according to the various areas. As a matter of fact, the development from Latin to Italo-Romance is diversified, as shown in the following table:

(38) Final unstressed vowels from Latin to Italo-Romance (adapted from Loporcaro 2009: 82)

Language/dialect	**Final unstressed vowel(s)**						
Latin	-i:	-i	-e:	-e	-o (:)	-u	-a
Gallo-Italic (except for Ligurian)				- Ø			-a
Tuscan	-i		-e			-o	-a
Upper Southern dialects[41]				- ə			
Lower Southern dialects	-i		-e			-u	-a

The most striking characteristics which emerge from the scheme above are found in Gallo-Italic and in Upper Southern dialects. The former has undergone vowel-deletion except for low /a/. In this respect, it will be shown that, of all final unstressed vowels, -*a* turns out to be the most reluctant to apocope. Final vowel-deletion in Northern Italian dialects does not affect Venetan, which preserves four distinct vowels as in Tuscan. This variety merges final

[41]Actually, as pointed out in Tekavčić (1980) [1972]: 125), this area displays final -*a* preservation, which only sometimes falls.

-o and *-u* into *-o*, and it preserves the distinction between *-i* and *-e* (see Loporcaro 2009: 83-84 for discussion). On the other hand, Upper Southern dialects neutralize all final unstressed vowels to [ə]. In support of this picture, an in-depth consultation of language maps of Jaberg/Jud's *Atlante Italo-Svizzero* (*AIS*; 1928-1940) has enabled us to identify three major areas within the Italian territory[42]:

a) Veneto and Central Italy: preservation of final unstressed vowel after sonorants (*forno* 'oven', *AIS* 239; *pele* vs. Standard Italian *pelle* 'skin', *AIS* 91);

b) Northern Italy (except for Veneto), Emilia-Romagna: final unstressed vowel-apocope (*forn* 'oven' vs. Standard Italian *forno*; *pel* 'skin'); final devoicing of voiced obstruents (*gelo[s]* vs. Standard Italian *gelo[z]o* 'jealous', *AIS* 66; *ne[f]* vs. Standard Italian *ne[v]e* 'snow', *AIS* 378);

c) Southern Italy: preservation of final unstressed vowel, neutralized to [ə] (*gelus[ə]* 'jealous', *pedd[ə]* 'skin').[43]

5.2.2 Changes affecting the consonantal system

With respect to consonants, Latin displays the following phonemes: plosives /p, t, k, b, d, g/; fricatives /f, h/; sibilant /s/; nasals /m, n/; liquids /l, r/; and glides /j, w/. Several consonants are preserved in the shift from Latin to Italian, both word-initially and word-internally. This may be observed in [d, f, s, m, n, l, r], as illustrated below:

(39) Consonant preservation in Italian (examples from Patota 2007, and my own)

Latin	**Italian**	**Gloss**
[d]are (Patota 2007)	[d]are	'give (inf.)'
cau[d]a (Patota 2007)	co[d]a	'tail'
[f]enĕstra(m)	[f]inestra	'window'
bu[f]ălu(m)[44] (Patota 2007)	bu[f]alo	'buffalo'
[s]ēra(m)	[s]era	'evening'
mēn[s]e(m) (Patota 2007)	me[s]e	'month'
[m]anŭ(m) (Patota 2007)	[m]ano	'hand'
ti[m]ōre (Patota 2007)	ti[m]ore	'fear'

[42]A similar survey has been carried out by Alber (2014) and Alber/Rabanus/Tomaselli (2014), the aim of which was the identification of final devoicing in Italian varieties with respect to the distribution of apocope.

[43]See also Rohlfs (1966: 160-161).

[44]As pointed out in Patota (2007: 76), intervocalic [f] does not pertain to Latin. On the contrary, it has been integrated from loanwords.

[n]ĭve(m)(Patota 2007)	[n]eve	'snow'
fī[n]e(m)	fi[n]e	'end'
[l]ĕntŭ(m) (Patota 2007)	[l]ento	'slow'
mū[l]ŭ(m) (Patota 2007)	mu[l]o	'mule'
[r]adiŭ(m)	[r]aggio	'ray'
ca[r]ŭ(m) (Patota 2007)	ca[r]o	'dear'

Relevant changes are found in spoken Latin, in which the inventory has been expanded through the introduction of palatal segments, glide fortition, and the emergence of voiced fricative [v]. We will now focus on the most important processes (see Patota 2007: 76-98 for in-depth description).

Voiceless obstruents [p, t, k] change to their voiced correspondents [b, d, g], respectively, when found in intersonorant context:

(40) Obstruent lenition (examples from Patota 2007)

Latin	**Italian**	**Gloss**
ri[p]a(m)	ri[v]a	'shore'
recu[p]erare	rico[v]erare	'shelter (inf.)'
stra[t]a(m)	stra[d]a	'street'
ma[t]re(m)	ma[d]re	'mother'
la[k]ŭ(m)	la[g]o	'lake'
ma[k]ru(m)	ma[g]ro	'thin, slim'

In the specific case of [p], lenition has been followed by spirantization, generating [v] (but see Patota 2007: 83 for cases which do not exhibit [p] > [v]). As pointed out in Krämer (2009: 28), however, lenition of intersonorant stops is sporadic. Indeed, the majority of words containing [p, t, k] have been preserved as such from Latin (*sapōre(m) > sa[p]ore* 'taste', *că[pr]a > ca[p]ra* 'goat', *marītŭ(m) > mari[t]o* 'husband', *nutrire > nu[t]rire* 'nourish (inf.)', *ami[k]u(m) > ami[k]o* 'friend', *sa[k]ru(m) > sa[k]ro* 'sacred'). This is also the picture emerging in Tuscan, which explains the alternation of words displaying voiceless stops and those displaying voiced stops in word-medial position in Italian (see Patota 2007: 84). When occupying the word-initial context, voiceless stops are generally preserved (*pāne(m) > [p]ane* 'bread', *domĭna(m) > [d]onna* 'woman'; see Patota 2007: 76)[45].

The new consonant [v] has also emerged from spirantization [b] > [ß] > [v] when filling the

[45]However, see *[k]ăttu(m) > [g]atto* 'cat', *[k]avĕa > [g]abbia* 'cage'.

intervocalic position (*de[b]ere* > *de[ß]ere* > *do[v]ere* 'must, have to (inf.)'; see Krämer 2009: 28, Patota 2007: 82-83, and Zamboni 2000: 146 for details).
Assimilation affects sequences of two word-medial consonants (two obstruents or two sonorants) in virtue of which C1 merges with C2, generating a combination of two identical segments (geminates). This occurs especially in the sequences reported below:

(41) Assimilation (examples from Patota 2007, and my own)

Latin	**Italian**	**Gloss**
a[pt]um (Patota 2007)	a[t.t]o	'act'
scrī[ps]i (Patota 2007)	scri[s.s]i	'write (1st sg. past)'
o[bt]inēre	o[t.t]enere	'obtain (inf.)'
o[bv]ĭu(m)	o[v.v]io	'obvious'
a[bs]ŭrdu(m)	a[s.s]urdo	'absurd'
ă[dp]arēre	a[p.p]arire	'appear (inf.)'
ă[dk]ausāri	a[k.k]usare	'accuse (inf.)'
a[df]irmāre	a[f.f]ermare	'state (inf.)'
a[dv]isare	a[v.v]isare	'warn (inf.)'
a[ds]uefacĕre	a[s.s]uefare	'inure (inf.)'
a[dm]onēre	a[m.m]onire	'warn (inf.)'
a[dn]umerāre	a[n.n]overare	'include (inf.)'
ă[dl]igāre	a[l.l]egare	'attach (inf.)'
ă[dr]estāre	a[r.r]estare	'stop (inf.)'
pa[kt]u(m)	pa[t.t]o	'pact'
sa[ks]u(m) (Patota 2007)[46]	sa[s.s]o	stone'
da[mn]um (Patota 2007)	da[n.n]o	'damage'

A further process which definitely deserves mentioning is palatalization of Latin velars [k, g] when followed by front vowels /e, i/, changing to palatal affricates [ʧ, ʤ], respectively:

(42) [k, g]-palatalization (examples from Krämer 2009, and Patota 2007)[47]

Latin	**Italian**	**Gloss**
[k]irculus (Krämer 2009)	[ʧ]ircolo	'circle'
ma[k]erare (Patota 2007)	ma[ʧ]erare	'macerate (inf.)'
[g]ĕlu (Patota 2007)	[ʤ]elo	'frost'
gĭn[g]īva (Patota 2007)	gen[ʤ]iva	'gum'

[46] Word-medial [ks] has strengthened in some words (*ma[ks]ĭlla* > *ma[ʃʃ]ella* 'jaw', *la[ks]are* > *la[ʃʃ]are* 'leave (inf.)'; see Patota 2007: 77).
[47] As pointed out in Krämer (2009: 27-28), [k] turned into palatal sibilant [ʃ] when preceded by /s/: *pĭs[k]e(m)* > 'fish'.

The data presented above reveal that palatalization has affected both the word-initial and the word-medial position (see Patota 2007: 79 for discussion). The process is also found with respect to word-initial [s], changing to [ʃ] (*[s]imia* > *[ʃ]immia* 'monkey'; see Patota 2007: 77). Palatalization also involves consonants followed by the palatal glide [j], which produce word-medial geminates when C+[j] occurs in intervocalic context; whereas in intersonorant position the outcome is a simple affricate (see Patota 2007: 87-89 for details):

(43) C+[j]-palatalization (examples from Krämer 2009, and Patota 2007)

Latin	**Italian**	**Gloss**
fŏr[tj]a (Patota 2007)	for[ts]a	'strength'
vĭ[tj]um (Patota 2007)	ve[tts]o	'habit'
*man[dj]um (Patota 2007)	man[dz]o	'bullock'
mĕ[dj]u(m) (Patota 2007)	me[ddz]o	'half'
ra[dj]u(m) (Patota 2007)	ra[ddʒ]o	'ray'
eri[kj]u (Krämer 2009)	ri[ttʃ]o	'hedgehog'
fa[gj]um (Krämer 2009)	fa[ddʒ]o	'beech'
ba[sj]ŭ(m) (Patota 2007)	ba[ʧ]o	'kiss'

The above data show that labials do not participate in the process. Indeed, the result of [pj, bj] is strengthening of the plosive before a glide: *sē.[pj]a(m)* > *se[ppj]a* 'cuttlefish', *ra[bj]a* > *ra[bbj]a* 'anger'; see Patota 2007: 86). The same is true for [vj] (**ca[vj]a* > *ga[bbj]a* 'cage')[48], [mj] (*sī[mj]a* > *scim.[m]ia* 'monkey'), [nw] (*ja[nw]ariu(m)* > *ge[nn]aio* 'January'; see Krämer 2009: 28-29). Other word-internal sonorant+[j] clusters have undergone palatalization after [j]-deletion (*iū[nj]ŭ(m)* > *giu[ɲɲ]o* 'June'[49], *fī[lj]a(m)* > *fi[ʎʎ]a* 'daughter'; see Patota 2007: 90)[50].

Glides are strengthened turning into [ʤ, v] when not adjacent to consonants (see Zamboni 2000: 151 for details):

48In this respect, Patota (2007: 87) points out that this result is due to the fact that [v] was confused with [b] in word-internal context, and was treated in the same way of [bj], producing [bbj].

49Krämer (2009: 27) also mentions word-medial [ln] > [ɲɲ]: *ba[ln]eu* > *ba[ɲɲ]o* 'bath'.

50Word-medial [rj] does not palatalize: *area(m)* > **a[rj]a* > *a[j]a* 'farmyard', *cŏ[rj]ŭm* > *cuo[j]o* 'leather' (see Patota 2007: 91).

(44) Glide fortition (examples from Krämer 2009)

Latin	**Italian**	**Gloss**
[j]anuariu(m)	[ʤ]ennaio	'January'
pĕ[j]ōre(m)[51]	pe[dʤ]ore	'worse'
[w]inu(m)	[v]ino	'wine'
ci[w]ile(m)	ci[v]ile	'civil'

With respect to consonant clusters, the most striking trait in the shift from Latin to Italian is the change of C+[l] to C+[j]. The process can especially be observed in [pl, bl, kl, gl, fl]. When occurring in intervocalic position, [j] triggers gemination of the preceding consonant (see Patota 2007: 94 for details):

(45) C+[l]: outcomes (examples from Patota 2007, and my own)

Latin	**Italian**	**Gloss**
[pl]ānu(m)	[pj]ano	'flat'
am[pl]u(m)	am[pj]o	'wide'
cap(u)lu(m)	ca[ppj]o	'noose'
[bl]astimāre[52]	[bj]asimare	'blame (inf.)'
fībŭla(m)	fi[bbj]a	'buckle'
[kl]ave(m)	[kj]ave	'key'
cĭrc(ŭ)lŭ(m)	cer[kj]o	'circle'
spĕc(ŭ)lŭ(m)	spe[kkj]o	'mirror'
[gl]area	[gj]aia	'gravel'
ŭng(ŭ)la(m)	un[gj]a	'nail'
tēg(ŭ)la(m)	te[ggj]a	'pan'
[fl]ōre(m)	[fj]ore	'flower'
in[fl]ammāre	in[fj]ammare	'burn (inf.)'

Finally, changes in the labiovelar [kw] may be observed. When followed by [a], word-initial [kw] is preserved (*[kw]ale* > *[kw]ale* 'which (one)'), whereas it loses its labial part [w] when followed by other vowels, turning into [k] (*[kw]id* > *[k]e* 'that', *[kw]omodo* > *[k]ome* 'how'; see Patota 2007: 80-81 for details). Voiced [gw] is only found word-medially in the Latin

[51]As pointed out in Krämer (2009: 28, quoting Tekavčić 1980), intervocalic [j] was long in Latin, which explains its turning into geminate affricates.

[52]As pointed out in Patota (2007: 94), no useful examples can be mentioned with respect to word-internal [bl].

lexicon[53], and is preserved regardless of the vowel which follows (*an[gw]illa* > *an[gw]illa* 'eel', *lin[gw]a* > *lin[gw]a* 'tongue'); or it results from [kw]-lenition (*ae[kw]ale* > *e[gw]ale* 'equal').

The picture is now complete to sketch the main characteristics of Northern Italian dialects.

5.3 General Northern Italian dialect traits[54]

As mentioned in 5.1, the La Spezia-Rimini line (or, in Pellegrini's classification, the Massa Carrara-Senigallia line) draws the southern border of Northern dialects, representing a reference point not only for Italy, but for the entire *Romània* – classified as Western *Romània* and Eastern *Romània*. What follows is a presentation of the most salient features with respect to the vowel and the consonantal systems of Northern Italian dialects taken as a whole – that is, without considering the specific points which our study deals with (these will be the focus of the next section). Morphological and syntactic characteristics will not be considered (for a sketch of these levels, see Loporcaro 2009: 90-93).

5.3.1 Vowels

In this subsection we will outline the main characteristics of each vowel with respect to Northern Italian dialects as a whole. Among the defining isoglosses which involve the vowel system of these dialects, apocope turns out to be, to us, the most relevant one[55]. Indeed, this process is responsible for the formation of consonant clusters in Northern Italian varieties, differentiating them from Standard Italian (see chapter 9).

Final unstressed vowel-deletion affects most Northern Italian dialects, but to a different extent. As seen in 5.2.1, the change from Latin to Italo-Romance has produced a diversified picture according to the dialect – ranging from the preservation of four vowels in the Tuscan inventory to the only presence of *-a* in Gallo-Italic varieties (but see later discussion). Of all final unstressed vowels, *-a* is the most reluctant to apocope. Indeed, it is preserved in Tuscan, in Southern dialects, and in Northern varieties. Here, the vowel resists to deletion in Veneto and Liguria more than in other areas (see Loporcaro 2009: 83, and Rohlfs 1966:

[53]As a matter of fact, word-initial [gw] pertains to words of Germanic origin: *[gw]ardare* (< Germanic *wardōn*) 'look at (inf.)', *[gw]erra* (< Germanic **werra*) 'war' (see Patota 2007: 80 for details).

[54]Since Southern Italian dialects are not our major concern in this study, we thought it right not to consider them in the following sections. For the main features of these dialects see Loporcaro (2009), Rohlfs (1969), and Tekavčić (1980) [1972].

[55]For other characteristics affecting vowels, see Loporcaro (2009: 88-90).

176). The preservation of *-a* may be ascribed to the fact that it is the most sonorous vowel (see de Lacy 2008: 773), the most frequent in word-final context as well as the most important in nominal morphosyntax (see Tekavčić (1980) [1972]: 122). In this respect, *-a* distinguishes feminine from masculine (Venetian *nosa* 'nut', *ava* 'bee', *vida* 'screw', Standard Italian *noce*, *ape*, *vite*, respectively; Romagnolo *felza* 'sickle', Standard Italian *falce*; Calabrese *tussa* 'cough', *turra* 'tower', Standard Italian *tosse*, *torre*, respectively; see Rohlfs 1966: 183).

As pointed out in Rohlfs (1966: 180), final vowel weakening has gradually taken place in certain areas of Northern Italy, starting from syntactic conditions – but, first of all, from the context occupied by final vowels, that is, following [n, l, r]. With respect to *-e*, we report the synoptic table provided by Rohlfs (1966: 180) for better understanding:

(46) Final *-e*-deletion in Northern Italian dialects (see Rohlfs 1966: 180)[56]

Dialect area	**Example 1**	**Example 2**	**Example 3**
	neve 'snow'	noce 'nut'	fiume 'river'
Liguria	nèive	nuže	sciüme
Piedmonte	nef	nus	fiüm
Lombardia	nef	nus	fiüm
Emilia	néva	nuža	fium
Veneto	neve	noza	fiume

It emerges from the examples given above that Ligurian and Venetan conserve final *-e*, whereas it falls in Piedmontese, Lombardo and Emiliano. However, exceptions to this rule may be found. Final *-e* preservation in Venetan is not generalized. Indeed, this vowel is deleted when following simple [n, l, r] (*can* 'dog', *sal* 'salt', *cantar* 'sing (inf.)', Standard Italian *cane*, *sale*, *cantare*, respectively), but it does not fall when original geminates precede it (*pele* < *pelle(m)* 'skin'; see Rohlfs 1966: 180). Furthermore, morphological reasons have played a role in the reintroduction of final unstressed vowels in order to distinguish gender and verb forms more clearly, although some dialects have not participated in the process (Piedmontese, Lombardo *gambe* 'leg (f. pl.)', Piedmontese *t' porte* 'bring (2nd sg.)' vs. Romagnolo *gamp*; see Rohlfs 1966: 181).

The chart below illustrates the situation for *-i*-apocope:

[56]Rohlf's transcription.

(47) Final -*i*-deletion in Northern Italian dialects (see Rohlfs 1966: 181)[57]

Dialect area	**Example 1**	**Example 2**	**Example 3**
	piatti 'dish (pl.)'	morti 'dead (pl.)'	nuovi 'new (pl.)'
Liguria	piati	morti	növi
Piedmonte	piat	mort	nöu
Lombardia	piat	mort	nöf
Emilia	piat	mort	nöf
Venetian	piati	morti	novi

Final -*i* is preserved where -*e* does not fall, that is, in Ligurian and in Venetan, whereas Piedmontese, Lombardo, and Emiliano apocopate. It is furthermore interesting to mention that Milanese, which regularly deletes final unstressed -*i*, preserves it when preceded by a 'strong' consonant cluster (*corni* 'horn', *inferni* 'hell'). Rohlfs (1966: 181) defines it as *vocale di appoggio*, which helps avoid the formation of 'strong' final consonant clusters such as [rl, rm, rn, rv, fr, sm, str]. We will see later on (chapter 9) that this does not hold for some Trentino dialects, which apocopate in this context. The *vocale di appoggio* varies according to the dialect: [a] in Milanese (*perla* 'pearl (pl.)', *forna* 'oven (pl.)'); [ə] in Emilano and Romagnolo (inserted in the middle of the final cluster: *ment[ə]r* 'whereas', *pad[ə]r* 'father', Standard Italian *mentre*, *padre*, respectively); [u] in Piedmontese (*vermu* 'worm', *pentu* 'comb', Standard Italian *verme*, *pettine*, respectively; see Rohlfs 1966:181-182).[58]

The table below collects examples which illustrate final -*o*, -*u*-deletion:

(48) Final -*o*, -*u*-deletion in Northern Italian dialects (see Rohlfs 1966: 186)[59]

Dialect area	**Example 1**	**Example 2**
	gallo 'cock'	braccio 'arm'
Liguria	galu	brasu
Piedmonte	gal	bras
Lombardia	gal	bras
Emilia	gal	bras

[57]Rohlf's transcription.

[58]Rohlfs (1966: 182-183) mentions that, in Northern Italy, some areas (old Lombardo) tend to assign final -*o* of masculine to all masculine words (*principo* 'prince', *serpento* 'snake', Standard Italian *principe*, *serpente*, respectively), a characteristic which has spread to North-Western Tuscany (Lunigiana: *fiumo* 'river', *salo* 'salt', Standard Italian *fiume*, *sale*, respectively). In the same territory, all feminine words are assigned -*a* (Lunigiana: *carna* 'meat', *tosa* 'cough', Standard Italian *carne*, *tosse*, respectively). Final vowels had been deleted in the past, and only later -*a* and -*o* have been generalized in order to clarify gender distinction. See also Tekavčić (1980) [1972]: 122.

[59]Rohlf's transcription.

Veneto	galo	braso

The data above reveal that Piedmontese, Lombardo, and Emiliano do not exhibit final *-o*, *-u*. On the contrary, Ligurian displays *-u*, and Venetan displays *-o*. Restrictions may be found here. Firstly, *-o* falls in Venetian when following simple nasal [n] (*fen* 'hay', *pien* 'full', Standard Italian *fieno*, *pieno*, respectively; see Loporcaro 2009: 105), whereas it is preserved after those which, in an earlier stage of the language, were the consonant clusters [gr, tr, dr] (*nero* < *nigru(m)* 'black', *vero* < *vitru(m)* 'glass', Standard Italian *nero*, *vetro*). In addition, *-o*, *-u* are conserved in many areas of Piedmonte and Lombardia as *vocale di appoggio* after consonant clusters whose last segment is a sonorant [l, r, n] (Piedmontese *negru* 'black', Lombardo *furno* 'oven'; see Rohlfs 1966: 186).[60]

The data presented in this section show that the picture characterizing Northern Italian dialects with respect to apocope is twofold. On the one hand, Piedmontese, Lombardo, and Emiliano-Romagnolo regularly delete unstressed final vowels (except for *-a*), conforming to the Gallo-Italic model. On the other hand, Ligurian and Venetian turn out to be conservative since both preserve – as Tuscan – final /i, u, e, a/ (Ligurian) and final /i, e, o, a/ (Venetian).

5.3.2 Consonants

Among the isoglosses which form the La Spezia-Rimini (or Massa Carrara-Senigallia) line affecting consonants, lenition of intervocalic obstruents, degemination, assibilation of palatal affricates, and palatalization of [kl-, gl-] are, to us, the most relevant in the dialects of Northern Italy. Indeed, it will be shown (chapters 8-9) that some of these features differentiate the investigated varieties from Standard Italian.

Lenition of intervocalic obstruents affects plosives [p, t, k], which change to [b (v), d, g], respectively. Examples for each segment are provided below:

(49) Intervocalic obstruent lenition (examples from Patota 2007, and Rohlfs 1966)[61]

Dialect area	**Example 1**	**Example 2**	**Example 3**	**Example 4**	**Example 5**
	capilli > ca[p]elli 'hair'	catēna(m) > ca[t]ena 'chain'	dies dominicus > domeni[k]a 'Sunday'	pe[k]ora 'sheep'	urtica > orti[k]a 'nettle'
Liguria	ca[v]eli	---	dumène[g]a	---	---

[60]Lastly, in some Lombardo dialects the final unstressed vowel is maintained more frequently than in other areas: Western Lombardo *coldu* 'warm, hot', *rusu* 'red', *fidigu* 'liver', Standard Italian *caldo*, *rosso*, *fegato*, (see Rohlfs 1966: 186).è

[61]Rohlf's transcription.

Piedmonte	ca[v]ei	cajena	dumen[g]a	---	---
Lombardia	ca[v]ei	ca[d]ena	---	pé[g]ura	urti[g]a
Emilia	---	---	---	pé[g]ura	urti[g]a
Romagna	ca[v]el	ca[d]èina	---	---	---
Veneto	ca[v]ei	caena	domèni[g]a	piè[g]ora	urti[g]a

The data collected above show that intervocalic obstruent lenition has not affected Standard Italian, which preserves voiceless consonants as in Latin. [p, t, k] are the normal outcomes in the literary language, and the range of words exhibiting [v, d, g] is relatively limited (for instance, *po[v]ero* 'poor', *vesco[v]o*, 'bishop', *stra[d]a* 'street', *sco[d[]ella* 'bowl', *la[g]o* 'lake', *spi[g]a* 'spike'). Tuscan generally conforms to Standard Italian, displaying voiceless plosives. Only in North-Western areas [p, t, k] turn into voiced segments (Lunigiana: *ca[v]ei*, *sa[v]on* 'soap', *fo[g]o* 'fire', *ami[g]o* 'friend'; Pistoiese: *imbu[d]o* 'funnel', *ma[d]uro* 'ripe', Standard Italian *sa[p]one*, *fuo[k]o*, *ami[k]o*, *imbu[t]o*, *ma[t]uro*, respectively; see Rohlfs 1966: 265-279 for discussion). On the contrary, lenition has generally affected Northern Italian dialects, but exceptions must be mentioned. When [v] is adjacent to a velar vowel, the consonant tends to fall (Lombardo *saún* 'soap', Ligurian *siòla*, Piedmontese *siula*, Venetian *seóla*, Standard Italian *cipolla* 'onion')[62]. Furthermore, [d] resulting from [k]-lenition had disappeared in a later stage of the language, generating forms such as *kena* (Ligurian. Piedmontese), *caena* (Venetian) for *catena* 'chain', or , *baí* (Lombardo) for *badile* 'shovel', but has later been reintegrated. After [d]-deletion, some dialects have often inserted [j] in order to avoid adjacency of two vowels (Piedmontese: *ca[j]ena*, *mune[j]a* 'coin', Standard Italian *mone[t]a*; Milanese: *se[j]a* 'silk', Standard Italian *se[t]a*, *cre[j]a* 'clay', Standard Italian *cre[t]a*; see Rohlfs 1966: 273-274).

Lenition has also involved fricative [f] and sibilant [s] when occupying the intervocalic position. However, intervocalic [f] does not pertain to Latin. On the contrary, it is only found in loanwords of Greek origin (such as in proper names: *Ste[f]anus*) or of Osco-Umbrian origin (*bu[f]alus* 'buffalo', *scro[f]a* 'sow'). While Standard Italian preserves it (*Ste[f]ano*, *bu[f]alo*, *scro[f]a*), it undergoes weakening in Northern Italian dialects (Ligurian *Ste[v]a*, Piedmontese *Ste[v]u*, Lombardo *Ste[v]en*, Romagnolo *Ste[v]an*), or it falls when it is adjacent to *o* or *u* (Standard Italian *bifolco* 'bumpkin', but Milanese *beolk*, Venetian *biolco*; Standard Italian *stufa* 'stove', but Milanese *stüa*, Venetian *stua*; Standard Italian *cefalo* 'mullet', but Trentino *ceol*; see Rohlfs 1966: 302-303). Lenition [s] > [z] in Northern

[62]Rohlfs's transcription.

Italian dialects (Ligurian *na[z]u*, Venetian *na[z]o* 'nose', Milanese *ri[z]ott* 'risotto') opposes to Tuscan, which exhibits both voiceless [s] (*ca[s]a* 'house', *na[s]o*, *pe[s]o* 'weight'; and in words in which /s/ is originally in intersonorant context: *mēnse(m)* > *me[s]e* 'month'; see Patota 2007: 84) and voiced [z] (*chie[z]a* 'church', *o[z]are* 'dare (inf.)', *va[z]o* 'vase'; see Rohlfs 1966: 281-284).

Degemination of intervocalic consonants generally affects the whole Northern Italian territory (*cŏllu* > Ligurian *colu*, Venetian *colo* vs. Standard Italian *collo* 'neck'; *gallīna* > Lombardo *galina* vs. Standard Italian *gallina* 'hen'), and is also found in Northern Tuscany (Lunigiana: *stuppa* > *stopa* vs. Standard Italian *stoppa* 'oakum'; see Rohlfs 1966: 321-322).

Palatal affricates [ʧ, ʤ] resulting from palatalization of Latin velars [k, g] when preceding palatal vowels /e, i/ assibilate changing to [ts, dz], respectively, in the Medieval period (producing, for instance, Ligurian *[ts]eira* < *cera* 'wax', *[dz]enugu* < *genu* 'knee' vs. Tuscan *[ʧ]era*, *[ʤ]inocchio*, respectively). These sounds have further developed by losing the plosive feature and turning into [s, z], respectively, as shown below:

(50) Assibilation of palatal affricates [ʧ, ʤ] (examples from Loporcaro 2009, and Rohlfs 1966)

Latin	**Assibilation**	**Dialect area**	**Standard Italian**	**Gloss**
coena	[s]ena (Loporcaro 2009)	Ligurian	[ʧ]ena	'supper'
cerebru(m)	[s]arvèl (Rohlfs 1966)	Piedmontese	[ʧ]ervello	'brain'
coquus	kö[z]er (Rohlfs 1966)[63]	Lombardo	cuo[ʧ]ere	'cook (inf.)'
quinque	[s]ink (Rohlfs 1966)	Emiliano	[ʧ]inque	'five'
gens	[z]ete (Rohlfs 1966)	Romagnolo	[ʤ]ente	'people'
genu	[z]enocio (Loporcaro 2009)	Venetian	[ʤ]inocchio	'knee'

Finally, palatalization of Latin consonant clusters [kl, gl] generally characterizes Northern Italian dialects, which display [ʧ, ʤ], respectively, as opposed to Tuscan and Standard Italian, which exhibit the outcomes [kj, gj], respectively:

(51) Palatalization of [kl-, gl-] in Nothern Italian dialects (examples from Loporcaro 2009, and Rohlfs 1966)

Latin	**Palatalization**	**Dialect area**	**Tuscan**	**Gloss**
[kl]avus	[ʧ]odu (Rohlfs 1966)	Ligurian	[kj]odo	'nail'
[kl]ave(m)	[ʧ]af (Loporcaro 2009)	Piedmontese	[kj]ave	'key'
[gl]acies	[ʤ]as (Rohlfs 1966)	Lombardo	[gj]accio	'ice'
[gl]area(m)	[ʤ]era (Rohlf 1996)	Emiliano	[gj]aia	'gravel'
[kl]ara(m)	[ʧ]era (Rohlfs 1966)	Romagnolo	[kj]ara	'clear (f. sg.)'

[63]As pointed out in Rohlfs (1966: 290), [z] turns out to be the predominant outcome. However, see discussion in Loporcaro (2009: 86-87) for exceptions.

ec[kl]esia(m)	[ʧ]esa (Rohlfs 1966)	Venetian	[kj]esa	'church'

Palatalized [kj, gj] do not embrace the whole Northern Italian dialect area. As a matter of fact, Valtellina preserves original [kl] (*[kl]ef* 'key'), and [gl] is maintained in areas adjacent to Ladin (Livigno *[gl]ec*; in Trentino (Pejo) *[gl]ac*; see Loporcaro 2009: 87, and Rohlfs 1966: 244; 251 for details).
The picture is now complete to move on to the investigated dialects.

5.4 Venetan-Trentino, Lombardo-Trentino, and Gardenese Ladin

In this section we will present the main characteristics with respect to the vowel and the consonantal systems of the dialects that were chosen in the tested areas of Venetan-Trentino (Borgo Valsugana), Lombardo-Trentino (Mori, Bleggio, Tret), and Gardenese Ladin (Sëlva Gherdëina). The description will take (Tuscan and) Standard Italian into account as a reference point in order to provide a clear picture of the various features.

5.4.1 Venetan-Trentino

Venetan varieties branch out in Venetian, Central Venetan (embracing Padovano, Vicentino, and Polesano), Western Venetan (Veronese), and Upper Venetan (Trevigiano, Feltrino, Bellunese). Unlike Lombardo and Emiliano dialects, the Venetan varieties do not belong to the Gallo-Italic group – although they share relevant isoglosses such as intervocalic obstruent lenition and degemination. The independent status of Venetan dialects within Northern Italian varieties has been assured by the prestige of Venetian and the hegemony of the Serenissima (see Devoto/Giacomelli 1972, Loporcaro 2009, and Tuttle 1997 for details). Among the features which differentiate Venetan dialects from Gallo-Italic varieties, preservation of final unstressed vowels stands out. However, it will be shown that this trait displays exceptions.
As pointed out in Loporcaro (2009: 103), Trentino is placed in a transitional context. Indeed, it displays Lombardo, Venetan and Ladinian characteristics, each of which are more emphasized in Western valleys (Giudicarie, Val Rendena, Val di Ledro), in South-Eastern valleys (Valsugana, Val Lagarina), and Northern valleys (Val di Non, Val di Sole), respectively. Among the Lombardo traits, Trentino varieties exhibit Gallo-Italic apocope, whereas the South-Eastern valleys preserve final vowels. Among the Ladinian features, the most relevant to our survey are palatalization of velars [k, g] when followed by /a/ and

conservation of Latin C+/l/ clusters (see Cordin 1997: 260-261, Devoto/Giacomelli 1972: 41-46, and Loporcaro 2009: 67; 103-104 for details).

With respect to vowels, the South-Eastern variety of Borgo Valsugana displays partial deletion of final unstressed vowels, and lacks diphtongization of Latin *ŏ* > [wɔ]. The former characteristic is presented in the following table:

(52) Apocope in the dialect of Borgo Valsugana (data from my fieldwork)

Example	**Italian cognate**	**Gloss**
scrocon	scroccone	'sponger'
smiaolar	miagolare	'miew (inf.)'
vin	vino	'wine'

The data collected above show that, in the variety of Borgo Valsugana, *-e* falls after simple [n, r], whereas *-o* is deleted only after [n] (cf. *muro* 'wall'; example from my fieldwork). This picture only partly resembles that of Venetian – which apocopates also after [l] (*mal*, Standard Italian *male* 'bad'; see Loporcaro 2009: 105). Indeed, the dialect in question preserves final *-e*, *-o* when found after [l] (*boale* 'chasm'[64]; *cavalo* 'horse', *picolo* 'small, tiny'). The same is true for [m] (*pomo* 'apple', *omo*, Standard Italian *uomo* 'man'; examples from my fieldwork). Final vowel conservation is also found when following sequences of potential coda clusters such as in *verme* 'worm', *grande* 'big', *colmo* 'full', *forno* 'oven', *sforso* 'effort' (examples from my fieldwork). The picture which emerges reveals that Gallo-Italic influences on final vowels has only partly permeated Venetan varieties.

Final *-a* is preserved as in the Gallo-Italic model (see 5.3.1): our informants realized, for instance, *furtaia* 'omelette', *boca* 'mouth', *rasada* 'bump', *facia* 'face'. This confirms the fact that, of all word-final unstressed vowels, *-a* turns out to be the most reluctant to apocope and the most important in nominal morphosyntax (see Tekavčić 1980: 122), distinguishing feminine from masculine (see Rohlfs 1966: 183). Final *-i* is preserved as well in the variety of Borgo Valsugana – both after simple consonants (*ovi* 'egg (pl.)', *novi* 'new (pl.)', *cativi* 'mean (pl.)') and after potential coda clusters (*verdi* 'green (pl.)', *descolzi* 'barefoot (pl.)', *fondi* 'deep (pl.)'; examples from my fieldwork).

Diphtongization is illustrated below:

[64]Example from *ALTr*.

(53) Diphtongization ĕ > [jɛ] and ŏ > [wɔ] in the dialect of Borgo Valsugana (data from my fieldwork)

Latin	**Borgo Valsugana**	**Italian cognate**	**Gloss**
saepe(m)	s[je]za	s[je]pe	'hedge'
nŏvus	n[o]vo	n[wɔ]vo	'new (m. sg.)'
ŏvu(m)	[o]vo	[wɔ]vo	'egg'
hŏmo	[ɔ]mo	[wɔ]mo	'man'

In the data presented above, the dialect of Borgo Valsugana diphtongizes Latin *ĕ* changing it to [jɛ] when found in open syllables, as it is in Venetian (*m[jɛ]l* 'honey', *t[jɛ]n* 'hold (3rd sg.)'), whereas – unlike Tuscan and Standard Italian – *ŏ* does not turn into [wɔ] (see Devoto/Giacomelli 1972: 32-33, and Loporcaro 2009: 106).

With respect to the consonantal system, the variety of Borgo Valsugana shares with Gallo-Italic dialects intervocalic obstruent lenition, degemination, the change of velars [k, g] to sibilants, and palatalization of [kl, gl] sequences.

Data representing the former process are collected in the following table:

(54) Intervocalic obstruent lenition in the dialect of Valsugana (data from *ALTr*)

Latin	**Valsugana**	**Italian cognate**	**Glos**
capillu (m), capilli	ca[v]ei	ca[p]elli	'hair'
rota(m)	ro[d]a	ruo[t]a	'wheel'
amicu(m)	ami[g]o	ami[k]o	'friend'

The data above show that intervocalic obstruents are weakened in the dialect of Valsugana, whereas Standard Italian preserves the voiceless equivalents. When found in intersonorant context, lenition generally does not take place (*tĕm.[p]us* > *tem[p]o* 'time', *contĕn.[t]u(m)* > *con.[t]ento* 'happy', *căl.[d]u(m)* > *cal.[d]o* 'hot', as realized by our informants from Borgo Valsugana). However, [p] undergoes weakening (and spirantization) in this position, changing to [v]. This process has affected Western Romance varieties in general, but not Tuscan (the basis for Standard Italian: *ca[pr]arĭu(m)* > Valsugana *ca[vr]ero* vs. Standard Italian *ca[pr]aio* 'shepherd'[65]; see Loporcaro 2009: 85, and Patota 2007: 83-86 for details).

Word-initial voiceless obstruents are conserved (*[p]aucus* > *[p]oco* 'a little', *[t]ertĭu(m)* > *[t]erzo* 'third', *[k]ăne(m)* > *[k]an* 'dog', *[f]a.cĭa(m)* > *[f]a.cia* 'face', *[v]i.rĭ.de(m)* > *[v]erde* 'green'[66], *[s]ĭccu(m)* > *[s]eko* 'dry'), and lenition [p] > [b] only occurs sporadically in this

[65]Example from *ALTr*, which also provides *bi[b]ere* > *be[vr]e* 'drink (inf.)' for Valsugana.

[66]With respect to fricatives, this holds for the word-internal context as well (*con.[f]lāre* > *sgion.[f]ar 'deflate (inf.)'*), but [f] falls when found near /o, u/ (**ex.tu.[f]ā.re* > Valsugana *stua* vs. Standard Italian *stu.[f]a* 'stove'; example from *ALTr*).

position (*[p]isum* > Valsugana *[b]isero* 'pea'; *see* Bondardo 1972: 82 and Rohlfs 1966: 220; example from *ALTr*).

Degemination targets both obstruents (**gŭbbu(m) > go[b]o* 'hunchback', *cattu(m) > ga[t]o* 'cat', *bucca(m) > bo[k]a* 'mouth' vs. Standard Italian *gobbo*, *gatto*, *bocca*, respectively) and sonorants (*mamma > ma[m]a* 'mum', *collu(m) > co[l]o* 'neck' vs. Standard Italian *mamma*, *collo*, respectively). In addition, it takes place in word-internal context when in Latin sequences such as [dp, dk, dv] C1 does not assimilate to C2 (*ăd parēre > a[p]a.rir* 'appear (inf.)', *ăd causāri > a[k]usar* 'accuse (inf.)', *advisum > a[v]iso* 'warning' vs. Standard Italian *a[p.p]arire*, a*[k.k]usare*, *a[v.v]i.so*, respectively; examples from *ALTr*).

When followed by palatal vowels /e, i/, Latin velars [k, g] turn into sibilants [s, z], respectively, in the dialect of Borgo Valsugana – whereas the outcomes in Tuscan are palatal affricates [ʧ, ʤ], respectively (which we also find in Standard Italian):

(55) [k, g] > [s, z] in the dialect of Borgo Valsugana (data from my fieldwork)

Latin	**Borgo Valsugana**	**Tuscan**	**Standard Italian**	**Gloss**
[k]uinque	[s]inque	[ʧ]inque	[ʧ]inque	'five'
cal[k]is	cal[s]ina	cal[ʧ]e	cal[ʧ]e	'lime'
dul[k]is	dol[s]e	dol[ʧ]e	dol[ʧ]e	'cake'
so.ri.[k]ĕ(m)	sor[z]e	sor[ʧ]o	sor[ʧ]o	'rat'
[g]ens	[z]ente	[ʤ]ente	[ʤ]ente	'people'

In this respect, the dialect of Borgo Valsugana has further developed if compared to other Northern Italian varieties, in which Latin velars change to alveolar affricates. As a matter of fact, in the dialect of Borgo Valsugana these have deaffricted by losing their plosive element when changing to sibilants. This is also found in the outcomes of Latin sequences whose C2 is a glide such as [tj, dj, sj], which change to [s, z, z], respectively (**pu[tj]u(m) > spu[s]a* 'smell', *me[dj]u(m) > me[z]o* 'barley' (examples from my fieldwork), *ba[zj]ŭ(m) > ba[z]o* 'kiss (example from *ALTr* for Valsugana); see Cordin 1997: 260 for details, and Rohlfs 1966: 200-203; 209-215 for in-depth discussion).

Unlike Standard Italian, palatalization does not affect [s] (*[s]imĭa(m) > [s]imia* 'monkey', *ma[ks]ĭlla > ma[s]ela* 'jaw', *la[ks]are > a[s]ar* 'leave (inf.)'; examples from *ALTr* for Valsugana; vs. Standard Italian *[ʃ]immia*, *ma[ʃʃ]ella*, *la[ʃʃ]are*, respectively; see Rohlfs 1966: 224-225 for discussion).

Finally, examples for palatalization of Latin [kl, gl] to [ʧ, ʤ], respectively, are illustrated below:

(56) [kl, gl]-palatalization in the dialect of Borgo Valsugana (data from *ALTr*, Bondardo 1972, and my fieldwork)

Latin	**Borgo Valsugana**	**Tuscan**	**Standard Italian**	**Gloss**
[kl]amāre	[ʧ]amar (*ALTr*)	[kj]amare	[kj]amare	'call (inf.)'
cir[k](u)lus	ser[ʧ]o	cer[kj]o	cer[kj]o	'circle'
[gl]ăcia(m)	[ʤ]asoloto (*ALTr*)	[gj]accio	[gj]accio	'ice'
*ex[kl]onfare (Bondardo 1972)	[zʤ]onfo	s[g]onfio	s[g]onfio	'deflated'

It emerges from the data collected above that palatalization in the variety of Borgo Valsugana is not shared in Tuscan nor in Standard Italian – which have preserved the preceding step [kl, gl] > [kj, gj], respectively.

5.4.2 Lombardo-Trentino

Lombardo varieties are classified as Western (embracing the areas of Milan, Varese, Como, Sondrio), Eastern (streching out in the areas of Bergamo and Brescia, and the Northern parts of Cremona and Mantova), and Alpine Lombardo (covering up the areas of Ossola and Upper Valtellina). For historical reasons, the classification is focused on Milan: “this side” of the river Adda stands for Western Lombardo varieties; “that side” of the river Adda stands for Eastern Lombardo varieties (Loporcaro2009: 99).

The examined Lombardo-Trentino varieties of Mori, Bleggio, and Tret, will be discussed together. Generally, they share Gallo-Italic traits, but they also differ from one another with respect to features peculiar of neighbouring dialects which have permeated them – specifically, Venetan characteristics for Mori, which occupies an intermediate position between Venetan and Lombardo; Eastern Lombardo traits, which influence the variety of Bleggio; and Ladin features, which can be identified in the dialect of Tret.

In the vowel system, the three of them display *-e*, *-o*-apocope both after sonorants and after obstruents. In this latter feature, they differ from the variety of Borgo Valsugana, which conforms to the Venetian model, preserving final vowels after obstruents (see 5.4.1):

(57) Apocope in the dialects of Mori, Bleggio, and Tret (data from my fieldwork)

Latin	Example	Variety	Italian cognate	Gloss
hŏmo	om	Tret	uomo	'man'
căne(m), plenu(m)	can, pien	Mori	cane, pieno	'dog', 'full'
malu(m), cŏllu(m)	mal, col	Mori	male, collo	'bad', 'neck'
măre, mūru(m)	mar, mur	Bleggio	mare, muro	'sea', 'wall'
căttu(m), lăcu(m), ŏssu(m)	gat, lak, os	Mori	gatto, lago, osso	'cat', 'lake', 'bone'
virĭde(m), Augŭstu(m) (mēnsem)	vert, agost	Bleggio	verde, agosto	'green', 'August'
ulmus, firmus, cornu	olm, ferm, corn	Tret	olmo, fermo, corno	'elm', 'still', 'horn'

In the above data, final unstressed *-o* falls when following *all* sonorants, conforming to (Eastern) Lombardo dialects (see Rohlfs 1966: 180-182; 186-188 for discussion), and final unstressed *-e* is deleted when following simple [n, l, r], resembling Venetian (see Loporcaro 2009: 103-104 for discussion). Furthermore, apocope also takes place when following obstruents – which undergo devoicing when voiced (see Rohlfs 1966: 423-425; 433 for details)[67]. This holds both for simple codas and for complex codas. With respect to the latter, Tret is the only variety which apocopates after clusters in which C2 is a sonorant. On the other hand, plural forms display final vowel preservation (*fre[d]i* 'cold', *la[g]i* 'lakes', *cati[v]i* 'mean', *gelo[z]i* 'jealous'; examples from my fieldwork). This proves that Gallo-Italic apocope has not totally affected Lombardo-Trentino dialects, which preserve *-i* as in Venetan-Trentino varieties (and Standard Italian). As emerged for Borgo Valsugana, morphosyntactic reasons lying in the need to keep gender distinction clear may justify the need to conserve final *-a* (see Tekavčić 1980: 121 for discussion) in Mori (*fritata* 'omelette', *bianca* 'white'), Bleggio (*fortaia* 'omelette', *boca* 'mouth'), and Tret (*stela* 'star', *paca* 'bump'; all examples from my fieldwork).

Diphtongization does not characterize the dialects of Mori and Bleggio, which exhibit [o], but it occurs in the variety of Tret, which changes [ɔ] to [wɔ][68], as in Standard Italian (see Patota 2007: 56-62 for details):

[67]Apocope does not occur when /b/ precedes the final unstressed vowel: in Mori, Bleggio, and Tret, we find *or[b]o* 'blind (m. sg.)', *go[b]o* 'hunchback (m. sg.)'). This reinforces the claim according to which /b/ proves to be unclear in this respect (Alber/Rabanus/Tomaselli 2014), along with the rarity of words exhibiting final /b/ in the Trentino varieties (nevertheless, recall that devoicing is attested in AIS I 187 *go[p] ~ go[b]a* and AIS I 188 *or[p] ~ or[b]a*, as observed in Alber/Rabanus/Tomaselli 2014).

[68]Actually, [we], as realized by our informant.

(58) Diphtongization in the dialects of Mori, Bleggio, and Tret (data from my fieldwork)

Latin	Mori, Bleggio	Tret	Italian cognate	Gloss
paucu(m)	p[o]c	[pw]ec	p[ɔ]co	'a little'
nŏvus	n[o]f	n[we]u	n[wɔ]vo	'new (m. sg.)'
ŏvu(m)	[o]f	[we]u	[wɔ]vo	'egg'
hŏmo	[ɔ]m	[ɔ]m	[wɔ]mo	'man'

We now turn to the most relevant traits regarding consonants. The three examined dialects display intervocalic obstruent lenition (and spirantization [p]> [v]):

(59) Intervocalic obstruent lenition in the dialects of Mori, Bleggio, and Tret (data from my fieldwork)

Latin	Example	Variety	Italian cognate	Glos
a[p]ĕrtu(m)	da[v]ert	Tret	a[p]erto	'open'
ba[t]āre	ba[d]ar	Bleggio	ba[d]are	'look after (inf.)'
---	spise[g]ar	Mori	pizzi[k]are	'sting (inf.)'

In the examined dialects, [p, t, k] change to their voiced equivalents [b (v), d, g], respectively, when occurring in intervocalic context. When found in intersonorant position, lenition generally does not take place (Mori, Bleggio, Tret: *contĕn[t]u(m)* > *con.[t]ent* 'happy', but *capreŏlu(m)* > *cia[vr]iöl*; example from *ALTr*). Word-initial voiceless obstruents are preserved (Mori: *[k]ăne(m)* > *[k]an* 'dog', *[f]a.cĭa(m)* > *[f]a.cia* 'face'; Bleggio: *[p]aucus* > *[p]oc* 'a little', *[v]i.rĭ.de(m)* > *[v]ert* 'green'; Tret: *[t]ertĭu(m)* > *[t]erz* 'third', *[s]ĭccu(m)* > *[s]ek* 'dry'; examples from my fieldwork).
As in the variety of Borgo Valsugana, degemination in Mori, Bleggio, and Tret affects both obstruents (Mori: **gŭbbu(m)* > *go[b]o* 'hunchback', *bu[t]ar* 'throw away (inf.)'; Bleggio: *sbo[t]onar* 'unbutton (inf.)', *ra[k]olto* 'harvest'; Tret: *fio[k]o* 'bow', *bo[k]a* 'mouth' vs. Standard Italian *gobbo*, *buttare*, *sbottonare*, *raccolto*, *fiocco*, *bocca*, respectively) and sonorants (Mori: *mamma* > *ma[m]ana* 'mum'; Bleggio: *millĕ* > *mi[l]e* 'thousand'; Tret: *stella(m)* > *ste[l]a* 'star' vs. Standard Italian *mamma*, *mille*, *stella*, respectively; examples from my fieldwork). Furthermore, Latin combinations such as [dk, dv, dm, dn] have not undergone assimilation (*ăd causāri > a[k]usar 'accuse (inf.)', advisare > a[v]isar 'warn (inf.)';* examples from *ALTr* for Val di Non). A quick look at the *ALTr* reveals that, throughout Trentino, apheresis has generated, for instance, *macar* (< *ad +macŭla*) and *negar/negarse* (*negiarse* in Val di Non; < *adnecāre*) vs. Standard Italian *ammaccare* 'dent

(inf.)' and *annegare* 'drown (inf.)', respectively[69].

Assibilation of Latin velars [k, g] when followed by palatal vowels /e, i/ has produced alveolar affricates [ts, dz], respectively, in the examined Lombardo-Trentino varieties. That is to say, they differ from the dialect of Borgo Valsugana since in the latter affricates have further developed by losing their plosive element (see 5.4.1). Some examples for this process are provided below:

(60) [k, g]-assibilation in the dialects of Mori, Bleggio, and Tret (data from my fieldwork)

Latin	**Example**	**Variety**	**Tuscan**	**Italian cognate**	**Gloss**
[k]uinque	[ts]inque	Mori	[ʧ]inque	[ʧ]inque	'five'
dul[k]is	dol[ts]e	Bleggio	dol[ʧ]e	dol[ʧ]e	'cake'
so.ri.[k]ĕ(m)	sor[dz]i	Mori	sor[ʧ]i	sor[ʧ]i	'rat (pl.)'
[g]ente(m)	[dz]ent	Tret	[ʤ]ente	[ʤ]ente	'people'

Although assibilation to [ts, dz] is very frequent in these varieties, they exhibit some words in which palatal affricates [ʧ,ʤ] are conserved (Mori: *cal[k]is* > *cal[ʧ]e* 'lime'; Bleggio: *por[k]ĕllu(m)* > *por.[ʧ]el* 'pig', *[k]irc(u)lu(m)* > *[ʧ]erchio* 'circle', *[g]ente(m)* > *[ʤ]ent* 'people'; examples from my fieldwork; see Loporcaro 2009: 86-87 for details). Unlike for the variety of Borgo Valsugana, deaffrication does not occur in Lombardo-Trentino dialects when derived from Latin [tj, dj] either (**pu.[tj]u(m)* > Tret *spu[ts]a* 'smell', *me[dj]u(m)* > Mori *me[dz]o* 'middle'; examples from my fieldwork; see Cordin 1997: 260 for details, Patota 2007: 88-89, and Rohlfs 1966: 200-203; 209-215 for in-depth discussion). Palatalization of Latin velars [k, g] is also found when preceding /a/ in Tret, a trait which is peculiar of Ladin (see Cordin 1997: 261, Devoto/Giacomelli 1972: 44, Loporcaro 2009: 104, and Rohlfs 1966: 199 for details): *[k]ăne(m)* > *[kʲ]an* 'dog', *[k]ăldu(m)* > *[kʲ]aut* 'hot', *por[k]ĕllu(m)* > *por[kʲ]et* 'pig', *[k]attu(m)* > *[gʲ]at* 'cat' (examples from my fieldwork).

The dialect of Tret also differs from those of Mori and Bleggio with respect to the outcomes of Latin C+/l/ sequences. On the one hand, in Mori and Bleggio combinations such as [pl, bl, fl] and [kl, gl] turn into [pj, bj, fj] (as in Tuscan and Standard Italian) and – through palatalization – into [ʧ, ʤ], respectively. On the other hand, the dialect of Tret (and, generally, Val di Non) has preserved the original clusters[70], as illustrated below:

[69]Historical [mn] is preserved in Val di Non, as the *ALTr* shows (*fem(i)na* > *fe[m.n]ata* 'female, woman'), but it has generally turned to [n] in Northern Italian varieties (see Bondardo 1972: 108 and Rohlfs 1966: 381 ff. for general discussion of the process).

[70]As pointed out in Rohlfs (1966: 244), these sequences were also found in other Northern Italian dialects such as Venetian in the Medieval period.

(61) C+/l/ in the dialects of Mori, Bleggio, and Tret (data from *ALTr*, and my fieldwork)[71]

Latin	Tret/Val di Non	Mori, Bleggio	Tuscan	Italian cognate	Gloss
[pl]ēnu(m)	[pl]en	[pj]en	[pj]eno	[pj]eno	'full'
---	[bl]ank	[bj]anco	[bj]anco	[j]anco	'white'
con[fl]āre	gon[fl]ar	gon[fj]ar (Bleggio)	gon[fj]are	gon[fj]are	'swell (inf.)'
[kl]ave(m)	[kl]au (*ALTr*)	[ʧ]ave	[kj]ave	[kj]ave	'key'
*[gl]acia(m)	[gl]acin (*ALTr*)	[ʤ]aso	[gj]accio	[gj]accio	'ice'

5.4.3 Gardenese Ladin

It is believed that Ladin was imported from the Isarco valley across Val Gardena at the end of the early Middle Ages. Until the 19th century, the valley belonged politically and religiously to the government of the bishop-prince of Brixen/Bressanone. In 1919 Val Gardena became part of Italy, belonging to the province of Bozen/Bolzano.

With respect to vowels, Gardenese Ladin deletes final *-e*, *-o* after all sonorants, as in (Eastern) Lombardo dialects (see Rohlfs 1966: 180-182; 186-188 for discussion):

(62) Apocope in Gardenese Ladin (data from my fieldwork)

Latin	Gardenese Ladin	Italian cognate	Gloss
lætāme(n), hŏmo	ledam, uem	letame, uomo	'compost', 'man'
căne(m), autŭmnu(m)	can, auton	cane, autunno	'dog', 'autumn'
mĕl, cŏllu(m)	miel, col	miele, collo	'honey', 'neck'
măre, mūru(m)	mer, mur	mare, muro	'sea', 'wall'
gŭbbu(m), sĭccu(m),	gop, sek, bas	gobbo, secco, basso	'hunchback', 'dry', 'small'
virĭde(m), Augŭstu(m) (mēnsem)	vert, agost	verde, agosto	'green', 'August'
fĭrmu(m), hibĕrnu(m)	ferm, nviern	fermo, inverno	'still', 'winter'

In the data presented above, apocope also occurs after obstruents – which undergo devoicing if voiced (see Rohlfs 1966: 423-425; 433 for details). This is true both for simple codas and for complex codas. In the latter case, Gardenese Ladin apocopates when C2 is an obstruent as well as when C2 is a sonorant (as seen for the variety of Tret). Plural forms preserve final

[71]Furthermore, the dialects of Val di Non display the sequences [tl, dl], which do not characterize either Venetan-Trentino nor Lombardo-Trentino varieties: **scutellator* > *scu[dl]ader* 'person who sells dishes', *[dl]a* 'of the (f.)', *chi[tl]a* 'skirt' (examples from *ALTr*).

-i in words ending in *-l* (*col* ~ *co[i]* 'neck ~ pl.', *ciaval* ~ *ciave[i]* 'horse ~ pl.', *purcel* ~ *purcie[i]* 'pig ~ pl.'), whereas those ending in *-m* and-*r* add *-es* (*uem* ~ *uem[es]* 'man ~ pl.', *mur* ~ *mur[es]* 'wall ~ pl.'; see Salvi 1997: 289 for discussion and further examples), and those ending in *-n* add [s] (*vin* ~ *vin[s]* 'wine ~ pl.'; examples from my fieldwork). This also holds for words ending in obstruents (*grop-s*, *stuf-s* 'fed up', *stank-s* 'tired' ; examples from my fieldwork). In addition, final *-i* is preserved after [rn], as it occurs in Lombardo dialects (*corni* 'horn (pl.)'; example from my fieldwork; see Rohlfs 166: 181 for discussion). Vowel-apocope does not involve feminine forms ending in *-a*: *colma*, *ferma* (examples from Forni 2013). Again, this may be explained in morphosyntactic terms, being *-a* the most frequent final vowel and the most relevant in nominal morphosyntax (see Tekavčić 1980: 121-122 for discussion). In this respect, Gardenese Ladin resembles Lombardo-Trentino dialects and Venetan-Trentino dialects.

Gardenese Ladin has been affected by historical dipthongization [ɛ, ɔ] > [jɛ, wɔ], respectively – differing, in this respect, from Venetan-Trentino and Lombardo-Trentino:

(63) Diphtongization in Gardenese Ladin (data from Forni 2013, Salvi 1997, and my fieldwork)

Latin	**Gardenese Ladin**	**Italian cognate**	**Gloss**
mĕl (Salvi 1997)	m[jɛ]l	m[jɛ]le	'honey'
sæpe(m) (Forni 2013)	s[je]f	s[jɛ]pe	'hedge'
cŏcuu(m)	[kw]ec	[kw]oco	'cook'
fōcu(m)	f[we]c	f[wɔ]co	'fire'
trifoliu(m) (Forni 2013)	traf[we]i	trifoglio	'clover'
nŏvus	n[we]f	n[wɔ]vo	'new (m. sg.)'
locu(m)	l[we]c	l[wɔ]go	'place'

With respect to the consonantal system, Gardenese Ladin shares with Gallo-Italic varieties lenition of intervocalic obstruents and degemination, whereas other traits are peculiar of this dialect. Intervocalic obstruent lenition is illustrated below:

(64) Intervocalic obstruent lenition in Gardenese Ladin (data from Forni 2008, 2013, and my fieldwork)

Latin	**Gardenese Ladin**	**Italian cognate**	**Glos**
capillu (m), capilli	cia[v]ei	ca[p]elli	'hair'
ca[t]ēna(m) (Forni 2008)	cia[d]eina	ca[t]ena	'chain'
amī[k]ŭ(m) (Forni 2013)	ami[g]o	ami[k]o	'friend'

Intervocalic obstruents are weakened in Gardenese Ladin, whereas Standard Italian preserves the voiceless equivalents. This is also found in intersonorant position, in line with the other Western Romance varieties (*le[p]ŏris* > *lie[v]ra* 'hare'), whereas Standard Italian conserves the voiceless plosive (*le[p]re*; see Bondardo 1972: 108, Loporcaro 2009: 85, and Patota 2007: 83-86 for general discussion). Word-initial voiceless obstruents are preserved (*[p]ărte(m)* > *[p]ert*, *[b]ăssu(m)* > *[b]as*, *[t]ēla(m)* > *[t]eila*, *[k]ŏrnu* > *[k]orn*, **[f]atīga(m)* > *[f]adia* 'strain', *[s]ŭrdu(m)* > *[s]ourt* 'deaf'; examples from my fieldwork).

Degemination involves both obstruents (*cuppa(m)* > *co[p]a* 'goblet', *go[b]a* 'hunchback (f.)') and sonorants (*stēlla(m)* > *stei[l]a* 'star'), and it also takes place with respect to Latin sequences such as [dm] (*ad monere* > *a[m]unì* 'warn (inf.)'; see Forni 2013), as shown for the other investigated dialects.

In Gardenese Ladin, palatalization of Latin velars [k, g] not only occurs when preceding palatal vowels /e, i/ (as in Venetan-Trentino, Lombardo-Trentino, and Standard Italian), but also when preceding /a/ – differing, in this respect, both from the other varieties (see Rohlfs 1966: 209 for details):

(65) Palatalization in Gardenese Ladin (examples from Salvi 1997, and from my fieldwork)

Latin	**Gardenese Ladin**	**Italian cognate**	**Gloss**
[k]ăne(m)	[ʧ]an	[k]ane	'dog'
*[k]inque	[ʧ]inc	[ʧ]inque	'five'
sorĭ[k]e(m)	suri[ʧ]a	sor[ʧ]o	'rat'
[g]ăllu(m) (Salvi 1997)	[ʤ]al	[g]allo	'cock'
[g]ente(m)	[ʒ]ent	[ʤ]ente	'people'
[j]ugu(m)	[ʒ]uek	[ʤ]ogo	'yoke'
lăr[g]u(m)	ler[ʤ]es	lar[g]i	'wide (m. pl.)'
statione(m)	sa[ʒ]on	sta[ʤ]one	'season'

The data collected above showing the change [g] > [ʒ] reveal that "the reflexes of Romance palatalization remain palatals" (Salvi 1997: 289). Gardenese Ladin does not display assibilation [k, g] > [s, z], respectively – differing from Venetan-Trentino varieties. It does not conform to Lombardo-Trentino either, which exhibits [k, g] > [ts, dz], respectively (see Loporcaro 2009: 86-87 for discussion). Unlike Standard Italian, historical palatalization [g] > [ʒ] has produced loss of the dental element (see Rohlfs 1966: 209-212 for in-depth discussion). Deaffrication of Latin [tj] does not characterize Gardenese Ladin (**pu.[tj]u(m)* > *pu[ts]* 'smell'), but our data reveal that this occurs for [dj] (*me[dj]u(m)* > *me[z]dì* 'noon'). Palatalization in Gardenese Ladin is also found in the case of [s], which turns into [ʃ] when preceding /i/ (*[s]i* > *[ʃ]e* 'if'; example from Salvi 1997: 289)[72], differing, therefore, both from Venetan-Trentino and Lombardo-Trentino. Furthermore, the process is found in plural formation of masculine forms ending in [-t, -s, -k] (see Salvi 1997: 289-290 for discussion and further examples), as our informants realized: *frei[ʧ]* 'cold', *bla[nʧ]* 'white', *gelou[ʃ]* 'jealous', *mu[ʃ]* 'snout' (examples from my fieldwork).

Gardenese Ladin also differs from Venetan-Trentino and Lombardo-Trentino varieties with respect to the outcomes of Latin C+/l/ sequences. Indeed, combinations such as [pl, bl, fl] are conserved as such in Gardenese Ladin. In other words, [l] does not change to [j]. Furthermore, Latin [kl, gl] turn into [tl, dl], respectively, in Gardenese Ladin (see Forni 2008: 11, and Salvi 1997: 289 for details) – revealing that the variety in question has not been involved in palatalization [kl, gl] > [ʧ, ʤ], respectively:

(66) C+/l/ in Gardenese Ladin (data from Forni 2008, 2013, and my fieldwork)

Latin	**Gardenese Ladin**	**Italian cognate**	**Gloss**
[pl]ănta(m) (Forni 2013)	[pl]anta	[pj]anta	'plant'
[bl]ada (Forni 2013)	[bl]ava	[bj]ada	'corn'
nu[b](ī)la (Forni 2008)	ni[bl]a	neb[bj]a	'fog'
[fl]occu(m)	[fl]oc	[fj]occo	'bow'
suf[fl]are	su[fl]é	sof[fj]are	'blow (inf.)'
[kl]ave(m)	[tl]e	[kj]ave	'key'
[kl]ericale(m) (Forni 2013)	anti[tl]erichel	anti[kl]ericale	'anticlerical'
*[gl]acia(m)	[dl]acin	[gj]accio	'ice'
un[g(u)l]a(m)	on[dl]a	un[gj]a	'nail'

Further typical developments of Gardenese Ladin are [kw]-delabialization when followed by /a/ (*[kw]attuor* > *[k]ater* 'four'; example from Forni 2008; see also Patota 2007: 80-81 for general discussion), /s/-palatalization when followed by [i] (*si* > [ʃ]e 'if'), and simplification of Latin [mb] to [m] (*că[mb]a(m)*> *gia[m]a* 'leg'; see Salvi 1997: 289).

[72]But cf. *ma[ks]ĭlla* > *ma[s]ela* vs. Standard Italian *ma[ʃʃ]ella* 'jaw'; example from Forni 2013; see Patota 2007: 88 for details).

6. ONSETS IN GERMANIC VARIETIES

6.1 INTRODUCTION

The account for permissible and impermissible onsets in Standard German and in the examined Germanic varieties will consider not only clusters, but also simple onsets in order to provide a thorough picture. We will show that, generally, onset clusters are subject to restrictions which prohibit the emergence of certain sequences. It will also emerge from the discussion that, on the whole, the dialectal varieties turn out to be more tolerant than the corresponding standard variety with respect to the licit combinations, exhibiting relevant differences.

6.2 STANDARD GERMAN

Standard German allows from one to three segments to fill the onset position, as shown in the following sections. In order to provide a picture as complete as possible, both word-initial and word-internal onsets will be examined. The segments in brackets are those which are not found in the native inventory – and will, therefore, not be considered.

6.2.1 ONE-MEMBER ONSETS

The charts below illustrate Standard German licit simple onsets and give examples for each segment:

(67) Standard German one-member onsets (following Hall 1992, 2000, and my own)

Consonant	Word-initial context	Word-medial context
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes

ç	yes	yes
x	no	no
h	yes	yes
s	no	yes
z	yes	yes
ʃ	yes	yes
pf	yes	yes
ts	yes	yes
ʧ	yes	yes
dz	no	no
m	yes	yes
n	yes	yes
l	yes	yes
ʀ/ʁ	yes	yes
j	yes	yes
w	no	no

(68) Standard German one-member onsets: examples (data from Hall 1992, Wiese 1996, and my own)

Consonant	**Word-initial context**	**Gloss**	**Word-medial context**	**Gloss**
p	[p]elz	'fur'	be[p]acken	'load (inf.)'
b	[b]ein	'leg'	Ver[b]ot	'phohibition'
t	[t]uch	'cloth'	er[t]appen	'catch (inf.)'
d	[d]ach	'roof'	Ver[d]acht	'suspicion'
k	[k]amm (Hall 1992)	'comb'	Be[k]annte	'acquaintance'
g	[g]enau (Hall 1992)	'exactly'	be[g]eistert	'carry away (p.p.)'
f	[f]eind	'enemy'	Sei[f]e (Hall 1992)	soap'
v	[v]and	'wall'	Lö[v]e (Hall 1992)	'lion'
ç	[ç]emie (Hall 1992)	'chemistry'	E[ç]o (Hall 1992)	'echo'
h	[h]ammer	'hammer'	U[h]u (Hall 1992)	'uhu'
s	---	---	rei[s]en (Hall 1992)	'rip (inf.)'
z	[z]ehr (Hall 1992)	'very'	le[z]en (Hall 1992)	'read (inf.)'
ʃ	[ʃ]ön (Hall 1992)	'beautiful'	mi[ʃ]en (Hall 1992)	'mix (inf.)'
pf	[pf]erd	'horse'	ver[pf]änden	'pawn (inf.)'
ts	[ts]eit	'time'	si[ts]en (Hall 1992)	'sit (inf.)'
ʧ	[ʧ]ello (Hall 1992)	'cello'	ma[ʧ]ig	'muddy'
m	[m]an (Hall 1992)	'man'	i[m]er (Hall 1992)	'always'
n	[n]ass	'wet'	er[n]euen	'renew (inf.)'
l	[l]ärm	'noise'	bi[l]ig (Hall 1992)	'cheap'

ʀ/ʁ	[ʀ]aum/[ʁ]aum	'space, room'	er[ʀ]öten	'blush (inf.)'
j	[j]a (Hall 1992)	'yes'	Ko[j]e (Hall 1992)	'bunk'

Standard German simple onsets can be filled both by obstruents and sonorants. Among obstruents, we find plosives, fricatives, sibilants, and affricates. Most voiceless segments display a voiced correspondent. Generally, all segments occur both in word-initial and in word-medial context. In the latter case, we often find morphologically complex forms such as verbs which exhibit the prefixes *be*-, *er*-, and *ver*-. The absence of word-initial [s] may be explained by the fact that it turns into [z] when preceding a vowel (see chapter 4), whereas dorsal fricative [x] never occupies the word (morpheme)-initial context: this position is taken up by palatal [ç]. Sonorants have a more homogeneous distribution: nasals, liquids and glides (except for [w]) fill both contexts.

6.2.2 TWO-MEMBER ONSETS

With respect to complex onsets, Standard German generally conforms to the SSG discussed in section 1.2., from which it emerges that at syllable margins segments are less sonorous than those which appear next to the nucleus. In light of this, a word such as *Plan* [pla:n] ‘plan’, exhibits a perfectly built consonant cluster in onset position, since plosives are less sonorous than liquids (cf. Parker’s hierarchy) and fill the extreme left syllable margin. For Standard German, Wiese (1996) proposes the following sonority hierarchy:

(69) Sonority scale for Standard German (from Wiese 1996: 260)

```
 |----------|----------|---------|----------|---------|---- >
Obstr     Nas        l         ʀ      high V     V
```

According to the Standard German sonority scale presented above, the least sonorous segments are obstruents. Sonority increases the closer one gets to vowels, which are the most sonorous segments. Standard German allows for the patterns obstruent+sonorant and obstruent+obstruent, which are illustrated in the tables below, where the pluses “+” stand for licit clusters:

(70) Standard German two-member onset clusters I: obstruent+sonorant (following Hall 1992, 2000)

C1 OBS	**C2 SON**			
	m	**n**	**l**	**ʀ**
p			+	+
b			+	+
t				+
d				+
k		+	+	+
g	+	+	+	+
f			+	+
v				+
s				
ʃ	+	+	+	+
pf			+	+
ts				
ʧ				

(71) Standard German two-member onset clusters I: examples (data from Hall 1992, 2000, and my own)

Obs+Son cluster	**Gloss**	**Obs+Son cluster**	**Gloss**
[pl]atz (Hall 1992)	‘place, square’	[gl]itz	‘glitter’
Ge[pl]epper	'idle talk'	Ver[gl]eich	'comparison'
[pʀ]inz (Hall 1992)	‘prince’	[gʀ]oss (Hall 1992)	‘big’
ver[pʀ]assen	‘squander (inf.)’	be[gʀ]aben	'bury (inf.)'
[bl]itz (Hall 1992)	‘lightning’	[fl]ug (Hall 1992)	‘flight’
aus[bl]eichen	‘bleach (inf.)’	be[fl]issen	'zealous'
[bʀ]ei (Hall 1992)	‘mash’	[fʀ]ei (Hall 1992)	‘free’
Ge[bʀ]auch	‘consumption’	be[fʀ]isten	'fix (inf.)'
[tʀ]aum	'dream'	[vʀ]ack (Hall 2000)	‘wreck’
er[tʀ]äglich	‘bearable’	[ʃm]alz	‘lard’
[dʀ]ang (Hall 1992)	'impulse'	be[ʃm]utzen	'smirch (inf.)'
unter[dʀ]ücken	'oppress (inf.)'	[ʃn]eiden	‘cut (inf.)'

[kn]echt (Hall 1992)	'knight'	ver[ʃn]upfen	'make s.o. angry (inf.)'
ver[kn]allen	'have a crush on s.o.(inf.)'	[ʃl]ank	'slim'
[kl]ang (Hall 1992)	'sound'	be[ʃl]eunigen	'rush (inf.)'
be[kl]agen	'mourn (inf.)'	[ʃʀ]ank	'wardrobe'
[kʀ]anz (Hall 1992)	'crown'	er[ʃʀ]ecken	'scare (inf.)'
er[kʀ]anken	'go ill (inf.)'	[pfl]aume	'plum'
[gm]ünd	'Gmünd (place name)'	ver[pfl]ichten	'bind (inf.)'
[gn]ade (Hall 1992)	'mercy'	[pfʀ]opf	'tampon'
		ge[pfʀ]opft	'crammed (adj.)'

In Standard German, the pattern obstruent+sonorant exhibits the types obstruent+nasal and obstruent+liquid. The former is an unmarked, whereas the latter is a marked structure (see Greenberg 1978a). Both types are found in word-initial as well as in word-medial context, although not all clusters fill both positions. C1 plosive can be [LAB], [COR], or [DOR], and it is generally voiceless. When clustering with nasals, the only licit combinations allow for velars [k, g] as C1, generating [kn, gm, gn]. Among these clusters, [gm] is rarely found, but attested: it only occurs in the town names *[gm]ünd*, *[gm]elin* 'Gmelin' and *[gm]munden* 'Gmunden', filling only the word-initial position. [gn] occurs more frequently instead: (in Duden (1996) we found *[gn]ade*, *[gn]ädig* 'compassionate', *[gn]atz* 'person in a bad mood', *[gn]atzen* 'to be in a bad mood (inf.)', *[gn]atzig* 'in a bad mood (adj.)', *[gn]eis* 'gneiss', *[gn]eisig* 'made of gneiss (adj.)', *[gn]eißen* 'notice (inf.)', *[gn]itte* 'little mosquito', *[gn]om* 'dwarf'). A restriction operates on non-velar+nasal sequences, excluding [LAB+LAB] [pm, bm], [LAB+COR] [pn, bn], [COR+LAB] [tm, dm], and [COR+COR] [tn, dn]. When followed by [l], the licit clusters allow for [LAB] or [DOR] to take up C1: [pl, bl, kl, gl], whereas homorganic [COR+COR] [tl, dl] are illicit. The inventory is complete when C2 is [ʀ]. As a matter of fact, [LAB], [COR], and [DOR] combine with this segment in [pʀ], [bʀ], [tʀ], [dʀ], [kʀ], [gʀ]. A restriction targets fricatives, banning their clustering with nasals. In virtue of this, [LAB+LAB] [fm, vm], and [LAB+COR] [fn, vn] are absent. When followed by [l], only [fl] is licit. Both [f, v] combine with [ʀ]. Words containing a [vʀ] onset cluster such as *Wrack* 'wreck', *Wrasen* 'haze', *wringen* 'wring out (inf.)' are few in number and all derive from Low German (cf. Duden 1996), and represent therefore a 'special' dialectal case (see also Alber/Meneguzzo 2016: 32). Among sibilants, postalveolar [ʃ] combines with both nasals, forming [COR+LAB] [ʃm], and [COR+COR] [ʃn], therefore no limitations operates. C2 are also [l] in [COR+COR] [ʃl], and [ʀ] in [ʃʀ]. Finally, affricates display a very limited range of combinations. Indeed, Standard German only exhibits [LAB+COR] [pfl] and [LAB+ʀ] [pfʀ]. Again, a restriction on obstruent+nasal sequences bans [LA+LAB] [pfm] and [LAB+COR] [pfn]. The remaining affricates, [COR] [ts, ʧ], do not cluster either with nasals, nor with [l] or [ʀ]. Again, nasals cannot be preceded by obstruents if C1 is not a velar segment. This explains the lack of [COR+LAB] [tsm, ʧm] and [COR+COR] [tsn, ʧn]. Homorganic [COR+COR] [tsl, ʧl] are also excluded. The absence of [COR+ʀ] [tsʀ] may be explained by lack of vowel-syncope in the prefix *zu-* (see chapter 4).

We are now in a position to draw some generalizations. It emerges from the data presented so far that C2 /r/ can cluster with all types of C1 obstruents – plosives, fricatives, sibilants, affricates – and articulators ([LAB], [COR], [DOR]). Among the illicit sequences of articulators, the restriction banning [DOR+DOR] onset clusters does not apply to C2 [ʀ]. Indeed, dorsal plosives [k, g] co-occur with /r/, which is, “if not velar, at least a dorsal consonant in Standard German” (Wiese 2003: 37). We may therefore conclude that C2 /r/ is the only sonorant to provide an exception to the illicitness of homorganic onset clusters in word-initial position. Furthermore, as Wiese (2003: 38) points out, “this difference [involving distinct places of articulation] probably [...] does not exist at all (the stops /k, g/ are realized in the region ranging from palatal to uvular), or follows from requirements of execution (it is hard to realize a trill or approximant in the velar region).” Hence, the most suitable phonological feature to classify /r/ is the feature [dorsal], which is shared by [k, g] as well and does not prevent [kʀ, gʀ] from being licit sequences (cf. Wiese 2003: 38).[73] In light of this, the place of articulation of C2 /r/ may be irrelevant with respect to the place of articulation of any C1 which co-occurs with /r/. Furthermore, the restriction on the type obstruent+nasal does not apply to non-velars C1 provided that it is a sibilant – enjoyning, therefore, a 'special' status.

The pattern obstruent+obstruent is presented below:

[73]For a history of uvular [ʀ] in the Germanic languages, see Howell (1987).

(72) Standard German two-member onset clusters II: obstruent+obstruent (following Hall 1992, 2000, and Wiese 1996)

C1 OBS	**C2 OBS**												
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**ʃ**	**pf**	**ts**	**tʃ**
p										+			
b													
t													
d													
k								+					
g													
f													
v													
s												+	
ʃ	+		+		+			+					
pf													
ts								+					
tʃ													

Below are examples for each cluster:

(73) Standard German two-member onset clusters II: examples (data from Hall 1992, Wiese 1996, and my own)

Obs+Obs cluster	**Gloss**
[pʃ]orr (Wiese 1996)	'Pschorr (last name)'
[kv]elle	'spring'
A[kv]arium	'aquarium'
[sts]ene (Hall 1992)	'scene'
[ʃp]iel	'game'
Be[ʃp]annung	'covering'
[ʃt]adt	'city, town'
be[ʃt]ehen	'pass (inf.)'
[ʃk]opau (Wiese 1996)	'Schkopau (place name)'
[ʃv]er	'heavy'
Be[ʃv]erde	'complaint'
[tsv]eig	'branch'

In the pattern obstruent+obstruent, onset clusters occur both word-initially and word-internally. C1 can be filled by plosives, sibilants, and the affricate [ts], but the licit combinations are very limited. C1 plosives are only [LAB] [p] and [DOR] [k]. [p] is only followed by [COR] [ʃ] (although rarely), whereas [k] only combines with [LAB] [v]. Among sibilants, [COR] [s] is only followed by [COR] affricate [ts]. The native lexicon only allows for postalveolar [ʃ] to fill C1 when it comes to the licit /s/+C onset clusters. It combines with [LAB] in [ʃp], [ʃv] (but see Wiese 1996: 262 for [v] as an approximant), [COR] in [ʃt], and [DOR] in [ʃk] (although rarely). Finally, [COR] affricate [ts] only clusters with [LAB] [v].

With respect to this pattern, C1 is always postalveolar [ʃ] (rarely a plosive, [s], or [ts]). Concerning C2, Wiese (1996: 238-242) argues that in the onset clusters [kv, ʃv, tsv,] the second consonant is an underlying back vowel [ʊ] which has undergone desonorization.[74] The lack of a following /ʊ/ in the clusters under investigation and variable realization of this segment as [ʊ] or [v] would speak in favour of Wiese's proposal. According to this view, then, clusters of this type would exhibit a higher sonority distance between the two segments, resulting from high peripheral vowel (15) – voiceless plosive (1)= 14. We will assume that this is the case – therefore, clusters containing C2 [v] will be excluded from the calculation of the sonority distance (here as well as in the other Germanic varieties which allow for C2 [v]). Moreover, as Wiese points out, this would mean that there are no clusters in Standard German consisting of two obstruents (except for those containing sibilants). We argue that these claims are enough to adopt Wiese's proposal – therefore, we will exclude clusters whose C2 is [v] from the calculation of the sonority distance values.

In addition, sibilants represent a 'special' case within cluster phonotactics. As a matter of fact, they enjoy a certain 'freedom' since they combine with other obstruents. Due to the violation of the SSG which these combinations of sibilant+plosive incur, linguists (Hall 1992, Wiese 1991, 1996, among others) have come to the conclusion that sibilants, in German, have to be considered as extrasyllabic. The 'special' status that sibilants enjoy has led us not to consider clusters which contain any of them when it comes to determining the sonority distance of Standard German clusters. Sibilants which occur in the pattern obstruent+obstruent may form either marked or unmarked structures with respect to the feature [high], according to Wiese (1996). In light of this, [ʃp, ʃt, sk] are unmarked since C1 and C2 do not share the values for this feature ([ʃ: [+high]; [p, t]: [-high]; [s]: [-high]; [k]:

[74] See also Eisenberg (2006: 116) for discussion.

[+high]), whereas [ʃk] is marked since both segments share the feature [+high].[75] Likewise, [sp, st] are marked clusters since their C1 and C2 share the feature [-high] (but they have not been included in the inventory since they occur in loanwords).
To sum up, obstruent+obstruent onset clusters reveal that coronals are the only segments which take up both C1 and C2. Furthermore, they can combine with any articulators. Labials and dorsals do not enjoy this 'freedom'. As a matter of fact, we do not find any [DOR+LAB] onset clusters such as [kf, gv].
We do not find any sonorant+sonorant onset clusters with increasing sonority, although this would be licit in terms of the sonority hierarchy. In order to exclude this pattern, we may observe that C1 must always be filled by an obstruent, and C2 by a sonorant (adopting Wiese's analysis).
The sonority distances for the various onset clusters are collected in the table below, where both word-initial as well as word-internal combinations are shown. Recall that all sequences containing any sibilant or C2 [v] are not considered:

(74) Sonority distances for Standard German two-member onset clusters[76]

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pʀ, tʀ, kʀ]	/r/ (11) – vcless plos (1) = 10	[fl]	lat (9) – vcless fric (3) = 6
[pfʀ]	/r/ (11) – vcless affr (2) = 9	[kn]	nas (7) – vcless plos (1) = 6
[fʀ]	/r/ (11) – vcless fric (3) = 8	[vʀ]	/r/ (11) – voiced fric (6) = 5
[pl, kl]	lat (9) – vcless plos (1) = 8	[bl, gl]	lat (9) – voiced plos (4) = 5
[bʀ, dʀ, gʀ]	/r/ (11) – voiced plos (4) = 7	[gn]	nas (7) – voiced plos (4) = 3
[pfl]	lat (9) – vcless affr (2) = 7		

The table shows that Standard German allows for very high sonority distances (SD= 10, SD= 9, SD= 8) between the segments of its clusters, especially when /ʀ/ is involved. Other clusters with SD= 8 are those formed by a voiceless plosive and a lateral ([pl, kl]). Native words which contain the other onset clusters are many as well and represent therefore

[75]This may be due to the fact that, for umarked /sC/ clusters, a rule of dissimilation of the obstruent operates on [-high] [p, t] – which combine with [+high] [ʃ]. On the other hand, the rule does not operate on marked [ʃk], being both segments [+high]. See Wiese (1996: 267 ff.) for discussion.

[76]Here as well as in the other tables illustrating sonority distance values, plos= plosive; fric= fricative; affr= affricate; nas= nasal; lat= lateral; vcless= voiceless.

perfectly built combinations. These range from SD= 7 ([[bʀ], [dʀ], [gʀ], [pfl]) to SD= 6 ([fl, kn]). Clusters displaying SD = 5 are many and range from the very frequent [bl], [gl] to [vʀ] (the latter only found in word-initial context in a very few words deriving from Low German). The lowest SD which Standard German tolerates is that of [gn] clusters, which exhibit 3 intervals. As previously seen, this cluster covers up very few words, but it cannot be excluded from the calculation of the SD. Standard German does not exhibit any sequences with SD= 4. This may lie in restrictions which ban, for instance, any combinations formed by an obstruent and a nasal such as [fn] (nas 7 – voiceless fric 3= SD 4). Furthermore, the absence of clusters which exhibit SD= 2 such as [kf], is an indicator of the fact that these sequences have not emerged historically (see chapter 4).

6.2.3. THREE-MEMBER ONSET CLUSTERS

Standard German displays a restricted range of three-member onset clusters, as illustrated below:

(75) Standard German three-member onset clusters: examples (data from Alber 2007, Wiese 1996, and my own)

Obs+Obs+Son cluster	**Gloss**
[ʃpl]itter (Alber 2007)	'fragment'
[ʃpʀ]ache	'language'
Be[ʃpʀ]echung	'discussion'
[ʃtʀ]asse	'street'
be[ʃtʀ]afen	'punish (inf.)'

In three-member onset clusters, Standard German only allows for the pattern obstruent+obstruent+sonorant. In this respect, C1 is always postalveolar [ʃ]. This combines only with plosives, either labial [p], coronal [t], or velar [k]. C3 is always filled by [COR] [l] or [ʀ], never by nasals. The licit sequences seem not to conform to the requirements of the SSG since they violate it in C1C2. Indeed, sonority sinks from [ʃ] (voiceless fricative: SI= 3) to C2 (voiceless plosive: SI= 1) – whereas it rises, as required from the principle, from C2 to C3. Incurring a violation of the SSG leads us to consider sibilants as extrasyllabic (adopting, for instance, Wiese's 1996 claim), claiming that /s/ does not belong to the onset cluster.

The next section is devoted to Tyrolean dialects, for which we will proceed in the same fashion adopted for Standard German.

6.3 TYROLEAN DIALECTS

Tyrolean allows from one to four segments to fill the onset position, as shown in the following sections, in which both word-initial and word-internal onsets will be discussed.

6.3.1 ONE-MEMBER ONSETS

The charts below illustrate Tyrolean licit simple onsets and give examples for each segment:

(76) Tyrolean one-member onsets (following Haller/Lanthaler 2004, and my fieldwork)

Consonant	Word-initial context	Word-medial context
p	yes	yes
b	no	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
ç	yes	yes
x	no	no
h	yes	yes
s	yes	yes
z	no	no
ʃ	yes	yes
pf	yes	yes
ts	yes	yes
ʧ	yes	yes
kx	yes	yes
m	yes	yes
n	yes	yes
l	yes	yes
ʀ	yes	yes
j	yes	no

(77) Tyrolean one-member word-initial onsets: examples (data from Haller/Lanthaler 2004, and my fieldwork)

Consonant	Example	Variety	German cognate	Gloss
p	[p]ëtt (Haller/Lanthaler 2004)	Passeier	[b]ett	'bed'
t	[t]ir	Deutschnofen	[t]ür	'door'
d	[d]ånkpoor (Haller/Lanthaler 2004)	Passeier	[d]ankbar	'grateful'
k	[k]offer	Meran	[k]offer	'suitcase'
g	[g]ean	Meran	[g]ehen	'go (inf.)'
f	[f]åst	Klausen	[f]ast	'almost'
v	[v]enn	Klausen	[v]enn	'if'
h	[h]ër	Meran	[h]ör	'listen (imp.)'
s	[s]ogn	Meran	[z]agen	'say (inf.)'
ʃ	[ʃ]on	Renon	[ʃ]on	'already'
pf	[pf]erd	Renon	[pf]erd	'horse'
ts	[ts]ugehfrau	Klausen	[ts]ugehfrau	'servant'
ʧ	[ʧ]elewenget[77]	Meran	---	
kx	[kx]op	Meran	gehabt	'have (p.p.)'
m	[m]ir	Meran	[m]ir	'me (dat.)'
n	[n]ach	Deutschnofen	[n]ach	'to'
l	[l]ehrer	Meran	[l]ehrer	'teacher'
ʀ	[ʀ]ein	Klausen	[ʀ]ein	'in'
j	[j]å	Meran	[j]a	'yes'

(78) Tyrolean one-member word-medial onsets: examples (following Haller/Lanthaler 2004, and my fieldwork)

Consonant	Example	Variety	German cognate	Gloss
p	dånk[p]oor (Haller/Lanthaler 2004)	Passeier	dank[b]ar	'thankful'
b	der[b]ocken	Meran	---	'pass (inf.)'
t	Beschäf[t]igung	Klausen	Beschäf[t]igung	'occupation'
d	belei[d]igend	Klausen	belei[d]igend	'offensive'
k	ver[k]aaft	Meran	ver[k]auft	'sell (3^{rd} sg.)'
g	zua[g]ipsen	Meran	zu[g]ipsen	'plaster cast (inf.)'
f	auf[f]üllen	Klausen	auf[f]üllen	'fill up (inf.)'
v	Ge[v]ålt	Meran	Ge[v]alt	'violence'
h	ge[h]esig	Meran	ge[h]ässig	'hateful'
s	zugip.[s]en	Klausen	zugip[s]en	'plaster cast (inf.)'
ʃ	fe[ʃ]tes	Deutschnofen	fe[s]tes	'fix (n.)'
pf	zu[pf]en	Klausen	zu[pf]en	'tug (inf.)'

[77] Example from B.A. (p.c.).

ts	zua[ts]ålen	Meran	zu[ts]alen	'pay extra (inf.)'
ʧ	ra[ʧ]en[78]	Meran	ra[ʧ]en	'gossip (inf.)'
kx	derbo[kx]en	Meran	---	'pass (inf.)'
m	i[m]er	Renon	i.[m]er	'always'
n	beschleu[n]igen	Meran	beschleu[n]igen	'speed up (inf.)'
l	ver[l]etzt	Klausen	ver[l]etzt	'injure (p.p.)'
ʀ	wå[ʁ]en	Meran	Wa[ʀ]en	'product (pl.)'

The Tyrolean simple onset inventory does not differ much from that of Standard German. As a matter of fact, we find both obstruents and sonorants. Among obstruents, plosives, fricatives, sibilants, and affricates can fill the onset position, and most voiceless segments exhibit a voiced equivalent. The only exception is [b], which (unlike Standard German) does not occur word-initially because of fortition [b] > [p], typical of Tyrolean varieties (see chapter 4). Generally, all segments fill both the word-initial and the word-medial context – as in Standard German, the latter position is often taken up by morphologically complex forms such as verbs containing prefixes. Plosives can be of any articulators: [LAB] [p, b], [COR] [t, d], and [DOR] [k, g]. All fricatives fill onsets. With respect to sibilants, Tyrolean does not exhibit [z] since it is neutralized to [s] (see chapter 4). As seen for Standard German, postalveolar [ʃ] occupies both positions. Tyrolean slightly differs from Standard German also with respect to the affricate inventory. As a matter of fact, dorsal [kx] is typically found in Tyrolean as the result of the Second High German Consonant Shift, which has affected South Bavarian varieties with respect to the change *k* > [kx], whereas Standard German does not display it (see chapter 4). We also find [LAB] [pf] and [COR] [ts, ʧ]. Sonorants are the same as in Standard German – and the only missing segment is glide [w].

6.3.2 TWO-MEMBER ONSETS

With respect to complex onsets, Tyrolean dialects generally conform to the SSG presented in section 1.2. Within two-member onset clusters, Tyrolean displays (as Standard German) the patterns obstruent+sonorant and obstruent+obstruent. Among the licit clusters, many pertain to words beginning with the prefixes *be-* and *ge-*, and it is in these cases that interesting sequences – which are not part of the Standard German cluster inventory – arise (see chapter 4). The former pattern is illustrated below. The pluses “+” stand for sequences which are also found in Standard German, whereas the black dots “●” stand for “new”

[78]Example from B.A. (p.c.).

combinations (which Standard German does not exhibit):

(79) Tyrolean two-member onset clusters I: obstruent+sonorant (following *Wenkerbögen*, Haller/Lanthaler 2004, Schatz 1955-1956, and my fieldwork)

C1 OBS	**C2 SON**			
	m	**n**	**l**	**/r/**
p			+	+
b				
t				+
d				+
k		+	+	+
g	+	+	+	+
f			+	+
v				
s				
ʃ	+	+	+	+
pf			+	+
ts	●	●		●
ʧ				
kx		●	●	●

Examples for each cluster are collected below:

(80) Tyrolean two-member onset clusters I: examples (data from Alber/Lanthaler 2005, Haller/Lanthaler 2004, Schatz 1955-1956, *Wenkerbögen*, and my fieldwork)

Obs+Son cluster	**Variety**	**German cognate**	**Gloss**
[pl]ind (Haller/Lanthaler 2004)	Passeier	[bl]ind	'blind'
fer[pl]iën (Haller/Lanthaler 2004)	Passeier	ver[bl]ühen	'wither (inf.)'
[pʀ]iaf	Meran	[bʀ]ief	'letter'
zua[pʀ]illn	Meran	zu[b]rüllen	'shout (inf.)'
[tʀ]aam (Haller/Lanthaler 2004)	Passeier	[tʀ]aum	'dream'
zu[tʀ]inglich	Meran	zu[dʀ]inglich	'intrusive'
[dʀ]au (Haller/Lanthaler 2004)	Passeier	darauf	'on'
zua[dʀ]uckn	Meran	zu[dʀ]ücken	'turn a blind eye (inf.)'
[kn]ëdl	Meran	[kn]ödel	'gnocco (typical dish)'
zuage[kn]öpft	Ritten	zuge[kn]öpft	'button up (p.p.)'
[kl]uan (Haller/Lanthaler 2004)	Passeier	[kl]ein	'small'

ver[kl]aan (Haller/Lanthaler 2004)	Passeier	---	'pour (inf.)'
[kʀ]iëg (Haller/Lanthaler 2004)	Passeier	[kʀ]ieg	'war'
zu[kʀ]ign	Deutschnofen	zubekommen	'receive (inf.)'
[gm]ocht	Meran	gemacht	'do (p.p.)'
[gn]umen (Alber/Lanthaler 2005)	Meran	genommen	'take (p.p.)'
o[gn]umen	Meran	abgenommen	'lose (esp. weight) (p.p.)'
[gl]aich (Haller/Lanthaler 2004)	Passeier	[gl]eich	'immediately'
durch[gl]ofn (*Wenkerbögen*)		durchgelaufen	'wear out (p.p.)'
[gʀ]oaß (Haller/Lanthaler 2004)	Passeier	[gʀ]oß	'big; tall'
der[gʀ]aifn (Haller/Lanthaler 2004)	Passeier	---	'grope for sth. (inf.)'
[fl]aisch	Ritten	[fl]eisch	'meat'
fer[fl]uacht (Haller/Lanthaler 2004)	Passeier	ver[fl]ucht	'damned (adj.)'
[fʀ]isch (Haller/Lanthaler 2004)	Passeier	[fʀ]isch	'fresh'
be[fʀ]uchtung	Klausen	be[fʀ]uchtung	'insemination'
[ʃm]ålz (Haller/Lanthaler 2004)	Passeier	[ʃm]alz	'lard'
be[ʃm]ieren	Klausen	be[ʃm]ieren	'smear (inf.)'
[ʃn]ea	Ritten	[ʃn]ee	'snow'
zua[ʃn]åln	Deutschnofen	zu[ʃn]allen	'fasten (up) (inf.)'
[ʃl]auch (Haller/Lanthaler 2004)	Passeier	[ʃl]au	'clever'
fer[ʃl]oofn (Haller/Lanthaler 2004)	Passeier	ver[ʃl]afen	'forget (inf.)'
[ʃʀ]ift (Haller/Lanthaler 2004)	Passeier	Hand[ʃʀ]ift	'handwriting'
be[ʃʀ]enken	Klausen	be[ʃʀ]enken	'restrict (inf.)'
[pfl]uag (Haller/Lanthaler 2004)	Passeier	[pfl]ug	'plough'
ver[pfl]ichten (Haller/Lanthaler 2004)	Passeier	ver.[pfl]ichten	'bind (inf.)'
[pfʀ]aumer (Haller/Lanthaler 2004)	Passeier	[pfl]aume	'plum'
zua[pfʀ]opfn (Haller/Lanthaler 2004)	Passeier	zu[pfʀ]opfen	'cork (inf.)'

[tsm]orgits (Haller/Lanthaler 2004)	Passeier	morgens	'in the morning'
[tsn]icht (Haller/Lanthaler 2004)	Passeier	zunichte	'mean'
[tsʀ]uck	Ritten	zurück	'back'
[kxn]echt (Haller/Lanthaler 2004)	Passeier	[kn]echt	'labourer'
der[kxn]aißn (Haller/Lanthaler 2004)	Passeier	---	'understand (inf.)'
[kxl]aibm (Haller/Lanthaler 2004)	Passeier	[kl]eie	'bran'
der[kxl]iëbm (Haller/Lanthaler 2004)	Passeier	---	'break up (inf.)'
[kxʀ]oaz (Haller/Lanthaler 2004)	Passeier	[kʀ]eis	'circle'
fer[kxʀ]äggn (Haller/Lanthaler 2004)	Passeier	---	'in a bad state (inf.)'

As in Standard German, in Tyrolean the pattern obstruent+sonorant displays the types obstruent+nasal and obstruent+liquid. Both types are found in word-initial as well as in word-medial context, although not all clusters take up both positions. When clustering with nasals, the only licit sequences exhibit C1 velar [k, g] [kn], [gm], [gn]. Recall the origin of [gm, gn] from historical schwa-syncope (see chapter 4). [km] was not found. All non-velar+nasal combinations ([LAB+LAB] [pm, bm], [COR+LAB] [tm, dm], [LAB+COR] [pn, bn], and [COR+COR] [tn, dn]) are banned. When followed by [l], Tyrolean allows for the same sequences found in Standard German ([LAB+COR] [pl], [DOR+COR] [kl, gl]) except for [LAB+COR] [bl], which turns into [pl] (see chapter 4). Homorganic [COR+COR] [tl, dl] are excluded as in Standard German. All plosives except [b] (which, again, changes to [p]) cluster with [ʀ] in Tyrolean: [pʀ], [tʀ], [dʀ], [kʀ], [gʀ].

The restriction on C2 nasal also operates on clusters displaying C1 fricative as in [LAB+LAB] [fm, vm], and [LAB+COR] [fn, vn]. When followed by [l], only [f] takes up C1: we have [LAB+COR] [fl], whereas [vl] was not found (see chapter 4 for discussion). Likewise, C2 [ʀ] is only preceded by [f] in [fʀ], whereas [vʀ] is not found in Tyrolean because of its historically non-emergence (but recall that Standard German does exhibit word-initial [vʀ], which is only occurs in a few words of Low German origin).

Among sibilants, only postalveolar [ʃ] is part of the Tyrolean inventory in onset clusters (see chapter 4 for diascussion), where it combines with nasals ([COR+LAB] [ʃm], [COR+COR] [ʃn]), with [l] ([COR+COR] [ʃl]), and with [ʀ] ([ʃʀ]), allowing for any articulators as C2, as in Standard German.

The most striking differences which Tyrolean displays emerge in the affricate inventory. Indeed, [COR] [ts] can be followed by any articulators, differently from Standard German: [COR+LAB] [tsm], [COR+COR] [tsn], and by [ʀ] ([tsʀ]), all resulting from *u*-deletion (see chapter 4). We did not found any examples exhibiting [COR+COR] [tsl]. [COR] [ʧ] does not cluster with any sonorants in Tyrolean: [COR+LAB] [ʧm], [COR+COR] [ʧn, ʧl], and [ʧʀ] were not found. [DOR] [kx] combines with all sonorants except for [LAB] [m], for which we did not find any examples. [DOR+COR] [kxn, kxl], and [kxʀ] fill both contexts and have arisen from Germanic *k*, whereas Standard German has not preserved it (see chapter 4). Finally, [LAB] [pf] does not cluster with any nasals in virtue of the restriction militating against non-velars C1, as in Standard German. [LAB+LAB] [pfm] and [LAB+COR] [pfn] are, therefore, excluded. The only licit sequences are [LAB+COR] [pfl] and the sequence [pfʀ], resembling Standard German.

The data just discussed reveal that, as in Standard German, C2 [ʀ] enjoys a certain 'freedom' in Tyrolean, being preceded by any class of obstruents (plosives, fricatives, sibilants, affricates) and by any articulators ([LAB], [COR], [DOR]). No limitation operates on [DOR+DOR] onset clusters when [ʀ] is involved. Indeed, [DOR] plosives [k, g] combine with /r/, which we assume (following Wiese 2003) to be a [DOR] segment. In light of this, [ʀ] is the only sonorant to provide an exception to the illicitness of homorganicity in onset clusters, behaving as in Standard German and allowing for [kʀ, gʀ] – and [kx] in the specific case of Tyrolean – as licit sequences, and suggesting the irrelevance of the place of articulation of C2 /r/ with respect to that of any C1 which precedes it.

Furthermore, homorganicity is not banned in [COR+COR] combinations if C1 is a sibilant: [ʃn, ʃl] are well-built onset clusters. The peculiarity of sibilants to combine with any sonorants has been shown in the discussion of the data. Differently from Standard German, this 'freedom' is also found in [COR+COR] [tsn] in Tyrolean. In this case, we believe that [COR+COR] is allowed because of /s/, which acts as a 'buffer' within a sequence which would otherwise be disallowed (as for [tn]).

The pattern obstruent+obstruent is illustrated below:

(81) Tyrolean two-member onset clusters II: obstruent+obstruent (following *Wenkerbögen*, Haller/Lanthaler 2004, Schatz 1955-1956, and my fieldwork)

C1 OBS	**C2 OBS**													
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
p									●	●				
b														
t														
d														
k							●	+	●	●				
g								●						
f														
v														
s														
ʃ	+		+					+						
pf														
ts								+						
ʧ														
kx														

The following table collects examples for each cluster:

(82) Tyrolean two-member onset clusters II: examples (data from *Wenkerbögen*, Haller/Lanthaler 2004, Schatz 1955-1956, and my fieldwork)

Obs+Obs cluster	**Variety**	**German cognate**	**Gloss**
[ps]onders	Meran	besonders	'particularly'
[pʃ]eid (Haller/Lanthaler 2004)	Passeier	Bescheid	'news'
[kf]alln	Ritten	Gefallen	'favour'
auf[kf]untn	Klausen	aufgefunden	'discover (p.p.)'
[kv]itt (Schatz 1955-1956)	---	---	'equal'
[ks]ell	Meran	Gesell	'mate'
[kʃ]enk	Deutschnofen	Geschenk	'present, gift'
aus[kʃ]auk	Klausen	---	'look (p.p.)'
[gv]esn (*Wenkerbögen*)		gewesen	'be (p.p.)'
[ʃp]aat (Haller/Lanthaler 2004)	Passeier	[ʃp]ät	'late'
fer[ʃp]iiln (Haller/Lanthaler 2004)	Passeier	ver[ʃp]ielen	'lose (inf.)'

[ʃt]ått (Haller/Lanthaler 2004)	Passeier	[ʃt]adt	'city'
fer[ʃt]auchn (Haller/Lanthaler 2004)	Passeier	ver[ʃt]auchen	'sprain (inf.)'
[ʃv]årz (Haller/Lanthaler 2004)	Passeier	[ʃv]arz	'black'
fer[ʃv]intn (Haller/Lanthaler 2004)	Passeier	ver[ʃv]inden	'disappear (inf.)'
[tsv]iifl (Haller/Lanthaler 2004)	Passeier	[tsv]iebel	'onion'
be[tsv]aifle	Klausen	be[tsv]eifle	'doubt (1st sg.)'

In Tyrolean, the pattern obstruent+obstruent does not totally resemble that of Standard German. On the one hand, C1 is filled by postalveolar [ʃ], which combines with labial [p] and coronal [t], forming the sequences [ʃp], [ʃt], respectively; whereas [ʃk] does not emerge from our fieldwork nor from the consulted sources. Recall that this sequence is quite rare in Standard German, and it is only found in place names or last names. As in Standard German, [ʃ] is also followed by [LAB] fricative [v] ([ʃv]). Again, Wiese's (1996) claim about an underlying /ʊ/ is assumed in this case. It follows that clusters containing [v] will not be considered when determining sonority distance values. C1 can also be [COR] affricate [ts], which only clusters with [v] ([tsv]) – the underlying /ʊ/. On the other hand, Tyrolean exhibits a wide inventory of sequences whose C1 is taken up by a plosive. [LAB] [p] only clusters with sibilants [s, ʃ] (forming *[ps]*, *[pʃ]*, respectively), whereas [DOR] [k, g] are followed by fricatives [f, v] ([DOR+LAB] [kf, kv, gv]) or by sibilants [s, ʃ] ([DOR+COR] [ks, kʃ], respectively). The combinations plosive+fricative/sibilant have arisen through historical vowel syncope affecting schwa in verb prefixes *be-*, *ge-* (but also in nouns, adjectives, and adverbs beginning with *ge-*; see chapter 4), and C1 assimilates to C2 with respect to the feature [voice]. In virtue of this historical process, we exclude all the other theoretically possible combinations.

The pattern just presented reveals that Tyrolean is more permissive than Standard German with respect to the allowed onset clusters. Indeed, we not only find postalveolar [ʃ] (which will be treated as extrasyllabic due to the violation of the SSG) or [COR] [ts] to fill C1, but it also allows for labial and velar plosives in this position. Furthermore, C2 is not only taken up by plosives or fricatives. Sibilants can be found as C2, whereas this is not the case of Standard German. The resulting “new” combinations of the type plosive+fricative/sibilant lead to a more articulated representation of the sonority scale which was given for Standard German, assuming that fricatives are more sonorous than plosives (see Alber/Lanthaler 2005 for this proposal of a refinement of the sonority scale). According to this hierarchy, onset clusters of the type plosive+fricative turn out to be licit in Tyrolean and do not violate the SSG:

(83) Sonority scale for Tyrolean (see Alber/Lanthaler 2005: 77)

|----------|----------|----------|----------|----------|----------|---- >

Plos **Fric** Nas l ʀ high V V

Finally, Tyrolean does not exhibit any clusters of the pattern sonorant+sonorant, resembling Standard German in this respect.

The discussion that has been provided so far enables us to present the sonority distance values for Tyrolean dialects, excluding from the calculation all clusters containing a sibilant as well as those containing [v]:

(84) Sonority distances for Tyrolean two-member onset clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pʀ, tʀ, kʀ]	/r/ (11) – vcless plos (1)= 10	[fl]	lat (9) – vcless fric (3)= 6
[pfʀ, kxʀ]	/r/ (11) – vcless affr (2)= 9	[kn]	nas (7) – vcless plos (1)= 6
[fʀ]	/r/ (11) – vcless fric (3)= 8	[gl]	lat (9) – voiced plos (4)= 5
[pl, kl]	lat (9) – vcless plos (1)= 8	[kxn]	nas (7) – vcless affr (2)= 5
[dʀ, gʀ]	/r/ (11) – voiced plos (4)= 7	[gm, gn]	nas (7) – voiced plos (4)= 3
[pfl, kxl]	lat (9) – vcless affr (2)= 7	[kf]	vcless fric (3) – vcless plos (1)= 2

The data above show that Tyrolean shares most of the clusters with Standard German, and also high sonority distance values. Indeed, SD= 10 is found in clusters formed by a voiceless plosive and [ʀ] ([pʀ], [tʀ], [kʀ]), whereas SD= 9 characterizes the sequences whose C1 is an affricate ([pfʀ], [kxʀ]). Among these, dorsal [kx] is not part of the Standard German inventory. SD= 8 occurs when C2 is [l, ʀ] ([fʀ], [pl], [kl]). [dʀ], [gʀ] exhibit SD=7, and so do [pfl], [kxl]. Of these, Standard German does not have [kxl]. SD= 6 is found in [fl], but also in clusters whose C2 is nasal [n] ([kn]). [gl] (SD= 5) is part both of the Tyrolean and of the Standard German onset cluster inventory, whereas [kxn] (SD= 5) only emerges in Tyrolean. As we have shown, affricates enjoy a certain 'freedom' in combining with other consonants in Tyrolean. On the contrary, Standard German only displays the affricate [pf]. [gm, gn] (SD= 3) are well-built combinations in Tyrolean, whereas we only find [gn] in Standard German. Finally, Tyrolean exhibits [kf], a sequence formed by a plosive and a fricative which has SD= 2. This is not tolerated in Standard German, whose lowest SD amounts to 3 intervals ([gn]).

The emerging picture reveals that Tyrolean, as Standard German, exhibits a gap between SD= 5 and SD= 3. Onset cluster of SD= 4 would be found, for instance, in [fn] (nasal (7) – voiceless fricative (3)= 4), which is banned in virtue of the restriction on obstruent+nasal clusters. Furthermore, among the sequences with SD= 5, we do not find the cluster [vʀ] in Tyrolean (which, as previously shown, does occur in Standard German in a few words deriving from Low German). Tyrolean is more permissive than Standard German since it allows for lower sonority distances. However, not all clusters which exhibit SD= 2 emerge in these dialects. For instance, we do not find any onset clusters such as [ml], which would also have SD= 2 (lateral (9) – nasal (7)= 2). The fact that [ml] is not found in Tyrolean may be explained by taking into account the way clusters have historically arisen. Sequences such as [ps] or [kf], which are part of the Tyrolean inventory, have historically originated through schwa-syncope, which triggers schwa-deletion within the word (see Schirmunski [1962] 2010: 214-217; 399 for discussion). In light of this, therefore, clusters of the type [k] or [g] followed by a fricative (mostly) arise in the formation of past participles. Here, the past participle prefix corresponding to Standard German *[gə]-* has undergone schwa-deletion and therefore can combine with the initial consonant of the root. Compare Standard German *[gə'fa:ʀən]* with Tyrolean *[kfo:ʀn]* 'go (p.p.)' (cf. Alber/Meneguzzo 2016: 34). However, obstruent+obstruent clusters do not only arise in morphologically complex forms, but also in forms “which have completely lost their morphological transparency” (Alber&Meneguzzo 2016: 34) such as in words like *[psundɐs]* (Standard German *[bə]sonders*) 'particular' or *[pʃaɪt]* (Standard German *[bə]scheid*) 'news'. Furthermore, not all obstruent+obstruent combinations are allowed in Tyrolean. For instance, if a cluster such as [tf] perfectly conforms to Parker's sonority scale and respects the threshold (voiceless fricative (3) – voiceless plosive (1)= 2), it was not found. At this point, it is clear that Parker's (2011) proposal for a sonority scale must be integrated with restrictions concerning place of articulation (in the case of [tf], a constraint banning [COR+LAB] sequences must operate).

6.3.3 ADDITIONAL ONSET CLUSTERS

Tyrolean three-member onset clusters are of the patterns obstruent+obstruent+sonorant and obstruent+obstruent+obstruent. Both patterns agree in the fact that the resulting inventories are the outcome of historical processes involving words (verbs, nouns, adjectives) whose first syllable is *be-* or *ge-*. In virtue of this, all segments which have not been affected by the formation of these clusters have not been included in the tables. The former pattern is presented in the following chart:

(85) Tyrolean three-member onset clusters I: examples (data from my fieldwork)

Obs+Obs+Son cluster	**Variety**	**German cognate**	**Gloss**
[pʃl]agen	Deutschnofen	[bə.ʃl]agen	'very knowledgeable about sth.'
[kfl]ogn	Meran	[gə.fl]ogen	'fly (p.p.)'
[kfʀ]ett	Kausen	[gə.fʀ]ett	'trouble'
[kʃm]ock	Ritten	[gə.ʃm]ack	'taste'
[kʃn]otter	Klausen	[gə.ʃn]atter	'chattering'
[kʃl]ofn	Deutschnofen	[gə.ʃl]afen	'sleep (p.p.)'
[kʃʀ]ei	Ritten	[gə.ʃʀ]ei	'shouting'

Tyrolean three-member obstruent+obstruent+sonorant onset clusters are quite limited in range and exhibit a specific structure. Indeed, C1 is always filled by a plosive – [LAB] [p] or [DOR] [k] – which assimilates to C2 with respect to the feature [voice] after schwa-deletion. As a matter of fact, the emerging sequences are the outcome of historical schwa-syncope targeting the prefixes *be-* and *ge-*, as shown in two-member onset clusters. In light of this, we exclude all other clusters by historical reasons since, in word-initial context, no other prefix/segment has been affected by schwa-deletion. C2 is always taken up by a fricative – [LAB] [f] or [COR] [ʃ] –, whereas C3 can be any sonorants. The resulting clusters ([pʃl], [kfl], [kfʀ], [kʃm], [kʃn], [kʃl], [kʃʀ]) occur in word-initial context. Apart from the way in which these combinations have arisen, the most striking difference which Tyrolean exhibits with respect to Standard German three-member onset clusters lies in the position of the sibilant. Indeed, this segment always fills C2 in Tyrolean, whereas it always occurs as C1 in Standard German. Nevertheless, the particular position which [ʃ] occupies within Tyrolean clusters leads us to consider it a 'special' segment (although it does not threatens rising sonority within the clusters).

The pattern obstruent+obstruent+obstruent is illustrated below:

(86) Tyrolean three-member onset clusters II: examples (data from my fieldwork)

Obs+Obs+Obs cluster	**Variety**	**German cognate**	**Gloss**
[pʃt]ellen	Ritten	bestellen	'reserve (inf.)'
[kʃp]ött	Deutschnofen	Gespött	'mockery'
[kʃt]ellt	Klausen	gestellt	'ask (p.p.)'
[kʃk]upft	Deutschnofen	---	'jump (p.p.)'
[kʃv]ind	Meran	geschwind	'quickly'

Tyrolean three-member obstruent+obstruent+obstruent onset clusters exhibit a limited inventory and a specific structure. As in obstruent+obstruent+sonorant sequences, C1 is always taken up by a plosive – [LAB] [p] or [DOR] [k] – which assimilates to C2 with respect to the feature [voice] after schwa-syncope targeting the prefixes *be-* and *ge-* (as seen in two-member onset clusters). It follows that all other clusters displaying any other C1 are ruled out for historical reasons since, in word-initial context, no other prefix/segment has been affected by schwa-deletion. Differently from the pattern obstruent+obstruent+sonorant, C2 is always filled by [COR] [ʃ] –, whereas C3 can be any voiceless plosive ([LAB] [p], [COR] [t], [DOR] [k]) or [LAB] [v] (underlying /ʊ/), forming [pʃt], [kʃp], [kʃt], [kʃk], [kʃv]. Again, the most relevant difference which Tyrolean exhibits with respect to Standard German three-member onset clusters lies in the position of [ʃ]. As in the former pattern, the sibilant always takes up C2 in Tyrolean, whereas it is always found as C1 in Standard German. Nevertheless, the particular position which [ʃ] fills within the onset clusters presented above speaks in favour of considering it a 'special' segment, which seems to act as a 'buffer' between C1 and C3, which otherwise would build sonority *plateaux* ([pt, kp, kt, kk]).

The following table illustrates the inventory of four-member onset clusters:

(87) Tyrolean four-member onset clusters: examples (data from my fieldwork)

Obs+Obs+Obs+Son cluster	**Variety**	**German cognate**	**Gloss**
[kʃpʀ]ungen	Ritten	gesprungen	'jump (p.p.)'
[kʃtʀ]üpp	Klausen	Gestrüpp	'brushwood'

Tyrolean four-member onset clusters only exhibit the pattern obstruent+obstruent+obstruent+sonorant. As three-member sequences, the inventory is quite restricted. The structure is fixed: C1 is always taken up [DOR] plosive [k] – which shares voicelessness with C2 [COR] [ʃ] after schwa-syncope. Again, the emerging clusters are the result of historical schwa-deletion targeting the prefix *ge-*. As a matter of fact, our informants realize words beginning the prefix *be-* by preserving [ə], as in Standard German (*b[ə]sprechung* 'discussion', *b[ə]strafen* 'punish (inf.)', *b[ə]streuen* 'dredge (inf.)', *b[ə]streichen* 'spread with (inf.)'). All other clusters are excluded for historical reasons. C3 is always filled by a plosive – [LAB] [p] or [DOR] [k] –, whereas C4 is only taken up by [ʀ] ([kʃpʀ], [kʃtʀ]). As in three-member onset clusters, the sibilant always fills C2 in the data presented above, whereas Standard German does not exhibit any four-member onset clusters. In addition, the particular context occupied by [ʃ] within the data above makes it a 'buffer' between C1 and C3, which would otherwise build sonority *plateaux* ([kp, kt]).

The next section is devoted to Mòcheno, a linguistic island which partly exhibits onset clusters which emerge in Tyrolean, but it also displays its own peculiarities.

6.4 MòCHENO (PALAI)

The Mòcheno variety of Palù/Palai allows from one to three segments to fill the onset position, as presented in the following sections, in which examples for both the word-initial and the word-internal context will be provided.

6.4.1 ONE-MEMBER ONSETS

The following tables illustrate simple onsets:

(88) Mòcheno one-member onsets (following Rowley 1986, *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

Consonant	Word-initial context	Word-medial context
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
ç	no	no
x	no	yes
h	yes	yes

s	no	yes
z	yes	yes
ź	no	yes
ʃ	yes	yes
pf	yes	yes
ts	yes	yes
ʧ	yes	no
kx	yes	yes
m	yes	yes
n	yes	yes
l	yes	yes
r	yes	yes
j	no	no
w	no	no

Examples for each segment are collected below:

(89) Mòcheno one-member word-initial onsets: examples (data from Rowley 1986, *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

Consonant	Example	German cognate	Italian cognate	Gloss
p	[p]auch (*bersntol.it*)	[b]auch	---	'stomach'
b	[b]olf (Rowley 1986)	[v]olf (*bersntol.it*)	---	'wolf'
t	[t]aitsche (Rowley 1986)	[d]eutsch	---	'German'
d	[d]ing (*'s kloa be.be* 2009)	[d]ing	---	'thing'
k	[k]olt (Rowley 1986)	[k]alt	---	'cold'
g	[g]abinner	[g]ewinner	---	'winner'
f	[f]ettn (Rowley 1986)	[f]ett	---	'oil'
v	[v]elt (*bersntol.it*)	[f]eld	---	'field'
h	[h]uast (*bersntol.it*)	[h]usten	---	'cough'
z	[z]auber (*bersntol.it*)	[z]auber	---	'clean'
ʃ	[ʃ]ai	---	---	'ghost'
pf	[pf]ån (Rowley 1986)	[pf]anne	---	'pan'
ts	[ts]au (*bersntol.it*)	[ts]aun	---	'fence'
ʧ	[ʧ]erl	---	---	'decision'
kx	[kx]as (*bersntol.it*)	[k]äse	---	'cheese'
m	[m]ehr (Rowley 1986)	[m]ehr	---	'more'
n	[n]aide (*bersntol.it*)	[n]eidisch	---	'envious'
l	[l]ait	[l]eute	---	'people'
r	[r]aif (*bersntol.it*)	[ʀ]eif	---	'ripe'

(90) Mòcheno one-member word-medial onsets: examples (data from Rowley 1986, *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

Consonant	**Example**	**German cognate**	**Italian cognate**	**Gloss**
p	au[p]asen (*bersntol.it*)	auf[p]assen	---	'take care (inf.)'
b	or[b]et (*bersntol.it*)	Ar.b]eit	---	'work'
t	bin[t]er (*bersntol.it*)	Win[t]er	---	'winter'
d	ga[d]onk	Ge[d]anke	---	'thought'
k	dru[k]en (Rowley 1986)	drü[k]en	---	'pull (inf.)'
g	gai[g]er (*'s kloa be.be* 2009)	---	---	'musician'
f	kla[f]en (Rowley 1986)	kla[f]en	---	'yelp (inf.)'
v	rai[v]en (Rowley 1986)	rei[f]en	---	'ripe (inf.)'
x	gara[x]ata (Rowley 1986)	geräu[ç]erte	---	'smoke (p.p.)'
h	der[h]ungern (Rowley 1986)	ver[h]ungern	---	'starve (inf.)'
s	bo[s]er (*bersntol.it*)	Wa[s]er	---	'water'
z	gria[z]n (Rowley 1986)	grü[s]en	---	'say hello (inf.)'
ź	ho[ź]n (Rowley 1986)	Ha[z]en	---	'rabbit (pl.)'
ʃ	gamoa[ʃ]aft	Gemein[ʃ]aft	---	'community'
pf	schnu[pf]tabak (*bersntol.it*)	Schnu[pf]tabak	---	'snuff'
ts	hol[ts]en (*bersntol.it*)		---	'wooden'
kx	inste[kx]en (*bersntol.it*)	einste[k]en	---	'stick in (inf.)'
m	ha[m]er (*bersntol.it*)	Ha[m]er	---	'hammer'
n	ais[n]en (*bersntol.it*)	eisern	---	'iron (adj.)'
l	der[l]am	er[l]auben	---	'authorize'
r	ga[r]icht (*bersntol.it*)	Ge[ʀ]icht	---	'court'

On the one hand, the Mòcheno simple onset inventory partly resembles that of Standard German and Tyrolean. On the other hand, it exhibits its own peculiarities. Both obstruents (plosives, fricatives, sibilants, and affricates) and sonorants can fill the onset position – most of them both word-initially and word-internally. Most voiceless segments exhibit a voiced equivalent. Plosives can exhibit any articulators: [LAB] [p, b], [COR] [t, d], and [DOR] [k, g]. With respect to fricatives, both [f, v] take up both contexts, often as the outcome of lenition (the *Althochdeutsche Spirantenschwächung* presented in chapter 4). Velar [x] only fills the word-medial context, whereas [h] takes up both. Mòcheno displays quite a complex sibilant inventory. As in Standard German, pre-vocalic /s/ is realized as voiced [z]. It is also found word-internally when following heavy syllables (see chapter 4). Voiceless [s] is found word-medially after light syllables as in Standard German, whereas it never occurs word-initially. In word-medial context after long vowels or diphtongs, Mòcheno realizes retroflex

[ź], unlike Standard German. Finally, we find postalveolar [ʃ], as in Standard German. Mòcheno partly resembles Standard German and partly Tyrolean with respect to the affricate inventory. Indeed, it exhibits [LAB] [pf], [COR] [ts, ʧ] as Standard German and Tyrolean; and [DOR] [kx], also peculiar of Tyrolean. Finally, the inventory of sonorants conforms to that of Standard German (the only difference lying in the apical realization of /r/; see chapter 4).
The picture is now complete in order to present complex onsets.

6.4.2 TWO-MEMBER ONSETS

As Standard German and Tyrolean, the cluster inventory of Mòcheno two-member onsets allows for the patterns obstruent+sonorant and obstruent+obstruent, and generally displays the licit combinations found in Standard German and Tyrolean. However, Mòcheno also exhibits relevant differences (see chapter 4 for discussion). The pattern obstruent+sonorant is illustrated below. The pluses "+" stand for onset clusters which are also found in Standard German. The black squares "▪" stand for sequences which are peculiar of the Mòcheno inventory:

(91) Mòcheno two-member onset clusters I: obstruent+sonorant (following Rowley 1986, *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

C1 OBS	**C2 SON**			
	m	**n**	**l**	**r**
p			+	+
b				+
t				+
d				+
k			+	+
g			+	+
f				
v			■	■
x				
s				
ʃ	+	+	+	+
pf			+	+
ts		+		
ʧ	■	■	■	■
kx		+	+	+

Below are examples for each cluster:

(92) Mòcheno two-member onset clusters I: examples (data from Rowley 1986, *s kloa' be.be* 2009, *www.bersntol.it* and my fieldwork)

Obs+Son cluster	**German cognate**	**Gloss**
[pl]ick (*bersntol.it*)	[bl]ick	'look'
heart[pl]ott (*bersntol.it*)	Herd[pl]atte	'hot plate'
[pr]oat (*bersntol.it*)	[bʀ]ot	'bread'
zomm[pr]echen (*bersntol.it*)	zer[bʀ]echen	'crumble (inf.)'
[br]af (*bersntol.it*)	[bʀ]av	'good'
kascham[br]a (*bersntol.it*)	---	'bucket'
[tr]eff (*bersntol.it*)	[tʀ]effen	'meeting'
be[tr]ef	Be[tʀ]eff	'matter'
[dr]aisk (*'s kloa be.be* 2009)	[dʀ]eißig	'thirty'
aus[dr]ucken (*bersntol.it*)	aus[dʀ]ücken	'crush (inf.)'
[kl]offen	[kl]affen	'discuss (inf.)'
[kr]ien	[kʀ]iegen	'get (inf.)'
[gl]aim	---	'close'
un[gl]ick (*bersntol.it*)	Un[gl]ück	'bad luck'
[gr]unt (*bersntol.it*)	[gʀ]und	'field'
pa[gr]on	be[gʀ]aben	'bury (inf.)'
[vl]aig	[fl]iege	'fly'
knou[vl]a (*'s kloa be.be* 2009)	Kno[bl]auch	'garlic'
[vr]ia	[fʀ]ühe	'morning'
kor[vr]aita	Kar[fʀ]eitag	'Good Friday'
[sm]och	---	'smell'
[ʃm]ecken (*bersntol.it*)	[ʃm]ecken	'inhale (inf.)'
[ʃn]aider (*bersntol.it*)	[ʃn]eider	'tailor'

aus[ʃn]ain (*bersntol.it*)	aus[ʃn]eiden	'cut out (inf.)'
[ʃl]aifmaschi' (*bersntol.it*)	[ʃl]eifmaschine	'grinding machine'
ent[ʃl]oven (*bersntol.it*)	ent[ʃl]afen	'dazed (adj.)'
[ʃr]ick (*bersntol.it*)	[ʃʀ]eck	'fear, scare'
hei[ʃr]eck (*bersntol.it*)	Heu[ʃʀ]ecke	'grasshopper'
[pfl]oster (*'s kloa be.be* 2009)	[pfl]aster	'plaster'
pfrus[pfl]eck (*bersntol.it*)	---	'null'
[pfr]as (*bersntol.it*)	---	'trash'
[ʦn]icht (*'s kloa be.be* 2009)	[ts]unichte	'mean'
[ʧm]òch (*bersntol.it*)	Ge[ʃm]ack	'smell'
[ʧn]itn (Rowley 1986)	ge[ʃn]itten	'cut (p.p.)'
[ʧl]echt (*bersntol.it*)	[ʃl]echt	'bad'
[ʧr]ouvert (*bersntol.it*)	---	'not slippery'
[kxn]echt (*bersntol.it*)	[kn]echt	'boy'
ver[kxn]ifen (*bersntol.it*)	ver[kn]üpfen	'twist (inf.)'
[kxl]uag (*bersntol.it*)	---	'thin'
[kxr]aut (*bersntol.it*)	[kʀ]aut	'herb'
johannes[kxr]aut	Johannis[kʀ]aut	'kind of herb'

As in Standard German and in Tyrolean, the pattern obstruent+sonorant in Mòcheno exhibits the types obstruent+nasal and obstruent+liquid, which are generally found in word-initial as well as in word-medial context, although not all clusters are present. Plosives do not combine with nasals. In virtue of this, a restriction operates on banning [LAB] [p, b], [COR] [t, d], and – differently from Standard German (and Tyrolean) – [DOR] [k, g] when followed by [m, n]. When clustering with liquids, [LAB+COR] [pl, pr] emerge, whereas [b] is only followed by [r] in [br]. Word-initial [bl] is absent since it always turns into [pl] (see chapter 4). [COR] plosives [t, d] display the same inventory as Standard German and Tyrolean. Homorganic [COR+COR] [tl, dl] are illicit, but [COR+COR] [tr, dr] are not.

[DOR] plosives [k, g] are followed by liquids and [r], forming [kl], [kr], [gl], [gr], respectively. When fricatives fill C1, a restriction prohibiting their clustering with nasals excludes [LAB+LAB] [fm, vm], and [LAB+COR] [fn, vn]. Striking differences are found in the type fricative+liquid. Unlike Standard German, [LAB+COR] [fl, fr] do not occur in Mòcheno in virtue of historical lenition [f] > [v] (forming [vl], [vr]). With respect to sibilants, the restriction on C2 nasal does not apply – as in Standard German and Tyrolean. Indeed, postalveolar [ʃ] combines with both labial [m] and coronal [n], forming [ʃm], [ʃn], respectively. It also clusters with [l] and [r] (forming [ʃl], [ʃr], respectively; see also Rowley 1986: 127-141 for in-depth discussion of /s/).

Finally, affricates are followed by nasals and liquids, although not all segments fill C1. [LAB] [pf] does not combine with [m, n] in virtue of the restriction on obstruent+nasal sequences, but it clusters with [l, r], as in Standard German (forming [pfl], [pfr], respectively). [COR] [ts] is not followed by labial [m] nor by [l, r] (which leads to explain their non-emergence as the result of vowel preservation in the prefix *zu-* – cf. Tyrolean *[tsm]orgits* and *[ʦʀ]uck*, respectively), but it combines with coronal [n] (as the result of vowel-syncope: [tsn]). [COR] [ʧ] exhibits the complete inventory, clustering with nasals (forming [COR+LAB] [ʧm] and [COR+COR] [ʧn]), with [l] ([COR+COR] [ʧl]), and with [r] ([ʧr]), differently from Standard German and Tyrolean (recall past participle formation in Mòcheno for the emergence of these clusters; see chapter 4). The licitness of these clusters may lie in the role played by the sibilant, which acts as a "buffer" within sequences which, otherwise, would be ill-formed (*[tm, tn, tl]). Differently from Standard German and similarly to Tyrolean, [DOR] [kx] occupies C1 in Mòcheno, and it clusters with [n] (forming [DOR+COR] [kxn]), [l] [DOR+COR] [kxl]), and with [r] ([kxr]). The sequences [kxm] was not found.

The data just discussed reveal that C2 [r] is freely preceded by any obstruents (plosives, fricatives, sibilants, affricates) and by any articulators ([LAB], [COR], [DOR]), providing an exception with respect to the other C2. In addition, homorganicity in [COR+COR] onset clusters is not disallowed when sibilants are involved. Indeed, /s/ fills C1 in [COR+COR] [ʃn, ʃl], and acts as a 'buffer' within sequences of two coronals which would be ill-formed if /s/ would not be present: (compare [tsn, ʧn, ʧl] vs. *[tn, tl]). Being sibilants so peculiar, we suggest not to consider them when determining the various sonority distances. Furthermore, sibilants are 'special' since they are the only segments (apart from [kx]) which combine with nasals, proving that the restriction on C2 nasal does not apply to them.

The pattern obstruent+obstruent is illustrated below:

(93) Mòcheno two-member onset clusters II: obstruent+obstruent (following Rowley 1986, *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**ʃ**	**pf**	**ts**	**ʧ**	**ʤ**	**kx**
p															
b															
t															
d															
k															
g															
f															
v															
ś	■		■		■										
ʃ		■						+							
pf															
ts		■													
ʧ		■	■												
kx															

Examples for each cluster are collected in the following chart:

(94) Mòcheno two-member onset clusters II: examples (data from Rowley 1986, *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

Obs+Obs cluster	**German cognate**	**Gloss**
[śp]ert (*bersntol.it*)	ge[ʃp]errt	'shut (p.p.)'
aus[śp]errn (*bersntol.it*)	aus[ʃp]erren	'lock out (inf.)'
[śt]ikl (*bersntol.it*)	[ʃt]ück	'slice'
hennen[śt]ol (*bersntol.it*)	Hühner[ʃt]all	'hen house'
[śk]alzn (*bersntol.it*)	---	'kick out (inf.)'
schnupf[śk]attl (*bersntol.it*)	---	'little box'
[ʃb]ain	[ʃv]ein	'pig'
[ʃv]och	[ʃv]ach	'weak'
[tsb]oa	[tsv]ei	'two'
[ʧb]eir	Schwur	'swear (n.)'

au[ʧb]elng (*bersntol.it*)	auf[ʃv]ellen	'swell (inf.)'
[ʧt]oazn (Rowley 1986)	ge[ʃt]oßen	'kick (p.p.)'
au[ʧt]anen (Rowley 1986)	aufge[ʃt]anden	'get up (p.p.)'

The pattern obstruent+obstruent is quite limited in Mòcheno. Some combinations are not part of either of the varieties investigated so far, and have arisen through historical processes. In Mòcheno, C1 is always a sibilant or an affricate containing a sibilant, and C2 is always a plosive or a fricative. This excludes all combinations of the type plosive+fricative/sibilant as those emerging in Tyrolean and all other theoretically possible sequences. In the licit clusters, Mòcheno displays C1 [ʃ] (as Standard German), and also C1 [ś]. The resulting combinations are [COR+LAB] [śp, ʃb, ʃv, tsb, ʧb], [COR+COR] [śt, ʧt]), and [COR+DOR] [śk], where [ʧt] especially emerges in past participle formation before a morpheme boundary when the prefix *ge-* is involved (see chapter 4).
The picture is now complete in order to draw some general conclusions about obstruent+obstruent onset clusters. Mòcheno resembles Standard German since it requires C1 to be filled by a sibilant or by an affricate containing a sibilant. However, the segments do not totally conform to those found in Standard German obstruent+obstruent combinations. /s/ is realized in different ways, and [ʧ] does not occur as C1 in Standard German. Unlike Tyrolean, plosives do not occupy C1. C2 is taken up by plosives (including [b], which Standard German does not display as C2) or by fricatives, but sibilants do not occur in this position. In virute of the absence of plosive+fricative sequences, the sonority scale for Mòcheno will be the same as that for Standard German. As for obstruent+sonorant onset clusters, the sibilant contained in the affricate acts as a “buffer” within the sequence, preventing it from being ill-formed (*[tb, tt], respectively). This (and the violation of the SSG and of Parker's sonority hierarchy incurred by /s/) is why we will consider sibilants and any sequences containing them as extrasyllabic – therefore, we will not take them into account when determining the various sonority distances.
Finally, we do not find any onset clusters of the pattern sonorant+sonorant in Mòcheno (as in Standard German and Tyrolean), which explains the fact that C1 must always be filled by an obstruent.
At this point of the discussion, sonority distance values can be presented. As we did for Standard German and Tyrolean, clusters containing C2 [v] are ruled out as well:

(95) Sonority distances for Mòcheno two-member onset clusters

Cluster	Sonority Distance	Cluster	Sonority Distance
[pr, tr, kr]	/r/ (11) – vcless plos (1)= 10	[vr]	/r/ (11) – voiced fric (6)= 5
[pfr, kxr]	/r/ (11) – vcless affr (2)= 9	[gl]	lat (9) – voiced plos (4)= 5
[pl, kl]	lat (9) – vcless plos (1)= 8	[kxn]	nas (7) – vcless affr (2)= 5
[br, dr, gr]	/r/ (11) – voiced plos (4)= 7	[vl]	lat (9) – voiced fric (6)= 3
[pfl, kxl]	lat (9) – vcless affr (2)= 7		

In Mòcheno, the highest SD value (SD= 10) emerges from sequences whose C2 is [r] ([pr, t, kr]), as in Standard German and Tyrolean. SD= 9 characterizes clusters formed by an affricate and /r/ (where only [pfr] is found in Standard German). Plosive+liquid combinations ([pl, kl]) display SD= 8, and are shared with both the other examined Germanic varieties. The same is true for sequences of SD= 7 (except for [br] in Tyrolean and [kxl] in Standard German). [gl] (SD= 5) is part both of the Tyrolean and of the Standard German onset cluster inventory, whereas [kxn] (SD= 5) is only shared with Tyrolean. [vr] (SD= 5) is only found in Mòcheno instead. Three intervals occur in Mòcheno in [vl], a sequence which does not pertain either to Standard German nor to Tyrolean (see chapter 4). The Mòcheno inventory lacks SD= 6, a value which would result from clusters such as [kn] (nasal (7) – voiceless fricative (1)= 6). We explain the absence of this sequence in virtue of *k*-africation (see chapter 4). A further gap is found with respect to SD= 4, the absence of which may be due to the restriction on obstruent+nasal clusters such as [fn]. Although SD= 3 does occur in Mòcheno onset clusters, it does not display [gn] (SD= 3), which is frequently found both in Standard German and in Tyrolean instead. Historical reasons explain the absence of onset clusters with SD= 2. Indeed, Mòcheno does not exhibit any sequences such as plosive+fricative [kf], which abounds in Tyrolean as the outcome of historical schwa-syncope.

In sum, Mòcheno turns out to as permissive as Standard German since it allows for SD= 3 as the minimum threshold for its sequences to be licit, but less tolerant than Tyrolean because Mòcheno lacks clusters of SD= 2.

6.4.3 THREE-MEMBER ONSET CLUSTERS

Mòcheno three-member onset clusters are exclusively of the pattern obstruent+obstruent+sonorant, as illustrated in the examples below:

(96) Mòcheno three-member onset clusters: examples (data from Rowley 1986, *bersntol.it*, and my fieldwork)

Obs+Obs+Son cluster	**German cognate**	**Italian cognate**	**Gloss**
[śpr]och (Rowley 1986)	[ʃpʀ]ache	---	'language'
[śtr]ait	[ʃtʀ]eit	---	'quarrel'
[śkl]opp (*bersntol.it*)	---	[skj]oppo	'thunder'
[ʧpr]ungen (Rowley 1986)	gesprungen	---	'jump (p.p.)'
[ʧtr]itn	gestritten	---	'quarrel (p.p.)'

Mòcheno displays a limited range of three-member onset clusters, whose structure exhibits some differences if compared to Standard German and Tyrolean. As in Standard German, C1 is always filled by a sibilant, but it can also be occupied by an affricate containing a sibilant – [COR] [ʧ], which lacks both in Standard German and Tyrolean. C2 is filled by any plosives ([LAB] [p], [COR] [t], or [DOR] [k]), whereas both sibilants and fricatives are absent. As Standard German and Tyrolean, C3 is taken up by /r/ or [l], but (unlike Tyrolean) C3 nasals are illicit. The allowed clusters ([śpr], [śtr], [śkl], [ʧpr], [ʧtr]) occur in word-initial context. Apart from the way in which these sequences have arisen, the most relevant difference which characterizes Mòcheno three-member onset clusters with respect to Tyrolean lies in the position of the sibilant, which conforms to the Standard German model (C1), in virtue of which sibilants violate the SSG and have to be considered as extrasyllabic segments.

We will now move on to Lusérn Cimbrian, proceeding in the same fashion as for the other investigated varieties.

6.5 CIMBRIAN (LUSÉRN/LUSERNA)

Lusérn Cimbrian allows from one to three segments to fill the onset position. On the one hand, its onset inventory shares characteristics of Standard German, Tyrolean, and Mòcheno. On the other hand, it displays its own peculiarities. The next section is devoted to simple onsets.

6.5.1 ONE-MEBER ONSETS

The tables below illustrate licit simple onsets and provide examples for each segment:

(97) Cimbrian one-member onsets (following Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

Consonant	Word-initial context	Word-medial context
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
ç	no	no
x	no	yes
h	yes	no
s	no	yes
z	yes	yes
ʃ	yes	yes
ź	no	yes
pf	yes	yes
ts	yes	yes
ʧ	yes	yes
kx	yes	yes
m	yes	yes
n	yes	yes
l	yes	yes
/r/	yes	yes

(98) Cimbrian one-member word-initial onsets: examples (data from Panieri 2014, Tyroller 1992, 2003, *zimbarbort.it*, and my fieldwork)

Consonant	Example	German cognate	Gloss
p	[p]ach (*zimbarbort.it*)	[b]ach	'stream'
b	[b]aibe (*zimbarbort.it*)	[v]eib	'female'
t	[t]empfan (*zimbarbort.it*)	[d]ämpfen	'steam (inf.)'
d	[d]orn (Panieri 2014)	[d]orn	'thorn'
k	[k]a (Tyroller 2003)	---	'to'
g	[g]aist (Panieri 2014)	[g]eist	'ghost'

f	[f]aif (Panieri 2014)	[pf]eife	'pipe'
v	[v]arbe (Tyroller 1992)	[f]arbe	'colour'
h	[h]as (Tyroller 2003)	[h]ase	'hare'
z	[z]auber (Tyroller 2003)	[z]auber	'clean'
ʃ	[ʃ]af (Tyroller 2003)	[ʃ]af	'sheep'
pf	[pf]unt (*zimbarbort.it*)	[pf]und	'pound'
ts	[ts]ail (*zimbarbort.it*)	[ts]eil	'line'
ʧ	[ʧ]ell (*zimbarbort.it*)	Gesell	'fellow, mate'
kx	[kx]albe (*zimbarbort.it*)	[k]alb	'calf'
m	[m]ekar	---	'beat'
n	[n]acht (*zimbarbort.it*)	[n]acht	'night'
l	[l]aise (*zimbarbort.it*)	[l]eise	'slowly'
ʀ	[ʀ]aich (*zimbarbort.it*)	[ʀ]eich	'rich'

(99) Cimbrian one-member word-initial onsets: examples (data from Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

Consonant	**Example**	**German cognate**	**Gloss**
p	abe[p]aizan (*zimbarbort.it*)	ab[b]eißen	'bite off (inf.)'
b	hö[b]e (Tyroller 2003)	---	'hay'
t	be[t]ar (Tyroller 2003)	We[t]er	'weather'
d	ån[d]arst (*zimbarbort.it*)	an[d]ers	'other'
k	ais[k^h]alt (*zimbarbort.it*)	eis[k]alt	'ice-cold'
g	be[g]e (*zimbarbort.it*)	we[k]	'path'
f	tar[f]an (*zimbarbort.it*)	dür[f]en	'be allowed (inf.)'
v	hel[v]an (Panieri 2014)	hel[f]en	'help (inf.)'
x	ma[x]an (Tyroller 2003)	ma[x]en	'do (p.p.)'
s	pe[s]ar (*zimbarbort.it*)	be[s]er	'better'
z	nia[z]ar	Nie[z]en	'sneeze'
ʃ	be[ʃ]an (Tyrolller 2003)	wa[ʃ]en	'wash (inf.)'
ź	ai[ź]an (*zimbarbort.it*)	ai[z]ern	'iron-made'
pf	tem[pf]an (*zimbarbort.it*)	däm[pf]en	'steam (inf.)'
ts	ju[ts]an (Tyroller 2003)	juch[ts]en	'cheer (inf.)'
ʧ	plån[ʧ]an (Tyroller 2003)	plan[ʧ]en	'whine (inf.)'
kx	a[kx]ar (*zimbarbort.it*)	a[k]er	'field'
m	ber[m]e (*zimbarbort.it*)	Wär[m]e	'heat'
n	åspå[n]en (*zimbarbort.it*)	anspa[n]en	'contract (inf.)'
l	ad[l]ar (*zimbarbort.it*)	Ad[l]ar	'eagle'
ʀ	abe[ʀ]uamen (*zimbarbort.it*)	ent[ʀ]ahmen	'skim (inf.)'

Both obstruents and sonorants fill the onset position and, generally, exhibit a voiceless as well as a voiced equivalent. [LAB] [p, b], [COR] [t, d], and [DOR] [k, g] are found both word-initially and word-medially, often as the outcome of historical fortition (see chapter 4). With respect to fricatives, word-initial [f] is the reduction of MHG *pf*, whereas in word-internal context it occurs only when following sonorants or light syllables (see chapter 4). As shown for Mòcheno, [v] is massively found as the outcome of the *Althochdeutsche Spirantenschwächung* both word-initially and word-medially (see chapter 4). Velar [x] (< *k*) only takes up the word-medial context, whereas [h] (< Germanic *k*) only occurs in word-initial position (see Tyroller 2003: 47 for discussion and further examples). Sibilants display quite a complex inventory in Lusérn Cimbrian, as discussed in chapter 4. In word-initial as well as word-internal context (after heavy syllables), pre-vocalic /s/ is realized as [z], a trait which also Standard German exhibits. [s] only fills the word-medial position, where it follows light syllalbes. Postalveolar [ʃ] occupies both the word-initial and the word-medial context. In addition, we also find postalveolar voiced [ź] in word-internal position (see chapter 4). The Lusérn Cimbrian affricate inventory exhibits [LAB] [pf], [COR] [ts, ʧ], and [DOR] [kx], which are also found in Tyrolean and Mòcheno. [LAB] [pf] occurs almost exclusively in word-internal position. The only entry displaying word-initial [pf] contained in dictionaries is *[pf]unt* (see chapter 4). [COR] [ts] fills both contexts in Lusérn Cimbrian. [COR] [ʧ] takes up both positions. This is also true for [DOR] [kx]. Sonorants are found in both contexts as well.

6.5.2 TWO-MEMBER ONSETS

Lusérn Cimbrian allows for the patterns obstruent+sonorant, obstruent+obstruent, and sonorant+sonorant. With respect to the licit sequences, we generally find those characterizing the other examined varieties. However, some differences can be identfied. The pattern obstruent+sonorant is illustrated in the following charts, where the pluses “+” stand for sequences which also occur in Standard German, whereas the black triangles “ ▲” stand for onset clusters peculiar of Lusérn Cimbrian:

(100) Cimbrian two-member onset clusters I: obstruent+sonorant (following Panieri 2014, Tyroller 1992, 2003, *zimbarbort.it*, and my fieldwork)

C1 OBS	**C2 SON**			
	m	**n**	**l**	**ʀ**
p			+	+
b			+	+
t				+
d				+
k			+	+
g			+	+
f		▲	+	+
v			▲	▲
s				
z				
ʃ	+	+	+	+
ź				
pf			+	
ts		▲		
ʧ			▲	
kx		▲	▲	

Below are examples for each cluster:

(101) Cimbrian two-member onset clusters I: examples (data from Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

Obs+Son cluster	**German cognate**	**Gloss**
[pl]ech (*zimbarbort.it*)	[bl]ech	'plate'
aus[pl]üatn (*zimbarbort.it*)	aus[bl]uten	'bleed (inf.)'
[pʀ]oat (*zimbarbort.it*)	[bʀ]ot	'bread'
au[pʀ]ennan (*zimbarbort.it*)	auf[bʀ]ennen	'start to burn (inf.)'
fre[bl]ar (Panieri 2014)	---	'whiner'
[bʀ]iaf (Panieri 2014)	[bʀ]ief	'letter'
gesäu[bʀ]a (Panieri 2014)	---	'cleanliness'
[tʀ]inkhan	[tʀ]inken	'drink (inf.)'
gefla[tʀ]a	---	'flight'
[dʀ]at (Panieri 2014)	[dʀ]aht	'wire'
ge[dʀ]ukht (*zimbarbort.it*)	ge[dʀ]uckt	'pressed (adj.)'
[kl]okk (Tyroller 2003)	[gl]ocke	'bell'
ge[kl]itza (Panieri 2014)	---	'lack of appetite'
[kʀ]aft (Panieri 2014)	[kʀ]aft	'strength'

ge[kʀ]aka		'caw (n.)'
[gl]ass (Panieri 2014)	[gl]as	'glass'
ge[gl]enzega (Panieri 2014)	---	'shine'
[gʀ]oaz (Panieri 2014)	[gʀ]oß	'tall; big'
ån[gʀ]iff (Panieri 2014)	An[gʀ]iff	'attack'
[fn]isarn (Panieri 2014)	---	'snort (inf.)'
[fl]uage (Panieri 2014)	[pfl]ug	'plough'
ge[fl]uttra (Panieri 2014)	---	'flutter'
[fʀ]ech (Panieri 2014)	[fʀ]ech	'fresh'
ge[fʀ]ebla (*zimbarbort.it*)	---	'whinihg'
[vl]asch (Panieri 2014)	[fl]asche	'bottle'
ge[vl]ikha (Panieri 2014)	---	'needlework'
[vʀ]au (Panieri 2014)	[fʀ]au	'woman, wife'
ge[vʀ]ingat	---	'ring'
[ʃm]itt (*zimbarbort.it*)	[ʃm]itt	'ironmonger'
ge[ʃm]akh (*zimbarbort.it*)	Ge[ʃm]ack	'taste'
[ʃn]abl (*zimbarbort.it*)	[ʃn]abel	'face'
ge.[ʃn]archla (*zimbarbort.it*)	Ge[ʃn]arche	'snoring'
[ʃl]af (*zimbarbort.it*)	[ʃl]af	'sleep'
dar.ʃl]agn (*zimbarbort.it*)	zer[ʃl]agen	'smash (inf.)'
[ʃʀ]ain	Schrain	'case, box'
dar[ʃʀ]khan (*zimbarbort.it*)	er[ʃʀ]ecken	'scare (inf.)'
gehåm[pfl]a (*zimbarbort.it*)	---	'handling'
[tsn]icht (Panieri 2014)	zu nichte	'mean'
gevi[ʧl]a	---	'murmur'
[kxn]ia (*zimbarbort.it*)	[kn]ie	'knee'
hakhar[kxn]ottn (*zimbarbort.it*)	---	'stone cutter'
[kxl]age (*zimbarbort.it*)	---	'owl'
aus[kxl]ang (Panieri 2014)	aus[kl]agen	'mourn(inf.)'

As shown for the other Germanic varieties, the pattern obstruent+sonorant in Lusérn Cimbrian displays the types obstruent+nasal and obstruent+liquid, which generally fill both the word-initial as well as the word-medial context, although not all clusters occur. A restriction on sequences of the type plosive+nasal excludes all combinations – unlike Standard German, which tolerates velars to fill C1 ([kn, gn]). The former onset cluster is absent because of *k*-affrication, which changes to [kx], as in Mòcheno (see chapter 4). The audio data that were consulted confirm this. The latter sequence does not emerge since historical vowel-deletion has not led to the formation of [gn]. When co-occurring with liquids, [LAB+COR] [pl] occupies both positions, whereas [bl] is only found word-medially. Homorganic [COR+COR] [tl, dl] are excluded, and [DOR+COR] [kl, gl] take up both contexts. All plosives combine with [ʀ] in both positions. With respect to fricatives, the licit sequences only partly resemble the inventory of the other investigated Germanic varieties. The restriction on C2 nasal operates on [LAB+LAB] [fm, vm] and on [LAB+COR] [vn], but not on [LAB+COR] [fn]. This combination is rarely found (maybe as an historical accident) and dates back to OHG (OHG *fneskezzen* > *[fn]isarn*; cf. Danish *fnise* 'giggle (inf.)', *[fn]israr* 'snort'; see Panieri 2014). When clustering with liquids, both [fl, vl] emerge in Lusérn Cimbrian, where [vl] massively occurs as the outcome of historical voicing of fricatives, whereas word-initial [fl] is the result of *pf*-reduction (see chapter 4). As in Standard German, Lusérn Cimbrian displays [fʀ], whereas [vʀ] distinguishes the dialect in question from the corresponding standard variety. In Lusérn Cimbrian, sibilants are followed by all sonorants, provided that C1 is postalveolar [ʃ].

Finally, the affricate inventory does not totally resemble that of Standard German. The limitation militating against sequences of the type affricate+nasal excludes C1 [LAB] [pf] in [LAB+LAB] [pfm] and [LAB+COR] [pfn]; C1 [COR] [ts, ʧ] in [COR+LAB] [tsm, ʧm] and [COR+COR] [ʧn]; and C1 [DOR] [kx] in [DOR+LAB] [kxm], whereas combinations of two alveolars such as [tsn] and of a velar and an alveolar such as [kxn] are licit (see chapter 4). When C2 is [l], Lusérn Cimbrian displays [LAB+COR] [pfl] as Standard German, whereas it differs from it with respect to the emergence of [COR+COR] [ʧl] and [DOR+COR] [kxl]. [COR+COR] [tsl] was not found. When followed by [ʀ], the inventory is empty. [pfʀ, kxʀ] were not found, and the absence of [tsʀ, ʧʀ] may be explained in virtue of historical processes which have not affected Lusérn Cimbrian (see chapter 4).

The inventory of obstruent+sonorant onset clusters reveals that the restriction on C2 nasal applies to C1 plosives, fricatives, and affricates, but [fn] is licit, which we explain as an accidental case. Likewise, velar [kx] does not undergo this limitation. Furthermore, /s/ as well as affricates containing a sibilant (only [ts]) provide an exception to the restriction on C2 nasal, proving that /s/ is 'special' in combinations such as [ʃn], and acts as a 'buffer' within sequences which, otherwise, would be ruled out because of homorganicity (*[tn]). The same is true for [COR+COR] [ʧl] and [ʃl]. We believe that the peculiar behaviour of /s/ in these clusters speaks in favour of suggesting the status of extrasyllabicity, which leads us (as it was done for the other investigated varieties) not to take them into account when calculating sonority distances. Furthermore, [ʀ] enjoys (as in Standard German) a certain 'freedom' when clustering with any C1 (plosives, fricatives, sibilants, but not affrictes) of any articulators ([LAB], [COR], [DOR]) – only excluding sequences which do not result from vowel-deletion such as [tsʀ].

The pattern obstruent+obstruent is illustrated below:

(102) Cimbrian two-member onset clusters II: obstruent+obstruent (following Panieri 2014, Tyroller 1992, 2003, *zimbarbort.it*, and my fieldwork)

C1 OBS	**C2 OBS**															
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ź**	**pf**	**ts**	**ʧ**	**kx**
p																
b																
t																
d																
k																
g																
f																
v																
s																
z																
ʃ	+	▲	+		+											
ź																
pf																
ts		▲														
ʧ																
kx																

Examples for each clusters are collected below:

(103) Cimbrian two-member onset clusters II:examples (data from *zimbarbort.it*)

Obs+Obs cluster	**German cognate**	**Gloss**
[ʃp]aibar (*zimbarbort.it*)	[ʃp]ucke	'spit'
abe[ʃp]errn (*zimbarbort.it*)	ab[ʃp]erren	'block (inf.)'
[ʃb]estar (*zimbarbort.it*)	[ʃv]ester	'sister'
ge[ʃb]itza (*zimbarbort.it*)	[ʃv]eiß	'sweat'
[ʃt]ich (*zimbarbort.it*)	Stich	'stitch'
abe[ʃt]ommen (*zimbarbort.it*)	abstammen	'be descended from (inf.)'

[ʃk]aff (*zimbarbort.it*)	---	'cliff, rock'
[tsb]aivlar (*zimbarbort.it*)	[tsv]eifel	---

The Lusérn Cimbrian restricted range of licit obstruent+obstruent onset clusters requires C1 to be filled by a sibilant or by an affricate containing a sibilant, and C2 to be occupied by plosives, which excludes all other theoretically possible combinations (including those formed by a plosive and a fricative such as those resulting from historical schwa-syncope in Tyrolean [ps, pʃ, kf, kv, ks, kʃ, gv]; see chapter 4). In this respect, Lusérn Cimbrian resembles Standard German with respect to [COR+LAB] [ʃp], [COR+COR] [ʃt], and [COR+DOR] [ʃk]. On the other hand, [COR+LAB] [ʃb] only characterizes Lusérn Cimbrian as the outcome of MHG w. The same holds for [tsb] (see chapter 4). We do not find any [COR+COR] [ʧt] or [COR+LAB] [ʧb] in Lusérn Cimbrian which, in this respect, differs from Mòcheno since it does not reduce past participles displaying the prefix *ge-* (see chapter 4).

In sum, sibilants always occupy C1 and combine with any articulators in Lusérn Cimbrian – resembling Standard German. The fact that Lusérn Cimbrian does not exhibit any clusters of the type plosive+fricative such as those which characterize Tyrolean, leads us to the conclusion that is shares with Standard German and Mòcheno the same sonority hierarchy. C2 is always a plosive, as in Standard German. As for obstruent+sonorant onset clusters, C1 sibilant in combinations such as [COR+LAB] [tsb] plays the role of the 'buffer', preventing these sequencing from being ill-formed (*[tb]). This is why we will treat *s*-sounds and any sequences containing them as extrasyllabic. Consequently, we will not consider them for sonority distance matters.

At this point of the discussion, sonority distances for can be determined. As for the other varieties, clusters which contain any sibilants are excluded from the calculation:

(104) Sonority distances for Lusérn Cimbrian two-member onset clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pʀ, tʀ, kʀ]	/r/ (11) – vcless plos (1)= 10	[fl]	lat (9) – vcless fric (3)= 6
[fʀ]	/r/ (11) - vcless fric (3)= 8	[vʀ]	/r/ (11) – voiced fric (6)= 5
[pl, kl]	lat (9) – vcless plos (1)= 8	[bl, gl]	lat (9) – voiced plos (4)= 5
[bʀ, dʀ, gʀ]	/r/ (11) – voiced plos (4)= 7	[kxn]	nas (7) - vcless affr (2)= 5
[pfl, kxl]	lat (9) – vcless affr (2)= 7	[fn]	nas (7) – vcless fric (3)= 4
		[vl]	lat (9) – voiced fric (6)= 3

The highest sonority distance value which Lusérn Cimbrian allows for (SD= 10) results from C2 [ʀ] when preceded by voiceless plosives ([pʀ, tʀ, kʀ]), as in Standard German and Tyrolean. Eight intervals separate C1 from C2 in [fʀ, pl, kl]. SD= 7 is found in many clusters ([bʀ, dʀ, gʀ, pfl, kxl]). Of these, [bʀ] is rare in the native lexicon due to fortition *b* > [p], and [kxl] is shared with Tyrolean and Mòcheno as a typical trait of South Bavarian varieties. The only sequence displaying SD= 6 is [fl], with respect to which Lusérn Cimbrian differs from Mòcheno because of historical lenition f > [v] which is massively found in the latter variety. Of the clusters exhibiting SD= 5 ([vʀ, bl, gl, kxn]), [vʀ] occurs as the outcome of historical lenition *f* > [v], which Lusérn Cimbrian shares with Mòcheno, but not with Standard German (apart from the very few words of Low German origin) and Tyrolean; and [kxn] is the result of affrication of *ch*, *kch* > [kx]. Plosive+lateral [bl] is very rare because of fortition *b* > [p] (which characterizes Mòcheno as well), but we also find it as the outcome of *v* > [b]. Unlike the other investigated varieties, Lusérn Cimbrian exhibits clusters of SD= 4. This value results from the type fricative+nasal [fn], and is the only licit sequence of the type obstruent+nasal. Finally, SD= 3 only occurs in [vl], again the result of historical lenition *f* > [v]; whereas [gn] (SD= 3) does not pertain to Lusérn Cimbrian, probably because of historical reasons related to cluster formation (see chapter 4). The sonority distance inventory of Lusérn Cimbrian exhibits a gap between SD= 10 and SD= 8. The other investigated varieties do display SD= 9 in [pfʀ], the absence of which in the Lusérn Cimbrian inventory may be explained in terms of reduction of the affricate to [f]. This value would also emerge in [kxʀ], but Lusérn Cimbrian realizes the velar segment with no affrication instead. Furthermore, no onset clusters of SD= 2 emerge in this variety. Their absence may be explained through historical reasons related to schwa-syncope targeting words containing the prefix *ge-* (see Tyrolean), a process which has not affected Lusérn Cimbrian. This process may also account for the non-occurrence of other theoretically licit combinations displaying SD= 2 such as [ml], (lat (9) - nas (7) = 2).

6.5.3 THREE-MEMBER ONSET CLUSTERS

Lusérn Cimbrian three-member onset clusters exclusively exhibit the pattern obstruent+obstruent+sonorant, as shown below:

(105) Cimbrian three-member onset clusters: examples (data from Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

Obs+Obs+Son cluster	**German cognate**	'fragment'
[ʃpl]ittar (Panieri 2014)	[ʃpl]itter	'saying'
[ʃpʀ]uch (*zimbarbort.it*)	[ʃpʀ]uch	'jump'
ge[ʃpʀ]inga	[ʃpʀ]ung	'quarrel'
[ʃtʀ]aita	[ʃtʀ]eit	'deny (inf.)'
abe[ʃtʀ]aitn (*zimbarbort.it*)	---	'hit (inf.)'
[ʃkl]epparn (*zimbarbort.it*)	---	'chipped (adj.)'
ge[ʃkl]est (*zimbarbort.it*)	---	'cramp, spasm'
[ʃkʀ]åmf (Tyroller 2003)	[kʀ]ampf	'creaking'
ge[ʃkʀ]itzega (*zimbarbort.it*)	---	'fragment'

The limited range of Lusérn Cimbrian three-member onset clusters exhibits a defined structure, which resembles that of Standard German. C1 is always filled by postalveolar [ʃ] (but never by affricates containing a sibilant – differing from Mòcheno, in which C1 affricate occurs as the outcome of historical change of MHG *be-s.../be.sch...* > [ʧ]). C2 is occupied by plosives of any articulator: [LAB], [COR], and [DOR]. C3 can be taken up both by [l] and by [ʀ], as in the other examined varieties. The licit clusters ([ʃpl], [ʃpʀ], [ʃtʀ], [ʃkl], [ʃkʀ]). All other combinations are excluded for historical reasons (which explain the lack of C1 plosives, C2 fricatives, and C3 nasals as in [kʃm, kʃn], arisen in Tyrolean through schwa-syncope). In sum, Lusérn Cimbrian three-member onset clusters conform to the Standard German and Mòcheno model. The presented sequences violate the SSG, which leads us to ascribe sibilants the extrasyllabic status.

An overview of what has been presented so far with respect of licit onset clusters, restrictions, and sonority distances will be provided in the next section.

6.6 GERMANIC ONSETS SUMMARIZED

In this chapter we have illustrated the licit onsets in Standard German and in three South Bavarian dialects: Tyrolean, Mòcheno and Lusérn Cimbrian. Simple onsets can be taken up by obstruents as well as by sonorants in each variety. Among obstruents, plosives, fricatives, sibilants, and affricates are found. In this respect, the investigated dialects often exhibit historical fortition *b* > [p], *w* > [b], and affrication *ch*, *kch* > [kx], which does not characterize Modern Standard German. The same is true for fricative voicing *f* > [v] in Mòcheno and Lusérn Cimbrian.

Two-member onset clusters are of the patterns obstruent+sonorant and obstruent+obstruent in all varieties. With respect to the former pattern, Tyrolean, Mòcheno and Lusérn Cimbrian mostly share their inventories with Standard German. On the other hand, each variety exhibits its own peculiarities. Apart from the historical processes previously presented, which often explain combinations such as [pl, kl, vl, vʀ, kxn, kxl, kxʀ], others deserve mentioning. As a matter of fact, historical schwa-deletion affecting Tyrolean, Mòcheno, and Lusérn Cimbrian explains the occurrence of sequences such as [tsm, tsn, tsʀ, ʧm, ʧn, ʧl, ʧr], which do not characterize the Standard German onset cluster inventory. In addition, it has emerged that, generally, C2 /r/ freely clusters with any class of consonants and any articulators in each variety. This peculiar behaviour has led linguists (Wiese 2003, among others) to suggest that German /ʀ/ be not specified for any articulators. The different realizations of *r*-sounds has been the trigger to assign them a point on Parker's sonority scale instead of a fixed place. Being /r/ the most sonorous element in the consonantal inventories of the investigated varieties, we have assigned it SI= 11. On the whole, C2 [l] can be preceded by many obstruents, forming a wide inventory, whereas many restrictions operate on clusters if C2 is a nasal. Among these, plosives are generally excluded to combine with [m, n], but this limitation does not apply to C1 velar [k, g]. However, the type velar+nasal varies according to the variety. Indeed, Lusérn Cimbrian does not display [kn] because of *k*-affrication, which changes to [kx]. The limitation also seems to hold for fricative+nasal combinations, which generally do not tolerate [fn] – only found in very few words in Lusérn Cimbrian as preserved from OHG. Sibilants are 'special' in all the examined varieties. As a matter of fact, the inventory of each variety allows for /s/ to cluster with any sonorants – including nasals. The resulting sequences are mostly formed by two coronals ([ʃn, ʃl, ʃr]), which accounts for the particular status of sibilants. This fact is reinforced in the type [COR+COR] when an affricate clusters with the nasal or the liquid such as in [tsn, ʧn, ʧl] in Tyrolean, Mòcheno, and Lusérn Cimbrian (which emerge either as the outcome of vowel-deletion in *zu-* or as the result of historical reduction of MHG *be.s-*/*be.sch-*). The well-formedness of these sequences has been explained by the position occupied by the sibilant, acting as a "buffer" within the cluster and preventing it from being illicit (*[tn, tl]).

With respect to the pattern obstruent+obstruent, C1 is filled by [ʃ] in all the examined varieties, and clusters with plosives – including homorganic [t]. The dialects turn out to be more tolerant than Standard German. Indeed, Tyrolean also displays the type plosive+fricative, allowing for [ps, pʃ, kf, ks, kʃ], resulting from historical schwa-syncope and leading to suggest a slight difference in the sonority hierarchy. In Mòcheno and Lusérn Cimbrian, C1 is also filled by an affricate containing a sibilant: [ts] (for both of them), [ʧ] (only for Mòcheno), which are followed by [b] as the result of historical fortition of MHG *w*; and by [t], the outcome of historical reduction of past participles *ge-*[ʃt] in Mòcheno. Again, the licitness of [tsb, ʧb, ʧt] is preserved by the sibilant-"buffer" within clusters which would be disallowed otherwise (*[tb, tt]).

Concerning the allowed sonority distances, each variety exhibits its own range of values. On the one hand, all of them tolerate up to 10 intervals separating C1 from C2 in sonority. This value results from [pʀ, tʀ, kʀ]. The minimum threshold which the investigated varieties allow for is set on 3 intervals in Standard German, Mòcheno, and Lusérn Cimbrian, and results from different combinations (Standard German: [gn]; Mòcheno and Lusérn Cimbrian: [vl], the outcome of fricative voicing). On the other hand, Tyrolean turns out to be more permissive. Indeed, the minimum threshold for their onset clusters to be licit is set to 2 intervals. This value is found in [kf], a sequence which results from historical schwa-syncope in words containing the prefix *ge-* and which has not affected te other investigated varieties. Gaps in the SD values range are generally found. Lusérn Cimbrian does not exhibit any onset clusters of SD= 9 such as [pfʀ] – the reason of which lies in the historical reduction [pf] > [f]. In Mòcheno, we do not find any sequences with SD= 6 such as [fl, kn] because of fricative voicing and k-affrication, respectively. Finally, Standard German, Tyrolean and Mòcheno do not exhibit any onset clusters with SD= 4 – a value which occurs in Lusérn Cimbrian in [fn] instead, a sequence which has not emerged historically in the other varieties.

Three-member onset clusters characterize all the investigated varieties. The pattern occurring in all of them is obstruent+obstruent+sonorant, which slightly differs with respect to the allowed segments according to the variety. As a matter of fact, Standard German and Lusérn Cimbrian exhibit the structure /s/+plosive+[l]/ʀ/ such as [ʃpl, ʃpʀ, ʃtʀ, ʃkl, ʃkʀ]. Tyrolean conforms to this structure, but it also allows for plosives to fill C1, which combine with C2 sibilants and C3 sonorant – including nasals ([pʃl, kfl, kfʀ, kʃm, kʃn, kʃl, kʃʀ]). The emerging Tyrolean clusters have arisen from historical schwa-syncope in past participle formation and, more generally, in words exhibiting the prefixes *be-*, *ge-*. Mòcheno exhibits the structure /s/+plosive+[l, r] as well ([śpr, śtr, śkl]). In addition, C1 can be filled by the affricate [ʧ] ([ʧpr, ʧtr]), originated from historical schwa-deletion in past participle formation. Tyrolean is the only variety which allows for the pattern obstruent+obstruent+obstruent. In this type, C1 is a plosive, C2 is always a sibilant, and C3 a plosive ([pʃt, kʃp, kʃt, kʃk]). The most relevant difference among the various varieties lies in the position of sibilants (C1 in Standard German, Mòcheno, and Lusérn Cimbrian; C2 in Tyrolean), which (in most clusters) do not conform to the requirements of the SSG and which has led us to consider them as extrasyllabic.

Finally, four-member onset clusters of the type obstruent+obstruent+obstruent+sonorant only characterize Tyrolean as the the outcome of historical schwa-syncope in *be-*, *ge-*, where the only emerging structure is plosive+sibilant+plosive+/ʀ/ ([kʃpʀ, kʃtʀ]), in which [ʃ] violates the SSG. The following tables synoptically illustrate the characteristics that have been just presented:

(106) Germanic onsets synoptically

a. One-member onsets

Variety	**One-member onsets**
Modern Standard German (MSG)	obstruents; sonorants
Tyrolean (Tyr)	obstruents; sonorants
Mòcheno (Palai) (Mò)	obstruents; sonorants
Cimbrian (Lusérn) (Ci)	obstruents; sonorants

b. Two-member onsets

Variety	**Allowed patterns**	**Homorganicity**	**Vel+nas**	**Non-vel+nas**	**SD**
MSG	- O+S (mostly C2 /ʀ/); - O+O (C1: /s/)	only if C1 is /s/: [ʃn, ʃl]	[kn, gn, (gm)]	only if C1 /s/: [ʃm, ʃn]	10 [pʀ, tʀ, kʀ] – 5 [bl, gl] (marginally SD= 3 [gn])
Tyr	- O+S (mostly C2 /ʀ/); - O+O (C1: /s/ or plos)	only if C1 is /s/ or affr containig /s/: [ʃn, ʃl, tsn]	[kn, kxn, gm, gn]	only if C1 is /s/ or affr containing /s/: [ʃm, ʃn, tsn]	10 [pʀ, tʀ, kʀ] – 2 [kf]
Mò	- O+S (mostly C2 /r/); - O+O (C1: sib or affr containing /s/)	only if C1 is /s/ or affr containing /s/: [ʃn, ʃl, tsn, ʧn, ʧl]	[kxn]	only if C1 is /s/ or affr containing /s/: [ʃm, ʃn, tsn, ʧm, ʧn, ʧt]	10 [pr, tr, kr] – 3 [vl]
Ci	- O+S (mostly C2 /ʀ/); - O+O (C1: sib or affr containig /s/)	only if C1 is /s/ or affr containing /s/: [ʃn, ʃl, tsn, ʧl]	[kxn]	only if C1 is fric, /s/,or affr containing /s/: [fn, ʃm, ʃn, tsn]	10 [pʀ, tʀ, kʀ] – 3 [vl]

c. Additional onset clusters

Variety	**Three-member onsets**		**Four-member onsets**	
	Allowed patterns	**Structure**	**Allowed patterns**	**Structure**
MSG	O+O+S	/s/+plos+[l] or /ʀ/	---	---
Tyr	1. O+O+S 2. O+O+O	1. /s/+plos+[l] or /ʀ/; plos+/s/fric+son 2. plos+/s/+plos	O+O+O+S	plos+/s/+plos+/ʀ/
Mò	O+O+S	/s/+plos+[l] or /r/ affr+plos+[l] or /r/	---	---
Ci	O+O+S	/s/+plos+[l] or /ʀ/	---	---

7. ONSETS IN ROMANCE VARIETIES

7.1 INTRODUCTION

As for Germanic varieties, the discussion of licit and illicit Romance onsets will focus both on simple onsets and on clusters in order to provide a picture as complete as possible. It will emerge that, generally, onset clusters undergo limitations which ban the emergence of certain sequences. In addition, we will show that, generally, dialects are characterized by a more varied inventory and turn out to be more tolerant than Standard Italian with respect to the licit combinations, displaying striking differences.

7.2 STANDARD ITALIAN

Standard Italian onsets allow from one to three segments. The following sections will focus both on the word-initial and the word-medial context.

7.2.1 ONE-MEMBER ONSETS

The following tables illustrate licit onsets and give examples for each segment:

(107) Standard Italian one-member onsets (following my own language competence)

Consonant	**Word-initial context**	**Word-medial context**
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
s	yes	yes
z	no	yes
ʃ	yes	yes
ts	yes	yes
ʧ	yes	yes
dz	yes	yes

ʤ	yes	yes
m	yes	yes
n	yes	yes
ɲ	yes	no
l	yes	yes
ʎ	yes	no
r	yes	yes
j	no	no
w	no	no

(108) Standard Italian one-member onsets: examples (data from Krämer 2009, Patota 2007, and my own)

Consonant	**Word-initial context**	**Gloss**	**Word-medial context**	**Gloss**
p	[p]ane (Patota 2007)	'bread'	sa[p]ore (Patota 2007)	'taste'
b	[b]ello	'nice'	a[b]ito	'dress'
t	[t]empo	'time'	pat[t]o (Patota 2007)	'pact'
d	[d]onna	'woman'	co[d]a (Patota 2007)	'tail'
k	[k]adere	'fall (inf.)'	ac[k]usare	'accuse of (inf.)'
g	[g]atto	'cat'	la[g]o (Patota 2007)	'lake'
f	[f]inestra	'window'	bu[f]alo (Patota 2007)	'buffalo'
v	[v]ita	'life'	av[v]isare (Patota 2007)	'warn (inf.)'
s	[s]era	'evening'	me[s]e (Patota 2007)	'month'
z	---	---	---	---
ʃ	[ʃ]immia	'monkey'	ma[ʃ]ella (Patota 2007)	'jaw'
ts	[ts]ucca	'pumpkin'	vez[ts]o (Krämer 2009)	'habit'
dz	---	---	mez[dz]o (Krämer 2009)	'half'
ʧ	[ʧ]ircolo (Krämer 2009)	'circle'	ric[ʧ]o (Krämer 2009)	'hedgehog'
ʤ	[ʤ]elo (Patota 2007)	'game'	fag[ʤ]o (Krämer 2009)	'beech'
m	[m]ano	'hand'	a[m]aro	'bitter'
n	[n]eve (Patota 2007)	'snow'	fi[n]e	'end'
ɲ	[ɲ]omo	'dwarf'	vi[ɲ]a (Patota 2007)	'vineyard'
l	[l]ento (Patota 2007)	'slow'	mu[l]o (Patota 2007)	'mule'
ʎ	[ʎ]i	'him'	fi[ʎ]a (Patota 2007)	'straw'
r	[r]aggio	'ray'	ca[r]o (Patota 2007)	'dear'

In Standard Italian, both obstruents and sonorants are found in simple onsets. Among obstruents, plosives, fricatives, sibilants, and affricates fill the word-initial as well as the word-medial context, and most voiceless segments exhibit a voiced equivalent. Plosives can be labials [p, b], coronals [t, d], and velars [k, g]. Both labial fricatives [f, v] characterize the Standard Italian inventory. Concerning sibilants, Standard Italian realizes voiceless [s] in word-initial pre-vocalic position, which tends to resist to voicing also when found in intersonorant context (see Krämer 2009: 28-29, and Patota 2007: 84 for details; but see Rohlfs 1966: 281-284 for intersonorant [z]). Affricates mainly result from [k]- and [g]-palatalization to [ʧ, ʤ], respectively, when followed by front vowels /e, i/; and they are also found in intervocalic context (see Krämer 2009: 27, Patota 2007: 87, and chapter 4 for discussion). Alveolar [ts] occurs both word-initially and word-medially, whereas its voiced equivalent [dz] only takes up the word-medial position since Standard Italian only realizes voiceless [ts] word-initially. Among sonorants, the Standard Italian inventory covers up nasals [m, n], liquids [l, r], palatal nasal [ɲ], and palatal lateral [ʎ].

7.2.2 TWO-MEMBER ONSETS

Standard Italian allows for the patterns obstruent+sonorant, obstruent+obstruent, and sonorant+sonorant. In all tables, the pluses "+" stand for licit combinations. The former pattern is illustrated below:

(109) Standard Italian onset clusters I: obstruent+sonorant (following Krämer 2009, and my own)

C1 OBS	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
p			+	+	+	+
b			+	+	+	+
t			+	+	+	+
d				+	+	+
k			+	+	+	+
g			+	+	+	+
f			+	+	+	+
v					+	+
s					+	+
z	+	+	+	+	+	+
ʃ						
ts					+	
ʧ						
dz						
ʤ						

Examples for each cluster are given in the following table:

(110) Standard Italian onset clusters I: examples (data from Krämer 2009, Patota 2007, and my own)

Obs+Son cluster	Gloss	Obs+Son cluster	Gloss
[pl]acido	‘peaceful’	cer[kj]o (Patota 2007)	'circle'
de[pl]orazione	'disapproval'	[kw]oco (Krämer 2009)	'cook'
[pr]ato	‘meadow’	e[kw]ità	'fairness'
ca[pr]a	'goat'	[gl]obo	‘globe’
[pj]ano (Patota 2007)	'slowly'	in[gl]obare	'incorporate (inf.)'
am[pj]o (Patota 2007)	'wide'	[gr]ande	‘tall, big’
[pw]erile	'childish'	ma[gr]o	'thin'
a[pw]ani	'Apuani (ancient people from Tuscany)'	[gj]aia (Patota 2007)	'gravel'
[bl]ando	'mild'	un[gj]a (Patota 2007)	'nail'
ca[bl]aggio	'wiring (n.)'	[gw]azzo	'watery'
[br]usco	‘rough’	lin[gw]a (Patota 2007)	'tongue'
a[br]asivo	'abrasive'	[fl]accido	'weak'
[bj]asimare	'blame (inf.)'	in[fl]uenza	'influence'
fib[bj]a (Patota 2007)	'buckle'	[fr]etta	'hurry'
[bw]ono	'good'	raf[fr]eddare	'cool (inf.)'
ab[bw]ono	'discount'	[fj]ore (Krämer 2009)	'flower'
a[tl]eta	'athlete'	in[fj]ammare	'inflame (inf.)'
[tr]anquillo	‘calm’	[fw]oco	'fire'
ma[tr]ice	'background'	in[fw]ori	'outwards'
[tj]epido	'tepid'	[vj]aggio	'journey'
in[tj]epidire	'warm up (inf.)'	av[vj]amento	'starting, start'
[tw]orlo	'egg yolk'	[vw]oto	'empty'
at[tw]ale	'present, current'	[sj]ero	'serum'

[dr]ago	'dragon'	in[sj]eme	'together'
a[dr]iatico	'Adriatic'	[sw]ola	'sole'
[dj]avolo	'devil'	as[sw]efare	'addict (inf.)'
a[dj]acente	'adjacent'	[zm]odato	‘excessive’
[dw]e	'two'	[zn]aturato	‘cruel’
assi[dw]ità	'diligence'	[zl]ogatura	'sprain'
[kl]asse	‘class’	[zr]adicare	‘uproot (inf.)'
in[kl]ine	'inclined, prone'	a[zj]atico	'Asian'
[kr]edere	'believe (inf.)'	u[zw]ale	'usual'
a[kr]e	'pungent'	a[tsj]one	'action'
[kj]ave	'key'		

Standard Italian obstruent+sonorant onset clusters are of the types obstruent+nasal, obstruent+liquid, and obstruent+glide. However, this language is “highly restrictive” (Krämer 2009: 127) with respect to the allowed combinations. As a matter of fact, the Standard Italian inventory reveals that plosives do not combine with nasals. Plosive+liquid combinations show that, generally, [l] fills C2 when preceded by any segment: labials [p, b] alveolar [t], and velars [k, g]. The only combinations which do not occur are homorganic [COR+COR] [tl] (word-initially) and [dl] (both positions). Concerning [r], all plosives fill C1: labials [p, b], alveolars [t, d], and velars [k, g].

The type obstruent+glide deserves special attention. Due to the status that [j, w] are ascribed (semiconsonants, if a stressed vowel follows them: *[pj'ɛde]* 'foot', *[pw'ɔ]* 'can (3rd sg.)'; semivowels, if glides follow a stressed vowel: *[s'ɛj]* 'six', *[p'awza]* 'break'); see Graffi/Scalise 2002: 80), these segments are not usually found among the allowed onset clusters of Standard Italian (Nespor 1993, Graffi/Scalise 2002, but see Krämer 2009: 129, who lists them in his analysis of Italian onsets). Instead, glides are considered to be part of the diphthongs [jɛ] and [wɔ], respectively. However, it should be noted that (when the diphthongs [jɛ] and [wɔ] are rising, i.e., they exhibit the structure glide+vowel) they take part in penultimate open syllable lengthening: *[jɛ:]ri* 'yesterday', *b[wɔ:]no* 'good'. This means that the glide does not occupy a V-position of its own in the skeleton (Nespor 1993:

124), therefore it might have become part of the onset. However, [j, w] are not the typical C2 in onset clusters; they only occur in words where the historical diphthongs [jɛ] and [wɔ] occur (see Alber/Meneguzzo 2016: 37-38). This is why we will consider them as marginal. The type plosive+glide is the most complete in Standard Italian. Indeed, [j, w] can be preceded by labials [p, b], alveolars [t, d], and velars [k, g]. When C1 is a fricative, the licit combinations are more restricted. As for plosives, a limitation operates with respect to C2 nasal, in virtue of which [LAB+LAB] [fm, vm] and LAB+COR] [fn, vn] are illicit. When combining with liquids, [fl, fr] occur in both positions, whereas their voiced equivalents [vl, vr] have not emerged historically (see Loporcaro 2009: 85, Patota 2007: 83-86, and chapter 5 for discussion). Both fricatives cluster with glides in both contexts (except for word-internal [vw], which was not found). Sibilants can form onset clusters with all sonorants – including nasals. In doing this, /s/ and /z/ are neutralized to [z] in word-initial context when followed by nasals or liquids. Word-medial onset clusters of these types are not found since in all cases where a C1 sibilant is followed by a C2 consonant the sibilant closes the preceding syllable, therefore not making part of the onset occupied by C2. In light of this, therefore, word-internal /VsCV/ is heterosyllabic and treated as Vs.CV: *a[z].matico* 'asthmatic', *bo[z].niaco* 'Bosnian', *O[z].lo* 'Oslo (place name)' (see, for instance, Bertinetto 1999, Krämer 2009, Morelli 1999, Nespor 1993 for discussion). When combining with glides, only [s] occurs word-initially (*[sj]ero*, *[sw]ola*), whereas in word-medial position we find [s] after sonorant consonants and after obstruents, and [z] after vowels (see Zamboni 2000: 145 for details). Finally, Standard Italian does not exhibit any [ʃ]+C onset clusters. The inventory for C1 affricates is extremely restricted. As a matter of fact, the limitation on C2 nasal applies to them as well. Furthermore, affricates do not cluster with liquids either. When followed by glides, the only licit sequence is [tsj], which is only found in word-medial context. The absence of a combination such as [ʤw] may be explained by historical reduction [wɔ] > [ɔ], which took place in the 16th century and in virtue of which forms such as *[ʤwɔ]co* (< Latin *iŏcu(m)*) 'game' and *fa[ʤwɔ]lo* (< Latin *phaseŏlu(m)*) 'bean' were reduced to *[ʤ]oco*, *fa[ʤ]olo*, respectively (see Patota 2007: 60-62 for in-depth discussion).

We are now in a position of drawing some general conclusions. Generally, a restriction targeting onset clusters of the type obstruent+nasal operates on all classes (plosives, fricatives, sibilants, and affricates), and a limitation on affricate+liquid occurs as well. With respect to the type obstruent+liquid, [r] enjoys a certain 'freedom' in clustering with other

segments, allowing for any articulators ([LAB], [COR], [DOR]) to fill C1, whereas [l] exhibits a more limited range of possibilites, resulting from the very limited occurrence of [COR+COR] [tl] and the non-emergence of [COR+COR] [dl]. Glides can be preceded by any segments (plosives, fricatives, sibilants, and affricates) and any articulators. However, not all combinations emerge. In addition, [j, w] do not count as the typical C2 in onset clusters, and sequences containing them are therefore treated as marginal.
The following charts illustrate the pattern obstruent+obstruent:

(111) Standard Italian onset clusters II: obstruent+obstruent (following Krämer 2009, and my own)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**ʧ**	**dz**	**ʤ**
p															
b															
t															
d															
k															
g															
f															
v															
s	+		+		+		+								
z		+		+		+		+							
ʃ															
ts															
ʧ															
dz															
ʤ															

Examples for each cluster are shown below:

(112) Standard Italian onset clusters II: examples (data from Krämer 2009, and my own)

Obs+Obs cluster	**Gloss**
[sp]accone	'braggart'
[st]ato	'state'
[sk]andalo	'scandal'
[sf]orzo	'effort'
[zb]adato	'careless'
[zd]egno	'disdain'
[zg]onfio	'deflated'

[zv]endita 'sale'

In the pattern obstruent+obstruent, Standard Italian requires C1 to be filled by a sibilant, which undergoes assimilation with respect to the feature [voice] according to the consonant which follows – turning into [s] if followed by a voiceless segment, or into [z] when followed by a voiced segment (see Zamboni 2000: 144 for discussion). /s/ combines both with plosives and with fricatives (but not with sibilants or affricates), generating the types [COR+LAB] [sp, zb, sf, zv], [COR+COR] [st, zd], and [COR+DOR] [sk, zg]. Recall the heterosyllabicity of /VsCV/ when found word-medially: /Vs.CV/ (*a[s].pettare* 'wait (inf.)', *fe[s].ta* 'party', *a[s].coltare* 'listen (to) (inf.)', *a[s].falto* 'asphalt'; see Zamboni 2000: 144 for discussion). All other theoretically possible combinations are excluded (for instance, word-medial sequences of the type plosive+plosive, plosive+fricative and plosive+sibilant do not emerge in virtue of the transition from Latin to Italian – where sequences such as [bt, bs, bv, dp, dk, df, dv, ds, kt] have undergone assimilation of C1 to C2, resulting in geminates in, which are split by a syllable margin: *obtinēre* > *o[t.t]enere* 'get (inf.)', *absŭrdu(m)* > *a[s.s]urdo* 'absurd', *obvĭu(m)* > *o[v.v]io* 'obvious', *ăd parēre* > *a[p.p]arire* 'appear (inf)', *ăd causāri* > *a[k.k]usare* 'accuse (inf.)', *ad firmāre* > *a[f.f]ermare* 'state (inf.)', *advocātum* > *a[v.v]ocato* 'lawyer', *adsuefacĕre* > *a[s.s]uefare* 'inure (inf.)', *actuare* > *a[t.t]uare* 'carry out (inf.)', respectively; my examples).

In sum, Standard Italian obstruent+obstruent onset clusters allow for C1 /s/, which combines with any articulators. However, the licit sequences violate the requirements of the SSG since sonority sinks or – at the most – does not rise from C1 to C2. This is why we will consider sibilants as extrasyllabic. Consequently, we will exclude them from the calculation of the various sonority distance values.

Finally, the pattern sonorant+sonorant is illustrated below:

(113) Standard Italian onset clusters III: sonorant+sonorant (following Krämer 2009, and my own)

C1 SON	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
m					+	+
n					+	+
l					+	+
r					+	+
j						
w						

Examples for each cluster are provided below:

(114) Standard Italian onset clusters III:examples (data from Krämer 2009, and my own)

Son+Son cluster	**Gloss**
[mj]etere	'reap (inf.)'
a[mj]anto	'asbestos'
[mw]overe	'move (inf.)'
com[mw]overe	'move, touch (inf.)'
[nj]ente	'nothing'
an[nj]entare	'destroy (inf.)'
[nw]ovo	'new'
an[nw]ale	'yearly'
[lj]evito (Krämer 2009)	'yeast'
al[lj]etare	'cheer up (inf.)'
[lw]ogo (Krämer 2009)	'place'
[rj]ottoso	'quarrelsome'
a[rj]oso	'airy'
[rw]ota (Krämer 2009)	'wheel'
ar[rw]olare	'recruit (inf.)'

In sonorant+sonorant onset clusters, C1 is always a nasal or a liquid, and C2 is always a glide. This excludes all other types. In particular, assimilation of C1 to C2 targets the ill-formedness of nasal+nasal [nm] and nasal+liquid [nl, nr] sequences, which turn into [mm], [ll], [rr], respectively, and C1 closes the preceding syllable, whereas and C2 opens the following one (*in-morale --> i[m.m]orale* 'immoral', *in-logico --> i[l.l]ogico* 'illogical' *in-razionale --> i[r.r]azionale* 'irrational', respectively; my examples).

Generally, the licit clusters fill both contexts, whereas [lw] does not occur word-medially. These clusters are the outcome of historical diphtongization[79] of /ɛ, ɔ/ to [jɛ, wɔ], respectively (see chapter 5). However, sequences such as [lj] and [lw] are not usually included among the licit onset clusters of Italian because of the particular status of glides, and will therefore be considered as marginal.

The data discussed so far enable us to present the sonority hierarchy for Standard Italian:

(115) Sonority scale for Standard Italian

```
  |----------|----------|----------|---- >
Obstr   Nas/Liq  Glide       V
```

The sonority scale given above slightly differs from that of Standard German. This is due to the position filled by liquids, which occupy the same step here (not separate positions as /r/ /l/ found in Standard German), and by the occurrence of glides, which are licit as C2 in onset clusters (although marginally).

The picture is now complete to discuss the various sonority distance values allowed in Standard Italian. As we did for the Germanic varieties, we ignore clusters containing any sibilants for the calculation of these values since we cannot be sure that the sibilant plays any role in the SD-count. Furthermore, clusters containing a glide will be treated as marginal due to the particular status that [j, w] enjoy:

(116) Sonority distances for Standard Italian two-member onset clusters[80]

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pj, pw, tj, tw, kj, kw]	gl (12) – vcless plos (1)= 11	[vj, vw]	gl (12) – voiced fric (6)= 6
[pr, tr, kr]	/r/ (11) – vcless plos (1)= 10	[fl]	lat (9) – vcless fric (3)= 6
[fj, fw]	gl (12) – vcless fric (3)= 9	[mj, mw, nj, nw]	gl (12) – nas (7)= 5
[bj, bw, dj, dw, gj, gw]	gl (12) – voiced plos (4)= 8	[bl, gl]	lat (9) – voiced plos (4)= 5
[fr]	/r/ (11) – vcless fric (3)= 8	[lj, lw]	gl (12) – lat (9)= 3
[pl, tl, kl]	lat (9) – vcless plos (1)= 8	[rj, rw]	gl (12) – /r/ (11)= 1
[br, dr, gr]	/r/ (11) – voiced plos (4)= 7		

Standard Italian displays very high sonority distances for its onset clusters. This is due to the presence of C2 glides [j, w] when preceded by voiceless plosives in marginal sequences

[79] Except for *ar[rw]olare*, which derives from French *enrôler*.

[80] Gl: glide.

([pj, pw, tj, tw, kj, kw]), giving SD= 11. Sequences displaying SD= 10 are formed by voiceless plosives and [r] ([pr, tr, kr]), whereas SD= 9 occurs when the voiceless fricative [f] combines with glides ([fj, fw]). Clusters which exhibit SD= 8 are many and result from the combination of voiced plosives with glides ([bj, dj, gj, bw, dw, gw]), of voiceless fricative with [r] ([fr]), and of voiceless plosives with the lateral ([pl, tl, kl]). Seven steps (SD= 7) separate voiced plosives from [r] ([br, dr, gr]). Sequences exhibiting SD= 6 result from marginal [vj, vw] and from [fl]. Onset clusters which display SD= 5 are many and involve nasals and glides ([mj, mw, nj, nw]) and voiced plosives and [l] ([bl, gl]). Lower sonority distances are only found in marginal sequences. Three intervals result from the combination of a lateral and a glide ([lj, lw]), whereas SD= 1 characterizes onset clusters formed by [r] and a glide ([rj, rw]). SD= 3 and SD= 1 lie below the threshold of 5 intervals which emerges from the table above and which we assume to be the minimum number of steps separating C1 from C2 in Standard Italian licit onset clusters because this is the sonority distance that we obtain if we exclude clusters with glides (which, as previously mentioned, are treated as marginal due to the particular status of [j, w]) from the count.

Standard Italian does not exhibit any combinations with SD= 4. This value would emerge in sequences formed by a fricative and a nasal such as [fn] (nasal (7) – voiceless fricative (3)= 4), which are, however, absent in virtue of the limitation on the type obstruent+nasal. Standard Italian lacks sequences with SD= 2 as well. This value would emerge, for instance, from combinations of a nasal and a liquid such as [ml] (lateral (9) – nasal (7)= 2), but they are excluded in virtue of the requirement imposed on C2, which must always be a glide in onsets formed by two sonorants.

7.2.3 THREE-MEMBER ONSET CLUSTERS

In Standard Italian, the licit three-member onset clusters exclusively exhibit the pattern obstruent+obstruent+sonorant, as illustrated in the examples below:

(117) Standard Italian three-member onset clusters: examples (data from my own language competence)

Obs+Obs+Son cluster	**Gloss**
[spr]eco	'waste'
[spj]egare	'explain (inf.)'
[str]etto	'narrow'
[stw]oia	'wicker'
[skl]era	'sclera'

[skr]ittoio	'writing desk'
[skj]avo[81]	'slave'
[skw]adra	'team'
[sfr]uttare	'exploit (inf.)'
[sfw]ocato	'blurry'
[zbl]occare	'unlock (inf.)'
[zbr]uffone	'braggart'
[zbj]adito	'faded'
[zdr]aio	'deck chair'
[zgr]idare	'scold (inf.)'
[zgw]ardo	'look'
[zvw]otare	'empty (inf.)'

Three-member Standard Italian onset clusters display a clearly defined structure. As a matter of fact, C1 is always filled by /s/, which is assimilated to C2 with respect to the feature [voice]. C2 can be taken up by any plosives ([LAB], [COR], [DOR]) or by fricatives, but never by sibilants or affricates (see also Krämer 2009: 133). C3 can be occupied by liquids or glides, but never by nasals. The licit sequences only fill the word-initial position (recall the heterosyllabicity of /VsCV/ as /Vs.CV/). Since C1 /s/ violates the SSG, it is considered as extrasyllabic in the presented clusters.

7.3 VENETAN-TRENTINO DIALECTS

As Standard Italian, Venetan-Trentino dialects exhibit from one to three segments in onset position. Among the peculiarities of these varieties, lenition of intervocalic obstruents, degemination of intervocalic (Latin or Proto-Romance) consonants, palatalization of Latin *cl*, and deaffrication of [ʧ, ʤ] are worth mentioning (see Bondardo 1972: 76-77, Cordin 1997: 260, Devoto/Giacomelli 1972: 30-47, and Loporcaro 2009: 104-106, and chapter 5 for details). The following section illustrates simple onsets in both the word-initial and the word-medial context.

[81]As pointed out in Patota (2007: 95), the cluster [sl] did not pertain to Classical Latin. As a matter of fact, it is only found in loanwords (*slahta* > *[skj]atta* 'ancestry', *slaiten* > *[skj]attare* 'die (inf.)') and in Medieval Latin (*slavŭ(m)* > *[skj]avo).* Dorsal [k] has been inserted in order to simplify the pronounciation of a non-native sequence. The sequence [kl] has then be regularly turned into [kj].

7.3.1 ONE-MEMBER ONSETS

The tables below show licit onsets and give examples for each segment:

(118) Venetan-Trentino one-member onsets (following *ALTr*, and my fieldwork)

Consonant	**Word-initial context**	**Word-medial context**
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
s	yes	yes
z	yes	yes
ʃ	no	no
ts	no	no
ʧ	yes	yes
dz	no	no
ʤ	yes	yes
m	yes	yes
n	yes	yes
ɲ	no	yes
l	yes	yes
ʎ	no	yes
r	yes	yes
j	no	no
w	no	no

(119) Venetan-Trentino one-member word-initial onsets: examples (data from *ALTr*, and my fieldwork)

Consonant	**Word-initial context**	**Italian cognate**	**Gloss**
p	[p]omo	---	'apple'
b	[b]oca	[b]occa	'mouth'
t	[t]erso	[t]erzo	'third'
d	[d]olse	[d]olce	'sweet'
k	[k]an	[k]ane	'dog'
g	[g]osa (*ALTr*)	[g]occia	'drop'
f	[f]acia	[f]accia	'face'
v	[v]in	[v]ino	'wine'
s	[s]eco	[s]ecco	'dry'
z	[z]ente	[ʤ]ente	'people'
ʧ	[ʧ]amar (*ALTr*)	[kj]amare	'call (inf.)'
ʤ	[ʤ]asoloto (*ALTr*)	[gj]accio	'ice'
m	[m]an	[m]ano	'hand'
n	[n]ovo	[n]uovo	'new'
l	[l]isiero	[l]eggero	'light'
r	[r]eson (*ALTr*)	[r]agione	'understanding'

(120) Venetan-Trentino one-member word-medial onsets: examples (data from my fieldwork)

Consonant	**Word-medial context**	**Italian cognate**	**Gloss**
p	bontem[p]on	buontem[p]one	'fun-loving person'
b	go[b]o	gob[b]o	'hunchback'
t	ga[t]o	gat[t]o	'cat'
d	cal[d]o	cal[d]o	'hot, warm'
k	va[k]a	vac[k]a	'cow'
g	sor[g]o	---	'corn'
f	in[f]erno	in[f]erno	'hell'
v	o[v]o	uo[v]o	'egg'
s	spu[s]a	puz[ts]a	'smell'
z	or[z]o	or[dz]o	'barley'
ʧ	ser[ʧ]o	cer[kj]o	'circle'
ʤ	meso[ʤ]orno	mezzo[ʤ]orno	'noon'
m	o[m]o	uo[m]o	'man'
n	vi[n]elo	vinel[l]o	'wine'
ɲ	ma[ɲ]on	mangione	'big eater'
l	cava[l]o	caval[l]o	'horse'
r	co[r]alo (*ALTr*)	co[r]allo	'coral'

In the Venetan-Trentino dialect of Borgo Valsugana, both obstruents and sonorants fill simple onsets. Among obstruents, plosives, fricatives, sibilants, and affricates occur in the word-initial as well as in the word-medial context, and every voiceless segment exhibits a voiced equivalent. All plosives are found: labials [p, b], alveolars [t, d], and velars [k, g]. Fricatives also take up both positions. Word-initial sibilants are preserved as voiceless, resembling Standard Italian. However, voiced [z] is found in Borgo Valsugana resulting from deaffrication of alveopalatal affricates derived from Latin velars [k, g] when preceding palatal vowels (see chapter 5). In word-internal context, both [s, z] occur (as the outcomes of Latin [tj, dj] (see Cordin 1997: 260, Rohlfs 1966: 200-203; 209-215 for discussion, and chapter 5). Concerning the affricate inventory, the dialect of Borgo Valsugana displays alveopalatal [ʧ, ʤ] when resulting from Latin [kl, gl], whereas alveolar [ts, dz] are absent in virtue of deaffrication (see Loporcaro 2009: 86-87, and chapter 5).
As in Standard Italian, sonorants occupy both contexts – the only exception being palatal [ɲ], which only emerges word-medially.

7.3.2 TWO-MEMBER ONSETS

As in Standard Italian, Venetan-Trentino dialects allow for the patterns obstruent+sonorant, obstruent+obstruent, and sonorant+sonorant. The former pattern is illustrated below. The pluses "+" stand for onset clusters which also occur in Standard Italian, whereas the white circles "○" stand for sequences which are peculiar of the dialect in question:

(121) Venetan-Trentino onset clusters I: obstruent+sonorant (following my fieldwork)

C1 OBS	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
p			+	+	+	
b			+	+	+	+
t				+		
d				+		+
k			+	+	+	
g				+		+
f				+	+	
v				○	+	
s					+	
z	+	+	+		+	
ʃ						
ts					+	
ʧ						
dz					+	
ʤ						

Examples for each cluster are collected in the following table:

(122) Venetan-Trentino onset clusters I: examples (data from *ALTr*, and my fieldwork)

Obs+Son cluster	**Italian cognate**	**Gloss**
com[pl]ise (*ALTr*)	com[pl]ice	'accomplice'
[pr]edica	[pr]edica	'telling-off'
com[pr]ar	com[pr]are	'purchase (inf.)'
[pj]eno	[pj]eno	'full'
ardo[pj]ar (*ALTr*)	raddop[pj]are	'double (inf.)'
[bl]agar (*ALTr*)	---	'boast (inf.)'
[br]asa (*ALTr*)	[br]ace	'embers'
a[br]aso (*ALTr*)	ab[br]accio	'hug'
[bj]ava (*ALTr*)	[bj]ada	'fodder'
al[bj]on (*ALTr*)	---	'launder'
[bw]eleta (*ALTr*)	budellino	'guts'
[tr]ica (*ALTr*)	---	'stubbornness'
con[tr]atar (*ALTr*)	con[tr]attare	'negotiate (inf.)'
[dr]ado (*ALTr*)	---	'sieve'
en[dr]isar	rad[dr]izzare	'straighten up (inf.)'

an[dj]on (*ALTr*)	an[dr]one	'entrance hall'
asi[dw]o	assi[dw]o	'constant'
[kl]arin (*ALTr*)	[kl]arinetto	'clarinet'
[kr]esemar (*ALTr*)	[kr]esimare	'confirm (inf.)'
co[kr]izion (*ALTr*)	cos[kr]izione	'conscription'
[kj]ascadun (*ALTr*)	[ʧ]ascuno	'each one'
[gr]anero (*ALTr*)	[gr]anaio	'loft'
a[gr]in (*ALTr*)	---	'smell of sour'
a[gw]elo (*ALTr*)	---	'fishing net'
[fr]edo	[fr]eddo	'cold'
ra[fr]edor (*ALTr*)	raf[fr]eddore	'cold'
[fj]oco (*ALTr*)	[fj]occo	'bow'
ca[vr]ero (*ALTr*)	ca[pr]aio	'shepher'
[vj]azzo (*ALTr*)	[vj]a	'street'
andi[vj]a (*ALTr*)	indi[vj]a	'endive'
[sj]eresa (*ALTr*)	ciliegia	'cherry'
[zm]acar (*ALTr*)	ammaccare	'slam (inf.)'
[zn]asar (*ALTr*)	annusare	'smell (inf.)'
[zl]argar (*ALTr*)	allargare	'enlarge (inf.)'
li[zj]ero	leggero	'light'
abodan[tsj]a (*ALTr*)	abbondanza	'abundance'

As shown for Standard Italian, the Venetan-Trentino obstruent+sonorant onset cluster inventory exhibits the types obstruent+nasal, obstruent+liquid, and obstruent+glide. However, these dialects partly differ from the corresponding standard variety with respect to the allowed combinations. The data presented above reveal that plosives do not combine with nasals. Plosive+liquid sequences only allow for labials [p, b] and velar [k] to fill C1 when clustering with [l], whereas [gl] was not found. Unlike Standard Italian, both [COR+COR] [tl, dl] are illicit (see chapter 5 for discussion). When [r] takes up C2, the inventory is complete instead: labial, alveolar, and velar plosives occupy C1 in both positions. As discussed for Standard Italian, the status of semiconsonants (when a stressed vowel follows them) or semivowels (if glides follow a stressed vowel) which glides are ascribed lead us to consider them not as the typical C2 in onset clusters, and they are only found in words where the historical diphthongs [jɛ] and [wɔ] occur (see Alber/Meneguzzo 2016: 37-38). This is why we will consider them as marginal (as we did for Standard Italian). When followed by glides, plosives of any articulators fill C1, although they do not always combine with both [j, w]. As a matter of fact, the emerging sequences are [pj, bj, bw, dw, kj, gw], but some of them are not found in both contexts. Concerning the lacking clusters, [pw] does not occur since the examined dialects do not diphtongize (see chapter 5). The same holds for [bw] (the only exception being *[bw]eleta*, which might be an accidental case). The absence of [gj] may be due to the fact that the investigated dialects have not turned Latin [gl] into [gj], therefore differing from Standard Italian. On the contrary, these varieties display Latin [g]-palatalization to [ʤ] (*on[ʤ]a* 'nail'; see *ALTr* and Bondardo 1072: 106 for details). As in Standard Italian, the restriction on C2 nasal applies on C1 fricatives as well, excluding [LAB+LAB] [fm, vm], and [LAB+COR] [fn, vn]. When clustering with liquids, Venetan-Trentino dialects turn out to be more tolerant than Standard Italian. Although no words containing [fl] were found, [fr] emerges. In addition, these dialects also display the word-internal sequence [vr], resulting from historical lenition [p] > [v] which has affected Western Romance varieties in general, but not Tuscan (the basis for Standard Italian; see Loporcaro 2009: 85, and Patota 2007: 83-86 for details, and see chapter 5). As in Standard Italian, [vl] was not found. Both fricatives combine with [j]. On the contrary, Venetan-Trentino (and the Northern Italian varieties in general) has not been affected by diphtongization (except for the only case displaying [bw] mentioned above); therefore, [fw, vw] did not arise (see chapter 5). As shown for Standard Italian, sibilants can cluster with nasals and with liquids in Venetan-Trentino dialects. In the emerging combinations, /s/ and /z/ are neutralized to [z] in word-initial context (forming [COR+LAB] [zm], and [COR+COR] [zn], zl]). Word-internal sequences of this type are not found since in all cases where a C1 sibilant is followed by a C2 consonant the sibilant closes the preceding syllable, therefore not making part of the onset filled by C2. It follows, therefore, that word-internal /VsCV/ is heterosyllabic and treated as Vs.CV, as in Standard Italian (*de[z.m]entegar* 'forget (inf.)', *ma[z.n]ar* 'grind (inf.)', *de[z.l]anegar* 'untie (inf.)'; see *ALTr*). [zr] was not found in the investigated varieties. However, in word-medial context we find [sr], where /s/ does not undergo palatalization (see Bondardo 1972: 83; 109 for details), and *-e* falls: *crescĕre* > *cre[s.r]e* vs. Standard Italian *cre[ʃ]ere* 'grow up (inf.)', *cognoscĕre* > *cogno[s.r]e vs.* Standard Italian *cono[ʃ]ere* 'meet (inf.); 'know (inf.)'; see *ALTr*).

With respect to glides, sibilants only combine with [j] ([sj]), whereas the non-occurrence of [sw, zw] may be explained by lack of diphtongization (*sŏlu(m)* > Valsugana *solareto* vs. Standard Italian *[sw]olo* 'ground'; see *ALTr*). Finally, affricates cluster with very few segments, resembling Standard Italian. Indeed, a restriction bans C2 nasal and C2 liquid. The only emerging sequence is word-medial [tsj], whereas the other combinations were not found. The picture is now complete in order to draw some general conclusions. As shown for Standard Italian, a restriction targeting onset clusters of the type obstruent+nasal operates on all classes except for sibilants, which allow for [zm, zn]. With respect to the type obstruent+liquid, both homorganic [tl, dl] are absent in Venetan-Trentino. On the contrary, [r] freely combines with any C1 plosive or fricative ([LAB], [COR], [DOR]). This also includes word-medial [vr], the result of historical lenition of intersonorant [p] (see chapter 5) which distinguishes the examined dialects from Standard Italian. Historical diphtongization has not affected Venetan-Trentino, in which C2 [w] occurs as an accidental case in only one case.

The charts below illustrate the pattern obstruent+obstruent:

(123) Venetan-Trentino onset clusters II: obstruent+obstruent (following *ALTr*, and my fieldwork)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**ʧ**	**dz**	**ʤ**
p															
b															
t															
d															
k															
g															
f															
v															
s	+		+		+		+						○		
z		+		+		+		+							○
ʃ															
ts															
ʧ															
dz															
ʤ															

Below are examples for each cluster:

(124) Venetan-Trentino onset clusters II: examples (data from *ALTr*, and my fieldwork)

Obs+Obs cluster	**Italian cognate**	**Gloss**
[sp]usa	puzza	'smell'
[st]ala (*ALTr*)	[st]alla	'barn'
[sk]asegar	---	'look after (inf.)'
[sf]orso	[sf]orzo	'effort'
[stʃ]opo (*ALTr*)	[skj]oppo	'rifle'
[zb]otonar	[zb]ottonare	'unbotton (inf.)'
[zd]ameldron (*ALTr*)	---	'person who shuffles around in slippers'
[zg]anasada (*ALTr*)	[zg]anasciata	'laughter'
[zv]odar (*ALTr*)	[zvw]otare	'empty (inf.)'
[zdʒ]aventar	---	'throw (inf.)'

As shown for Standard Italian, the Venetan-Trentino obstruent+obstruent onset cluster inventory requires C1 to be filled by a sibilant, which undergoes assimilation with respect to the feature [voice] according to the consonant which follows. /s/ combines both with plosives and fricatives, generating the word-initial types [COR+LAB] [sp, zb, sf, zv], and [COR+DOR] [sk, zg], wheras word-medial /VsCV/ is heterosyllabic (*a[s.p]ar* 'grope (inf.)', *ba.li[s.t]a* (Valsugana) 'liar', *de[s.k]orir* 'converse (inf.)', *de[z.g]osar* 'unclog (inf.)'; see *ALTr*). As for Standard Italian, the transition from Latin explains the lack of word-internal plosive+plosive sequences such as [dk] and plosive+fricative sequences such as [dv], which have undergone assimilation of C1 to C2 and degemination (see chapter 5). In virtue of this, we find *a[k]usar* 'accuse (inf.)', and *a[v]iso*'warn' vs. Standard Italian *accusare*, *avviso*, respectively; see *ALTr*, and chapter 5 for discussion). Unlike Standard Italian, the Venetan-Trentino varieties allow for sibilant+affricate combinations – where, again, /s/ assimilates the feature [voice] according to C2. In light of thids, we have word-initial [stʃ, zdʒ] (the outcome of historical palatalization of Latin [k, g]; see chapter 5), which are heterosyllabic when found word-internally (*ma[s.tʃ]o* 'pig', *de[z.dʒ]asar* 'defrost (inf.)'; see *ALTr*; see Bondardo 1972: 90; 104 and Loporcaro 2009: 86-87 for details).
To sum up, Venetan-Trentino obstruent+obstruent onset clusters require for C1 to be /s/, which combines not only with plosives and fricatives, but also – differently form Standard Italian – with affricates [tʃ, dʒ]. As in Standard Italian, the licit sequences violate the requirements of the SSG since sonority does not rise from C1 to C2 (it sinks or, at the most, it forms sonority *plateaux*), which is why we will consider sibilants (and affricates

containing /s/) as extrasyllabic segments and we will exclude them from the sonority distance-count.

Finally, the pattern sonorant+sonorant is illustrated below:

(125) Venetan-Trentino onset clusters III: sonorant+sonorant (following *ALTr*)

C1 SON	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
m					+	
n					+	+
l					+	+
r					+	
j						
w						

Examples for each cluster are provided in the following table:

(126) Venetan-Trentino onset clusters III: examples (data from *ALTr*)

Son+Son cluster	**Italian cognate**	**Gloss**
co[mj]o	gomito	'elbow'
carbo[nj]ero	carbonaio	
insi[nw]arse	insi[nw]arsi	'creep (inf.)'
Be[lj]o	Belgio	'Belgique'
[lw]igi	[lw]igi	'Luigi (m. proper name)'
mise[rj]on	---	'lazybones'

As shown for Standard Italian, in sonorant+sonorant onset clusters C1 is taken up by a nasal or a liquid, whereas C2 is always a glide. This excludes combinations of the type nasal+nasal, nasal+liquid, liquid+nasal, liquid+liquid, glide+nasal, glide+liquid, and glide+glide. Not all sequences fill both contexts. As a matter of fact, most of them only occur word-internally (the only exception being [lw] which, however, is only found word-initially in one case). The absence of [mw] and word-initial [nw] may be explained by lack of historical diphtongization ŏ > [wɔ] in these varieties, but has affected Standard Italian instead (*movere > [mw]overe* 'move (inf.)', *nŏvu(m) > [nw]ovo* 'new'; see chapter 5 for discussion).

The data presented so far enable us to suggest that the sonority hierarchy for Venetan-Trentino dialects totally conforms to that of Standard Italian. Furthermore, the presence of

glides characterizes Romance varieties and are licit as C2 in onset clusters (although forming marginal combinations).
We are now in the position to present the various sonority distances for Venetan-Trentino dialects. Recall that clusters containing a sibilant will be excluded from the count:

(127) Sonority distances for Venetan-Trentino two-member onset clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pj, kj]	gl (12) – vcless plos (1)= 11	[vj]	gl (12) – voiced fric (6)= 6
[pr, tr, kr]	/r/ (11) – vcless plos (1)= 10	[mj, nj, nw]	gl (12) – nas (7)= 5
[fj]	gl (12) – vcless fric (3)= 9	[vr]	/r/ (11) – voiced fric (6)= 5
[bj, bw, dj, dw, gw]	gl (12) – voiced plos (4)= 8	[bl]	lat (9) – voiced plos (4)= 5
[fr]	/r/ (11) – vcless fric (3)= 8	[lj, lw]	gl (12) – lat (9)= 3
[pl, kl]	lat (9) – vcless plos (1)= 8	[rj]	gl (12) – /r/ (11)= 1
[br, dr, gr]	/r/ (11) – voiced plos (4)= 7		

As Standard Italian, Venetan-Trentino dialects allow for very high sonority distances for their onset clusters. This is due to the occurrence of C2 glides [j, w] when preceded by voiceless plosives in marginal sequences ([pj, kj]), displaying SD= 11. Ten intervals result from combinations of voiceless plosives and [r] ([pr, tr, kr]), whereas SD= 9 occurs when the voiceless fricative [f] combines with [j] ([fj]). Clusters which exhibit SD= 8 are many and result from the combination of voiced plosives with glides ([bj, bw, dj, dw, gw]); of voiceless fricatives with [r] ([fr]); and of voiceless plosives with the lateral ([pl, kl]).
Seven intervals (SD= 7) separate voiced plosives from [r] in [br, dr, gr], whereas sequences displaying SD= 6 result from marginal [vj]. Onset clusters with SD= 5 are many and involve C2 glides in marginal [mj, nj, nw] and sequences of a voiced plosive and the lateral ([bl]). Differently from Standard Italian, Venetan-Trentino varieties include [vr], which has also SD= 5 and is the outcome of historical intersonorant obstruent voicing – which Standard Italian has not preserved. Lower sonority distances occur in marginal clusters: SD= 3 is found in [rj], and SD= 1 is found in [lj, lw]. It emerges that Venetan-Trentino dialects turn out to be as tolerant as Standard Italian with respect to the threshold under which onset clusters are considered as illicit, setting the minimum to 5 intervals if we exclude clusters containing glides. As shown for Standard Italian, SD= 4 does not emerge in the Venetan-Trentino inventory. This value would characterize sequences formed by a fricative and a nasal such as [fn] (nasal (7) – voiceless fricative (3)= 4), which Venetan-Trentino lack in

virtue of the restriction on the type obstruent+nasal. Furthermore, there is a gap with respect to SD= 2. This value would emerge, for instance, from combinations of a nasal and a liquid such as [ml] (lateral (9) – nasal (7)= 2). These are excluded in virtue of the requirement imposed on C2, which must always be a glide in onsets of two sonorants.

7.3.3 THREE-MEMBER ONSET CLUSTERS

In Venetan-Trentino varieties, the allowed three-member onset clusters exhibit the patterns obstruent+obstruent+sonorant and obstruent+sonorant+sonorant, as illustrated in the data below:

(128) Venetan-Trentino three-member onset clusters I: obstruent+obstruent+sonorant (data from *ALTr*, and my fieldwork)

Obs+Obs+Son cluster	**Italian cognate**	**Gloss**
[str]uto	[str]utto	'lard'
[skr]ocon	[skr]occone	'sponger'
[sfr]egolar (*ALTr*)	[sfr]egare	'rub (inf.)'

Three-member Venetan-Trentino onset clusters exhibit a clearly defined structure: C1 is always filled by /s/, which is assimilated to C2 with respect to the feature [voice]. C2 can be occupied either by plosives ([COR], [DOR]) or by fricatives, whereas both sibilants and affricates are excluded. C3 is always [r]. No other clusters were found. The licit clusters only occur in word-initial context. Indeed, any word-medial /VsCV/ sequences are heterosyllabic /Vs.CV/: *a[s.pr]o* 'sour', *de[s.pj]azar* 'floor (inf.)', *co[s.kr]izion* 'conscription', *bo[s.kj]era* 'wood'; see *ALTr*). In the word-initial clusters listed above, the sibilant violates the SSG, and will therefore considered as an extrasyllabic segment.
Below is the pattern obstruent+sonorant+sonorant:

(129) Venetan-Trentino three-member onset clusters II: obstruent+sonorant+sonorant (data from my fieldwork)

Obs+Son+Son cluster	**Italian cognate**	**Gloss**
[zmj]aolà	[mj]agolare	'miew (inf.)'

The extremely restricted obstruent+sonorant+sonorant pattern only allows for the type sibilant+nasal+glide. C1 /s/ is assimilated to C2 with respect to the feature [voice]. C2 is filled by a [LAB] segment, whereas C3 is taken up by [j]. No other sequences of this type were found.

7.4 LOMBARDO-TRENTINO DIALECTS

As in Venetan-Trentino dialects, the Lombardo-Trentino varieties allow from one to three segments in onset position, and they exhibit the same peculiarities: lenition of intervocalic obstruents, degemination of intervocalic (Latin or Proto-Romance) consonants, palatalization of Latin *cl*, and deaffrication of [ʧ, ʤ] (see Bondardo 1972: 76-77, Cordin 1997: 260, Devoto/Giacomelli 1972: 30-47, and Loporcaro 2009: 104-106 and chapter 5 for details). However, dipthongization of Latin [ɔ] to [w] is especially found in the variety of Tret (Val di Non). Furthermore, the same clusters and patterns of Venetan-Trentino dialects emerge in most cases. The following section presents simple onsets in both the word-initial and the word-medial context.

7.4.1 ONE-MEMBER ONSETS

The charts below show licit onsets and provide examples for each segment:

(130) Lombardo-Trentino one-member onsets (following *ALTr*, and my fieldwork)

Consonant	**Word-initial context**	**Word-medial context**
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
s	yes	yes
z	no	yes
ʃ	no	no
ts	yes	yes
ʧ	yes	yes
dz	yes	yes
ʤ	yes	yes
m	yes	yes
n	yes	yes
ɲ	no	yes
l	yes	yes

ʎ	no	no
r	yes	yes
j	no	yes
w	yes	no

(131) Lombardo-Trentino one-member word-initial onsets: examples (data from my fieldwork)

Consonant	Word-initial context	Locality/Variety	Italian cognate	Gloss
p	[p]om	Mori	---	'apple
b	[b]adar	Bleggio	[b]adare	'take care of (inf.)'
t	[t]erz	Tret	[t]erzo	'third'
d	[d]ent	Tret	[d]ente	'tooth'
k	[k]an	Bleggio	[k]ane	'dog'
g	[g]at	Mori	[g]atto	'cat'
f	[f]it	Tret	[f]olto	'thick'
v	[v]erm	Bleggio	[v]erme	'worm'
s	[s]ek	Mori	[s]ecco	'dry'
ts	[ts]erchiel	Tret	[ʧ]erchio	'circle'
dz	[dz]alt	Mori	[ʤ]allo	'yellow'
ʧ	[ʧ]ar (*ALTr*)	Val di Non	[kj]aro	'bright'
ʤ	[ʤ]elos	Bleggio	[ʤ]eloso	'jealous'
m	[m]an	Tret	[m]ano	'hand'
n	[n]of	Bleggio	[n]uovo	'new'
l	[l]et	Mori	[l]etto	'bed'
r	[r]ugos	Bleggio	[r]ugoso	'wrinkled'
w	[w]eu	Tret	[w]ovo	'egg'

(132) Lombardo-Trentino one-member word-medial onsets: examples (data from *ALTr*, and my fieldwork)

Consonant	Word-medial context	Locality/Variety	Italian cognate	Gloss
p	crom[p]ar	Tret	comprare	'buy (inf.)'
b	go[b]o	Mori	gob[b]o	'hunchback'
t	con[t]ent	Bleggio	con[t]ento	'happy'
d	ven[d]er	Bleggio	ven[d]ere	'sell (inf.)'
k	por[k]et	Tret	por[k]o	'pig'
g	ru[g]os	Bleggio	ru[g]oso	'wrinkled'
f	en[f]ern	Tret	in[f]erno	'hell'
v	da[v]ert	Mori	a[p]erto	'open'
s	o[s]i	Tret	os[s]a	'bone (pl.)'

z	sor[z]i	Tret	sor[ʧ]i	'mouse (pl.)'
ts	dol[ts]i	Bleggio	dol[ʧ]i	'cake (pl.)'
dz	or[dz]i	Mori	or[dz]i	'barley (pl.)'
ʧ	cia[ʧ]era (*ALTr*)	Val di Non	chiac[kj]era	'gossip'
ʤ	le[ʤ]er	Bleggio	leg[ʤ]ero	'light'
m	for[m]ent	Tret	fru[m]ento	'corn'
n	go[n]a	Bleggio	gon[n]a	'skirt'
l	pade[l]a	Tret	padel[l]a	'pan'
r	sca[r]aventar	Bleggio	sca[r]aventare	'throw (inf.)'
j	a[j]er	Tret	a[g]ro	'sour'

In the Lombardo-Trentino dialects of Mori, Bleggio and Tret, both obstruents and sonorants occur as simple onsets. Among obstruents, plosives, fricatives, sibilants, and affricates fill the word-initial as well as the word-medial context, and every voiceless segment exhibits a voiced equivalent. Plosives of all articulators are found: labials [p, b], alveolars [t, d], and velars [k, g]. Fricatives also fill both positions, and intervocali [v] is often the result of historical obstruent lenition (see Loporcaro 2009: 85; 104, Patota 2007: 83-86, and chapter 5 for discussion). Concerning sibilants, word-initial /s/ is always realized as voiceless [s], as in Standard Italian. In word-medial context, both [s] and [z] occur – the latter realization as the outcome of assibilation of palatal affricate [ʧ] resulting from Latin [k] (see Cordin 1997: 260, Loporcaro 2009: 86, Rohlfs 1966: 284, and chapter 5 for details). The affricate inventory is wide, displaying alveolar [ʦ, ʣ] (< [k, g], respectively) and postalveolar [ʧ, ʤ] (< [kl, g], respectively; see Loporcaro 2009: 86, and chapter 5 for details).
With respect to sonorants, nasals and liquids fill both positions, whereas glides do not. [w] only characterizes the variety of Tret, which exhibits it word-initially as the outcome of historical diphtongization of Latin [ɔ] (see Patota 2007: 56-62, and chapter 5). [j] is also found in the inventory of Tret. It occupies the word-medial context as the result of weakening of Latin [k]. The dialects of Mori and Bleggio resemble Venetan-Trentino varieties since they do not diphtongize (*[ɔ]vu(m)* > *[o]f* 'egg'; see appendix).

7.4.2 TWO-MEMBER ONSETS

As in Standard Italian and in Venetan-Trentino dialects, Lombardo-Trentino exhibits the patterns obstruent+sonorant, obstruent+obstruent, and sonorant+sonorant. The former pattern is illustrated below. The pluses "+" stand for clusters which also characterize

Standard Italian, whereas the white squares "□" stand for sequences which are peculiar of the investigated varieties:

(133) Lombardo-Trentino two-member onset clusters I: obstruent+sonorant (following *ALTr*, and my fieldwork)

C1 OBS	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
p			+	+	+	+
b			+	+	+	
t			+	+		
d			□	+		
k			+	+	+	+
g			+	+		
f			+	+	+	
v				□	+	+
s					+	
z	+	+			+	
ʃ						
ts					+	
ʧ						
dz					□	
ʤ						

Examples for each cluster are collected in the following table:

(134) Lombardo-Trentino onset clusters I: examples (data from *ALTr*, and my fieldwork)

Obs+Son cluster	**Locality/Variety**	**Italian cognate**	**Gloss**
[pl]en	Tret	[pj]eno	'full'
ardo[pl]ar (*ALTr*)	Val di Non	raddop[pj]are	'double (inf.)'
[pr]eseu (*ALTr*)	Val di Non	[pr]esepe	'nativity scene'
com[pr]a	Tret	compera	'purchase'
[pj]en	Mori	[pj]eno	'full'
co[pj]ar (*ALTr*)	Val di Non	co[pj]are	'copy (inf.)'
[pw]ek	Tret	poco	'a little'
[bl]anc	Tret	[bj]anco	'white'
arda[bl]i (*ALTr*)	Val di Non	---	'tool for embers'
[br]usc	Bleggio	[br]usco	'abrupt'
am[br]onie (*ALTr*)	Val di Non	a[br]otano	'kind of plant'
[bj]ava (*ALTr*)	Val di Non	---	'oat'

ne[bj]a (*ALTr*)	Val di Non	neb.[bj]a	'fog'
chi[tl]a (*ALTr*)	Val di Non	---	'skirt'
[tr]es (*ALTr*)	Val di Non	---	'fence'
canis[tr]a (*ALTr*)	Val di Non	canes[tr]o	'rucksack'
[dl]a (*ALTr*)	Val di Non	della	'of the (f.)'
scu[dl]ader	Val di Non	scodellaro	'he who sells dishes'
[dr]it	Mori	---	'right'
en[dr]izar	Mori	rad[dr]izzare	'straighten (inf.)'
[kl]au (*ALTr*)	Val di Non	[kj]ave	'key'
bate[kl]ar (*ALTr*)	Val di Non	---	'chat (inf.)'
[kr]ear (*ALTr*)	Val di Non	[kr]eare	'create (inf.)'
consa[kr]ar (*ALTr*)	Val di Non	consa[kr]are	'consecrate (inf.)'
[kj]et (*ALTr*)	Val di Non	quieto	'quiet'
cer[kj]o	Bleggio	cer[kj]o	'circle'
[kw]e (*ALTr*)	Val di Non	che	'who'
a[kw]arasa (*ALTr*)	Val di Non	a[kw]aragia	'paint thinner'
[gl]acin(*ALTr*)	Val di Non	[gj]acciolo	'ice'
ancen[gl]ar (*ALTr*)	Val di Non	incin[gj]are	'fix (inf.)'
[gr]ant	Bleggio	[gr]ande	'big; tall'
a[gr]am (*ALTr*)	Val di Non	[gr]amigna	'scutch'
[fl]à (*ALTr*)	Val di Non	[fj]ato	'breath'
gon[fl]ar	Tret	gon[fj]are	swell (inf.)'
[fr]ont	Bleggio	[fr]onte	'forehead'
con[fr]ont (*ALTr*)	Val di Non	con[fr]onto	'comparison'
[fj]oc	Bleggio	[fj]occo	'bow'
gon[fj]ar	Bleggio	gon[fj]are	'swell (inf.)'
cia[vr]iöl (*ALTr*)	Val di Non	ca[pr]iolo	'roe deer'
[vj]ota (*ALTr*)	Val di Non	[vj]ottolo	'lane, path'
[vw]euna (*ALTr*)	Val di Non	---	'loft'
[sj]or (*ALTr*)	Val di Non	signore	'mister'
convul[sj]on	Bleggio	convul[sj]one	'convulsion'
[zm]achiar	Tret	---	'throw (inf.)'
[zn]egrizzar (*ALTr*)	Val di Non	---	'dirty with soot (inf.)'
contu[zj]on	Bleggio	contu[zj]one	'bump'
asen[tsj]o	Mori	assen[tsj]o	'absinthe'
le[dzj]er	Tret	leggero	'light'

With respect to the pattern obstruent+sonorant, the investigated Lombardo-Trentino dialects behave like Standard Italian and Venetan-Trentino varieties, exhibiting the types obstruent+nasal, obstruent+liquid, and obstruent+glide. Nevertheless, the licit combinations do not totally resemble those of the corresponding standard variety and of the other examined dialects. In virtue of the restriction operating on C2 nasal, plosives do not cluster with [m, n]. When combining with liquids, Lombardo-Trentino dialects exhibit the whole range of possible sequences, differing both from Standard Italian and Venetan-Trentino. Indeed, all plosives are followed both by [l] and [r] ([pl, bl, pr, br]; [tl, dl, tr, dr]; [kl, gl, kr, gr]). However, the investigated dialects differ from one another. As a matter of fact, onset clusters of the type plosive+[l] are only found in the variety of Tret and throughout Val di Non, where Ladin influences are present with respect to Latin C+[l] preservation. On the other hand, the varieties of Mori and Bleggio display C+[j] instead, realizing [pj, bj], but they do not have any [COR+COR] [tl, dl] sequences – resembling Standard Italian. The range of combinations of the type plosive+glide is very limited in Lombardo-Trentino varieties. Since the consonantal status of [j, w] is not completely clear, these segments are not considered as the typical C2 in onset clusters. This leads us, as we did for the other Romance varieties, to treat them as marginal. Lombardo-Trentino onsets whose C2 is filled by a glide are only of the types [LAB+glide] [pj, bj, pw], and [COR+glide] [kj, kw]. Of these, [pw, kw] characterize the variety of Tret and, generally, Val di Non. The former sequence is very rare, and was realized as the outcome of historical diphtongization [ɔ] > [wɔ] (vs. Mori, Bleggio *[o]: [pw]ek* vs. *p[o]k*; see appendix). The lack of diphtongization explains the non-emergence of [bw], as shown for Venetan-Trentino (*bŏnu(m)* > Val di Non *b[o]n* vs. Standard Italian *[bw]ono* 'good'; see *ALTr*). All the investigated dialects exhibit [LAB+glide] [pj, bj] and [DOR+glide] [kj] (the latter as the outcome of Latin [kw], with deletion of the labial element (*[kw]iētu(m)* > *[kj]et*) as in the other Northern Italian varieties; see Bondardo 1972: 101 for details), whereas Val di Non also displays [kw] (preserved from Latin: *[kw]ĭd* > *[kw]e*, whereas Standard Italian exhibits deletion of the labial element since it is not followed by *a*; see Patota 2007: 81 for details). [COR+glide] [tj, dj, tw, dw] are absent, which may be accounted for by the lack of diphtongization [ɛ] > [jɛ] and [ɔ] > [wɔ]. [DOR+glide] [gj, gw] were not found either. The limitation on C2 nasal also applies on C1 fricatives, excluding [LAB+LAB] [fm, vm] and [LAB+COR] [fn, vn]. When combining with liquids, both fricatives fill C1, proving that Lombardo-Trentino slightly differs from Standard Italian. Indeed, [LAB+COR] [fl] is conserved in Val di Non due to the influence of neighbouring Ladin varieties. Furthermore, Lombardo-Trentino

shares the cluster [vr] with Venetan-Trentino, which is only found in word-internal position as the outcome of historical lenition [p] > [v], typical of Western Romance varieties, but not of Tuscan (the basis for Standard Italian; see chapter 5 and Bondardo 1972: 101, Loporcaro 2009: 85; 99-100; 104, and Patota 2007: 83-86 for discussion). [fr] is found as in Standard Italian, whereas [vl] did not emerge from our data. When followed by glides, [fj] and [vj] occur in Bleggio and Val di Non, respectively, whereas [vw] is very rare (it was only found in one word for Val di Non). As in Northern Italian varieties in general, the lack of historical diphtongization [ɔ] > [wɔ] accounts for the non-occurrence of [fw, vw] (see chapter 5).
As shown for Standard Italian and Venetan-Trentino, sibilants are not subject to the restriction on C2 nasal in Lombardo-Trentino. /s/ is realized as [z] in word-initial position when preceding sonorants: we find [COR+LAB] [zm] and [COR+COR] [zn]. This excludes [sm, sn]. In word-medial context, [zm, zn] do not occur in virtue of the fact that, where a C1 sibilant is followed by a C2 consonant, the sibilant closes the preceding syllable, and does therefore not make part of the onset filled by C2. It follows that word-internal /VsCV/ is heterosyllabic Vs.CV (as in Standard Italian and Venetan-Trentino): Val di Non *a[z.m]adec* 'asthmatic' (Standard Italian *a[z.m]atico*), *bu[z.n]el* 'buzz'; see *ALTr*). Sibilants do not combine with liquids. As a matter of fact, word-initial [zl, zr] do not occur either in our data nor in the *ALTr*. When found word-internally, the sequence [zl] is split by a syllable boundary (*cia[z.l]ir* Standard Italian *castelliere* 'castellan', *de[z.l]atar* 'wean (inf.)'; see *ALTr* for Val di Non), whereas [zr] was not found. With respect to glides, Lombardo-Trentino resemble Venetan-Trentino, only allowing for C2 [j] in [sj, zj]. Unlike Standard Italian, [sw, zw] do not occur in virtue of the lack of historical diphtongization [ɔ] > [wɔ]. Finally, Lombardo-Trentino dialects display an extremely restricted range of onset clusters whose C1 is taken up by an affricate. As in the previously investigated varieties, a limitation operates on C2 nasal, but also on C2 liquid. The only allowed sequences are those whose C2 is filled by the glide [j], resembling Venetan-Trentino.
In sum, a restriction targeting onset clusters of the type obstruent+nasal generally operates on all classes (excluding sibilants). Differently from Standard Italian, [r, l] can be preceded by [d, v], forming [dl, vr], respectively. Sibilants and affricates do not combine with liquids, and C2 glides only allow for very few segments to fill C1.
The pattern obstruent+obstruent is illustrated below:

(135) Lombardo-Trentino two-member onset clusters II: obstruent+obstruent (following *ALTr*, and my fieldwork)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**t͡ʃ**	**dz**	**d͡ʒ**
p															
b															
t															
d															
k															
g															
f															
v															
s	+		+		+		+						□		
z		+				+		+							
ʃ															
ts															
t͡ʃ															
dz															
d͡ʒ															

Below are examples for each cluster:

(136) Lombardo-Trentino two-member onset clusters II: examples (data from *ALTr*, and my fieldwork)

Obs+Obs cluster	**Locality/Variety**	**Italian cognate**	**Gloss**
[sp]orc	Mori	[sp]orco	'dirty'
[st]orn	Tret	---	'deaf'
[sk]ars	Bleggio	[sk]arso	'insufficient'
[sf]orz	Mori	[sf]orz	'effort'
[st͡ʃ]op (*ALTr*)	Val di Non	[skj]oppo	'rifle'
[zb]otonar	Bleggio	[zb]ottonare	'unbutton (inf.)'
[zg]onfel	Tret	[zg]onfio	'deflated (adj.)'
[zv]elt	Bleggio	[zv]elto	'quick'

In Lombardo-Trentino obstruent+obstruent onset clusters, C1 is always filled by a sibilant, resembling Standard Italian. /s/ is assimilated with respect to the feature [voice] according to the consonant which follows, and it combines both with plosives and fricatives in word-initial context, generating the types [COR+LAB] [sp, sf, zb, zv], [COR+COR] [st], and [COR+DOR] [sk, zg]. Unlike Standard Italian, the cluster [zd] was not found. Word-medial /VsCV/ is heterosyllabic (Bleggio: *a[s.p]er* 'sour', *o[s.t]i* 'my goodness!', *di[s.k]ors* 'speech'). Similarly to Venetan-Trentino and differently from Standard Italian, Lombardo-Trentino dialects exhibit onset clusters formed by a sibilant and an affricate – where /s/ assimilates the feature [voice] according to C2. The only licit sequence is word-initial [COR+COR] [sʧ], which is heterosyllabic in word-medial position (Val di Non: *ri[s.ʧ]ar* vs. Standard Italian *ri[s.kj]are* 'risk (inf.)'; see *ALTr*; see Bondardo 1972: 90; 104 and Loporcaro 2009: 86-87 for discussion of the process). As for Standard Italian, the transition from Latin explains the lack of word-internal plosive+plosive sequences such as [dp, dk] and plosive+fricative sequences such as [dv], which have undergone assimilation of C1 to C2 and degemination (see chapter 5).

In sum, Lombardo-Trentino obstruent+obstruent onset clusters require C1 to be taken up by /s/, which combines with plosives and fricatives, but also with the affricate [ʧ]. As shown for Standard Italian and Venetan-Trentino, the licit sequences violate the requirements of the SSG since sonority does not rise from C1 to C2 (it sinks or, at the most, it forms sonority *plateaux*), which is why we will consider sibilants as extrasyllabic segments and we will exclude them when determining the various sonority distances.

Finally, the pattern sonorant+sonorant is shown below:

(137) Lombardo-Trentino two-member onset clusters III: sonorant+sonorant (following *ALTr*, and my fieldwork)

C1 SON	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
m					+	
n					+	+
l					+	
r					+	+
j						
w						

Examples for each cluster are listed in the following table:

(138) Lombardo-Trentino two-member onset clusters III: examples (data from *ALTr*, and my fieldwork)

Son+Son cluster	**Locality/Variety**	**Italian cognate**	**Gloss**
[mj]agolar	Bleggio	[mj]agolare	'miew (inf.)'
endor[mj]a (*ALTr*)	Val di Non	---	'anesthesia'

Anau[nj]a (*ALTr*)	Val di Non	---	'Val di Non (place name)'
[nw]eu	Tret	[nw]ovo	'new'
bata[lj]a (*ALTr*)	Val di Non	battaglia	'fight'
[rj]egiel (*ALTr*)	Val di Non	---	'noctule'
scu[rj]a (*ALTr*)	Val di Non	---	'whip'
gia[rw]ar (*ALTr*)	Val di Non	---	'arrive (inf.)'

As shown for Standard Italian, in Lombardo-Trentino sonorant+sonorant onset clusters C1 is always a nasal or a liquid, followed only by a glide (mostly [j]) – which excludes the types nasal+nasal, nasal+liquid, liquid+nasal, liquid+liquid, glide+nasal, glide+liquid, and glide+glide. Not all sequences occur in both contexts. The fact that C2 [w] is limited can be explained by the lack of historical diphtongization [ɔ] > [wɔ], which accounts for the non-occurrence of [nw] in the variety of Mori and Bleggio (*nof* vs. Standard Italian *[nw]ovo* 'new'), but it does emerge in the variety of Tret.

The data discussed so far reveal that the sonority hierarchy for Lombardo-Trentino dialects totally conforms to that of Standard Italian (and Venetan-Trentino varieties). The picture is now complete to be discussed in terms of sonority distances. As was done for the previously presented varieties, the clusters which contain sibilants will not be considered due to the unclear status of /s/, and the unclear status of glides lead us to treat clusters containing them as marginal:

(139) Sonority distances for Lombardo-Trentino two-member onset clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pj, pw, kj, kw]	gl (12) – vcless plos (1)= 11	[vj, vw]	gl (12) – voiced fric (6)= 6
[pr, tr, kr]	/r/ (11) – vcless plos (1)= 10	[fl]	lat (9) – vcless fric (3)= 6
[fj]	gl (12) – vcless fric (3)= 9	[mj, nj, nw]	gl (12) – nas (7)= 5
[bj]	gl (12) – voiced plos (4)= 8	[vr]	/r/ (11) – voiced fric (6)= 5
[fr]	/r/ (11) – vcless fric (3)= 8	[bl, dl, gl]	lat (9) – voiced plos (4)= 5
[pl, tl, kl]	lat (9) – vcless plos (1)= 8	[lj]	gl (12) – lat (9)= 3
[br, dr, gr]	/r/ (11) – voiced plos (4)= 7	[rj, rw]	gl (12) – /r/ (11)= 1

As Standard Italian, Lombardo-Trentino onset clusters allow for very high sonority distances. This is due to the presence of C2 glides [j, w] when preceded by voiceless plosives ([pj, pw, kj, kw]), exhibiting SD= 11 in marginal sequences. Clusters with SD= 10 occur in combinations formed by a voiceless plosive and [r] ([pr, tr, kr]), whereas SD= 9 results from voiceless fricatives and glides ([fj]). SD= 8 characterizes many sequences: those exhibiting C2 glide ([bj]), [r] ([fr]), and [l] ([pl, tl, kl]). Among these, [tl] is not part of the Standard Italian inventory. In the examined dialects, this cluster is only found in Val di Non. Seven intervals separate C1 from C2 in [br, dr, gr]. Clusters with SD= 6 result from marginal combinations of fricatives with glides ([vj, vw]) and of fricatives with liquids ([fl]). Onset clusters displaying SD= 5 are many as well and involve C2 glides ([mj, nj, nw]), C2 liquids ([bl, dl, gl]), and C2 [r] in [vr]. Among these, [dl] only characterizes the variety of Tret, whereas Standard Italian does not exhibit it. Likewise, [vr] is found in the investigated dialects as the outcome of historical intersonorant obstruent lenition, which has not been preserved in Standard Italian. Lower sonority distances occur in marginal sequences: SD= 3 in [lj], and SD= 1 in [rj, rw]. It follows that these dialects turn out to be as tolerant as Standard Italian and Venetan-Trentino varieties, setting the limit on 5 intevals for their onset clusters to be licit. As a matter of fact, this is the value that we obtain if we exclude marginal combinations. As shown for Standard Italian and Venetan-Trentino, SD= 4 does not emerge in Lombardo-Trentino onset clusters. This value would be found in sequences formed by a fricative and a nasal such as [fn] (nasal (7) – voiceless fricative (3)= 4), which is absent in Lombardo-Trentino in virtue of the restriction on the type obstruent+nasal. In addition, there is a gap with respect to SD= 2. This value would emerge, for instance, from combinations of a nasal and a liquid such as [ml] (lateral (9) – nasal (7)= 2), which are excluded in virtue of the requirement imposed on C2, which must always be a glide in onsets of the type sonorant+sonorant.

7.4.3 THREE-MEMBER ONSET CLUSTERS

In Lombardo-Trentino, the licit three-member onset clusters only exhibit the pattern obstruent+obstruent+sonorant, as provided in the data below:

(140) Lombardo-Trentino three-member onset clusters: obstruent+obstruent+sonorant (data from *ALTr*, and my fieldwork)

Obs+Obs+Son cluster	**Locality/Variety**	**Italian cognate**	**Gloss**
[spr]aiz (*ALTr*)	Val di Non	---	'support'
[str]avolt	Bleggio	[str]avolto	'twisted (adj.)'
[skl]ocir (*ALTr*)	Val di Non	[kj]occiare	
[skr]ocar	Mori	[skr]occare	'scrounge (inf.)'

As shown for Standard Italian, three-member Lombardo-Trentino onset clusters display a clearly defined structure. C1 is always filled by /s/, which is voiceless [s] because it is only followed by voiceless segments. C2 is taken up by plosives ([LAB], [COR], [DOR]), but – unlike Standard Italian – not by fricatives. Sibilants and affricates do not occur as C2. C3 is occupied by liquids: nasals and glides never emerge. The licit clusters are only found word-initially since any word-medial /VsCV/ is heterosyllabic /Vs.CV/: (Bleggio: *a[s.pr]o* 'sour'; Val di Non: *ca.ni[s.tr]a* 'bag', *an.ti[s.kl]e* 'branch', *co[s.kr]i.t* 'conscript' (see appendix and *ALTr*). As in the other examined Romance varieties, word-initial C1 /s/ here violates the SSG, and is, therefore, considered as extrasyllabic.

7.5 GARDENESE LADIN

As Standard Italian, Gardenese Ladin allows from one to three segments to fill the onset position. Among the peculiarities which the investigated variety displays, the following are the most relevant: palatalization [k] > [ʧ] when preceding [a]; preservation of C+[l] clusters; Latin [kl], [gl] > [tl], [dl], respectively; lenition of intervocalic obstruents; degemination of intervocalic consonants; delabialization of Latin [kwa] > [ka]; /s/-palatalization when preceding [i]; reduction of [mb] to [m] (see Forni 2008: 11, Salvi 1997: 288-289, and chapter 5). The following section illustrates word-initial and word-medial simple onsets.

7.5.1 ONE-MEMBER ONSETS

The following tables show licit one-member onsets and provide examples for each segment:

(141) Gardenese Ladin one-member onsets (following Forni 2008, 2013, Salvi 1997, and my fieldwork)

Consonant	**Word-initial context**	**Word-medial context**
p	yes	yes
b	yes	yes
t	yes	yes
d	yes	yes
k	yes	yes
g	yes	yes
f	yes	yes
v	yes	yes
s	yes	yes
z	no	yes
ʃ	yes	yes

ʒ	yes	yes
ts	yes	yes
ʧ	yes	yes
dz	no	no
ʤ	yes	yes
m	yes	yes
n	yes	yes
l	yes	yes
r	yes	yes
j	yes	yes
w	yes	no

(142) Gardenese Ladin one-member word-initial onsets: examples (data from Forni 2008, 2013, Salvi 1997, and my fieldwork)

Consonant	**Word-initial context**	**Italian cognate**	**Gloss**
p	[p]ert	[p]arte	'part; side'
b	[b]as	[b]asso	'low'
t	[t]eila (Forni 2013)	[t]ela	'canvas'
d	[d]ann (Forni 2013)	[d]anno	'damage'
k	[k]ater (Forni 2008)	[kw]attro	'four'
g	[g]op	[g]ob.bo	'hunchback'
f	[f]adia (Forni 2013)	[f]atica	'strain, effort'
v	[v]ert	[v]erde	'green'
s	[s]ourt	[s]ordo	'deaf'
ʃ	[ʃ]e (Salvi 1997)	[s]e	'if'
ʒ	[ʒ]ent	[ʤ]ente	'people'
ts	[ts]apa (Forni 2013)	[ts]appa	'hoe'
ʧ	[ʧ]an	[k]ane	'dog'
ʤ	[ʤ]al	[g]allo	'cock'
m	[m]us	[m]uso	'snout'
n	[n]es (Salvi 1997)	[n]aso	'nose'
l	[l]ouf	[l]upo	'wolf'
r	[r]ai	[r]aggio	'ray'
j	[j]ené (Forni 2008)	[ʤ]ennaio	'January'
w	[w]ef	[w]ovo	'egg'

(143) Gardenese Ladin one-member word-medial onsets: examples (data from Forni 2008, 2013, Salvi 1997, and my fieldwork)

Consonant	Word-medial context	Italian cognate	Gloss
p	co[p]a (Salvi 1997)	cop[p]a	'goblet'
b	a[b]il (Forni 2013)	a[b]ile	'capable'
t	cun[t]ent	con[t]ento	'happy'
d	cia[d]eina (Forni 2008)	ca[t]ena	'chain'
k	ar[k]et	ar[k]o	'
g	a[g]ost	a[g]osto	'August'
f	de[f]et (Forni 2013)	di[f]etto	'lack'
v	cia[v]al	ca[v]allo	'horse'
s	mei[s]a (Forni 2008)	---	'table'
z	acu[z]a (Forni 2013)	accu[z]a	'accuse'
ʃ	co[ʃ]o (Forni 2013)	co[z]o	'guy, fellow'
ʒ	sa[ʒ]on	sta[ʤ]one	'season'
ts	ter[ts]o	ter[ts]o	'third'
ʧ	suri[ʧ]a	sor[ʧ]o	'mouse'
ʤ	ler[ʤ]es	lar[g]i	'wide (pl.)'
m	gia[m]a (Forni 2013)	gamba	'leg'
n	cei[n]a (Forni 2008)	ce[n]a	'dinner'
l	stei[l]a	stel[l]a	'star'
r	sei[r]a (Forni 2008)	se[r]a	'evening'
j	plue[j]a (Forni 2008)	pioggia	'rain'

As in the other examined Romance varieties, both obstruents and sonorants occupy simple onsets in Gardenese Ladin. Among obstruents, plosives and fricatives are found in the word-initial as well as in the word-medial context, and every voiceless segment displays a voiced equivalent. All plosives fill onsets: labials [p, b], alveolars [t, d], and velars [k, g]. The same is true for fricatives. A wide range of sibilants characterizes the variety in question. Voiceless [s] fills both contexts. When followed by [i], /s/ is palatalized turning into [ʃ], which is not found in Standard Italian and in the investigated Trentino varieties either (see chapter 5). Voiced [z] only takes up the word-medial position, whereas palatal [ʒ] is found in both. Again, this segment is only peculiar of Gardenese Ladin as the relic of Latin palatalization (see chapter 5). The affricate inventory includes voiceless [ts] and [ʧ]; and voiced [ʤ]. As in Standard Italian, onsets can be taken up both by nasals [m, n], and liquids [l, r]. Gardenese Ladin also displays [j], and [w], the latter of which as the outcome of historical diphtongization [ɔ] > [wɔ], as shown in Standard Italian (see chapter 5).

7.5.2 TWO-MEMBER ONSETS

Gardenese Ladin exhibits the patterns obstruent+sonorant, obstruent+obstruent, and sonorant+sonorant, the former of which is illustrated below. The pluses “+” stand for sequences which are also found in Standard Italian, whereas the white rhombuses “◊” stand for clusters which are peculiar of the variety in question:

(144) Gardenese Ladin two-member onset clusters I: obstruent+sonorant (following Forni 2008, 2013, Salvi 1997, and my fieldwork)

C1 OBS	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
p			+	+	+	+
b			+	+	+	+
t			◊	+	+	+
d			◊	+	+	+
k		◊	+	+	+	+
g			+	+	+	+
f			+	+	+	+
v				◊	+	+
s					+	+
z					+	+
ʃ						
ʒ	◊	◊	◊	◊		◊
ts					+	◊
ʧ						
dz						
ʤ						

Examples for each cluster are collected below:

(145) Gardenese Ladin onset clusters I: examples (data from Forni 2008, 2013, and my fieldwork)

Obs+Son cluster	**Italian cognate**	**Gloss**
[pl]anta (Forni 2013)	[pj]anta	'plant'
a[pl]aus (Forni 2013)	ap[pl]auso	'clap'
[pr]a (Forni 2008)	[pr]ato	'meadow'
cum[pr]é (Forni 2008)	com[pr]are	'purchase (inf.)'
[pj]ec (Forni 2013)	peggio	'worse'
cu[pj]on (Forni 2013)	co[pj]one	'copycat'
[pw]ec	poco	'a little'

cures[pw]ender (Forni 2013)	corrispondere	'correspond (inf.)'
[bl]ava (Forni 2013)	[bj]ada	'corn'
ni[bl]a (Forni 2008)	nuvola	'cloud'
[br]ac	[br]accio	'arm'
om[br]ela (Forni 2013)	om[br]ello	'umbrella'
[bj]aberneus (Forni 2013)	---	'whiny'
jue[bj]a (Forni 2008)	giovedì	'Thursday'
[bw]aces (Forni 2013)	bue	'ox'
contri[bw]enta (Forni 2013)	contribuente	'taxpayer'
[tl]e	[kj]ave	'key'
anti[tl]erichel (Forni 2013)	anti[kl]ericale	'anticlerical (adj.)'
[tr]oer	[tr]ovare	'find (inf.)'
con[tr]a	con[tr]o	'against'
[tj]ater (Forni 2013)	teatro	'theater'
amolacur[tj]ei (Forni 2013)	---	'knife sharpener'
[tw]adessa (Forni 2013)	---	'explorer (f.)'
leura[tw]ere (Forni 2013)	---	'workshop, studio'
[dl]acin	[gj]acciolo	'ice cream'
on[dl]a (Forni 2013)	un[gj]a	'nail'
[dr]eta	[dr]itto	'right'
cu[dr]ia	---	'plough'
[dj]ela (Forni 2013)	---	'fairy'
festi[dj]à (Forni 2013)	infastidito	'annoyed (adj.)'
[dw]eia (Forni 2013)	doglia	'labour'
cun[dw]el (Forni 2013)	condoglianza	'condolence'
[kn]itl (Forni 2013)	---	'stick'
[kl]as	[kl]asse	'class'
fol[kl]or (Forni 2013)	fol[kl]ore	'folklore'
[kr]ous	[kr]oce	'cross'
su[kr]et (Forni 2013)	se[gr]eto	'secret'
[kj]et (Forni 2013)	[kw]ieto	'quiet'
reli[kj]a (Forni 2013)	reli[kw]ia	'remains'
[kw]ec	[kw]oco	'cook'
a[kw]arium (Forni 2013)	a[kw]ario	'aquarium'
[gl]oria (Forni 2013)	[gl]oria	'glory'
an[gl]ot (Forni 2013)	an[gw]illa	'eel'
[gr]os	[gr]ande	'tall, big'
a[gr]esif (Forni 2013)	ag[gr]essivo	'agressive'
[gj]el	[ʤ]allo	'yellow'
bute[gj]er (Forni 2013)	bottegaio	'shop assistant'

[gw]ant (Forni 2013)	---	'dress'
perse[gw]ité (Forni 2013)	perse[gw]itare	'stalk (inf.)'
[fl]oc	[fj]occo	'bow'
su[fl]é	sof[fj]are	'blow (inf.)'
[fr]uent	[fr]onte	'forehead'
cun[fr]ont	con[fr]onto	'comparison'
[fj]ac (Forni 2013)	[fj]acco	'weak'
in[fj]ern	inferno	'hell'
[fw]ec	[fw]oco	'fire'
tra[fw]ei (Forni 2013)	trifoglio	'clover'
lie[vr]a (Forni 2013)	le[pr]e	'hare'
[vj]ac	[vj]aggio	'journey'
in[vj]ern	inverno	'winter'
a[vw]ere (Forni 2013)	avorio	'ivory'
[sj]ef (Forni 2013)	[sj]epe	'hedge'
pen[sj]on (Forni 2013)	pen[sj]one	'boarding house'
[sw]eda (Forni 2013)	sudata	'sweat'
cun[sw]egher (Forni 2013)	con[sw]ocero	'son's/daughter's father in law'
bu[zj]ent (Forni 2013)	---	'teeming (adj.)'
ve[zw]el (Forni 2913)	---	'kid'
[ʒm]achié	---	'throw (inf.)'
[ʒn]aida(Forni 2013)	---	'smell'
[ʒl]abergoz (Forni 2013)	---	'mixture'
[ʒr]aufel (Forni 2013)	---	'screw'
[ʒw]ec	---	'yoke'
[tsj]am (Forni 2013)	[ʧ]oè	'that is to say'
gra[tsj]a (Forni 2013)	gra[tsj]a	'grace'
[tsw]eca (Forni 2013)	---	'horn'
lin[tsw]el (Forni 2013)	len[tsw]olo	'bed sheet'

As shown for Standard Italian, Gardenese Ladin obstruent+sonorant onset cluster are of the types obstruent+nasal, obstruent+liquid, and obstruent+glide. However, the inventory does not totally resemble that of Standard Italian. The data presented above show that, generally, plosives do not combine with nasals. The only licit sequence is [COR+DOR] [kn], which Standard Italian does not include. The inventory of plosive+liquid combinations is complete. As a matter of fact, all plosives cluster with [l, r], generating the types [LAB+COR] [pl, bl, pr, br], [COR+COR] [tl, dl, tr, dr], and [DOR+COR] [kl, gl, kr, gr]. Some of these sequences emerge from preservation of Latin C+[l], which

Standard Italian has not conserved (see chapter 5). All plosives cluster with both glides: [pj, bj], [tj, dj], [kj, gj]; and [pw, bw], [tw, dw], [kw, gw], respectively, where some of them are the outcome of historical diphtongization which differentiates Gardenese Ladin from the examined Trentino varieties. As discussed for the other investigated Romance varieties, the status of semiconsonants (when a stressed vowel follows them) or semivowels (if glides follow a stressed vowel) which glides enjoy lead us to consider them not as the typical C2 in onset clusters, and the sequences containing them as marginal. As shown for Standard Italian, the restriction on C2 nasal also applies to fricatives, banning [LAB+LAB] [fm, vm] and [LAB+COR] [fn, vn], respectively. When followed by liquids, [fl, fr] and [vr] are allowed – the former as preservation of LATIN C+[l]; the latter as the outcome of historical intersonorant lenition of [p] (see Bondardo 1972: 108, Loporcaro 2009: 85, Patota 2007: 83-86, and chapter 5). [vl] was not found.
Both fricatives cluster with both glides, forming the combinations [fj, vj] and [fw, vw], respectively, where historical diphtongization has played a role in the emergence of the latter two sequences (see chapter 5). The limitation on C2 nasal does not hold for sibilants. In Gardenese Ladin, /s/ and /z/ turn into postalveolar [ʃ, ʒ] respectively, when followed by a consonant – to which it assimilates with respect to the feature [voice] –, generating the word-initial onset clusters [COR+LAB] [ʒm] and [COR+COR] [ʒn]. The same is true when sibilants combine with liquids, generating word-initial [ʒl, ʒr], respectively. These combinations do not occur word-internally since in all cases where a C1 sibilant is followed by a C2 consonant the sibilant closes the preceding syllable, and does, therefore, not make part of the onset filled by C2. In light of this, word-internal /VsCV/ is heterosyllabic Vs.CV, as in Standard Italian and in Trentino varieties. With respect to glides, [s, z] combine with both [j, w], where [w] results from historical diphtongization. Word-initial [ʒw] also rsults from this process, and it does not characterize Standard Italian (see Salvi 1997: 289 for details). All other sequences were not found. As shown for Standard Italian, affricates cluster with very few segments. C2 is never a nasal and never a liquid. When followed by glides, the only licit sequences are [tsj, tsw] (see Patota 2007: 88-89 for discussion). All other combinations were not found.
To sum up, a restriction on sequences of the type obstruent+nasal generally affects plosives, fricatives, and affricates – only allowing for C1 velar [k] and /s/. With respect to the type obstruent+liquid, both [l] and [r] are freely preceded by any plosives and

fricatives (except for [vl]); among sibilants, only by [ʒ]. Affricates do not cluster with liquids. In the type obstruent+glide, all plosives and fricatives fill C1, whereas sibilants and affricates exhibit a limited range of licit sequences.

The pattern obstruent+obstruent is illustrated below:

(146) Gardenese Ladin two-member onset clusters II: obstruent+obstruent (following Forni 2008, 2013, Salvi 1997, and my fieldwork)

C1 OBS	**C2 OBS**															
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ʒ**	**ts**	**ʧ**	**dz**	**ʤ**
p									◊							
b																
t																
d																
k									◊							
g																
f																
v																
s																
z																
ʃ	◊		◊		◊		◊									
ʒ		◊		◊		◊		◊								
ts								◊								
ʧ																
dz																
ʤ																

Examples for each cluster are listed below:

(147) Gardenese Ladin onset clusters II: examples (data from Forni 2013, and my fieldwork)

Obs+Obs cluster	**Italian cognate**	**Gloss**
[ps]under (Forni 2013)	---	'spontaneously'
[ks]eut (Forni 2013)	---	'fodeer'
[ʃp]es	[sp]esso	'thick'
[ʃt]uf	[st]ufo	'fed up'
[ʃk]ur (Forni 2013)	[sk]uro	'dark'
[ʃf]orz	[sf]orzo	'effort'
[ʒb]avé (Forni 2013)	[zb]avare	'drool (inf.)'
[ʒd]enià (Forni 2013)	[zd]egnato	'indignant'
[ʒg]omber (Forni 2013)	[zg]ombro	'mackerel'

[ʒv]ilupé (Forni 2013)	[zv]iluppare	'develop (inf.)'
[tsv]ingher (Forni 2013)	---	'clamp'

In Gardenese Ladin, the pattern obstruent+obstruent does not totally resemble that of Standard Italian. The two varieties share the fact that C1 is filled by a sibilant, which is assimilated with respect to the feature [voice] to the consonant which follows – a plosive or a fricative. As for the pattern previously described, /s/, /z/ turn into postalveolar [ʃ, ʒ], respectively, generating the word-initial combinations [COR+LAB] [ʃp, ʒb, ʃf, ʒv], [COR+COR] [ʃt, ʒd], and [COR+DOR] [ʃk, ʒg]. In word-internal context, these sequences are heterosyllabic (*de[ʃ.p]ensierà* 'carefree', *a[ʃ.t]inent* 'abstinent', *de[ʃ.k]un.sié* 'discourage (inf.)', *a[ʃ.f]alté* 'pave (inf.)', *de[ʒ.b]utiné* 'unbutton (inf.)', *do.me[ʒ.d]ì* 'afternoon', *de[ʒ.g]atié* ' unravel (inf.)', *a[ʒ.v]elt* 'quick'; see Forni 2013). Differently from Standard Italian, Gardenese Ladin allows for the type plosive+sibilant, displaying word-initial [ps, ks]. When found word-medially, these sequences are heterosyllabic (*ca[p.s]ula* 'pill', *ru[k.s]ock* 'rucksack'; see Forni 2013). The lack of other sequences of the type plosive+fricative such as [df, dv] may be explained by historical assimilation and degemination (*advisare* > *a[v]isé* 'warn (inf.), *ad firmāre* > *a[f]ermé* 'state (inf.)'; see Forni 2013; see chapter 5 for details). Finally, affricates combine with fricatives in word-initial [tsv] (*[tsv]ingher*), which Standard Italian does not include.

In sum, Gardenese Ladin obstruent+obstruent onset clusters require C1 to be taken up by /s/, which combines with any plosives and fricatives; by a plosive ([p, k]), followed by a sibilant; and by an affricate containing a sibilant, followed by a fricative. As shown for the other investigated varieties, the licit sequences containing C1 /s/ violate the requirements of the SSG since sonority does not rise from C1 to C2 (it sinks or, at the most, it forms sonority *plateaux*). In virtue of this, we will consider sibilants as extrasyllabic segments and we will exclude them when determining the various sonority distances. We will extend this to all clusters exhibiting a sibilant (therefore, [ps, ks, tsv] will not be taken into account as well).

Finally, the pattern sonorant+sonorant is illustrated in the following table:

(148) Gardenese Ladin onset clusters III: sonorant+sonorant (following Forni 2013, Salvi 1997, and my fieldwork)

C1 SON	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
m					+	+
n					+	+
l					+	+
r					+	+
j						
w						

Examples for each cluster are given below:

(149) Gardenese Ladin onset clusters III: examples (data from Forni 2013, Salvi 1997, and my fieldwork)

Son+Son cluster	**Italian cognate**	**Gloss**
[mj]el (Salvi 1997)	[mj]ele	'honey'
a[mj]ant (Forni 2013)	a[mj]anto	'asbest'
[mw]et (Forni 2013)	---	'move (p.p.)'
ghe[mw]e.ra (Forni 2013)	---	'gravel'
[nj]erf	nervo	'nerve'
car[nj]er (Forni 2013)	---	'bag'
[nw]ef	[nw]ovo	'new'
pa[nw]edla (Forni 2013)	---	'corn'
[lj]et	letto	'bed'
cu[lj]eria (Forni 2013)	---	'collar'
[lw]ec	[lw]ogo	'place'
me[lw]eia (Forni 2013)	malavoglia	'unwillingness'
[rj]et	---	'violent'
bu[rj]eda (Forni 2013)	---	'disappointment'
[rw]ent (Forni 2013)	rovente	'red-hot'
ma[rw]eia (Forni 2013)	meraviglia	'wonder'

In sonorant+sonorant onset clusters, C1 is always a nasal or a liquid, and C2 is always a glide, forming [LAB+glide] [mj, mw], [COR+glide] [nj, nw, lj, lw], and also combining with [r] in [rj, rw]. This excludes sequences of the types nasal+nasal, nasal+liquid, liquid+nasal, liquid+liquid, glide+nasal, glide+liquid, and glide+glide.

The data presented so far reveal that the sonority hierarchy for Gardenese Ladin conforms to that of Standard Italian.

The picture is now complete to be discussed sonority distance-terms. As was done for the previously presented varieties, the clusters which contain sibilants will not be considered due to the unclear status of these segments. In addition, the sequences containing glides will be treated as marginal because of the unclear status of [j, w]:

(150) Sonority distances for Gardenese Ladin two-member onset clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[pj, pw, tj, tw, kj, kw]	gl (12) – vcless plos (1)= 11	[vj, vw]	gl (12) – voiced fric (6)= 6
[pr, tr, kr]	/r/ (11) – vcless plos (1)= 10	[fl]	lat (9) – vcless fric (3)= 6
[fj, fw]	gl (12) – vcless fric (3)= 9	[kn]	nas (7) – vcless plos (1)= 6
[bj, bw, dj, dw, gj, gw]	gl (12) – voiced plos (4)= 8	[mj, mw, nj, nw]	gl (12) – nas (7)= 5
[fr]	/r/ (11) – vcless fric (3)= 8	[vr]	/r/ (11) – voiced fric (6)= 5
[pl, tl, kl]	lat (9) – vcless plos (1)= 8	[bl, dl, gl]	lat (9) – voiced plos (4)= 5
[br, dr, gr]	/r/ (11) – voiced plos (4)= 7	[lj, lw]	gl (12) – lat (9)= 3
		[rj, rw]	gl (12) – /r/ (11)= 1

As seen in Standard Italian, Gardenese Ladin exhibits very high sonority distances for its onset clusters. This is due to the presence of C2 glides when preceded by voiceless plosives in marginal sequences ([pj, pw, tj, tw, kj, kw]), displaying SD= 11. Ten intervals separate C1 from C2 in sonority when [r] and voiceless plosives are involved ([pr, tr, kr]). Clusters with SD= 9 only include marginal [fj, fw]. Combinations of SD= 8 are many. They range from marginal clusters formed by a voiced plosive and a glide ([bj, dj, gj, bw, dw, gw]) to those formed by a voiceless fricative and [r] ([fr]), to those formed by a voiceless plosive and the liquid ([pl, tl, kl]). Among the latter clusters, [tl] occurs both word-initially and word-internally and is the result of historical sound change from Latin [kl] > [tl], which has not affected Standard Italian. Seven intervals (SD= 7) separate voiceless plosives from [r] in[pr, tr, kr], whereas SD= 6 emerges from marginal [vj, vw], from combinations of a fricative and a liquid ([fl]), and – unlike Standard Italian – from the of a plosive and a nasal [kn]. Onset clusters displaying SD= 5 are many as well. They include marginal sequences formed by a nasal and a glide ([mj, mw, nj, nw]), those formed by a plosive and the lateral ([bl, dl, gl]), and those formed by the voiced fricative and [r] ([vr]). Among these combinations, [dl] results from historical sound change of Latin [gl] > [dl], which Standard Italian does not exhibit. Likewise, [vr] has affected Gardenese Ladin (and the examined Trentino varieties) as the outcome of historical intersonorant obstruent lenition, but it has not been preserved in Standard Italian. Lowe values are found in marginal sequences: SD= 3characterizes clusters [lj, lw], whereas SD= 1 is found in [rj, rw].

We may therefore conclude that Gardenese Ladin resembles Standard Italian and Trentino dialects with respect to the minimum threshold for its onset clusters to be licit, setting the limit to 5 intervals. This is the value that we obtain if we exclude marginal combinations (those containing glides). The inventory of licit sonority distances does not cover up all values in Gardenese Ladin. Indeed, this variety does not exhibit any clusters with SD= 4. This value would emerge, for instance, in sequences formed by as fricative and a nasal [fn], which are, however, excluded, in virtue of the limitation operating on C2 nasal in the type obstruent+nasal. Furthermore, sequences of ASD= 2 are absent. This value would emerge in combinations of two sonorants such as [ml], which are excluded in virtue of the restriction imposing the clustering of nasals with liquids.

7.5.3 THREE-MEMBER ONSET CLUSTERS

In Gardenese Ladin, three-member onset clusters only exhibit the pattern obstruent+obstruent+sonorant, as shown in the data provided below:

(151) Gardenese Ladin three-member onset clusters: obstruent+obstruent+sonorant (data from Forni 2013, and my fieldwork)

Obs+Obs+Son cluster	**Italian cognate**	**Gloss**
[ʃpl]umé (Forni 2013)	[spj]umare	'pluck (inf.)'
[ʃpr]iza (Forni 2013)	---	'injection'
[ʃtl]op (Forni 2013)	[skj]oppo	'rifle'
[ʃtr]eda (Forni 2013)	[str]ada	'street'
[ʃkl]utsch	---	
[ʃkr]ì (Forni 2013)	[skr]ivere	'write (inf.)'
[ʒbl]anchejé (Forni 2013)	[zbj]ancare	'whiten (inf.), bleach (inf.)'
[ʒbr]iscé (Forni 2013)	---	'slip (inf.)'
[ʒdr]ient (Forni 2013)	[str]idente	'strident'
[ʒgr]aflé (Forni 2013)	graffiare	'scratch (inf.)'

As shown for Standard Italian, a clearly-defined structure characterizes three-member Gardenese Ladin onset clusters. C1 is always taken up by /s/, /z/, which turn INto postalveolar [ʃ, ʒ], respectively, and assimilate in voicing according to the consonant which follows. C2 is filled by any plosives ([LAB], [COR], [DOR]), but – unlike Standard Italian – not by fricatives. Sibilants and affricates do not fill C2 either. C3 is occupied only by [l, r]. The licit clusters are only found word-initially. When filling the word-medial context,

they are hererosyllabic (*tra[ʃ.pl]antazion* 'transplantation', *be[ʃ.pr]es* 'vesper', *e[ʃ.tl]amazion* 'exclamation', *de[ʃ.tr]azion* 'distraction', *de[ʃ.kr]itif* 'descriptive', *de[ʒ.br]amé* 'skim (inf.)', *de[ʒ.dr]ujent* 'destructive', *de[ʒ.gr]usté* 'peel (inf.)'; see Forni 2013).
The next section is devoted to a summary of the most salient characteristics which the investigated Romance varieties exhibit.

7.6 ROMANCE ONSETS SUMMARIZED

In this chapter we have presented the licit onsets in Standard Italian and in some Northern Italian dialects: Venetan-Trentino, Lombardo-Trentino, and Gardenese Ladin. Each variety allows from one to three segments to fill the onset position. Simple onsets can be occupied by obstruents (plosives, fricatives, sibilants, and affricates) as well as by sonorants in each variety. Among the relevant features characterizing the examined varieties, historical lenition [p] > [v] has affected the dialects, whereas is has not been preserved in Standard Italian. The change [k, g] > [ʧ, ʤ], respectively takes place in all the examined varieties, whereas historical diphtongization [ɛ] > [jɛ] and [ɔ] > [wɔ] is not found in Venetan-Trentino and Lombardo-Trentino (except for the variety of Tret).

Two-member onset clusters are of the patterns obstruent+sonorant, obstruent+obstruent, and sonorant+sonorant in all varieties, each exhibiting its own peculiarities. With respect to the first pattern, a restriction on the type obstruent+nasal operates in all the examined varieties (only allowing for /s/ as C1 in this type in all the varieties; and for [kn] in Gardenese Ladin). Obstruents cluster with liquids in Standard Italian as well as in the three dialects. However, Standard Italian and Venetan-Trentino do not exhibit [COR+COR] [dl, tl] ([tl] is only found word-medially in a few words in Standard Italian), which are part of both Lombardo-Trentino (Tret) and Gardenese Ladin inventories. Furthermore, word-medial [vr] characterizes the three dialects as the outcome of historical lenition [p] > [v], whereas Standard Italian does not exhibit this sequence. Obstruent+glide combinations generally do not allow for affricates to fill C1 (only [tsj, dzj, tsw] occur, with different extent, in the investigated varieties), and they mostly result from historical sound change of the type C+[l] > C+[j]. It has emerged that, generally, C2 [r] freely combines with any class of consonants and any articulators in each variety. The peculiar behaviour of /r/ has led us to adopt Wiese's (2003) proposal according to which this segment is not specified for any articulators. We have assigned it the SI= 11, which collocates *r*-sounds immediately under glides on Parker's sonority hierarchy. On the whole, C2 [l] can be preceded by many obstruents, forming a wide inventory, whereas restrictions operate on C2 nasal, banning onset clusters such as [pn, fn]. However, this limitation does not apply to C1 velar [k] in Gardenese Ladin. Sibilants are 'special' in all the investigated varieties. Indeed, the inventory for each of them allows for /s/ to combine with any sonorants – including nasals. The resulting sequences are mostly

formed by two coronals (for instance, [zn, zl, zr]), which accounts for the particular status of sibilants.
The pattern obstruent+obstruent requires C1 to be always filled by /s/, which is followed by plosives or fricatives and is assimilated in voicing according to C2. However, both Venetan-Trentino and Lombardo-Trentino dialects allow for the affricates [ʧ, ʤ] as well to occupy C2, which result from historical palatalization of [k, g], respectively. Furthermore, Gardenese Ladin displays the type plosive+/s/, forming [ps, ks], which do not occur in the other varieties.
Finally, the pattern sonorant+sonorant requires C1 to be taken up by a nasal or a liquid in all the investigated varieties, and C2 by a glide. The various varieties differ from each other with respect to the emerging combinations – for instance, those resulting from historical diphtongization, which is regularly found in Standard Italian and Gardenese Ladin, but rarely in Venetan-Trentino and Lombardo-Trentino (except for Tret, which is influenced by the characteristics of neighbouring Ladin varieties).
Standard Italian and the examined dialects share the same sonority hierarchy and the same range of sonority distance values, setting the minimum threshold on 5 intervals. Among the clusters displaying this value, [dl] is only found in Gardenese Ladin, and [vr] is not peculiar of Standard Italian. The highest value lies in SD= 11, which emerges in marginal sequences where C2 is filled by a glide such as [pj, pw]. Lower values (SD= 3, SD= 1) include marginal combinations in which C2 is a glide. In all the examined varieties, the range of sonority distance values is incomplete. As a matter of fact, no clusters exhibiting SD= 4 such as [fn] and SD= 2 such as [ml] were found. The absence of these values lies in the restriction on obstruent+nasal onset clusters for the former; and in the limitation on C2 liquid for the latter.
In three-member sequences, the only licit pattern is obstruent+obstruent+sonorant in all the investigated varieties, and it displays a clearly-defined structure. C1 is always filled by /s/, which assimilates in voicing according to the consonant which follows (and is palatalized in Gardenese Ladin). C2 can be either a plosive or a fricative in Standard Italian, Venetan-Trentino and Lombardo-Trentino, whereas it is only a plosive in Gardenese Ladin. C3 is always a sonorant: a liquid or a glide in Standard Italian and Venetan-Trentino; a liquid in Lombardo-Trentino and in Gardenese Ladin.
The tables below synoptically collect the relevant characteristics for the Romance varieties

in question:

(152) Romance onsets synoptically

a. One-member onsets

Variety	**One-member onsets**
Standard Italian (StIt)	obstruents; sonorants
Venetan-Trentino (Ve-Tr)	obstruents; sonorants
Lombardo-Trentino (Lo-Tr)	obstruents; sonorants
Gardenese Ladin (GaLa)	obstruents; sonorants

b. Two-member onsets

Variety	**Allowed patterns**	**Homorganicity**	**Obs+nas**	**SD**
StIt	- O+S - O+O (C1: /s/) - S+S (C2: glide)	[tl] (word-med), [zn, zl]	only if C1 is /s/: [zm, zn]	10 ([pr, tr, kr]) – 5 ([bl, gl]) (marginally 11: [p/t/k+j/w]; marginally 1: [rj, rw])
Ve-Tr	- O+S - O+O (C1: sib) - S+S (C2: glide)	[zn, zl]	only if C1 is /s/: [zm, zn]	10 ([pr, tr, kr]) – 5 ([bl, vr]) (marginally 11: [p/t/k+j/w]; marginally 1: [rj])
Lo-Tr	- O+S - O+O (C1: sib) - S+S (C2: glide)	[zn]; [tl, dl] (Tret)	only if C1 is /s/: [zm, zn]	10 ([pr, tr, kr]) – 5 ([bl, dl, gl]) (marginally 11: [p/t/k+j/w]; marginally 1: [rj])
GaLa	- O+S - O+O (C1: /s/) - S+S (C2: glide)	[tl, dl] (both contexts)	C1 velar: [kn] (word-init); C1 /s/: [ʒm, ʒn]	10 ([pr, tr, kr]) – 5 ([bl, dl, gl,vr]) (marginally 11: [p/t/k+j/w]; marginally 1: [rj, rw])

c. Three-member onset clusters

Variety	**Three-member onsets**	
	Allowed patterns	**Structure**
Standard Italian	O+O+S	sibilant+plosive/fricative+liquid/glide
Venetan-Trentino	O+O+S; O+S+S (rare)	sibilant+plosive/fricative+liquid; (sibilant+nasal+glide)
Lombardo-Trentino	O+O+S	sibilant+plosive/fricative+liquid
Gardenese Ladin	O+O+S	sibilant+plosive+liquid

In the following chapter we will analyse licit and illicit codas in the Germanic varieties, proceeding in the same fashion as we did for onset clusters.

8. CODAS IN GERMANIC VARIETIES

8.1 INTRODUCTION

The account for permissible and impermissible codas in Standard German and in the Germanic varieties examined in the current work will consider not only clusters, but also simple codas in order to provide a complete picture of the matter. It will emerge from the discussion of codas that, on the one hand, Standard German and Tyrolean behave in a very similar way with respect to the allowed sequences and, on the other hand, Mòcheno and Lusérn Cimbrian show striking differences from the corresponding standard variety.

8.2 STANDARD GERMAN

Standard German allows from one to two consonants to take up the coda position. Many coda clusters exhibit a coronal, [+ant] segment [t, s] as their last member. This also holds for sequences of more that two consonants – in this case, always displaying C3 coronal. In virtue of the fact that [t, s] can be added to any consonants, we consider them as extrasyllabic. Furthermore, the 'special' status of /s/ speaks in favour of its extrasyllabicity. The picture which emerges from these remarks leads to the absence of three (or more)-member coda clusters. In other words, in a sequence of more than two elements such as *Vo[lks]* 'people (gen. sg.)', *O[pst]* 'fruit', or *Rü[lps]* 'burp', all which exceeds C2 (and all which is [+ant] [t, s]) is treated as extrasyllabic. Simple codas are presented in the next section.

8.2.1 ONE-MEMBER CODAS

The following chart lists all possible simple codas in Standard German, considering both the word-final and the word-medial context:

(153) Standard German one-member codas (following Hall 1992, 2000)

Consonant	Word-final context	Word-medial context
p	yes	yes
t	yes	yes
k	yes	yes

f	yes	yes
ç	yes	yes
x	yes	yes
s	yes	yes
ʃ	yes	yes
pf	yes	yes
ts	yes	yes
ʧ	yes	yes
b	no	no
d	no	no
g	no	no
m	yes	yes
n	yes	yes
l	yes	yes
/r/	yes	yes

Below are examples for each segment:

(154) Standard German one-member codas: examples (data from Hall 1992, Wiese 1996, 2001, and my own)

Consonant	Word-final context	Gloss	Word-medial context	Gloss
p	lie[p]	'dear'	a[p]nehmen	'lose weight (inf.)'
t	mi[t] (Hall 1992)	'with'	A[t]las (Hall 1992)	'atlas'
k	Dre[k] (Hall 1992)	'dirt'	A[k]tie (Hall 1992)	'stock'
f	Schi[f]	'ship'	Ka[f]ka (Hall 1992)	'Kafka'
ç	fre[ç]	'fresh'	Te[ç]nik (Hall 1992)	'technology'
x	Bu[x] (Hall 1992)	'book'	schla[x]ten (Hall 1992)	'slaughter (inf.)'
s	kra[s] (Hall 1992)	'crass'	Franzi[s]kus (Hall 1992)	'Franciscan'
ʃ	Ti[ʃ]	'table'	mi[ʃ]te (Hall 1992)	'mix (p.)'
pf	Zo[pf]	'braid'	hü[pf]te (Hall 1992)	'hop (p.)'
ts	Fra[ts] (Hall 1992)	'rascal'	Me[ts]ger (Hall 1992)	'butcher'
ʧ	Ma[ʧ] (Hall 1992)	'slush'	ru[ʧ]te (Hall 1992)	'slip (p.)'
m	La[m]	'lamb'	verda[m].te	'damned (p.p.)'
n	Wei[n]	'wine'	I[n]go	'Ingo (m. p. name)'
l	Fa[l]	'case'	A[l]ter	'age'
/r/	He[ɐ]	'mister'	va[ʀ]ten (Wiese 2001)	'wait (inf.)'

Standard German simple codas can be filled both by obstruents and by sonorants. Plosives are always voiceless when occurring syllable-finally. The same holds for fricatives. In light of this, /b, d, g, v, z/ are realized as [p, t, k, f], respectively: *lie/b/* 'dear', *lie/b/.los* 'loveless', *To/d/* 'death', *A/d/.ler* 'eagle', *We/g/* 'path', *we/g/.werfen* 'throw away (inf.)', *nai/v/* 'naïve', *e/v/.ge* 'never-ending', *Rö/z/.chen* 'little rose' are realized as *lie[p]*, *lie[p].los*, *To[t]*, *A[t].ler*, *We[k]*, *we[k].werfen*, *nai[f]*, *e[f].ge* and *Rö[s].chen*, respectively (see Alber 2007, and Wiese 1996). Sibilants take up both positions, but in morphologically simple words, word-internal syllables are not closed by [ʃ]. Indeed, this segment is only found before a morpheme boundary, as shown in the provided example in the table above. Standard German exhibits a wide range of affricates. [LAB] [pf] and [COR] [ts, ʧ] fill both contexts. As for [ʃ], both [ʧ] and [pf] only occur before a morpheme boundary when found in morphologically complex forms (in the data, before the third person singular past ending; see Hall 1992: 111; and also Hall 1992: 74-80 for discussion of *s*-dissimilation).

Sonorants reveal a more homogeneous distribution than obstruents. As a matter of fact, they can fill both contexts. It emerges from the data in the chart above that /r/ is realized in different ways in German when found in coda position. In the examples above, vocalized *r* [ɐ] and uvular trill [ʀ] are given, but there is quite some variation in the realization of /r/ in coda, as pointed out by Wiese (2003: 35), which mentions German of the Lower Rhine area, in which /r/ is realized as the voiced fricative [ʁ] when found before laterals and nasals in the coda position, whereas it is realized as the voiceless fricative [χ] when it is preceded by a short vowel and followed by a voiceless coronal obstruent (see chapter 1).

The picture is now complete to move on to complex codas.

8.2.2 TWO-MEMBER CODAS

The following tables show all the licit Standard German coda clusters formed by two segments: the patterns sonorant+sonorant, sonorant+obstruent and obstruent+obstruent. The pluses “+” stand for the licit coda clusters. The former pattern is presented below:

(155) Standard German two-member coda clusters I: sonorant+sonorant (following Hall 1992, 2000 and Wiese 1996)

C1 SON	**C2 SON**			
	m	**n**	**l**	**/r/**
m				
n				
l	+	+		
/r/	+	+	+	

Examples for each cluster are given below:

(156) Standard German two-member coda clusters I: examples (data from Hall 1992, and my own)

Son+Son cluster	**Gloss**
He[lm]	'helmet'
Kö[ln] (Hall 1992)	'Cologne'
wa[ʀm]	'warm'
Ke[ʀn]	'core'
Ke[ʀl]	'guy, fellow'

In the pattern sonorant+sonorant, C1 is always [l] or /r/, whereas C2 is always a nasal, forming the sequences [lm, ln, ʀm, ʀn, ʀl] (as for one-member codas, we have provided some among the different realizations of /r/). All other types (nasal+liquid, nasal+/r/, nasal+nasal, and liquid+liquid) are excluded since C2 must be less sonorous than C1 in codas.

The tables below illustrate the pattern sonorant+obstruent:

(157) Standard German two-member coda clusters II: sonorant+obstruent (following Hall 1992, 2000 and Wiese 1996)

C1 SON	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**ç**	**x**	**s**	**ʃ**	**pf**	**ts**	**ʧ**
m	+		+				+				+	+	+	+	
n			+		+				+		+	+		+	
l	+		+		+		+		+	+	+	+		+	
/r/	+		+		+		+					+		+	

Examples for each cluster are illustrated in the following table:

(158) Standard German two-member coda clusters II: examples (data from Hall 1992, and my own)

Son+Obs cluster	**Gloss**
Ka[ɱp]	'enclosed ground'
A[mt]	'office'
Ha[ɱf]	'hemp'
Si[ms] (Hall 1992)	'ledge'
Ra[mʃ] (Hall 1992)	'junk'
Ka[ɱpf]	'struggle'
A[mt-s] (Hall 1992)	'office (gen. sing.)'
brisa[nt]	'burning'
Ba[ŋk]	'bank'
ma[nç]	'some'
Ha[ns] (Hall 1992)	'Hans (masculine proper name)'
Me[nʃ] (Hall 1992)	'person'

Kra[nts]	'crown'
ha[lp]	'half'
ka[lt]	'cold'
Ka[lk] (Hall 1992)	'lime'
Wo[lf]	'wolf'
Mi[lç]	'milk'
Ke[lx]	'goblet'
Ha[ls]	'throat'
fa[lʃ]	'wrong'
Schma[lts]	'lard'
he[ʀp]	'bitter'
ha[ʀt]	'hard, difficult'
We[ʀk]	'work, opus'
Ne[ʀf]	'nerve'
Ma[ʀʃ]	'march'
schwa[ʀts]	'black'

In the pattern sonorant+obstruent, sonorants generally cluster with all obstruent classes: plosives, fricatives, sibilants, and affricates. When nasals are followed by plosives, the emerging types are [LAB+LAB] [ɱp], [LAB+COR] [mt], [COR+COR] [nt], and [COR+DOR] [ŋk]. In the presented clusters, the nasal shares the place of articulation with the following plosive in virtue of regressive assimilation (the only exception being [mt]). This explains why sequences such as [np] do not emerge in the cluster inventory. When combining with fricatives, the only emerging sequence is [COR+DOR] [nç], whereas a restriction on [LAB+DOR] excludes combinations such as [mk, mç] (see Wiese 1996: 265 for discussion). Both nasals cluster with sibilants, generating the types [LAB+COR] [ms, mʃ], and [COR+COR] [ns, nʃ]. The same is true for affricates, in which case the types [LAB+LAB] [ɱpf], [LAB+COR] [mts], and [COR+COR] [nts] emerge, whereas [npf] is absent in virtue of assimilation of C1 with respect to the place of articulation of C2.

Liquid [l] can be followed by plosives, generating the types [COR+LAB] [lp], [COR+COR] [lt], and [COR+DOR] [lk]. When clustering with fricatives, the licit sequences are [COR+LAB] [lf], [COR+COR] [lç], and [COR+DOR] [lx]. Sibilants can follow [l] in [COR+COR] [ls, lʃ]. When combining with affricates, only [COR+COR] [lts] emerges, whereas [COR+LAB] [lpf] was not found. Finally, /r/ clusters with plosives, forming (among the various realizations of /r/) [ʀp, ʀt, ʀk].

When followed by fricatives, the only licit combination is [ʀf], whereas [ʀç] was not found. /r/ also clusters with sibilants, only exhibiting [ʀʃ], whereas [ʀs] was not found. With respect to affricates, /r/ only clusters with [ts] in [ʀts], whereas [ʀpf] and [ʀʧ] were not found.

The data presented above reveal that final devoicing excludes coda clusters in which C2 is a voiced segments such as [b, d, g, v] in /nd, ng/, for instance. Furthermore, the absence of sequences formed by [m] and a plosive or a fricative such as [mk, mç], respectively, can be explained by a limitation on the place of articulation: of the three articulators [LAB], [COR], and [DOR], codas can only exhibit either [LAB] or [DOR], while [COR] can combine with one of the two (either with [LAB] or with [DOR], explaining the licitness of [mt, mts]; see Wiese 1996: 265). With specific reference to [mk, mç], therefore, they are ruled out since [LAB]+[DOR] is illicit. The absence of clusters such as [nʧ, lʧ] may lie in their historical non-emergence (see chapter 4).

The pattern obstruent+obstruent is illustrated below:

(159) Standard German two-member coda clusters III: obstruent+obstruent (following Hall 1992, 2000 and Wiese 1996)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**ç**	**x**	**s**	**ʃ**	**pf**	**ts**	**ʧ**
p			+								+	+		+	
b															
t															
d															
k			+								+			+	
g															
f			+								+			+	
v															
ç			+								+			+	
x			+								+			+	
s	+		+		+									+	
ʃ					+						+				
pf			+								+				
ts			+												
ʧ			+												

A list of examples for this pattern is given in the following table:

(160) Standard German two-member coda clusters III: examples (data from Hall 1992, Wiese 1996, and my own)

Obs+Obs cluster	**Gloss**
A[pt] (Hall 1992)	'abby'
Schna[ps] (Wiese 1996)	'spirit'
hü[pʃ] (Wiese 1996)	'pretty'
A[pt-s] (Hall 1992)	'abby (gen. sing.)'
A[kt]	'record'
La[ks] (Wiese 1996)	'salmon'
A[kt-s] (Hall 1992)	'act (gen. sg.)'
Kra[ft]	'strength'
Ho[f-s] (Hall 1992)	'yard (gen. sing.)'
Ha[ft-s] (Hall 1992)	'arrest (gen. sg.)'
di[çt]	'thick'
Ble[ç-s] (Hall 1992)	'tin (gen. sing.)'
Kne[çt-s] (Hall 1992)	knight (gen. sg.)'
Ma[xt]	'might (n.)'
Lo[x-s]	'leak (gen. sing.)'
Wu[xt-s]	'impact (gen. sg.)'
Li[sp] (Wiese 1996)	'lisp'
Li[st] (Wiese 1996)	'cunning'
brü[sk]	'abrupt'
Kna[st-s] (Hall 1992)	'prison (gen. sg.)'
Wa[ʃk] (Wiese 1996)	'Waschk (last name)'
Fi[ʃ-s] (Hall 1992)	'fish (gen. sing.)'
hü[pf-t] (Hall 1992)	'hop (3rd sing.)'
Ko[pf-s]	'head (gen. sing.)'
hei[ts-t] (Hall 1992)	'heat (3rd sing.)'
quie[ʧ-t] (Hall 1992)	'squeak (3rd sing.)'

In the pattern obstruent+obstruent, plosives, fricatives, sibilants and affricates generally combine with plosives, sibilants, and affricates, whereas fricatives never fill C2. C1 plosive can be either [LAB] or [DOR], but not [COR] [t]. These segments generate the types [LAB+COR] [pt] and [DOR+COR] [kt]. When followed by sibilants, the types [LAB+COR] [ps, pʃ] and [DOR+COR] [ks] are found. The same holds when C2 is an affricate: [LAB+COR] [pts] and [DOR+COR] [kts] are the emerging types. Fricatives combine with plosives in [LAB+COR] [ft] and in [DOR+COR] [çt, xt]. The same is true when C2 is a sibilant, generating [LAB+COR] [fs], and [DOR+COR] [çs, xs][82]; and when

[82]Actually, Hall (1992: 114) points out that sequences of the type fricative+fricative only occur in heteromorphemic words, providing the last name *Lauffs* [laufs] as the only exception to this.

C2 is filled by an affricate, displaying [LAB+COR] [fts], [COR+COR] [çts], and [DOR+COR] [xts]. Sibilants are followed by plosives of any articulators, forming the types [COR+LAB] [sp], [COR+COR] [st], and [COR+DOR] [sk, ʃk]. Clusters formed by two sibilants only occur in the case of [COR+COR] [ʃs]. When followed by affricates, the only emerging combination is [COR+COR] [sts]. Finally, affricates are followed by coronal plosives in [LAB+COR] [pft], in [COR+COR] [tst, ʧt]; and by sibilants in [LAB+COR] [pfs].

The data above show that C2 is always a coronal, [+ant] segment [t, s, ʃ, ts] when C1 is /s/ or some other segment – a plosive, a fricative, or an affricate (see Hall 2000: 237 for discussion). In virtue of this, we do not find any coda clusters such as [tp, tk], or [sç, sf]. The only exception to this generalization is [ʃs], where its licitness might be due to the fact that C1 and C2 are split by a morpheme boundary (*Fi[ʃ-s]*, where [s] is the masculine genitive ending). The fact that the above [+ant] segments can be added to any C1 (excluding sonority *plateaux*) leads to consider them as extrasyllabic in coda position (Hall 2000, Wiese 1996, among others). As such, the segments in question do not count in sonority-related matters. As a matter of fact, coda clusters such as [kt] or [pfs] would be illicit since sonority does not fall from C1 to C2. Indeed, in the given examples [k] and [t] have SI= 1; [pf] has SI= 2, while [s] has SI= 3. This is a violation of the SSG, given that, in coda position, C1 must be more sonorous than C2. Since extrasyllabicity in codas always occurs when [t, s] are involved, a further reason to justify their status is the fact that coronal segments do not count in phonotactic matters. In addition, [COR] segments are the only ones which can form homorganic sequences ([st, sts, tst, ʧt]). Furthermore, a restriction applies on combinations which exhibit two specifications of the features [LAB] and [DOR] within a coda. In virtue of this, coda clusters such as [fk, pç, kf, xp] are excluded (see Wiese 1996: 265 for discussion).

The values for Standard German are collected below. We will rule out all clusters containing a sibilant – given the unclear status of /s/ – and potentially extrasyllabic [+ant] coronals [s, t]:

(161) Sonority distances for Standard German two-member coda clusters

Cluster	Sonority Distance	Cluster	Sonority Distance
[ʀp, ʀk]	/r/ (11) – vcless plos (1)= 10	[ɱpf]	nas (7) – vcless affr (2) = 5
[ʀf]	/r/ (11) – vcless fric (3)= 8	[ʀm, ʀn]	/r/ (11) – nas (7) = 4
[lp, lk]	lat (9) – vcless plos (1) = 8	[nç]	nas (7) – vcless fric (3) = 4
[lf, lç]	lat (9) – vcless fric (3) = 6	[ʀl]	/r/ (11) – lat (9)= 2
[ɱp, ŋk]	nas (7) – vcless plos (1) = 6	[lm, ln]	lat (9) – nas (7) = 2

Standard German coda clusters range from SD= 10 to SD= 2. The highest value emerges in combinations where C1 is [ʀ] followed by a voiceless plosive ([ʀp, ʀk]). SD= 8 is found when [ʀ, l] cluster with voiceless fricatives and voiceless plosives, respectively ([ʀf, lp, lk]). Combinations which exhibit SD= 6 are many and are formed by [l] or a nasal as C1, followed by a fricative or a plosive ([lf, lç, ɱp, ŋk]). SD= 5 only occurs in [ɱpf], whereas SD= 4 results from sequences of two sonorants ([ʀm, ʀn]) and from those of a nasal and a fricative ([nç]). Finally, two intervals characterize clusters of two sonorants ([ʀl, lm, ln]).

The Standard German coda cluster inventory lacks combinations displaying SD= 9. This value would result from a cluster such as [ʀts] (/r/ (11) – voiceless affricate (2)= 9), which has been left out from the SD-count because of the unclear status of /s/. A further gap is found in SD= 7, a value which would result from a combination such as [lts] (lateral (9) – voiceless affricate (2)= 7) which has not been considered as well because of /s/. Finally, coda clusters exhibiting SD= 3 are absent. This value would result from sequences such as [mg, ng] (nasal (7) – voiced plosive (4)= 3), which are excluded in virtue of the restriction on the combination of [LAB] and [DOR] within a coda (banning [mg]) and because of *n*-assimilation after [g]-deletion (banning [ng]).

The next section is devoted to Tyrolean dialects. We will discuss the various points in the same fashion adopted for Standard German.

8.3 TYROLEAN DIALECTS

The inventories of simple and complex codas in Tyrolean generally conform to those of Standard German. As a matter of fact, these dialects allow from one to two segments in coda position. As in Standard German, many Tyrolean coda clusters contain a coronal, [+ant] segment [t, s, ʃ] as their last member – in two-member sequences as well as in more complex ones. As in Standard German, [t, s] (and, for Tyrolean, [ʃ]) can be added to any consonants, which leads us to treat them as extrasyllabic (along with the 'special' status which /s/ enjoys) – therefore, they do not play any role in sonority-related matters. Indeed, well-formed sequences such as [pt], [kt] or [çs] would turn out to be sonority *plateaux* since C1C2 exhibit the same SI ([pt], [kt]: SI= 1; [çs]: SI= 3), therefore violating the requirement of the SSG, in virtue of which sonority must sink from C1 to C2 in coda. Furthermore, extrasyllabicity in codas is always found when [t, s] (and [ʃ]) fill C2, and excluding these coronals from phonotactic matters reinforces their 'special' status. It follows, then, that [t, s, ʃ] will not be considered when determining sonority distances. Three (or more)-member coda clusters will be absent from the Tyrolean inventory: in words such as *Dië[ʀns]* 'girl (gen. sg.)', *Må[ʀkt]* 'market', *zwä[ʀçs]* 'sloping' and *Ea[ʀnʃt]* 'seriousness' (see Haller/Lanthaler 2004), all which goes beyond C2 (and all which is [+ant] [t, s]) is extrasyllabic. The following section focuses on simple codas.

8.3.1 ONE-MEMBER CODAS

The following table lists all possible simple codas in Tyrolean, both word-medially and word-finally:

(162) Tyrolean one-member codas (following my fieldwork)

Consonant	Word-final context	Word-medial context
p	yes	yes
t	yes	yes
k	yes	yes
f	yes	yes
ç	yes	yes
x	yes	yes
s	yes	yes
ʃ	yes	yes

pf	yes	yes
ts	yes	yes
ʧ	yes	yes
kx	yes	yes
b	no	no
d	no	no
g	no	no
v	no	no
z	no	no
m	yes	yes
n	yes	yes
l	yes	yes
/r/	yes	yes

Below are examples for each segment:

(163) Tyrolean one-member word-final codas: examples (data from Haller/Lanthaler 2004, and my fieldwork)

Consonant	Word-final context	Place/Valley	German cognate	Gloss
p	Ty[p]	Ritten	Ty[p]	'guy'
t	ho[t]	Meran	ha[t]	'have (3rd sing.)'
k	Kschmo[k]	Meran	Geschma[k]	'taste'
f	a[f] (Haller/Lanthaler 2004)	Passeier	au[f]	'on'
ç	si[ç]	Klausen	si[ç]	'self'
x	Flua[x] (Haller/Lanthaler 2004)	Passeier	Flu[x]	'curse'
s	vå[s]	Meran	wa[s]	'what'
ʃ	i[ʃ] (Haller/Lanthaler 2004)	Passeier	i[s]t	'be (3rd sing.)'
pf	Ko[pf] (Haller/Lanthaler 2004)	Passeier	Ko[pf]	'head'
ts	Gehe[ts]	Meran	Gehe[ts]e	'hunting (n.)'
ʧ	Ma[ʧ] (Haller/Lanthaler 2004)	Passeier	Ma[ʧ]	'slush'
kx	Kschmå[kx]	Deutschnofen	Geschma[k]	'taste'
m	zu[m]	Klausen	zu[m]	'to (dat.)'
n	Ma[n]	Klausen	Ma[n]	'man'
l	fü[l]	Renon	fü[l]	'pour (imp.)'
/r/	Ti[ʀ]	Deutschnofen	Tü[ɐ]	'door'

(164) Tyrolean one-member word-medial codas: examples (data from Haller/Lanthaler 2004, and my fieldwork)

Consonant	Word-medial context	Place/Valley	German cognate	Gloss
p	a[p]genommen	Klausen	a[p]genommen	'lose weight (p.p.)'
t	A[t]lerii (Haller/Lanthaler 2004)	Passeier	Artillerie	'artillery'
k	we[k]kramt	Meran	we[k]geräumt	'store away (p.p.)'

f	Besäu[f]nis	Klausen	Besäu[f]nis	'booze-up'
ç	Besi[ç]tigung	Ritten	Be.si[ç]tigung	'tour'
x	betrå[x]ten	Klausen	betra[x]ten	'observe (inf.)'
s	Me[s]ner	Meran	Me[s]ner	'Messner (last name)'
ʃ	lä[ʃ]tig	Klausen	lä[s]tig	'annoynig'
pf	khu[pf]ter[83]	Meran	gehü[pf]ter	'hop (p.p. adj.)'
ts	geschä[ts]ter	Ritten	geschä[ts]ter	'esteemed (adj.)'
ʧ	oglu[ʧ]ter[84]	Meran	aufgelu[ʧ]ter	'lick (p.p.)'
kx	we[kx]kramp	Deutschnofen	we[k]geräumt	'store away (p.p.)'
m	beschi[m]pfen	Meran	beschi[m]pfen	'curse (inf.)'
n	Ande[n]ken	Deutschnofen	Ande[n]ken	'souvenir'
l	Geho[l]per	Ritten	Geho[l]per	'staggering (n.)'
/r/	geho[ʁ]chen	Klausen	geho[ɐ]chen	'obey (inf.)'

Tyrolean allows both for word-final and word-medial simple codas, where we find obstruents as well as sonorants. As in Standard German, among the former we find plosives, fricatives, sibilants, and affricates. Plosives and fricatives taking up the coda position are neutralized to their voiceless equivalent (see Alber 2013: 25). Tyrolean partly differs from Standard German with respect to sibilants. If, on the one hand, [s] occurs word-finally and word-internally as in Standard German, postalveolar [ʃ] is the result of *s*-palatalization, which is found in all contexts (see Wiesinger 1990: 479, and chapter 4 for details). Morphologically simple words can be closed by [ʃ] in word-internal syllables in Tyrolean, whereas Standard German always realizes [s] (see chapter 4). Affricates exhibit similarities as well as differences from the Standard German inventory and distribution in Tyrolean. On the one hand, [LAB] [pf] and [COR] [ts, ʧ] fill both the word-final and the word-medial context, but [pf] and [ʧ] are only found before a morpheme boundary in the latter position. In this trait, Tyrolean resembles Standard German. Furthermore, Tyrolean exhibits dorsal affricate [kx], typical of South Bavarian varieties (see chapter 4).

Concerning sonorants, both nasals and liquids occupy the word-final as well as the word-internal context, which reveals a more homogeneous distribution than that of obstruents. Among these, /r/ is characterized by great variability in Tyrolean, including uvular trill [ʀ], uvular fricative [ʁ], apical [r], and vocalized *r* [ɐ] (see chapter 4). In the data reported above, /r/ is realized as [ʀ] (Deutschnofen) and [ʁ] (Klausen) in postvocalic context.

[83]Example from B.A. (p.c.).

[84]Example from B.A. (p.c.).

8.3.2 TWO-MEMBER CODAS

As Standard German, Tyrolean dialects allow for the patterns sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent, the former of which is illustrated below. In all the presented patterns, the pluses "+" stand for sequences which are also found in Standard German, whereas the black dots "●" stand for clusters which are peculiar of Tyrolean:

(165) Tyrolean two-member coda clusters I: sonorant+sonorant (following Haller/Lanthaler 2004, and my fieldwork)

C1 SON	**C2 SON**			
	m	**n**	**l**	**/r/**
m				
n				
l	+	+		
/r/	+	+	+	

Examples for each cluster are given in the following table:

(166) Tyrolean two-member coda clusters I: examples (data from Haller/Lanthaler 2004, and my fieldwork)

Son+Son cluster	**Place/Valley**	**German cognate**
Schë[lm] (Haller/Lanthaler 2004)	Passeier	Sche[lm]
Kë[ln]	Deutschnofen	Kö[ln]
å[ʀm] (Haller/Lanthaler 2004)	Passeier	a[ɐ]m
Hi[ʀn]	Deutschnofen	Gehi[ɐ]n
Ka[ʀl]	Deutschnofen	Ka[ɐ]l

In the pattern sonorant+sonorant, C1 is always [l] or /r/, while C2 is either a nasal or [l], forming the sequences [COR+LAB] [lm], [COR+COR] [ln], whereas /r/ freely combines both with labials ([ʀm]) and with coronals ([ʀn, ʀl]). All other types (nasal+liquid, nasal+/r/, nasal+nasal, liquid+liquid, liquid+/r/) are excluded in virtue of the requirement of sinking sonority from C1 to C2 in codas.

The pattern sonorant+obstruent is illustrated below:

(167) Tyrolean two-member coda clusters II: sonorant+obstruent (following Haller/Lanthaler 2004, and my fieldwork)

C1 SON	**C2 OBS**																
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**ç**	**x**	**s**	**z**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
m	+		+				+				+		+	+	+		
n			+		+				+		+		+		+	●	●
l	+		+		+		+		+	+	+		+		+	●	
/r/	+		+		+		+		●		●		+	●	+		●

Examples for each cluster are provided in the following table:

(168) Tyrolean two-member coda clusters II: examples (data from Haller/Lanthaler 2004, Schatz 1955-1956, and my fieldwork)

Son+Obs cluster	**Place/Valley**	**German cognate**	**Gloss**
Kå[ɱp] (Haller/Lanthaler 2004)	Passeier	Kamm	'comb'
weggeräu[m-t]	Klausen	weggeräu[mt]	'store away (p.p.)'
Se[ɱf] (Haller/Lanthaler 2004)	Passeier	Se[nf]	'mustard'
Ksi[ms]	Klausen	Gesi[ms]	'eaves'
ki[mʃ][85]	Meran	ko[mst]	'come (2nd sg.)'
Kå[mpf] (Haller/Lanthaler 2004)	Passeier	Ka[mpf]	'struggle'
raa[m-ts][86]	Meran	räu[m-t]	'move, shift (2nd pl.)'
ksu[nt]	Meran	gesu[nt]	'healthy'
Kʃe[ŋk]	Meran	Gesche[nk]	'gift'
ma[nç] (Schatz 1955-1956)	---	ma[nç]	'some'
Hå[ns] (Haller/Lanthaler 2004)	Passeier	Ha[ns]	'Hans (m. proper name)'
Me[nʃ]	Ritten	Me[nʃ]	'person'
gå[nts] (Haller/Lanthaler 2004)	Passeier	ga[ntz]	'whole'
Pa[nʧ] (Haller/Lanthaler 2004)	Passeier	---	'side of hayballs'
då[nkx][87]	Meran	danke	'thank you'
Kå[lp] (Haller/Lanthaler 2004)	Passeier	Ka[lp]	'calb'
Gehå[lt]	Klausen	Geha[lt]	'salary'
Fo[lk]	Passeier	Vo[lk]	'people'
Wo[lf] (Haller/Lanthaler 2004)	Passeier	Wo[lf]	'wolf'
mä[lç] (Haller/Lanthaler 2004)	Passeier	---	'giving milk (adj.)'
Ke[lx][88]	Meran	Ke[lx]	'goblet'
mehrmå[ls]	Klausen	mehrma[ls]	'often'

[85] Example from B.A. (p.c.).

[86] Example from B.A. (p.c.).

[87] Example from B. A. (p. c.).

[88] Example from B. A. (p. c.).

få[lʃ] (Schatz 1955-1956)	---	fa[lʃ]	'wrong'
Ho[lts]	Deutschnofen	Ho[lts]	'wood'
wa[lʧ] (Haller/Lanthaler 2004)	Passeier	---	'Italian (adj.)'
Ko[ʀp]	Meran	Ko[ɐ]p	'basket'
Fåhrkå[ʁt]	Meran	Fahrka[ɐ]te	'ticket'
Pa[ʀk]	Ritten	Pa[ɐ]k	'park'
schå[ʁf]	Deutschnofen	scha[ɐ]f	'spicy'
Geschnå[ʁç]	Meran	Geschna[ɐ][ç]e	'snoring'
Villande[ʀs]	Klausen	Villand[ɐ][s]	'Villanders (place name)'
Scho[ʀʃ] (Haller/Lanthaler 2004)	Passeier	Georg	'Georg (m. proper name)'
Ka[ʀpf] (Haller/Lanthaler 2004)	Passeier	---	'policeman'
schwå[ʀts] (Haller/Lanthaler 2004)	Passeier	schwa[ɐ][ts]	'black'
Pa[ʀkx]	Meran	Pa[ʀk]	'park'

With respect to the pattern sonorant+obstruent, sonorants generally cluster with all obstruent classes: plosives, fricatives, sibilants, and affricates. In virtue of final devoicing, coda clusters in which C2 is a voiced segment are excluded, as in Standard German. When nasals combine with plosives, the licit types are [LAB+LAB] [ɱp], [LAB+COR] [mt], [COR+COR] [nt], and [COR+DOR] [ŋk]. Nasals share the place of articulation with the following plosive in virtue of regressive assimilation (except for [mt]). This explains why sequences such as [np] do not emerge in the cluster inventory. When followed by fricatives, the licit clusters are [LAB+LAB] [ɱf] (where C1 assimilates to C2 with respect to the feature [LAB]) and [COR+DOR] [nç]. Both nasals combine with sibilants, generating the types [LA+COR] [ms, mʃ] and [COR+COR] [ns, nʃ], respectively. As in Standard German, nasals cluster with affricates in the types [LAB+LAB] [ɱpf], [LAB+COR] [mts], and [COR+COR] [nts], whereas [npf] is absent in virtue of assimilation of C1 with respect to the place of articulation of C2. In addition, Tyrolean displays [COR+COR] [nʧ] and [COR+DOR] [ŋkx], which are not found in Standard German – resulting from affrication of [ʃ] and *k*, respectively –, whereas [mʧ] was not found. Liquid [l] is followed by plosives, generating the types [COR+LAB] [lp], [COR+COR] [lt], and [COR+DOR] [lk]. When clustering with fricatives, we find [COR+LAB] [lf], [COR+COR] [lç], and [COR+DOR] [lx]. Sibilants can follow [l] in [COR+COR] [ls, lʃ]. Homorganic [COR+COR] also emerges when C2 is an affricate. Not only does Tyrolean exhibits [lts], but also [lʧ], which Standard German lacks (the latter as the result of some process of affrication affecting [ʃ]), whereas [lpf] was not found in Tyrolean. Finally, /r/ clusters with plosives of any articulator ([ʀp, ʀt, ʀk]). When followed by fricatives, Tyrolean displays [ʀf] and – differently from Standard German – [ʀç] (the result of schwa-apocope; see chapter 4). /r/ also clusters with sibilants in [ʀʃ] and – unlike Standard German – [ʀs]. With respect to affricates, Tyrolean allows for [ʀpf, ʀkx], which Standard German lacks; and for [ʀts], as in Standard German, whereas [ʀʧ] was not found.

The data discussed above reveal that the absence of sequences formed by [m] and a plosive or a fricative such as [mk, mç], respectively, can be explained by a limitation operating on the place of articulation banning [LAB] and [DOR] within the same coda. In other words, codas can only exhibit either [LAB] or [DOR], whereas [COR] can cluster with one of the two (either with [LAB] or with [DOR], which justifies the licitness of [mt, mts]; see Wiese 1996: 265 for discussion). As in Standard German, /r/ does not undergo any limitations with respect to the articulator of C2, freely clustering with [LAB], [COR], and [DOR] segments. Finally, the pattern obstruent+obstruent is illustrated below:

(169) Tyrolean two-member coda clusters III: obstruent+obstruent (following Haller/Lanthaler 2004, and my fieldwork)

C1 OBS	**C2 OBS**																
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**ç**	**x**	**s**	**z**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
p			+								+		+				
b																	
t																	
d																	
k			+								+		●				
g																	
f			+														
v																	
ç			+								●						
x			+										●				
s																	
z																	
ʃ			●								●						
pf			+										●				
ts			+														
ʧ			+														
kx																	

The following table collects examples for each cluster:

(170) Tyrolean two-member coda clusters III: examples (data from Haller/Lanthaler 2004, Schatz 1955-1956, and my fieldwork)

Obs+Obs cluster	Place/Valley	German cognate	Gloss
überhau[pt]	Ritten	überhau[pt]	'absolutely'
Schnå[ps] (Haller/Lanthaler 2004)	Passeier	Schna[ps]	'liquor'
hi[pʃ] (Schatz 1955-1956)	---	hü[pʃ]	'pretty, cute'
gehaili[k-t]	Meran	geheili[k-t]	'consecrate (p.p.)'
wå[ks]	Klausen	wa[ks]e	'grow (1st sg.)'
sa[kʃ][89]	Meran	sa[k-st]	'say (2nd sg.)'
Krå[ft]	Meran	Kra[ft]	'strength'
Ksi[çt]	Klausen	Gesi[çt]	'face'
undurchdringli[ç-s]	Meran	undurchdringli[ç][ə]s	'thick, dense'
gmå[x-t]	Ritten	gema[x-t]	'do (p.p.)'
brau[x-ʃ]	Meran	brau[x-st]	'need (2nd sing.)'
få[ʃt]	Klausen	fa[st]	'almost'
hå[ʃ-s] (Haller/Lanthaler 2004)	Passeier	ha[st] du e[s]	'have (2nd sg.) it'
gezo[pf-t]	Deutschnofen	---	'intertwine (p.p.)'
zo[pf-ʃ][90]	Meran	zo[pf-st]	'intertwine (2nd sg.)'
gesprei[ts-t]	Meran	gesprei[ts-t]	'stretch out (p.p.)'
derque[ʧ-t] (Schatz 1955-1956)	---	zerque[ʧ-t]	'squash (p.p.)'

In the pattern obstruent+obstruent, plosives, fricatives, sibilants and affricates generally cluster with plosives and sibilants, whereas fricatives and affricates never take up C2. As shown for Standard German, C1 plosive can be either [LAB] or [DOR], but not [COR] [t]. These segments form the types [LAB+COR] [pt] and [DOR+COR] [kt], respectively. When combining with sibilants, the types [LAB+COR] [ps, pʃ] and [DOR+COR] [ks, kʃ], respectively, occur. The last sequence only characterizes Tyrolean, resulting from *s*-palatalization and -*t*-deletion (see chapter 4), whereas it was not found in Standard German. When C1 is filled by fricatives, the licit types are [LAB+COR] [ft] and [DOR+COR] [çt, çs, xt], as in Standard German. In addition, Tyrolean exhibits [DOR+COR] [xʃ], resulting from -*t*-deletion, which Standard German lacks (see chapter 4). Sibilants display a very restricted range of combinations. As a matter of fact, the only emerging clusters is [COR+COR] [ʃt, ʃs]. The former is the result of *s*-palatalization (which has not affected Standard German), whereas the latter results from -*t*-deletion in verb endings and schwa-deletion. Finally,

[89]Example from B.A. (p.c.).

[90]Example from B.A. (p.c.).

affricates are only followed coronal segments. These are [t] in [pft, tst, ʧt] – which also occur in Standard German – and postalveolar [ʃ] in [pfʃ], which only characterizes Tyrolean as the result of *s*-palatalization and *-t*-deletion (see Wiesinger 1990: 479; 493, and chapter 4).

It emerges from the data discussed above that, in Tyrolean, C2 must always be [t] when combined with another plosive. This explains why [pt, kt] are well-formed sequences, whereas the reversed order [tp, tk] is not part of the Tyrolean inventory. The same can be observed with respect to [s, ʃ]: they always fill C2 when combined with another fricative or sibilant. This explains the lack of clusters such as [sç]. The only exception is [ʃs], whose licitness may be explained by the presence of a morpheme boundary (as for Standard German *Fi[ʃ-s]*). In addition, all clusters containing both [LAB] and [DOR] such as [pk, pç] are excluded in virtue of the limitation on [LAB] and [DOR] within a single coda (see Wiese 1996: 265).

We are now able to present the various sonority distances for Tyrolean. As we did for Standard German, coda clusters containing a sibilant and all potentially extrasyllabic coronal obstruents – for Tyrolean, [t, s, ʃ] – are excluded from the calculation in virtue of their 'special' status. The coda clusters which play a role in determining sonority distances are collected below:

(171) Sonority distances for Tyrolean two-member coda clusters

Cluster	**Sonority distance**	**Cluster**	**Sonority distance**
[ʀp, ʀk]	/r/ (11) – vcless plos (1)= 10	[ɱpf, ŋkx]	nas (7) – vcless affr (2)= 5
[ʀpf, ʀkx]	/r/ (11) – vcless affr (2)= 9	[ʀm, ʀn]	/r/ (11) – nas (7)= 4
[ʁf, ʁç]	/r/ (11) – vcless fric (3)= 8	[ɱf, nç]	nas (7) – vcless fric (3)= 4
[lp, lk]	lat (9) – vcless plos (1)= 8	[ʀl]	/r/ (11) – lat (9)= 2
[lf, lç, lx]	lat (9) – vcless fric (3)= 6	[lm, ln]	lat (9) – nas (7)= 2
[mp, ŋk]	nas (7) – vcless plos (1)= 6		

Tyrolean coda clusters range from SD=10 to SD= 2. The highest values occur when C1 is /r/, followed by a plosive (SD= 10) or an affricate (SD= 9). The latter value is absent in Standard German. Indeed, it does not display any coda clusters of the type /r/+affricate since they have not originated from historical affrication (in the case of [ʀkx]) or, simply, because this variety does not exhibit any words ending in [ʀpf]. Coda clusters with SD= 8 are many. They display /r/ or [l] as C1, and a fricative or a plosive as C2, respectively. Combinations displaying SD= 6 are many as well.C1 is a liquid or a nasal, and C2 is a fricative or a plosive, respectively. Five intervals separating C1 from C2 in sonority are found when a nasal combines with an affricate, to which it assimilates with respect to the place of articulation. Among these sequences, Standard German lacks [ŋkx] because *k*-affrication does not characterize this variety. SD= 4 includes clusters of two sonorants (/r/+nasal) and of a sonorant and an obstruent (nasal+fricative). Finally, SD= 2 is found in sequences of two sonorants, where /r/ combines with [l], and [l] combines with nasals.

As shown for Standard German, the Tyrolean sonority distance inventory exhibits a gap with respect to clusters of SD= 7. This value would result in sequences containing a sibilant such as [lts, lʧ] (lateral (9) – voiceless affricate (2)= 7), which do occur in Tyrolean dialects, but which have been excluded from the calculation because of /s/. In addition, Tyrolean (as Standard German) does not exhibit any coda clusters with SD= 3. This value would result from combinations such as [mg, ng] (nasal (7) – voiced plosive (4)= 3). In virtue of the limitation on the articulators [LAB] and [DOR] within the same coda, [mg] is excluded, whereas the lack of [ng] can be explained by *n*-assimilation and *g*-deletion. It follows from the above data that Tyrolean is as tolerant as Standard German with respect to the limit that it sets for its coda clusters to be licit from a sonority point of view, allowing for SD= 2 as its lowest value.

In the next sections we will deal with Mòcheno, proceeding in the same fashion as here.

8.4 MòCHENO (PALAI)

Mòcheno allows from one to two segments to fill the coda position. As in Standard German, its inventory displays many clusters which contain a coronal, [+ant] segment [t, s] as their last member. These consonants can be added to any segment, leading to the emergence of sequences which not always conform to the requirements of the SSG such as in [pt, kt] – exhibiting sonority *plateaux* instead of falling sonority. In virtue of this, we will consider [t, s] as extrasyllabic elements and, as such, we will exclude them from the SD-count. Furthermore, extrasyllabicity in codas always occurs when [t, s] take up C2, and excluding these coronals from phonotactic matters reinforces their 'special' status. The emerging picture also leads to the absence of three[91] or four-member coda clusters. Indeed, in sequences such as *lea[rnt]* 'learn (3rd sg.)', *lea[rnst]* 'learn (2nd sg.)', and *be[rmst]* 'heat up

[91]The only case which was found whose C3 is not coronal [t, s] is *be[rmp]* 'heat up (3rd sg.)'; see Rowley 1986). This sequence arises as a result from -*t*-assimilation to the final consonant of the stem (see Schabus 2006: 284) and involves South Bavarian varieties.

(2nd sg.)', all elements which exceed C2 are [+ant] coronal [t, s] and, therefore, are treated as extrasyllabic. Simple codas are presented in the following section.

8.4.1 ONE-MEMBER CODAS

The following chart lists all licit simple codas in Mòcheno, both in word-medial and in word-final context:

(172) Mòcheno one-member codas (following *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

Consonant	**Word-final context**	**Word-medial context**
p	yes	no
t	yes	no
k	yes	no
f	yes	yes
ç	no	no
x	yes	no
s	yes	yes
ʃ	yes	no
pf	yes	no
ts	yes	yes
ʧ	yes	no
kx	yes	no
b	no	no
d	no	no
g	no	no
v	no	no
z	no	no
m	yes	yes
n	yes	yes
l	yes	yes
r	yes	yes

Examples for each segment in each context are provided below:

(173) Mòcheno one-member word-final codas: examples (data from *'s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

Consonant	**Word-final context**	**German cognate**	**Gloss**
p	sklo[p] (*bersntol.it*)	---	'blast'
t	hi[t] (*bersntol.it*)	Hü[t]e	'lodge'

k	de[k] (*bersntol.it*)	De[k]e	'blanket'
f	betre[f]	Betre[f]	'subject, content'
x	smo[x]	---	'smell'
s	eppe[s]	etwa[s]	'something'
ʃ	ti[ʃ] (*bersntol.it*)	Ti[ʃ]	'table'
pf	kno[pf] ('*s kloa be.be* 2009)	---	'knot'
ts	sbi[ts]	Schwei[s]	'sweat'
ʧ	tei[ʧ]	---	'barn'
kx	gli[kx] (*bersntol.it*)	Glü[k]	'good luck'
m	glai[m]	---	'near'
n	sbai[n]	Schwei[n]	'pig'
l	norma[l]	norma[l]	'normal'
r	deste[r]	---	'comfortable'

(174) Mòcheno one-member word-medial codas: examples (data from *bersntol.it* and my fieldwork)

Consonant	**Word-medial context**	**German cognate**	**Gloss**
f	so[f]te (*bersntol.it*)	sa[f]tig	'juicy'
s	au[s]drucken (*bersntol.it*)	au[s]drücken	'crash (inf.)'
ts	gli[ts]nen (*bersntol.it*)	gli[ts]ern	'glisten (inf.)'
ʧ	au[ʧ]belng (*bersntol.it*)	aufschwellen	'swell (inf.)'
m	u[m]song (*bersntol.it*)	---	'cut down (inf.)'
n	bi[n]ter (*bersntol.it*)	Wi[n]ter	'winter'
l	bo[l]ver (*bersntol.it*)	---	'cheap'
r	fe[r]lech (*bersntol.it*)	gefä[ɐ]lich	'dangerous'

In Mòcheno, simple codas are filled both by obstruents and by sonorants. Among the former we find plosives, fricatives, sibilants, and affricates. All these segments almost exclusively occupy the word-final position. Plosives and fricatives filling codas are voiceless [p, t, k, f] and, in some cases, they are found as a result of schwa-apocope (see chapter 4). Sibilants [s, ʃ] behave as in Standard German: both fill the word-final position, but only [s] is found word-internally. With respect to affricates, Mòcheno partly differs from Standard German since it displays [DOR] [kx], preserved from the Second Consonant Shift (see chapter 4). On the other hand, [LAB] [pf] and [COR] [ts, ʧ] conform to the Standard German inventory. Sonorants reveal a more homogeneous distribution than obstruents since they all fill both the word-final and the word-medial position. The only difference which Mòcheno exhibits with respect to these segments lies in the realization of /r/, which is always apical [r] (see chapter 4).

The picture is now complete to move on to complex codas.

8.4.2 TWO-MEMBER CODAS

As in Standard German, the allowed patterns for two-member codas in Mòcheno are sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent. The former is illustrated below. In all the discussed patterns, the pluses “+” stand for clusters which are also found in Standard German, whereas the black squares “■” stand for sequences which are peculiar of Mòcheno:

(175) Mòcheno two-member coda clusters I: sonorant+sonorant (following '*s kloa be.be* 2009, *bersntol.it*, and my fieldwork)

C1 SON	**C2 SON**			
	m	**n**	**l**	**r**
m				
n				
l	+	+		
r	+	+	+	

The following table collects examples for each cluster:

(176) Mòcheno two-member coda clusters I: examples (data from *bersntol.it* and my fieldwork)

Son+Son cluster	**German cognate**	**Gloss**
so[lm] (*bersntol.it*)	---	'oil (inf.)'
gabe[ln] (*bersntol.it*)	---	'vault'
le[rm]	Lä[ɐ][m]	'noise'
dou[rn]	Do[ɐ][n]	'thorn'
tsche[rl]	---	'decision'

In the pattern sonorant+sonorant, C1 is always a liquid, whereas C2 is either a nasal or a liquid. The emerging clusters are the type [COR+LAB] [lm] and [COR+COR] [ln], whereas /r/ combines both with labials ([rm]) and with coronals ([rn, rl]). The presented types exclude the types nasal+nasal, nasal+liquid, and liquid+liquid in virtue of the requirement of the SSG, in virtue of which C1C2 must sink in sonority in coda clusters. The only exception to the illicit types is provided by [rl] (which, however, displays falling sonority).

The following charts illustrate the pattern sonorant+obstruent:

(177) Mòcheno two-member coda clusters II: sonorant+obstruent (following *bersntol.it*, Rowley 1986, *s kloa' be.be* 2009, and my fieldwork)

C1 SON	**C2 OBS**																
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**ç**	**x**	**s**	**z**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
m	+		+				+							+			
n			+		+						+				+	■	■
l	+		+		+		+		+	+	+		+		+		
r	+		+		+		+			■			+		+		■

Examples for each cluster are listed below:

(178) Mòcheno two-member coda clusters II: examples (data from *bersntol.it*, Rowley 1986, *s kloa' be.be* 2009, and my fieldwork)

Son+Obs cluster	**German cognate**	**Gloss**
kru[ɱp] (*bersntol.it*)	kru[m]	'crooked'
o[mt] (*bersntol.it*)	A[mt]	'office'
vo[ɱf] (*bersntol.it*)	fü[nf]	'five'
to[ɱpf] (*bersntol.it*)	Da[mpf]	'steam'
gru[nt] (*bersntol.it*)	Gru[nt]	'plot'
gado[ŋk]	Geda[nk]e	'thought'
tschi[ns] (*bersntol.it*)	Zi[ns]	'interest'
gre[nts] (*bersntol.it*)	Gre[nts]e	'boundary'
bu[nʧ] (*bersntol.it*)	Wu[nʃ]	'wish'
schi[ŋkx] (Rowley 1986)	Sche[nk]el	'leg'
ko[lp] (*bersntol.it*)	Ka[lp]	'calf'
pi[lt] (*bersntol.it*)	Bi[lt]	'paint; photograph'
bo[lk] (Rowley 1986)	Wo[lk]e	'cloud'
bo[lf] (*bersntol.it*)	Wo[lf]	'wolf'
mi[lç] (*bersntol.it*)	Mi[lç]	'milk'
ko[lx] (*bersntol.it*)	Ka[lk]	'limestone'
o[ls] (*bersntol.it*)	a[l]es	'all, everything'
ba[lʃ] (*bersntol.it*)	---	'Italian (adj.)'
ho[lts] (*bersntol.it*)	Ho[lts]	'wood'
ko[rp] (*bersntol.it*)	Ko[ʀp]	'pannier'
ho[rt] (*bersntol.it*)	ha[ʀt]	'hard, difficult'
gu[rk] (*bersntol.it*)	Gu[ʀk]e	'cucumber'
mailwu[rf]	Maulwu[ʀf]	'bat'
ki[rx] (*bersntol.it*)	Ki[ʀç]e	'church'
ke[rʃ] (*bersntol.it*)	Ki[ʀʃ]e	'cherry'
zbo[rts]	schwa[ʀts]	'black'

pe[rkx] (Rowley 1986) Be[ʀk] 'mountain'

In the pattern sonorant+obstruent, sonorants generally combine with all obstruent classes. In virtue of final devoicing, C2 is never a voiced segment. This excludes sequences such as [nd, lb, rb]. Nasals are followed by plosives generating the types [LAB+LAB] [ɱp], [LAB+COR] [mt], [COR+COR] [nt], and [COR+DOR] [ŋk]. Nasals share the place of articulation with the following plosive in virtue of regressive assimilation (except for [mt]). This explains the absence of sequences such as [np] in the cluster inventory. When combining with fricatives, the only allowed cluster is [LAB+LAB] [ɱf] (where C1 assimilates to C2 with respect to the feature [LAB], excluding [nf]). Mòcheno lacks [COR+DOR] [nç], which is found in Standard German instead. When followed by sibilants, only [n] fills C1, generating the type [COR+COR] [ns], whereas [ms, mʃ, nʃ] were not found. As in Standard German, nasals cluster with affricates in the types [LAB+LAB] [ɱpf] (in which C1 assimilates to C2 with respect to the place of articulation, which excludes sequences such as [npf]) and [COR+COR] [nts]. In addition, Mòcheno exhibits [COR+COR] [nʧ] and [COR+DOR] [ŋkx] (whereas [mts, mʧ] were not found) – the former as the outcome of *s*-affrication; the latter as the result of the shift *k*, *ck* > [kx] which has affected South Bavarian varieties (see chapter 4). Concerning liquids, [l] is followed by any plosives, generating the types [COR+LAB] [lp], [COR+COR] [lt], and [COR+DOR] [lk]. When clustering with fricatives, [COR+LAB] [lf] and [COR+DOR] [lç, lx] emerge. Sibilants can follow [l] in [COR+COR] [ls, lʃ]. When [l] combines with affricates, only [COR+COR] [lts] emerges – other sequences were not found. As seen for [l], [r] clusters with any plosives, forming the sequences [rp, rt, rk]. When followed by fricatives, the licit combinations are [rf, rx]. The latter was not found in Standard German. When combining with sibilants, the only resulting sequence is [rʃ]. With respect to affricates, the licit clusters are [rts, rkx]. The latter is the outcome of historical *k* > [kx] in South Bavarian varieties (see chapter 4). [LAB] [pf] and [COR] [ʧ] do not follow C1 [r] in Mòcheno.

The data presented above reveal that a limitation on [LAB] and [DOR] within the same coda excludes sequences such as [mk, mç, mx, mkx] (see Wiese 1996: 265). On the contrary, [COR] can cluster with one of the two, which explains the licitness of combinations such as [LAB+COR] [mt]. Coronals freely combine with C1 of any articulator, including [COR]. A similar picture characterizes [r]: this segment freely clusters with [LAB], [COR], and [DOR] consonants.

Finally, the pattern obstruent+obstruent is illustrated below:

(179) Mòcheno two-member coda clusters III: obstruent+obstruent (following *bersntol.it*, Rowley 1986, *s kloa' be.be* 2009, and my fieldwork)

C1 OBS	**C2 OBS**																
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**ç**	**x**	**s**	**z**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
p			+								+						
b																	
t																	
d																	
k			+								+						
g																	
f			+														
v																	
ç																	
x			+														
s																	
z																	
ʃ	■		■		+												
pf			+														
ts																	
tʃ			+														
kx																	

The following chart lists examples for each cluster:

(180) Mòcheno two-member coda clusters III: examples (data from *bersntol.it*, Rowley 1986, *s kloa' be.be* 2009, and my fieldwork)

Obs+Obs cluster	**German cognate**	**Gloss**
reze[pt] (*bersntol.it*)	Reze[pt]	'recipe'
schno[ps] (*bersntol.it*)	Schna[ps]	'liquor'
dere[kt] (*bersntol.it*)	dire[kt]	'direct'
o[ks] (*bersntol.it*)	---	'kind of flower'
gamoascha[ft]	Gemeinscha[ft]	'community'
o[xt] (*bersntol.it*)	a[xt]	'eight'
ri[ʃp] (*bersntol.it*)	---	'dead branch'
o[ʃt] (*bersntol.it*)	A[st]	'branch'
tscho[ʃk] (*bersntol.it*)	---	'bush'
garu[pf-t] (Rowley 1986)	---	'harvest (p.p.)'
tsche[ʧ-t](Rowley 1986)	gese[ts-t]	'put (p.p.)'

In the pattern obstruent+obstruent, plosives, fricatives, sibilants, and affricates generally cluster with plosives and sibilants: fricatives and affricates never fill C2. As in Standard German, if C1 and C2 are both plosives, C2 must be [t]. The emerging types are [LAB+COR] [pt] and [DOR+COR] [kt]. Plosives also combine with sibilants, generating the types [LAB+COR] [ps] and [DOR+COR] [ks]. Differently from Standard German, fricatives are only followed by [t]: [LAB+COR] [ft] and [DOR+COR] [xt] are the emerging sequences. With respect to sibilants, [ʃ] clusters with plosives of any articulators, forming the types [COR+LAB] [ʃp], [COR+COR] [ʃt], and [COR+DOR] [ʃk], where C1 results from *s*-palatalization. Finally, affricates only combine with [t] in [LAB+COR] [pft] and in [COR+COR] [ʧt], whereas [tst] was not found.

The data above show that C2 is always a coronal, [+ant] segment [t, s] if C1 is a plosive, a fricative, a sibilant, or an affricate (see Wiese 1996: 165). This explains the well-formedness of coda clusters such as [ft, pft] and the illicitness of clusters such as [tf, tpf] (see Hall 2000: 237 for discussion) – the only exception to this generalization being C2 [p, k] when C1 is a sibilant. Furthermore, a restriction on [LAB] and [DOR] within the same coda cluster excludes combinations [pç, fk, çp, kf].

It now remains to determine the sonority distances of the various coda clusters, leaving out any combinations which contain a sibilant and those which exhibit an extrasyllabic segment:

(181) Sonority distances for Mòcheno two-member coda clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[rp, rk]	/r/ (11) – vcless plos (1)= 10	[ɱpf], [ŋkx]	nas (7) – vcless affr (2) = 5
[rkx]	/r/ (11) – vcless affr (2)= 9	[rm, rn]	/r/ (11) – nas (7)= 4
[rf, rx]	/r/ (11) – vcless fric (3) = 8	[ɱf]	nas (7) – vcless fric (3)= 4
[lp, lk]	lat (9) – vcless plos (1) = 8	[rl]	/r/ (11) – lat (9)= 2
[lf, lç, lx]	lat (9) – vcless fric (3) = 6	[lm, ln]	lat (9) – nas (7) = 2
[ɱp], [ŋk]	nas (7) – vcless plos (1) = 6		

Mòcheno exhibits a wide range of sonority distance values which cover up 10 to 2 intervals. The highest values are found when C1 is [r], combined with a plosive ([rp, rk], SD= 10), or an affricate [rkx], (SD= 9). The latter sequence is absent in Standard German since it has not preserved historical *k* > [kx]. Clusters with SD= 8 are many and contain [r] or [l] as C1, which combine with fricatives and plosives, respectively. In sequences with SD= 6, C1 is [l] and C2 is a fricative, and a nasal combines with a plosive. Five intervals separating C1 from

C2 in sonority only characterize combinations of a nasal and an affricate. The latter is not part of the Standard German inventory since historical *k* > [kx] has not been preserved. SD= 4 includes clusters which involve [r] and a nasal ([rm, rn], and a nasal followed by a fricative ([ɱf]). Finally, SD= 2 occurs when both C1 and C2 are sonorants ([rl, lm, ln]).

As Standard German, Mòcheno lacks coda clusters which exhibit SD=7. This value would result from sequences containing a sibilant such as [lts] (lateral (9) – voiceless affricate (2)= 7), which Mòcheno does display but which has been left out from the calculation because of /s/. A further gap is found with respect to clusters of SD= 3 such as [mg, ng] (nasal (7) – voiced plosive (4)= 3). The former sequence is absent in virtue of the limitation banning [LAB] and [DOR] within the same coda cluster and because nasals always assimilate in place of articulation. The latter sequence is absent because of *n*-assimilation and *g*-deletion.

Lusérn Cimbrian, the last Germanic variety examined in the present study, is discussed in the next sections.

8.5 CIMBRIAN (LUSÉRN)

The Lusérn Cimbrian variety allows from one to two consonants to fill the coda position. As for Standard German, its inventory exhibits many clusters in which a coronal [+ant] segment [t, s] is found as their last member. The fact that these consonants can be added to any segments leads to the emergence of combinations which not always conform to the requirements of the SSG such as [kt] (displaying a sonority *plateau* instead of falling sonority) and [ps, ks] (displaying rising sonority instead of falling sonority). The 'freedom' characterizing coronal [+ant] segments to form these sequences suggests to consider them as extrasyllabic elements. In virtue of this, they will be excluded from the calculation of the various sonority distances. As shown for Standard German, extrasyllabicity in codas is always found when [t, s] occupy C2, and excluding these coronals from phonotactic matters reinforces their 'special' status. This will also apply to three[92] or four-member coda clusters: in words such as *gete[ɱpft]* 'steam (p.p)', *augeho[lft]* 'cheat (p.p.)' and *li[ʀnst]* 'learn (2nd sg.)', all elements which are found beyond C2 are [+ant] coronal [t, s] and, therefore, are treated as extrasyllabic.

[92]As for Mòcheno, the only case which was found whose C3 is not coronal [t, s] is *be[rmp]* 'heat up (3rd sg.)'; see Rowley 1986). This sequence arises as a result of *-t*-assimilation to the final consonant of the stem (see Schabus 2006: 284) and involves South Bavarian varieties.

8.5.1 ONE-MEMBER CODAS

The licit simple codas for Lusérn Cimbrian are collected in the tables below, which present word-final codas as well as word-medial codas:

(182) Cimbrian one-member codas (following Panieri 2014, *zimbarbort.it*, and my fieldwork)

Consonant	Word-final context	Word-medial context
p	yes	no
t	yes	yes
k	yes	yes
f	yes	yes
ç	no	no
x	yes	yes
s	yes	yes
ś	yes	yes
ʃ	yes	yes
pf	yes	yes
bf	no	no
ts	yes	yes
ʧ	yes	yes
b	no	no
d	no	no
g	no	no
v	no	no
z	no	no
kx	yes	yes
m	yes	yes
n	yes	yes
l	yes	yes
/r/	yes	yes

Examples for each segment are provided below:

(183) Cimbrian one-member word-final codas: examples (data from Alber/Rabanus i. p., Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

Consonant	Word-final context	German cognate	Gloss
p	dia[p] (*zimbarbort.it*)	Die[p]	'thief'
t	ra[t] (*zimbarbort.it*)	Ra[t]	'wheel'
k	ta[k] (Panieri 2014)	Ta[k]	'day'

f	bria[f] (Panieri 2014)	Brie[f]	'letter'
x	a[x] (*zimbarbort.it*)	---	'durmast'
s	ai[s] (*zimbarbort.it*)	Ei[s]	'ice'
ś	hau[ś] (Alber/Rabanus i. p.)	Hau[s]	'house'
ʃ	vi[ʃ] (Tyroller 2003)	Fi[ʃ]	'fish'
pf	kra[pf] (Panieri 2014)	Kra[pf]en	'pancake'
ts	gese[ts]	---	'jamb'
ʧ	bu[ʧ] (*zimbarbort.it*)	---	'billy goat'
kx	klo[kx] (Tyroller 2003)	Glo[k]e	'bell'
m	be[m] (*zimbarbort.it*)	we[m]	'who (dat.)'
n	aisa[n] (*zimbarbort.it*)	Eise[n]	'iron'
l	ba[l] (Panieri 2014)	---	'when'
/r/	sbe[ʀ] (Tyroller 2003)	schwe[ɐ]	'hard, difficult'

(184) Cimbrian one-member word-medial codas: examples (data from Panieri 2014, Tyroller 2003 and *zimbarbort.it*)

Consonant	**Word-medial context**	**German cognate**	**Gloss**
t	a[t]nen (*zimbarbort.it*)	a[t]men	'breathe (inf.)'
k	be[k]sln (*zimbarbort.it*)	we[k]seln	'exchange (inf.)'
f	a[f]tar (*zimbarbort.it*)	---	'grain'
x	bi[x]te (*zimbarbort.it*)	wi[ç]tig	'important'
s	bi[s]bokkln (*zimbarbort.it*)	---	'kind of flower'
ś	vi[ś]prar (*zimbarbort.it*)		
ʃ	röa[ʃ]tn (Tyroller 2003)	rö[s]ten	'roast (inf.)'
pf	scho[pf]bas (*zimbarbort.it*)	---	'weed'
ts	be[ts]stumma (*zimbarbort.it*)	---	'wheatstone'
ʧ	bu[ʧ]horn (*zimbarbort.it*)	---	'steinbock'
kx	ber[kx]statt (*zimbarbort.it*)	Wer[k]statt	'workshop'
m	å[m]puz (*zimbarbort.it*)	A[m]boss	'anvil'
n	å[n]darst (Panieri 2014)	a[n]ders	'otherwise'
l	ba[l]chan (*zimbarbort.it*)	---	'felt (inf.)'
/r/	ste[r]charn (Tyroller 2003)	stä[ɐ]chen	'strenghten (inf.)'

Lusérn Cimbrian allows for both obstruents and sonorants to take up the coda position. Among the former we find plosives, fricatives, sibilants, and affricates. When found in word-medial context, the presented segments mostly occur in compounds. Plosives and fricatives occupying codas are neutralized to voiceless [p, t, k, f]. Differently from Standard German, /ç/ is always realized as [DOR] [x] regardless of the context which it fills. Concerning sibilants, alveolar [s], postalveolar [ś] and palatoalveolar [ʃ] occupy both contexts. Postalveolar [ś] is not found in the Standard German inventory, and palatoalveolar [ʃ] occurs as the result of *s*-palatalization in word-internal position, a trait which is typical of Bavarian (see chapter 4). The affricate inventory displays [LAB] [pf] and [COR] [ts, ʧ], resembling Standard German. In addition, Lusérn Cimbrian exhibits [DOR] [kx], the outcome of the Second Consonant Shift which has been preserved only in South Bavarian (see chapter 4). Finally, all sonorants fill both contexts. Variation characterizes *r*-sounds. In the given examples, we find uvular trill [ʀ] and apical [r] (see Tyroller 2003: 48, and chapter 4).

The picture of simple codas is now complete to move on to coda clusters.

8.5.2 TWO-MEMBER CODAS

Lusérn Cimbrian resembles Standard German, allowing for the patterns sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent. In all the presented patterns, the pluses "+" stand for clusters which are also found in Standard German, whereas the black triangles "▲" stand for sequences which are peculiar of Lusérn Cimbrian. The following charts illustrate the licit coda clusters for the pattern sonorant+sonorant:

(185) Cimbrian two-member coda clusters I: sonorant+sonorant (following Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

C1 SON	**C2 SON**			
	m	**n**	**l**	**/r/**
m				
n				
l	+	+		
/r/	+	+		

Examples for each cluster are collected below:

(186) Cimbrian two-member coda clusters I: examples (data from Tyroller 2003 and *zimbarbort.it*)

Son+Son cluster	**German cognate**	**Gloss**
ha[lm] (*zimbarbort.it*)	Strohha[lm]	'stem'
bardjo[ln] (*zimbarbort.it*)	---	'scowl at sb.'
ba[rm] (Tyroller 2003)	wa[ɐm]	'warm'
ho[ʁn] (*zimbarbort.it*)	Ho[ɐn]	'horn'

In the pattern sonorant+sonorant, C1 is always a liquid, and C2 is always a nasal, resulting in COR+LAB] [lm], [COR+COR] [ln], and [rm, ʁn]. Variation characterizes the realizations of /r/, for which we have provided apical [r] and uvular fricative [ʁ] (see chapter 4). The types nasal+nasal, nasal+liquid, and liquid+liquid are excluded in virtue of the requirement of the SSG since they do not display falling sonority. Differently from Standard German, the sequence /rl/ was not found in Lusérn Cimbrian, which might be an accidental gap.

The pattern sonorant+obstruent is illustrated below:

(187) Cimbrian two-member coda clusters II: sonorant+obstruent (following Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

C1 SON	**C2 OBS**																
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**x**	**s**	**z**	**ś**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
m	+						+							+			
n			+		+										+	▲	▲
l			+				+		▲	+			+		+		▲
/r/	+		+		+		+		▲	+			+	▲	+	▲	▲

The following table collects examples for each cluster:

(188) Cimbrian two-member coda clusters II: examples (data from Panieri et al. 2006, Panieri 2014, Tyroller 2003, *zimbarbort.it*, and my fieldwork)

Son+Obs cluster	**German cognate**	**Gloss**
ni[ɱp] (Tyroller 2003)	ni[m-t]	'take (3^{rd} sing.)'
skra[ɱf] (Tyroller 2003)	Kra[ɱpf]	'cramp, spasm'
stru[ɱpf] (*zimbarbort.it*)	Stru[ɱpf]	'woolen sock'
gesu[nt]	gesu[nt]	'healthy'
gesche[ŋk]	Gesche[nŋk]	'present, gift'
bå[nts] (*zimbarbort.it*)	Wa[nts]e	'bedbug'
me[nʧ] (*zimbarbort.it*)	Me[nʃ]	'person'
slå[ŋkx] (*zimbarbort.it*)	schla[ŋk]	'slim'
geva[l-t]	gefallen	'fall (p.p.)'
hi[lf] (*zimbarbort.it*)	Hi[lf]e	'help'
kha[lx] (*zimbarbort.it*)	Ka[lk]	'lime'
ha[ls] (*zimbarbort.it*)	Ha[ls]	'neck'
gesbü[lʃ] (*zimbarbort.it*)	Geschwu[lst]	'swelling'
sa[lts] (Panieri 2014)	Sa[lts]	'salt'
bo[lkx]nen (*zimbarbort.it*)	Wo[lk]e	'cloud'
ta[ʀp] (*zimbarbort.it*)	---	'woodworm'
ge[ʀt] (*zimbarbort.it*)	---	'branch, bar'
tschö[ʀk] (*zimbarbort.it*)	---	'core'
bu[ʀf] (*zimbarbort.it*)	Wu[ɐf]	'boulder'
pi[rx] (Tyroller 2003)[93]	Bi[ɐk]e	'birch'

bi[rs] (*zimbarbort.it*)	---	'disgusting'
hi[ʀʃ] (*zimbarbort.it*)	Hi[ɐʃ]	'deer'
sche[ʀpf] (*zimbarbort.it*)	---	'peel, skin'
he[ʀts] (*zimbarbort.it*)	He[ɐts]	'heart'
tschü[ʀʧ] (*zimbarbort.it*)	----	'pine cone'
zbe[ʀkx] (Panieri 2014)	Zwe[ɐk]	'dwarf'

In the pattern sonorant+obstruent, sonorants generally cluster with all obstruent classes. Nasals are followed by plosives, forming the types [LAB+LAB] [ɱp], [COR+COR] [nt], and [COR+DOR] [ŋk]. Nasals share the place of articulation with the following plosive in virtue of regressive assimilation, which explains the absence of sequences such as [np] in the cluster inventory. Differently from Standard German, [LAB+COR] [mt] is not part of the Lusérn Cimbrian inventory since /mt/ often turns into [ɱp] in virtue of *-t*-assimilation (see chapter 4). When combining with fricatives, [ɱf] is found in Lusérn Cimbrian as the outcome of the change affecting the affricate [pf], which is simplified to [f] (and assimilation of to C2 with respect to the feature [LAB]; see chapter 4), a characteristic ascribed to the influence of Italian (see Tyroller 1992: 133). As pointed out in Tyroller (2003: 40), however, this change always targets the word-initial context, whereas the word-final and the word-medial ones preserve the affricate [pf]. In light of this, we assume that the occurrence of word-final [ɱf] is an accidental case (indeed, *skra[ɱf]* is the only example exhibiting this word-final coda cluster which was found, a fact which is confirmed by words such as *stru[ɱpf]* 'sock', *tå[ɱpf]* 'smoke, steam', s*tå[ɱpf]* 'mortar', which are not simplified to [ɱf]; see *zimbarbort.it* for realizations). Unlike Standard German, [COR] [n] does not cluster with any fricatives. We do not find sequences such as [nç] because /ç/ is always realized as [DOR] [x]. Sibilants do not take up C2 if C1 is a nasal. This excludes sequences such as [ms, mʃ, ns, nʃ], which do occur in Standard German instead. The lack of [ms, ns] may be due to the fact that Lusérn Cimbrian does not exhibit the genitive case (see Panieri et al. 2006). When combining with affricates, the licit sequences are [LAB+LAB] [ɱpf] (where C1 assimilates the place of articulation of C2, which explains the absence of sequences such as [npf]) and [COR+COR] [nts], as in Standard German. In addition, Lusérn Cimbrian is characterized by [COR+COR] [nʧ] (where historical *sk* has changed to [ʃ]) and [COR+DOR] [ŋkx] (where Germanic *k* has turned into [kx], preserved only in South

[93]Actually, Tyroller (2003: 48) points out that, especially when found before velar [x], /r/ is often realized as [ʀ]: *sta[ʀx]* 'strong', *le[ʀx]* 'larch', *zi[ʀx]* 'corn', but it often turns into uvular [ʁ] in this context: *pi[ʁx]* 'birch', *ste[ʁx]arn* 'strenghten (inf.)'.

Bavarian; see Tyroller 2003: 46, and chapter 4). In virtue of the absence of the genitive case, we exclude [mts]. Liquids exhibit a wider inventory. When [l] clusters with plosives, the only emerging sequence is [COR+COR] [lt]. [COR+LAB] [lp] was only found in loanwords, and therefore it was not included in the inventory. [COR+DOR] [lk] was not found. When followed by fricatives, the licit types are [COR+LAB] [lf] and [COR+DOR] [lx]. The latter combination results from the change of plosive [k] to fricative [x] when following liquids, a trait which is typical of South Bavarian dialects (see chapter 4). Sibilants follow [l] in [COR+COR] [ls, lʃ], as was seen for Standard German. With respect to affricates, Lusérn Cimbrian exhibits [COR+COR] [lts], resembling Standard German. In addition, it displays [COR+DOR] [lkx], whereas [COR+LAB] [lpf] and [COR+COR] [lʧ] were not found. We explain the absence of the latter cluster as an accidental gap in which, when C1 is a liquid such as in [lʃ], C2 is not turned to [ʧ] (as it is if C1 is filled by [n] instead). Finally, /r/ freely clusters with plosives of any articulator: [LAB], [COR], and [DOR], for which the sequences [ʀp, ʀt, ʀk], respectively, were provided, in which /r/ is realized as uvular trill. When followed by fricatives, [LAB] and [DOR] occupy C2 in [ʀf] and [rx]. The latter is a peculiarity of Lusérn Cimbrian, in which [x] occurs when following /r/ as the result of the change affecting [k] (see Tyroller 2003: 48; 76). When combining with sibilants, we find [rs, ʀʃ]. /r/ is also followed by affricates of any articulators: [LAB] in [ʀpf], [COR] [ʀts, ʀʧ], and [DOR] in [ʀkx]. Of these, only [ʀts] is also found in Standard German, whereas the others are peculiar of Lusérn Cimbrian. Indeed, Standard German does not display any words ending in [ʀpf] and [ʀʧ], whereas [ʀkx] is absent because this variety has not preserved historical *k* > [kx].

As shown for Standard German, in the data presented above voiced segments do not fill C2 since they are neutralized to their voiceless equivalents. Furthermore, a restriction on [LAB] and [DOR] within the same coda explains the absence of sequences such as [mk, mx, mkx] (see Wiese 1996: 265 for discussion). On the contrary, [COR] can cluster with one of the two in virtue of their 'freedom' to combine with C2 of any articulator – including coronals. The same is true for *r*-sounds (following Wiese's (1996) proposal that /r/ is not specified for any articulators, any C2 – [LAB], [COR], or [DOR] – can follow it without undergoing any limitations).

Finally, the pattern obstuent+obstruent is illustrated below:

(189) Cimbrian two-member coda clusters III: obstruent+obstruent (following Panieri et al. 2006, z*imbarbort.it*, and

my fieldwork)

C1 OBS	C2 OBS																
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**x**	**s**	**z**	**ś**	**ʃ**	**pf**	**ts**	**ʧ**	**kx**
p										+			+				
b																	
t																	
d																	
k			+							+		▲	▲				
g																	
f			+														
v																	
x			+														
s	+		+														
z																	
ś	▲																
ʃ					▲												
pf			+														
ts			+														
ʧ			+														
kx			▲														

Examples for each cluster are listed in the following table:

(190) Cimbrian two-member coda clusters III: examples (data from Panieri et al. 2006, *zimbarbort.it*, and my fieldwork)

Obs+Obs cluster	German cognate	Gloss
kre[ps]	Kre[ps]	'tumor'
kre[pʃ] (*zimbarbort.it*)	Kre[ps]	'tumor'
gedru[k-t]	gedrü[k-t]	'squeeze (p.p.)'
pi[ks] (*zimbarbort.it*)	---	'tin'
se[kʃ] (*zimbarbort.it*)	se[ks]	'six'
he[kś] (*zimbarbort.it*)	He[ks]e	'witch'
he[ft] (*zimbarbort.it*)	He[ft]	'notebook'
gespe[x-t]	gespe[ʁ-t]	'block (p.p)'
ri[sp] (*zimbarbort.it*)	---	'dead branch'
dri[st] (*zimbarbort.it*)	---	'sheaf'
kava[ʃk] (*zimbarbort.it*)	---	'clump (of dirt)'
ve[śp] (*zimbarbort.it*)	We[sp]e	'wasp'
geski[pf-t]	---	'squeeze (p.p.)'

genü[ts-t] (*zimbarbort.it*)	genu[ts-t]	'used, secondhand'
darke[ʧ-t] (*zimbarbort.it*)	zerque[ʧ-t]	'rot (p.p.)'
gepü[kx-t] (*zimbarbort.it*)	gebogen	'bend, curve (p.p.)'

In the pattern obstruent+obstruent, plosives, fricatives, sibilants, and affricates generally cluster with plosives and sibilants, whereas fricatives and affricates never fill C2. As in Standard German, voiced obstruents never occupy coda clusters. In virtue if this, sequences such as [bt, dk] are excluded. Many of the licit combinations emerge in morphologically complex forms in past participle formation. As in Standard German, if C1 and C2 are both plosives, C2 must be [t]. This excludes combinations such as [tk]. In this case, the only licit sequence is [DOR+COR] [kt]; unlike Standard German, [LAB+COR] [pt] was not found. This may be due to assimilation of the final consonant of the verb root to the ending such as in */gib-t/* 'give (inf.)', which turns into *gi[t]* in the 3rd person singular (see Panieri et al. 2006: 54). When combining with sibilants, plosives generate the types [LAB+COR] [ps, pʃ] and [DOR+COR] [ks], resembling Standard German. In addition, Lusérn Cimbrian exhibits [DOR+COR] [kʃ, kś], where the various realizations of /s/ often depend on the speaker, as revealed by our audio data. The restriction on C2 [t] also holds for fricatives when occupying C1: [LAB+COR] [ft] and [DOR+COR] [xt] are the emerging clusters. The latter sequence is often the result of the change affecting /r/, which turns into [x] when preceding [t] (see Tyroller 2003: 48). As a matter of fact, our informants realized the coda cluster /rt/ in the word *gesperrt* either as [ʁt] or as [xt], in which case /r/ cannot be detected any more. Fricatives are not followed by sibilants in Lusérn Cimbrian. We do not find sequences such as [fs, xs] because this variety lacks the genitive case, whereas [çs] was not found since the Lusérn Cimbrian consonant inventory does not display palatal [ç] (see Tyroller 2003: 49).

Concerning sibilants, /s/ only clusters with plosives of any articulators, forming the types [COR+LAB] [sp, śp], [COR+COR] [st], and [COR+DOR] [ʃk]. *S*-palatalization accounts for [ʃk], which is rare in Standard German, whereas we assume that the emergence of [śp] depends on each individual speaker. We exclude any combinations of two sibilants in virtue of the absence of the genitive case. Finally, affricates are only followed by [t], forming [LAB+COR] [pft] and [COR+COR] [tst, ʧt], as in Standard German. In addition, Lusérn Cimbrian displays [DOR+COR] [kxt], the outcome of *k*-affrication, typical of South Bavarian (see Tyroller 2003: 46, and chapter 4). C2 is never filled by /s/ because of the absence of the genitive case.

The data discussed above reveal that C2 must always be a coronal, [+ant] segment [t], /s/ if C1 is a plosive; [t] if C1 is filled by a fricative or an affricate; a plosive of any articulator when C1 is a sibilant. Furthermore, the generalization banning coda clusters which exhibit both the features [LAB] and [DOR] in the same sequence (see Wiese 1996: 265) leaves out combinations such as [pk, fk, xp, xpf]. On the contrary, coronals freely combine with any articulators, including [COR].

Below are the sonority distance values for coda clusters which do not contain any sibilants nor any extrasyllabic consonants:

(191) Sonority distances for Cimbrian two-member coda clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[ʀp, ʀk]	/r/ (11) – vcless plos (1)= 10	[ɱpf, ŋkx]	nas (7) – vcless affr (2)= 5
[ʀpf, ʀkx]	/r/ (11) – vcless affr (2)= 9	[rm, rn]	/r/ (11) – nas (7)= 4
[ʀf, rx]	/r/ (11) – vcless fric (3)= 8	[ɱf]	nas (7) – vcless fric (3)= 4
[lkx]	lat (9) – vcless affr (2)= 7	[lm. ln]	lat (9) – nas (7)= 2
[lf, lx]	lat (9) – vcless fric (3) = 6		
[ɱp, ŋk]	nas (7) – vcless plos (1)= 6		

The spectrum of sonority distance values which Lusérn Cimbrian exhibits resembles that of Standard German, ranging from 10 to 2 intervals. The highest distances emerge when C1 is an *r*-sound followed by plosives ([ʀp, ʀk], SD= 10) or – differently from Standard German – affricates ([ʀpf, ʀkx], SD= 9). Eight steps result when C1 is /r/, followed by a fricative. Unlike Standard German, this group of sequences does not include [lp, lk] in Lusérn Cimbrian (the former is only found in loanwords, whereas the latter did not emerge). Lusérn Cimbrian differs from Standard German also with respect to SD= 7, resulting from a combination which does not contain any extrasyllabic segment but whose C2 is peculiar of South Bavarian varieties ([lkx]). Cluster with SD= 6 are many, and are formed by a liquid or a nasal and a fricative or a plosive, respectively ([lf, lx, ɱp, ŋk], respectively). Among coda clusters with SD= 5, only [ɱpf] is shared with Standard German, whereas [ŋkx] is typical of Lusérn Cimbrian and South Bavarian varieties in general. SD= 4 results from sequences formed by two sonorants ([rm, rn]) and from a nasal when followed by a fricative ([ɱf]), as in Standard German. Finally, SD= 2 is found in combinations formed by a liquid and a nasal ([lm, ln]), resembling Standard German. This group of clusters does not include /rl/, which Standard German exhibits instead.

The only gap which Lusérn Cimbrian displays is found with respect to SD= 3, as shown for Standard German. This value would result from coda clusters such as [mg] or [ng] (nasal (7) – voiced plosive (4)= 3). The former combination is excluded in virtue of the restriction banning the co-occurrence of the articulators [LAB] and [DOR] in the same coda cluster (see Wiese 1996: 265) and because nasals always assimilate in place of articulation, whereas the latter is absent because of *g*-deletion.

The picture provided here reveals that Lusérn Cimbrian is as tolerant as Standard German with respect to the threshold (SD= 2) under which coda clusters are considered as illicit from a sonority perspective.

Germanic codas will now be summarized in order to provide a clear picture of the peculiarities of each examined variety.

8.6 GERMANIC CODAS SUMMARIZED

In this chapter we have illustrated the licit codas in Standard German and in the South Bavarian dialects of Tyrolean, Mòcheno, and Lusérn Cimbrian. Simple codas can be filled both by obstruents and sonorants in each variety. Among obstruents, plosives, fricatives, sibilants, and affricates are found. The investigated dialects differ from Standard German with respect to features which characterize South Bavarian varieties, such as the emergence of [kx] from Germanic *k*; *s*-palatalization affecting not only the word-final context (as found in Standard German), but also the word-medial one; and schwa-apocope. In all the examined varieties, obstruents are always neutralized to their voiceless value in codas. Concerning sonorants, /r/ is characterized by various realizations, ranging from uvular trill [ʀ] (Standard German, Tyrolean, Lusérn Cimbrian), uvular fricative [ʁ] (Standard German, Tyrolean, Lusérn Cimbrian), vocalized *r* [ɐ] (Standard German, Tyrolean), and apical [r] (Tyrolean, Mòcheno, Lusérn Cimbrian). Despite its heterogeneous quality, /r/ behaves in the same manner in all the investigated varieties, being the most sonorous element before vowels. In virtue of this, Wiese's (2001, 2003) proposal according to which all realizations of /r/ fill the same position in the sonority hierarchy (between /l/ and vowels) has been adopted, and we have assigned it (regardless its different realizations) the sonority index 11.. This value includes all realizations of /r/, which we have assigned a point on Parker's sonority scale instead of a fixed place as it is for the other segments instead.

Two-member onset clusters are of the patterns sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent in all varieties, in some cases differing from one another with respect to the emerging sequences. In the pattern sonorant+sonorant, C1 must always be a liquid, and C2 a nasal (only Lusérn Cimbrian lacks the cluster /rl/).

In sonorant+obstruent combinations, labials combine with labials ([ɱp, ɱf, ɱpf]) and with coronals ([mt], except for Lusérn Cimbrian; [ms, mʃ, mts], but not in Mòcheno and Lusérn Cimbrian), whereas coronals cluster with labials ([lf] in all the investigated varieties), with coronals ([nt] in all four varieties; [ns] only in Standard German, Tyrolean, and Mòcheno; [nʃ] not in Mòcheno and Lusérn Cimbrian; [nts, lt, ls, lʃ, lts] in all the examined varieties), and with dorsals ([ŋk] in all varieties; [nç] not in Mòcheno and Lusérn Cimbrian – which always turns [ç] into [x] in all contexts, generating [lx, rx, ʀx]; [lk, lç] only absent in Lusérn Cimbrian). *r*-sounds are followed by all articulators as well: labials ([ʀp, ʀf]), coronals ([ʀt, ʀʃ, ʀts]), and dorsals ([ʀk, ʀkx], the latter not in Standard German). Its peculiar behaviour has led linguists (Wiese 2003, among others) to suggest that German /ʀ/ be not specified for any articulators, which we have adopted. Among the peculiar clusters occurring in the examined dialects, [nʧ] characterizes Tyrolean and Lusérn Cimbrian as the outcome of a further development of OHG /sk/ > MHG [ʃ], whereas the same segment has developed in a special way in Mòcheno (which does display the coda cluster [nʧ]). Many combinations have arisen through vowel-apocope and vowel-syncope, a characteristic of South Bavarian but not of Standard German. In light of this, schwa is deleted in Tyrolean, Mòcheno, and Lusérn Cimbrian, generating clusters such as [ʀç, rx]. A further South Bavarian feature which has not affected Standard German the change of plosive [k] into fricative [x] when following liquids in Lusérn Cimbrian (*be[lx]* vs. Standard German *we[lk]* 'wilted (adj.)'). In addition, both in Mòcheno and Lusérn Cimbrian verbs *-t* assimilates to the final segment of the stem (Mòcheno *kim[p]* vs. Standard German *kom[t]*; Lusérn Cimbrian *nim[p]* vs. Standard German *nim[t]*). All varieties undergo a restriction banning the co-occurrence of [LAB] and [DOR] segments in the same coda cluster, which explains the illicitness of sequences such as [mk, mç, mx, mkx]. It has furthermore emerged that C2 coronal, [+ant] consonants [t, /s/] can be added to any segments. This 'freedom' which coronal [+ant] segments enjoy suggests to treat them as extrasyllabic elements and, as such, not to include them in the calculation of the various sonority distances. In addition, extrasyllabicity in coda position is always found when [t, s] take up C2, and excluding these coronals from phonotactic matters reinforces their 'special' status.

In the pattern obstruent+obstruent, labials and dorsals combine with coronals. In this respect, Standard German exhibits many sequences which characterize the genitive case ([fs, fts, pfs kts, çts, xs, xts, sts, ʃs]), but is absent in Tyrolean (although [ʃs] does occur in virtue of *-t*-deletion), Mòcheno and Lusérn Cimbrian. The examined varieties mostly share sequences in which C2 is taken up by [t] ([kt, ft, xt, pft, ʧt, ts-t], the latter absent only in Mòcheno), whereas C2 [s] is found only in a few clusters characterizing all of them [ps, ks]). Coronals are followed by segments of any articulators: labials, coronals, and dorsals. In virtue of *s*-palatalization, typical of South Bavarian, Tyrolean, Mòcheno and Lusérn Cimbrian realize [ʃp, ʃt, ʃk], whereas Standard German exhibits [sp, st, sk], respectively. The presented data have also revealed a quite complex inventory for /s/ in Lusérn Cimbrian, in which [kś, śp] are also found. In addition, Tyrolean is characterized by *-t*-deletion when occurring in second person singular verb endings, generating combinations which Standard German does not display (*sa[kʃ]*, *brau[xʃ]*, *zo[pf-ʃ]* vs. Standard German *sa[kst]*, *brau[xst]*, *zo[pfst*], respectively). Both Mòcheno and Lusérn Cimbrian change dorsal palatal [ç] to velar [x], resulting in the absence of sequences such as [çt, çs]. Furthermore, dorsal affricate [kx] characterizes the investigated dialects, forming clusters which Standard German lacks in virtue of the non-preservation of historical k > [kx]. As for the sonorant+obstruent pattern, C2 is never occupied by voiced obstruents, which are neutralized to their voiceless value instead. In addition, the limitation banning the articulators [LAB] and [DOR] in the same coda cluster excludes sequences such as [fk, xp]. In clusters formed by two plosives, C2 is always [t], whereas this position is always filled by /s/ if C2 is a sibilant or a fricative (except for Mòcheno and Lusérn Cimbrian, whick lack clusters of this type) – the only exception being [ʃs] both in Standard German and Tyrolean, which may be explained by the morpheme boundary. C2 coronal, [+ant] segments [t, /s/] can be added to any consonants, sometimes forming clusters which do not conform to the requirement of the SSG – generating sonority *plateaux* as in [kt] or rising sonority as in [ps, ks]. As for the pattern sonorant+obstruent, the 'freedom' which coronal [+ant] segments enjoy speaks in favour of considering them as extrasyllabic elements and, as such, of excluding them from the SD-count. The fact that extrasyllabicity in codas is always found when [t, s] occupy C2, and the exclusion of these coronals from phonotactic matters, reinforce their 'special' status.

With respect to sonority distances, the examined varieties include values which range from 10 to 2 intervals separating C1 from C2. The highest distances are found when C1 is an *r*-sound followed by plosives such as in [ʀp, rk], whereas the lowest value characterizes sequences formed by two sonorants ([lm, ln]). This reveals that the investigated varieties are permissive to the same extent with respect to the minimum threshold for their coda clusters to be licit.

Gaps in the SD value range are generally found. Standard German lacks coda clusters with SD= 9 (which would emerge from [ʀts], but which has been left out because of the unclear stastus of the sibilant), whereas all the examined dialects display it. This value is found in sequences which do not contain any sibilants: [ʀpf] characterizes Tyrolean and Lusérn Cimbrian, and [ʀkx] occurs in Tyrolean, Mòcheno, and Lusérn Cimbrian as the result of historical change *k* > [kx] preserved in South Bavarian varieties, but not in Standard German. Sequence exhibiting SD= 7 are absent in Standard German, Tyrolean, and

Mòcheno (although this value would be found in clusters containing a sibilant such as [lts] for Standard German, Tyrolean, and Mòcheno; and in [ltʃ] only for Tyrolean), but this value does occur in Lusérn Cimbrian in [lkx]. Finally, the absence of combinations displaying SD= 3 is shared by all the investigated varieties. This value would result from clusters such as [mg, ng], but the former is excluded in virtue of the restriction on [LAB] and [DOR] in the same coda cluster, whereas the latter is excluded in virtue of *n*-assimilation and *g*-deletion.

The main characteristics of the examined varieties are synoptically collected in the table below:

(192) Germanic codas synoptically

a. One-member codas

Variety	**One-member codas**
Standard German (StG)	obstruents, sonorants
Tyrolean (Tyr)	obstruents, sonorants
Mòcheno (Palai) (Mò)	obstruents, sonorants
Cimbrian (Lusérn) (Ci)	obstruents, sonorants

b. Two-member codas

Variety	**Allowed patterns**	**Nas+vel**	**Nas+non-vel**	**SD**
StG	- S+S - S+O (C2 [t], /s/ extrasyllabic) - O+O (C2 [t], /s/ extrasyllabic)	[ŋk]	[ɱp, mt, ɱf, ms, mʃ, ɱpf, mts; nt, ns, nʃ, nts]	10 [ʀp, ʀk] – 2 [lm, ln]
Tyr	- S+S - S+O (C2 [t], /s/ extrasyllabic) - O+O (C2 [t], /s/ extrasyllabic)	[ŋk, ŋkx]	[ɱp, mt, ɱf, ms, mʃ, ɱpf, mts; nt, nç, ns, nʃ, nts, ntʃ]	10 [ʀp, ʀk] – 2 [lm, ln]
Mò	- S+S - S+O (C2 [t], /s/ extrasyllabic) - O+O (C2 [t], /s/ extrasyllabic)	[ŋk, ŋkx]	[ɱp, mt, ɱf, ɱpf; nt, ns, nts, ntʃ]	10 [rp, rk] – 2 [lm, ln]
Ci	- S+S - S+O (C2 [t], /s/ extrasyllabic) - O+O (C2 [t], /s/ extrasyllabic)	[ŋk, ŋkx]	[ɱp, ɱf, ɱpf; nt, nts, ntʃ]	10 [ʀp, ʀk] – 2 [lm, ln]

The following chapter is devoted to Romance codas, for which we will proceed in the fashion adopted for Germanic codas.

9. CODAS IN ROMANCE VARIETIES

9.1 INTRODUCTION

As we did for the Germanic varieties, the account for licit and illicit codas in Standard Italian and in the investigated Romance dialects will consider both simple codas and complex codas in order to provide a picture of the matter as complete as possible. The discussion of codas will show striking differences among the various examined varieties. On the one hand, Standard Italian and Venetan-Trentino turn out to be quite restrictive with respect to the coda position. On the other hand, Lombardo-Trentino and Gardenese Ladin are more tolerant and behave in a very similar way with respect to the allowed sequences.

9.2 STANDARD ITALIAN

The strictness of Standard Italian with respect to the coda position is due to the fact that it only allows for up to one consonant to fill this context – at least in the native lexicon. This is true for both the word-final and the word-medial context, in morphologically simple words and in morphologically complex words. Simple codas are presented below.

9.2.1 ONE-MEMBER CODAS

Standard Italian only allows for simple word-internal codas, if the native lexicon is considered. Word-final codas are only found in loanwords. The following table illustrates licit codas:

(193) Standard Italian one-member codas (following Alber 2007, Krämer 2009, Patota 2007, Zamboni 2000, and my own)

Consonant	**Word-final context**	**Word-medial context**
m	no	yes
n	yes	yes
ɲ	no	no
l	yes	yes
r	yes	yes
ʎ	no	no
j	no	no
w	no	no
s	no	yes

z	no	no
ʃ	no	no
p	no	yes
t	no	yes
k	no	yes
f	no	yes
b	no	yes
d	yes	yes
g	no	yes
v	no	yes
ts	no	yes
ʧ	no	yes
dz	no	yes
ʤ	no	yes

Examples for each segment are collected below:

(194) Standard Italian one-member codas: examples (data from Alber 2007, Krämer 2009, Patota 2007, Zamboni 2000, and my own)

Consonant	**Word-final context**	**Gloss**	**Word-medial context**	**Gloss**
m	---	---	ca[m]mino	'way'
n	co[n]	'with'	pra[n]zo (Patota 2007)	'lunch'
l	i[l]	'the (m. sg.)'	ca[l]do (Patota 2007)	'warm'
r	pe[r]	'for'	ve[r]de (Patota 2007)	'green'
s	**---**	**---**	sa[s]so (Patota 2007)	'stone'
p	---	---	se[p]pia (Patota 2007)	'cuttlefish'
t	---	---	pa[t]to (Krämer 2009)	'pact'
k	---	---	spe[k]chio (Patota 2007)	'mirror'
f	---	---	ru[f]fiano	'sycophant'
b	---	---	ga[b]bia (Krämer 2009)	'cage'
d	a[d]	'to'	la[d]dove[94]	'when'
g	---	---	a[g]guato	'ambush'
v	---	---	a[v]viso (Alber 2007)	'notice (n.)'
ts	---	---	pia[ts]za (Patota 2007)	'square'
ʧ	---	---	fa[ʧ]cia (Zamboni 2000)	'do (1st sing.)'
dz	---	---	me[dz]zo (Patota 2007)	'half'
ʤ	---	---	re[ʤ]gia (Patota 2007)	'mansion'

[94]In this example, [d] occurs as the outcome of *raddoppiamento fonosintattico*, a process which takes place within a wider environment than a word, namely a sentence, in which two words are pronounced as one: *là dove* > laddove (see Patota 2007: 108 for discussion).

Standard Italian simple codas can be filled both by obstruents and sonorants. Among obstruents, plosives, fricatives, sibilants, and affricates generally only take up the word-medial context (the only exception for word-final position being [d]). Nevertheless, this position is subject to strict limitations. As a matter of fact, it can be filled either by sonorants, /s/, or the first part of a geminate (see Krämer 2009: 29). In the given examples, plosives ([LAB], [COR], [DOR]), fricatives, and affricates ([COR]) can be voiceless or voiced in this position, and they are often the outcome of regressive assimilation of Latin sequences; of strengthening in pre-glide position and other processes, such as weakening of [l] when following a consonant (see Krämer 2009: 29-30 and Patota 2007: 93-94 for more details; and chapter 5). With respect to sibilants, [s] is found in codas both as the result of historical assimilation and when it precedes a voiceless consonant. In this case, vowel length provides an argument for syllabifying word-medial /s/+stop clusters as [s.p] (*ve[s.p]a* 'wasp'), [s.t] (*pa[s].ta* 'pasta'), [s.k] (*mo[s.k]a* 'fly'; see Morelli 1999: 166), respectively. Indeed, since stressed vowels preceding /s/+stop clusters are always short, these sequences do not form complex onsets in word-internal context. Rather, /s/ occupies the coda of the preceding syllable, whereas the stop takes up the onset of the following syllable. This is confirmed by the fact that Italian only allows for one post-nucleic position in the rhyme (see Morelli 1999: 166-167, and Zamboni 2000: 145 for discussion).

Sonorants are either the first part of a geminate, a nasal which shares the same place of articulation of the following consonant, or a liquid (see Krämer 2009: 138). They have been preserved from the original Latin geminates; they result from assimilation; or they fill codas after vowel-syncope (see chapter 5). Sonorants differ from obstruents with respect to the context of occurrence. Indeed, not only they are found in word-internal position, but they also take up the word-final context. However, this is true only in function words (where not all sonorants are found). In Standard Italian, /r/ is only realized as apical [r]. Following Wiese's (1996) suggestion of treating /r/ as a segment without any specifications for its articulator, we will assign it a point on Parker's sonority hierarchy and the sonority index 11, which characterizes segments immediately preceding vowels (and, for Romance varieties, immediately preceding glides).

9.2.2 TWO-MEMBER CODAS

As Krämer (2009: 137) points out, “words ending in consonants are of extremely low frequency and can all be identified as relatively recent loans”. Some instances of this are given below. Since the provided data are all borrowings, we thought it right to collect them in one chart only by listing a set of examples, not the licit combinations:

(195) Two-member coda cluster in Standard Italian: examples (data from Krämer 2009, and my own)

Example	**Gloss**
fi[lm] (Krämer 2009)	'film'
va[mp]	'vamp'
accou[nt]	'account'
ava[ns]	'advances, seduction attempts'
vo[lt]	'volt'
co[lf]	'housekeeper'
sca[rt]	'scart wall socket'
o[ps]	'oops'
to[st]	'sandwich'

The above data reveal that the codas of the loanwords which have been transposed in the Standard Italian inventory exhibit the patterns sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent. Actually, we should exclude *co[lf]* from the set of data since it results from clipping of *co[l]laboratrice [f]amiliare*, thus of Standard Italian words. Nevertheless, this word will not be considered in terms of sonority distances because it derives from clipping. Likewise, we will not take into account the other cases since we are only concerned with native words. It follows, therefore, that no coda clusters are allowed in Standard Italian and, therefore, no sonority distances can be calculated.

9.3 VENETAN-TRENTINO DIALECTS

The investigated Romance dialect of Borgo Valsugana (Valsugana) falls under the Venetan-Trentino varietes. Among the most relevant peculiarities, these dialects exhibit preservation of final vowels except for *-e* and *-o*, which only fall when found after simple sonorants (see Bondardo 1972: 99, Cordin 1997: 260, and Loporcaro 2009: 103-106 for discussion and further traits), whereas *-a*, *-i* are preserved (*barca* 'boat', *banca* 'bank', *tempia* 'temple', *dolsi* 'sweet (m. pl.); examples from my fieldwork; see chapter 5). Venetan-Trentino dialects turn out to be quite restrictive with respect to the coda position. Indeed, only one consonant is allowed to fill this context. Since sonorants and obstruents in clusters are always followed by vowels, sequences of the type sonorant+sonorant such as *co[lm]o* 'full', *fe[rm]o* 'still', *fo[rn]o* 'oven'; of the type sonorant+obstruent such as *ca[mp]o* 'field', *conte[nt]o* 'happy', *vo[lp]e* 'fox', *spo[rk]*o 'dirty'; and of the type obstruent+obstruent such as *ago[st]o* 'August' and *bo[sk]o* 'wood', turn out to be *potential* coda clusters – which do not emerge because apocope has not taken place.

9.3.1 ONE-MEMBER CODAS

The following table lists all possible simple codas in Borgo Valsugana, both word-medially and word-finally:

(196) Venetan-Trentino one-member codas (data from my fieldwork)

Consonant	**Word-final context**	**Word-medial context**
p	no	no
t	no	no
k	no	no
f	no	no
s	no	no
ʃ	no	no
ts	no	no
ʧ	no	no
m	no	yes
n	yes	yes
ɲ	no	no
l	yes	yes
r	yes	yes
ʎ	no	no
j	no	no
w	no	no
b	no	no
d	no	no
g	no	no
v	no	no
z	no	no
dz	no	no
ʤ	no	no

Below are examples for each segment:

(197) Venetan-Trentino one-member codas: examples (data from my fieldwork)

Consonant	**Word-final context**	**Italian cognate**	**Gloss**	**Word-medial context**	**Italian cognate**	**Gloss**
m	---	---	---	co[m]prar	comp(e)rare	'buy (inf.)'
n	ma[n]	mano	'hand'	lo[n]go	lu[n]go	'long (m. sg.)'
l	ma[l]	male	'bad'	ca[l]sina	ca[l]ce	'lime'
r	ma[r]	mare	'sea'	ve[r]to	ape[r]to	'open'

In the variety of Borgo Valsugana, simple codas cannot be filled by obstruents – conforming, therefore, to the Venetian model. Indeed, word-final unstressed vowels are preserved when following obstruents (*fredo* 'cold', *lago* 'lake', *ovo* 'egg', *geloso* 'jealous', *gato* 'cat', *poco* 'little'; examples from my fieldwork). The absence of these segments in codas also results from degemination, after which the simplified consonant occupies the onset of the following syllable (from my fieldwork: *stru.[t]o* 'lard', *fio.[k]o* 'bow', go.*[b]o* 'hunchback', *di.[f]e.ren.te* 'different', *o.[s]o* 'bone', *spor.ca.[ʧ]on* 'slob' vs. Standard Italian *stru[t].to*, *fio[k].co*, *go[b].bo*, *di[f].fe.ren.te*, *o[s].so*, *spor.ca[ʧ].cio.ne*, respectively; see chapter 5).

With respect to sonorants, the coda context is subject to limitations. Indeed, [m] only takes up the word-medial position: when preceding a vowel, this does not undergo deletion, and it fills the onset of the following syllable (from my fieldwork: *o.[m]o* 'man' vs. Standard Italian *uo.[m]o*). The dialect of Borgo Valsugana deletes final unstressed *-e* when following simple [n, l, r], as in the Venetian model (see Loporcaro 2009: 103-104 for discussion, and chapter 5). Final unstressed *-o* falls only when following [n][95], whereas it is preserved when following [l, r] (from my fieldwork: *vinelo* 'wine', *colo* 'neck', *cavalo* 'horse', *liziero* 'light', *muro* 'wall'). Furthermore, *-o* is conserved after segments which, in an earlier stage of the language, were the consonants clusters [gr, tr, dr] (Venetian *nero* < Latin *nĭgru(m)* 'black', Venetian *vero* < Latin *vĭtru(m)* 'glass', Venetian *squero* 'shipyard'; see Rohlfs 1966: 186). This reveals that the Gallo-Italic influence has only partially permeated Venetian. Note that they must not be geminate in order for apocope to occur (*sa[l]* 'salt', *canta[r]* 'sing (inf.)', *doma[n]* 'tomorrow', vs. *pel[e]* < Latin *pellem* 'skin'; see Rohlfs 1969: 180). Word-final

[95]The only exceptions being *trapan[o]* Standard Italian *trapano* 'drill' and *pien[o]* Standard Italian *pieno* 'full (m. sg.)'. We would not ascribe this fact to the need to keep gender distinction clear, since *pien* ~ *pien[a]* also distinguishes masculine from feminine. Rather, we would explain these realizations as influenced by regional Italian.

unstressed *-i* has been preserved. In our data, we find it especially in plural forms (*fredi*, *lagi*, *ovi*, *gelosi*). In this respect, Rohlfs (1966: 181) points out that morphological reasons may have played a role in the reintroduction of final unstressed vowels in order to distinguish gender more clearly (see chapter 5). Among all word-final unstressed vowels, *-a* turns out to be the most reluctant to apocope. Indeed, it does not undergo deletion in Borgo Valsugana, as shown in our data (*boca* 'mouth', *galineta* 'hen', *siesa* 'hedge'). The preservation of *-a* may be ascribed to the fact that it is the most frequent word-final vowel as well as the most important in nominal morphosyntax (see Tekavčić 1980: 122). In this respect, *-a* occurs to distinguish feminine from masculine (Venetian *nos[a]*, *av[a]*, *vid[a]* vs. Standard Italian *noce*, 'nut', *ape* 'bee', *vite* 'screw', respectively; see Rohlfs 1966: 183, and chapter 5). In word-internal position, the variety of Borgo Valsugana resembles Standard Italian, allowing for [m, n, l, r] to fill codas. Finally, palatals [ɲ, ʎ] as well as glides are never found in codas.

9.4 LOMBARDO-TRENTINO DIALECTS

The dialects of Mori, Bleggio and Tret fall under the Lombardo-Trentino varietes. Among the most relevant traits that the three of them share, obstruent codas, vowel-apocope (except for *-a*), complex codas, and degemination are important for the discussion of the data (see Cordin 1997: 260-262, Loporcaro 2009: 103-106, and Rohlfs 1966: 176; 180-183; 186-187 for discussion and further traits; and chapter 5). The three investigated dialects allow from one to two consonants to take up the coda context – proving to be less restrictive than the dialect of Borgo Valsugana and Standard Italian. The coda cluster inventory of these dialects exhibits many sequences whose C2 is filled by a coronal [+ant] segment [t, s, ts] – which can be added to any consonants, as in the Germanic varieties. Coda clusters such as [nts, lts, rts] turn out to be problematic because of the sibilant. The unclear status of these segments, which seem to violate the SSG because of the rise in sonority, leads us to consider them as extrasyllabic. In virtue of this, [s, ts] will not be taken into account when determining the sonority distances for the various clusters. This will also be extended to [t]. As shown for the Germanic varieties, extrasyllabicity in codas is always found when [t, s] occupy C2, and excluding these coronals from the SD-count reinforces their 'special' status.

9.4.1 ONE-MEMBER CODAS

The licit simple word-final and word-internal codas are collected in the following tables:

(198) Lombardo-Trentino one-member codas (data from my fieldwork)

Consonant	Word-final context	Word-medial context
p	no	no
t	yes	no
k	yes	no
f	yes	no
s	yes	yes
ʃ	no	no
ts	yes	no
ʧ	no	no
b	no	no
d	no	no
g	no	no
v	no	no
z	no	no
dz	no	yes
ʤ	no	no
m	yes	yes
n	yes	yes
ɲ	no	no
l	yes	yes
r	yes	yes
ʎ	no	no
j	no	no
w	no	no

Examples for each segment are listed below:

(199) Lombardo-Trentino one-member word-final codas: examples (data from my fieldwork)

Consonant	Word-final context	Variety	Italian cognate	Gloss
t	fre[t]	Mori	fre[d]do	'cold (m. sg.)'
k	po[k]	Bleggio	po[k]o	'a little'
f	o[f]	Bleggio	uo[v]o	'egg'
s	o[s]	Tret	o[s]so	'bone'
ts	descou[ts]	Tret	scal[ts]o	'barefoot'

m	o[m]	Mori	uo[m]o	'man'
n	ca[n]	Bleggio	cane	'full (m. sg.)'
l	cava[l]	Mori	cavallo	'horse'
r	mu[r]	Tret	muro	'wall'

(200) Lombardo-Trentino one-member word-medial codas: examples (data from my fieldwork)

Consonant	**Word-medial context**	**Variety**	**Italian cognate**	**Gloss**
s	di[s]cors	Bleggio	di[s]corso	'speech'
dz	me[dz]dì	Bleggio	me[dz]zodì	'noon'
m	sotaja[m]ba	Tret	sottoga[m]ba	'too lightly'
n	sco[n]dù	Mori	nascosto	'hidden'
l	za[l]do	Mori	---	'corn'
r	po[r]chet	Tret	po[r]co	'pig'

In Lombardo-Trentino varieties, simple codas can be occupied both by obstruents and sonorants (except for palatal [ɲ, ʎ], and glides). Word-final obstruent codas are the outcome of final unstressed vowel-deletion, typical of Gallo-Italic dialects (see Loporcaro 2009: 82-84 for discussion, and chapter 5). Voiced obstruents undergo devoicing after vowel-apocope. In virtue of this, /d, g, v, z/ turn into [t, k, f, s], respectively, after *-o*-deletion (from my fieldwork: *fre[t]*, *la[k]* 'lake', *cati[f]*, *gelo[s]* 'jealous' vs. Standard Italian *freddo*, *lago*, *cattivo*, *geloso*, respectively; see Alber/Rabanus/Tomaselli 2014 for discussion). Apocope does not occur when /b/ precedes the final unstressed vowel: our data for Mori, Bleggio and Tret reveal the realizations *or[b]o* 'blind (m. sg.)', *go[b]o* 'hunchback (m. sg.)') – not *or[p]*, *go[p]*, respectively. This reinforces the claim according to which /b/ proves to be unclear in this respect (Alber/Rabanus/Tomaselli 2014), along with the rarity of words exhibiting final /b/ in the Trentino varieties (nevertheless, recall that devoicing is attested in AIS I 187 *go[p]* ~ *go[b]a* and AIS I 188 *or[p]* ~ *or[b]a*, as observed in Alber/Rabanus/Tomaselli 2014). On the other hand, the plural forms always display final vowel preservation – and voiced preceding obstruents (*fre[d]i*, *la[g]i*, *cati[v]i*, *gelo[z]i*, respectively). This proves that Gallo-Italic apocope has not totally affected Lombardo-Trentino dialects, which preserve *-i* as in Venetan-Trentino and Standard Italian. Word-medial obstruents are rare. Our data reveal that they occur as the outcome of degemination or as /s/ – in the latter case, when the following consonant takes up the onset of the following syllable.

With respect to sonorants, word-final unstressed *-e* is deleted when following simple [n, l, r] (from my fieldwork: *ca[n]*, *paterna[l]*, *ma[r]*; see Loporcaro 2009: 103-104, and chapter 5). Differently from Venetan-Trentino dialects, Lombardo-Trentino exhibits final unstressed *-o* apocope when following *all* sonorants [m, n, l, r] (see Rohlfs 1966: 180-182; 186-188 for discussion): *o[m]*, *ma[n]*, *cava[l]*, *mu[r]*. As in Standard Italian, sonorants fill the word-medial context. As emerged for Borgo Valsugana, morphosyntactic reasons explain the need to retain final *-a* (see Tekavčić 1980: 121 for discussion, and chapter 5) in Mori (*boca* 'mouth', *bianca* 'white'), Bleggio (*gona* 'skirt', *fortaia* 'omelette') and Tret (*grota*, *spalancada* 'wide open'; examples from my fieldwork). On the contrary, preservation of gender distinction in feminine singular words ending in *-e* does not occur after one-member codas.

9.4.2 TWO-MEMBER CODAS

The examined Lombardo-Trentino varieties do not behave homogeneously to one another when considering the patterns in two-member coda clusters. Indeed, the dialect of Mori lacks sonorant+sonorant sequences since sonorants are always followed by *-o* or *-e*. In this respect, the dialect of Mori behaves like many Lombardo varieties, which preserve the final vowel after clusters whose second member is /n, l, r/ (see Rohlfs 1966: 186 for examples, and chapter 5). Among potential coda clusters (which are not found because of lacking apocope), Mori displays [rn] (*forno* 'oven', *inferno* 'hell', *corno* 'horn'), [lm] (*colmo* 'full', *olmo* 'elm'), and [rm] (*verme* 'worm'; all examples from my fieldwork). On the other hand, the dialects of Bleggio and of Tret allow for the complete range of patterns – sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent. In all the presented patterns, the white squares “□” stand for the licit clusters in these dialects. The pattern sonorant+sonorant is illustrated below:

(201) Lombardo-Trentino (Bleggio, Tret) two-member coda clusters I: sonorant+sonorant (following my fieldwork)

C1 SON	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
m						
n						
l	□					
r	□	□				
j						
w						

Examples each cluster are provided below:

(202) Lombardo-Trentino (Bleggio, Tret) two-member coda clusters I: examples (data from my fieldwork)

Son+Son cluster	**Variety**	**Italian cognate**	**Gloss**
o[lm]	Tret	olmo	'elm'
ve[rm]	Bleggio, Tret	verme	'worm'
fo[rn]	Bleggio, Tret	forno	'oven'

In the pattern sonorant+sonorant, C1 is always a liquid, and C2 is always a nasal. This excludes the types nasal+nasal, nasal+liquid, nasal+glide, liquid+liquid, liquid+glide and glide+glide in virtue of the requirement of the SSG, whereas the types glide+nasal, and glide+liquid were not found. The emerging sequences are of the type [COR+LAB] [lm], whereas [r] combines with labials ([rm]) and coronals ([rn]). The type [COR+COR] [ln] was not found. As seen for simple codas, complex codas have arisen through final unstressed vowel-apocope. In the data presented above, *-o* is deleted after nasals in masculine singular forms. In plural formation, these words preserve final *-i*, realizing *olmi* and *forni*, respectively. This may be due to the influence of Lombardo varieties, which preserve final *-i* after a 'strong' cluster (see Rohlfs 1966: 181 for discussion and examples, and chapter 5). Final *-e* is deleted in masculine singular forms, but plurals display *-i* (*vermi*). Vowel-apocope does not affect feminine forms ending in *-a*. Indeed, our informants realized, for instance, *storna* 'deaf' (Tret) and *ferma* 'still' (Bleggio, Tret). Again, this may be explained in morphosyntactic terms, being *-a* the most frequent final vowel and the most relevant in nominal morphosyntax (see Tekavčić 1980: 122 for discussion, and chapter 5).
The following tables illustrate the pattern sonorant+obstruent – in this case, including the the dialect of Mori:

(203) Lombardo-Trentino two-member coda clusters II: sonorant+obstruent (following my fieldwork)

C1 SON	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**dz**	**ʧ**	**ʤ**
m	□														
n			□		□							□			
l	□		□		□				□			□			
r	□		□		□		□		□			□			
j															
w															

Examples for each clusters are collected below:

(204) Lombardo-Trentino two-member coda clusters II: examples (data from my fieldwork)

Son+Obs cluster	**Variety**	**Italian cognate**	**Gloss**
te[ɱp]	Mori	tempo	'time; weather'
gra[nt]	Bleggio	grande	'big; tall (m. sg.)'
lo[ŋk]	Tret	lungo	'long (m. sg.)'
bro[nts]	Mori	bron[dz]o	'bronze'
co[lp]	Tret	colpo	'strike'
ca[lt]	Mori	caldo	'hot'
so[lk]	Bleggio	solco	'furrow'
fa[ls]	Bleggio	falso	'false (m. sg.)'
do[lts]	Mori	dol[ʧ]e	'sweet (adj.)'
co[rp]	Bleggio	corpo	'body'
ve[rt]	Tret	verde	'green (m. sg.)'
la[rk]	Mori	largo	'wide (m. sg.)'
co[rf]	Mori	corvo	'raven'
mo[rs]	Bleggio	morso	'bite'
o[rts]	Tret	or[dz]o	'barley'

In the pattern sonorant+obstruent, sonorants (except for glides) generally combine with all obstruent classes. C2 is always voiceless because of final devoicing, in virtue of which obstruents are neutralized to their voiceless value. Nasals are followed by plosives, forming the types [LAB+LAB] [ɱp], [COR+COR] [nt], and [COR+DOR] [ŋk]. Nasals share the place of articulation with the following plosive in virtue of regressive assimilation, which explains the non-emergence of combinations such as [np] in the cluster inventory. [LAB+COR] [mt] was not found in the Lombardo-Trentino inventory. Nasals do not combine with any fricatives nor with any sibilants, excluding sequences such as [LAB+LAB] [ɱf], [LAB+COR] [ms], and [COR+COR] [ns]. When C2 is an affricate, C1 is only filled by [n], generating the type [COR+COR] [nts].

Liquids display a wider range of combinations. Indeed, [l] can be followed by plosives of any articulators, forming the types [COR+LAB] [lp], [COR+COR] [lt], and [COR+DOR] [lk]. Fricatives do not take up C2. When clustering with sibilants, [COR+COR] [ls] is the only emerging sequence. The same type is found when C2 is occupied by an affricate, generating [COR+COR] [lts]. Finally, [r] freely clusters with plosives of any articulators, forming the combinations [rp] (found only for Bleggio), [rt], [rk]. Unlike the other sonorants, [r] clusters with [LAB] fricatives in [rf]. Sibilants occupy C2 in [rs], and affricates are found in [rts].

In the data presented above, a limitation on the articulators [LAB] and [DOR] within the same coda explains the absence of sequences such as [mk]. Furthermore, [LAB] does not combine with [COR], which explains the absence of clusters such as [mt, ms, mts]. On the contrary, [COR] can cluster with C2 of any articulator. The same is true for *r*-sounds. Following Wiese's (1996: 265) proposal that /r/ is not specified for any articulators, any C2 ([LAB], [COR], or [DOR]) can follow it without undergoing any restrictions.

The emerging coda clusters are the outcome of vowel-apocope after obstruents. This case reflects that of simple codas, showing that the examined dialects conform to Gallo-Italic apocope. However, this has influenced the three varieties only with respect to the masculine singular forms. Indeed, word-final unstressed *-i*, typical of masculine plural formation, has been preserved in Mori (*caldi*, *larghi*, *corvi*), Bleggio (*grandi*, *fonghi*), and Tret (*longhi*, *orzi*). The same is true for *-a*, (Mori: *bianca* 'white'; Bleggio: *barca* 'boat'; Tret: *banca* 'bank'), where morphosyntactic distinction of gender and number is retained (see Tekavčić 1980: 121, and chapter 5). Preservation of gender distinction also affects feminine singular words ending in *-e* in the dialect of Mori (from my fieldwork: *fronte* 'forehead', *morte* 'death') – which behaves like the dialect of Borgo Valsugana with respect to the non-occurrence of coda clusters here–, whereas it falls in Bleggio and Tret (from my fieldwork: *front*, *mort*, *part* 'part', *volp* 'fox', *gent* 'people') – showing the emergence of coda clusters. Furthermore, the dialect of Mori displays masculine singular forms ending in *-o* which do not exhibit final vowel deletion (from my fieldwork: *racolto* 'harvest', *romanzo* 'novel', *svelto* 'quick', *discorso* 'speech', *risvolto* 'cuff', *palco* 'stage') – which may be a consequence

of the influence of neighbouring Venetan varieties (or regional Italian). The remaining sequences result from vowel-apocope without final devoicing. In the data provided above, final *-o* characterizing masculine singular forms is deleted (*[ɱp]*, *[lp]*, *[lk]*, *[ls]*, *[rp]*, *[rs]*), but in masculine plural forms the vowel is preserved (Mori: *descalzi* 'barefoot'; Bleggio: *dolzi* 'sweet'; Tret: *sorzi* 'mice').
Finally, the pattern obstruent+obstruent is illustrated below:

(205) Lombardo-Trentino coda clusters III: obstruent+obstruent (following my fieldwork)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**dz**	**ʧ**	**ʤ**
p															
b															
t															
d															
k															
g															
f															
v															
s			□		□										
z															
ʃ															
ts															
dz															
ʧ															
ʤ															

Examples for each cluster are collected below:

(206) Lombardo-Trentino coda clusters III: examples (data from my fieldwork)

Obs+Obs cluster	**Variety**	**Italian cognate**	**Gloss**
ago[st]	Mori	agosto	'August'
fre[sk]	Bleggio	fresco	'cool'

In Lombardo-Trentino obstruent+obstruent coda clusters, C2 is never a voiced segment in virtue of final devoicing. The very restricted inventory shows that C1 is always a sibilant, which only clusters with plosives, generating the types [COR+COR] [st] and [COR+DOR] [sk]. This excludes combinations such as [pt, ps, ft, fs]. C2 [LAB] never fill C2. Indeed, our informants realized words such as *aspo* 'swift' by preserving the final vowel (i.e., no coda clusters were formed). Furthermore, the generalization banning coda clusters which display both [LAB] and [DOR] within the same sequence (cf. Wiese 1996) leaves out combinations such as [pk, fk]. The emerging sequences result from *-o* apocope. On the contrary, the final vowel does not fall in plural formation (*boschi*, *freschi*, *bruschi*).

The picture is now complete to present the sonority distance values for the various clusters – excluding sequences containing any sibilants and [t] in virtue of their 'special' behaviour:

(207) Sonority distances for Lombardo-Trentino two-member coda clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[rp, rk]	/r/ (11) – vcless plos (1)= 10	[ɱp, ŋk]	nas (7) – vcless plos (1)= 6
[rf]	/r/ (11) – vcless fric (3)= 8	[rm], [rn]	/r/ (11) – nas (7) = 4
[lp, lk]	lat (9) – vcless plos (1) = 8	[lm]	lat (9) – nas (7)= 2

The spectrum of SD values for the examined Lombardo-Trentino dialects ranges from 10 to 2 intervals. The various combinations are the outcome of historical vowel-apocope. The highest distance is found in clusters formed by [r] and a plosive ([rp, rk], where [rp] only characterizes the variety of Bleggio). Combinations with SD= 8 result from a liquid followed by a fricative ([rf]) or by a plosive ([lp, lk]). Six intervals separate C1 from C2 in sonority in sequences formed by a nasal and a plosive ([ɱp, ŋk]). Clusters displaying SD= 4 emerge when both C1 and C2 are sonorants ([rm, rn]), and are found in Bleggio and Tret, but not in Mori. The same holds for SD= 2 ([lm]), which differentiates the variety of Tret both from that of Bleggio and that of Mori.

The picture which emerges is many-sided since the three investigated dialects do not behave homogeneously. On the one hand, the variety of Mori turns out to be the less tolerant with respect to the threshold under which its coda clusters are considered as illicit. Indeed, it sets the limit to 6 intervals. This is due to the absence of sequences formed by two sonorants such as [rm, rn, lm] since the final vowel does not undergo deletion. In this respect, the variety of Mori resembles Venetan-Trentino dialects, which retain the final unstressed vowel after *potential* coda clusters. On the other hand, the variety of Bleggio does apocopate after a cluster of two sonorants – behaving, therefore, like Lombardo varieties. Nevertheless, it sets the limit to 4 intervals for its coda clusters to be well-formed. The variety of Tret turns out to be the most tolerant. Indeed, the threshold is very low, allowing for 2 intervals when vowel-deletion takes place after sequences formed by two sonorants.

On the whole, the examined dialects exhibit many gaps with respect to the sonority distance values. The three of them do not display sequences with SD= 9, which would result from the combination of [r] and an affricate such as [rts] (/r/ (11) – voiceless affricate (2)= 9). Recall that this cluster does occur in Mori, Bleggio and Tret, but it has been left out because of the unclear status of /s/. The same holds for the gap of SD= 7, resulting from clusters such as [lts] (lateral (9) – voiceless affricate (2)= 7). The gap of SD= 5, which would be found in sequences such as [nts] (nasal (7) – voiceless affricate (2)= 5), only concerns the varieties of Bleggio and Tret. Finally, the dialect of Tret lacks coda clusters of SD= 3. This distance would result from combinations such as [mg, ng] (nasal (7) – voiced plosive (4)= 3). The former sequence is excluded in virtue of the restriction banning the co-occurrence of the articulators [LAB] and [DOR] in the same coda cluster and because nasals always assimilate in place of articulation, whereas the latter is absent because of *n*-assimilation.

We may therefore conclude that, generally, Lombardo-Trentino dialects prove to be very tolerant with respect to the minimum threshold required for their coda clusters to be licit in sonority (resembling, in this, Lombardo varieties). However, varieties which are influenced by Venetan features (such as vowel preservation after certain complex codas) reveal a less tolerant behaviour, which leads to the absence of coda clusters displaying very low sonority distance values.

The following table synoptically collects the most relevant traits of the investigated Venetan-Trentino and Lombardo-Trentino dialects:

(208) Venetan-Trentino and Lombardo-Trentino synoptically

Influencing dialect(s)	**Affected area(s)**	**Examined dialect(s)**	**Features on the examined dialect(s)**	**Patterns and minimum SD**
Lombardo	Giudicarie	Bleggio	final vowel apocope (*-o*, *-e*) after C2 obstruent and after C2 sonorant	S+S, S+O, O+O SD: 10 [rp, rk] – = 4 [rm, rn]
Lombardo	Val di Non	Tret	final vowel apocope (*-o*, *-e*) after C2 obstruent and after C2 sonorant	S+S, S+O, O+O SD= 10 [rk] – 2 [lm]
Lombardo; Venetian	Val Lagarina	Mori	final vowel apocope (*-o*, *-e*) after C2 obstruent; preservation of final vowels after C2 sonorant	S+O, O+O SD= 10 [rk] – 6 [ɱp, ŋk]
Venetian	Valsugana	Borgo Valsugana	preservation of final vowels after C2 obstruent and after C2 sonorant	---

The table above shows the different behaviour of the investigated varieties. On the one hand, Lombardo traits affect the dialects of Bleggio and Tret, which exhibit final vowel-deletion both after sequences whose C2 is filled by an obstruent (such as in [rk, sk]) and after sequences whose C2 is filled by a sonorant (such as in [rm, rn] for Bleggio; and [lm] for Tret). The dialect of Mori occupies an intermediate position. On the one hand, Lombardo features influence this variety with respect to final vowel-apocope after clusters whose C2 is taken up by an obstruent (such as in [rt, ŋk]). On the other hand, Venetian characteristics affect the dialect of Mori with respect to the absence of final vowel-deletion after clusters whose C2 is occupied by a sonorant (banning sequences of the pattern sonorant+sonorant such as [lm, rm, rn]). Finally, Venetian features totally affect the variety of Borgo Valsugana, which does not apocopate at all after *potential* coda clusters (regardless of which consonant – obstruent or sonorant – fills C2).

The last of the investigated Romance varieties, Gardenese Ladin, is the focus of the following section.

9.5 GARDENESE LADIN

Among the most relevant characteristics which are of interest for our survey, the investigated Ladin variety spoken in Selva/Wolkenstein (Val Gardena/Grödnertal/Gherdëina) exhibits obstruent codas, generalized unstressed final vowel-deletion except for *-a* (see Salvi 1997: 288 for discussion and further traits, and chapter 5), and complex codas. One or two consonants can fill the coda position. As in the other examined dialects, coda clusters which display a coronal [+ant] segment [t, s, ts] abound, and they can be added to any consonants. When sibilants fill C2, the resulting sequences turn out to be problematic because the stauts of /s/ is not clear and, in some cases, /s/ violates the SSG because of the rise in sonority such as in [ps]. This leads us to ascribe them the extrasyllabic status – which will be extended to [t, ʧ] as well, due their freedom to combine with any C1 (differently from other consonants which occupy C2). In virtue of this, [s, t, ts] will not be included in the SD-count of the various coda clusters. The 'special' status of the above-mentioned segments is reinforced by the fact that extrasyllabicity in codas is always found when [t, s] take up C2. Simple codas are presented in the following section.

9.5.1 ONE-MEMBER CODAS

The table below lists all possible simple codas for Selva, both in word-medial and in word-final context:

(209) Gardenese Ladin one-member codas (following Forni 2013, and my fieldwork)

Consonant	Word-final context	Word-medial context
p	yes	no
t	yes	yes
k	yes	yes
f	yes	yes
s	yes	yes
ʃ	yes	yes
ts	yes	no
ʧ	yes	no
b	no	no
d	no	no
g	no	no
v	no	no
z	no	no
dz	no	no
ʤ	no	no
m	yes	yes
n	yes	yes
ɲ	no	no
l	yes	yes
r	yes	yes
ʎ	no	no
j	no	no
w	no	no

Examples for each segment are collected below:

(210) Gardenese Ladin one-member word-final codas: examples (data from my fieldwork)

Consonant	Example	Italian cognate	Gloss
p	go[p]	gobbo	'hunchback'
t	frei[t]	freddo	'cold'
k	le[k]	lago	'lake'
f	nue[f]	nove	'nine'
s	gelou[s]	geloso	'jealous (m. sg.)'

ʃ	gri[ʃ]	gri[ʤ]o	'grey'
ts	descou[ts]	scal[ts]o	'barefoot'
ʧ	bra[ʧ]	brac[ʧ]o	'arm'
m	leda[m]	letame	'compost'
n	vi[n]	vino	'wine'
l	ciava[l]	cavallo	'horse'
r	mu[r]	muro	'wall'

(211) Gardenese Ladin one-member word-medial codas: examples (data from Forni 2013, and my fieldwork)

Consonant	**Example**	**Italian cognate**	**Gloss**
t	a[t]mos.fera (Forni 2013)	a[t]mosfera	'atmosphere'
k	i[k]tus (Forni 2013)	i[k]tus	'stroke'
f	a[f]ta (Forni 2013)	a[f]ta	'aphtha'
s	afari[s]ta (Forni 2013)	affari[s]ta	'speculator'
ʃ	pa[ʃ]ta	pa[s]ta	'pasta'
m	a[m]bolt (Forni 2013)	---	'major'
n	cu[n]front	co[n]fronto	'comparison'
l	a[l]dò (Forni 2013)	---	'specific'
r	a[r]beta (Forni 2013)	---	'beetroot'

In Gardenese Ladin, both obstruents and sonorants take up the coda position – word-medially (conforming, therefore, to Standard Italian) as well as word-finally (diverging from Standard Italian). Word-final obstruent codas result from final unstressed vowel deletion, typical of Gallo-Italic dialects (see Loporcaro 2009: 82-84 for discussion, and chapter 5). In this respect, obstruents are neutralized to their voiceless value after vowel-apocope. The process affects /d, g, v, z, ʤ/, which change into [t, k, f, s, ʃ], respectively, after *-o* and *-e*-deletion. The same can be observed for /b/, which turns into [p], differentiating Gardenese Ladin from the examined Venetan-Trentino and Lombardo-Trentino dialects. A further peculiar trait of Gardenese Ladin is the absence of final *-i* in masculine plural formation. Indeed, the data presented above build plurals by palatalization if masculine forms end in [t, s, ts, l] (*frei[ʧ]*, *le[ʧ]*, *gelou[ʃ]*), whereas the add -[(e)s] if ending in [r, m] or in other consonants (*gop-s*, *nuef-s*, *gri[ʒ]es*, *descou[ʧ-əs]*, *bra[ʧ-əs]*; see Salvi 1997: 289-290 for details and further examples). As in the investigated Venetan-Trentino and Lombardo-Trentino varieties, *-a* is always preserved in Gardenese Ladin (from my fieldwork: *suritʃa* 'mouse', *steila* 'star', *dreta* 'right', *odla* 'needle') – again, this may lie in the need to keep gender distinction (see Tekavčić 1980: 121 for discussion, and chapter 5). When found word-medially, plosives, fricatives and sibilants are only voiceless, whereas affricates do not fill this context.

Word-final sonorants fill codas after *-o*-deletion (from my fieldwork: *ue[m]*, *vi[n]*, *ciava[l]*, *mu[r]*), conforming to (Eastern) Lombardo dialects (see Rohlfs 1966: 180-182; 186-188 for discussion); and after *-e*-deletion (from my fieldwork: *leda[m]*, *ca[n]*, *me[r]*; *mie[l]*, see Salvi 1997: 289). Plural forms exhibit final *-i* in words ending in [l] (from my fieldwork: *col ~ co[i]*, *ciaval ~ ciave[i]*, *purcel ~ purcie[i]*), whereas those ending in [m, r] add *-es* (from my fieldwork: *uem ~ uem[es]*; *mur ~ mur[es]*, *mer ~ mer[es]*, *lezier ~ lezier[es]*; see Salvi 1997: 289 for discussion and further examples); and those ending in [n] add [s] (from my fieldwork: *vin ~ vin[s]*, *man ~ man[s]*, *cian ~ cian[s]*, *sajon ~ sajon[s]*). As in Standard Italian, sonorants fill the word-medial context.

9.5.2 TWO-MEMBER CODAS

Gardenese Ladin allows for coda clusters of the patterns sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent – therefore, behaving like Lombardo-Trentino varieties. In all the patterns, the white rhombuses "◊" stand for the licit coda clusters. The first pattern is illustrated below:

(212) Gardenese Ladin two-member coda clusters I: sonorant+sonorant (following Forni 2013, and my fieldwork)

C1 SON	**C2 SON**					
	m	**n**	**l**	**r**	**j**	**w**
m						
n						
l	◊					
r	◊	◊				
j						
w						

Examples for each cluster are given in the following table:

(213) Gardenese Ladin two-member coda clusters I: examples (data from Forni 2013, and my fieldwork)

Son+Son cluster	**Italian cognate**	**Gloss**
co[lm]	colmo	'full'
je[rm]	verme	'worm'
co[rn]	corno	'horn'

In sonorant+sonorant coda clusters, C1 is always filled by a liquid, and C2 is always a nasal.

This excludes sequences of the types nasal+nasal, nasal+liquid, nasal+glide, liquid+liquid, liquid+glide and glide+glide in virtue of the requirement of the SSG, whereas the types glide+nasal and glide+liquid were not found. The resulting combinations are of the type [COR+LAB] [lm], whereas [r] clusters with labials ([rm]) and coronals ([rn]). The type [COR+COR] [ln] was not found.

As for simple codas, complex codas have arisen through final unstressed vowel-apocope. In the data presented above, *-o* and *-e* fall when found after nasals in masculine singular forms, whereas *-i* is preserved as in Lombardo dialects (*corni*; see Rohlfs 166: 181 for discussion, and chapter 5). Vowel-apocope does not involve feminine forms ending in *-a* (*colma* 'full', *ferma* 'still'; see *ladinternet.it*), preserving the status of the most frequent final vowel and the most relevant in nominal morphosyntax (see Tekavčić 1980: 122 for discussion, and chapter 5). In this respect, Gardenese Ladin resembles Venetan-Trentino and Lombardo-Trentino dialects.

The pattern sonorant+obstruent is illustrated below:

(214) Gardenese Ladin two-member coda clusters II: sonorant+obstruent (following Forni 2013, and my fieldwork)

C1 SON	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**dz**	**ʧ**	**ʤ**
m	◊						◊								
n			◊		◊				◊			◊		◊	
l	◊		◊		◊										
r	◊		◊		◊		◊		◊		◊	◊		◊	
j															
w															

Below are examples for each cluster:

(215) Gardenese Ladin two-member coda clusters II: examples (data from Forni 2013, and my fieldwork)

Son+Obs cluster	**Italian cognate**	**Gloss**
cia[ɱp]	campo	'field'
go[ɱf]	gonfio	'swollen (adj.)'
gra[nt]	grande	'tall, big (m. sg.)'
lo[ŋk]	lungo	'long (m. sg.)'
roma[ns]	romanzi	'novel (pl.)'
ma[nts]	manzo	'bullock'
bla[nʧ]	bianchi	'white (m. pl.)'
co[lp]	colpo	'stroke'

asve[lt]	svelto	'quick'
so[lk]	solco	'furrow'
co[rp]	corpo	'body'
ve[rt]	verde	'green (m. sg.)'
le[rk]	largo	'wide'
nie[rf]	nervo	'nerve'
mo[rs]	morso	'bite'
ste[rʃ]	forte	'strong (pl.)'
sfo[rts]	sforzo	'effort'
sou[rʧ]	sordi	'deaf (m. pl.)'

In sonorant+obstruent coda clusters, C1 can be filled by any sonorants (excluding glides), which generally combine with any obstruent classes. Obstruents are neutralized to their voiceless value in codas. Nasals are followed by plosives, forming the types [LAB+LAB] [ɱp, ɱf], [COR+COR] [nt], and [COR+DOR] [ŋk]. Nasals assimilate in place of articulation to the following plosive in virtue of regressive assimilation, which explains the absence of combinations such as [np, nf] in the cluster inventory. When clustering with sibilants, the only sequence is [COR+COR] [ns]. When C2 is an affricate, C1 is only taken up by [n], generating the type [COR+COR] [nts, nʧ], occurring in plural forms (see discussion in simple codas). Liquid [l] enjoys more 'freedom' than nasals. Indeed, it combines with plosives of any articulators, forming the types [COR+LAB] [lp], [COR+COR] [lt], and [COR+DOR] [lk]. Fricatives, sibilants, and affricates do not occupy C2. Finally, [r] freely combines with plosives of any articulators in [rp, rt, rk]. In is also followed by fricatives, generating [rf]; by sibilants in [rs, rʃ]; and by affricates, forming [rts, rʧ] (the latter of which found in plural forms).

The data presented above reveal that a limitation on [LAB+COR] clusters excludes sequences such as [mt, ms, mʃ, mts, mʧ]. In addition, a restriction targeting [LAB] and [DOR] in the same coda explains the absence of sequences such as [mk]. As in Lombardo-Trentino varieties, [+ant] coronals [t, s, ts] and – only in Gardenese Ladin – [ʧ] can be attached to any C1, forming sequences which not always conform to the SSG such as in [nts]. This peculiar behaviour will be taken into account by assigning the above-mentioned [+ant] coronal segments the extrasyllabic status, and they will not play any role in the SD-count.

The emerging coda clusters are the result of *-o*, *-e*-deletion after obstruents. This behaviour resembles that of simple codas, showing that Gardenese Ladin conforms to Gallo-Italic apocope. Clusters whose C1 is filled by a sibilant or an affricate containing a sibilant result from palatalization of stem-final C2 [k, t] when forming plurals. Words exhibiting final *-a* do not apocopate (see Salvi 1997: 288 for discussion and examples), in order to preserve morphosyntactic distinction of gender and number (see Tekavčić 1980: 121, and chapter 5): *blancia* 'white (f. sg.)', *longia* 'long (f. sg.)' (examples from *ladinternet.it*) – therefore, clusters do not arise in this case.

Finally, the pattern obstruent+obstruent is presented in the following tables:

(216) Gardenese Ladin two-member coda clusters III: obstruent+obstruent (following Forni 2013, and my fieldwork)

C1 OBS	**C2 OBS**														
	p	**b**	**t**	**d**	**k**	**g**	**f**	**v**	**s**	**z**	**ʃ**	**ts**	**dz**	**ʧ**	**ʤ**
p									◊						
b															
t															
d															
k									◊						
g															
f									◊						
v															
s	◊		◊												
z															
ʃ			◊		◊										
ts															
dz															
ʧ									◊						
ʤ															

Below are examples for each cluster:

(217) Gardenese Ladin two-member coda clusters III: examples (data from Forni 2013, and my fieldwork)

Obs+Obs cluster	**Italian cognate**	**Gloss**
ghi[ps] (Forni 2013)	---	'gypsum'
i[ks] (Forni 2013)	i[ks]	'x'
lou[f-s]	lupi	'wolf (pl.)'
cia[sp] (Forni 2013)	---	'leg'
ce[st]	ce[st]o	'bucket'
ago[ʃt]	ago[st]o	'August'
bo[ʃk]	bo[sk]o	'wood'

dou[ʧ-s]	dolci	'cake (pl.)'

In Gardenese Ladin obstruent+obstruent coda clusters, both C1 and C2 are voiceless. C1 can be filled by any obstruent classes, with limitations on C2. Indeed, when C1 is a plosive or a fricative, C2 is always a sibilant: [LAB+COR] [ps, fs] (the latter occurring in masculine plural forms) and [DOR+COR] [ks] are the only emerging combinations, whereas [COR] [t] never clusters with any segments. This excludes sequences such as [pt, kt, ft]. Furthermore, the restriction banning coda clusters exhibiting both [LAB] and [DOR] in the same sequence (see Wiese 1996) leaves out combinations such as [pk, fk]. C1 sibilant is either [s] or [ʃ], which are only followed by plosives in [COR+LAB] [sp] (unlike Lombardo-Trentino varieties); [COR+COR] [st, ʃt], and [COR+DOR] [ʃk] (the three of them as the outcome of *-o* apocope). Finally, the only combination in which C1 is taken up by an affricate is [COR+COR] [ʧs], which is found in plural formation.

We are now in the position of presenting the various sonority distance values for Gardenese Ladin, excluding [+ant] coronals [t, s, ʃ] and all clusters containing a sibilant:

(218) Sonority distances for Gardenese Ladin two-member coda clusters

Cluster	**Sonority Distance**	**Cluster**	**Sonority Distance**
[rp, rk]	/r/ (11) – vcless plos (1)= 10	[rm, rn]	/r/ (11) – nas (7)= 4
[rf]	/r/ (11) – vcless fric (3)= 8	[ɱf]	nas (7) – vcless fric (3) = 4
[lp, lk]	lat (9) – vcless plos (1)= 8	[lm]	lat (9) – nas (7) = 2
[ɱp, ŋk]	nas (7) – vcless plos (1)= 6		

Gardenese Ladin coda clusters, which are the outcome of historical vowel-apocope, exhibit a wide spectrum of SD values, ranging from 10 to 2 intervals. The highest distance characterizes sequences formed by /r/ and a plosive ([rp, rk], SD= 10). Clusters with SD= 8 are found when /r/ combines with a fricative ([rf]) and [l] is followed by a plosive ([lp, lk]). Six intervals separate C1 from C2 in sonority in combinations formed by a nasal and a plosive ([ɱp, ŋk]). Clusters displaying SD= 4 emerge when both C1 and C2 are sonorants ([rm, rn]), and (unlike Lombardo-Trentino) when a nasal is followed by a fricative ([ɱf]). Finally, SD= 2 is found in clusters formed by [l] and a nasal ([lm, ln]).

Gardenese Ladin exhibits many gaps with respect to the sonority distance value inventory. It lacks sequences with SD= 9, which would result from combinations such as [ʀts, ʀʧ] (/r/ (11) – voiceless affricate (2)= 9). Actually, these clusters do occur, but they have not been included in the SD-count because of the unclear status of the sibilant. The same holds for the gap of SD= 7, resulting from sequences such as [lts] (lateral (9) – voiceless affricate (2)= 7); and for the gap of SD= 5, which would be found in combinations such as [nts] (nasal (7) – voiceless affricate (2)= 5). Finally, Gardenese Ladin lacks coda clusters displaying SD= 3. This value would result from combinations such as [mg, ng] (nasal (7) – voiced plosive (4)= 3). The former sequence is excluded in virtue of the restriction banning the co-occurrence of the articulators [LAB] and [DOR] in the same coda cluster and because nasals always assimilate to C2 in place of articulation, whereas the latter is absent because of *n*-assimilation and *g*-deletion. It emerges, therefore, that Gardenese Ladin is as tolerant as the Lombardo-Trentino variety of Tret, setting the threshold to 2 intervals for its coda clusters to be licit.

9.5.3. THREE-MEMBER CODA CLUSTERS

Gardenese Ladin exhibits a restricted inventory of three-member coda clusters, which are of the pattern sonorant+obstruent+obstruent, as illustrated below:

(219) Gardenese Ladin three-member coda clusters: examples (data from my fieldwork)

Son+Obs+Obs cluster	**Example**	**Gloss**
[ɱp-s]	cia[ɱp-s]	'field (pl.)'
[ɱf-s]	go[ɱfs]	'swelled (m. pl.)'
[ŋk-s]	sta[ŋks]	'tired (m. pl)'
[lp-s]	vo[lps]	'fox (pl.)'
[rp-s]	co[rps]	'body (pl.)'

In Gardenese Ladin three-member coda clusters, C3 is always [s] (characterizing masculine plural forms), and can be attached to [LAB] and [DOR] plosives, and to the[LAB] fricative. The resulting sequences do not conform to the requirement of the SSG since sonority rises from C2 to C2 or it forms sonority *plateaux*. In virtue of this, C3 [s] is considered as extrasyllabic.

We are now in the position of summarizing the most relevant features of the examined Romance varieties.

9.6 ROMANCE CODAS SUMMARIZED

In this chapter we have illustrated the licit codas in Standard Italian and in someNorthern Italian dialects falling under Venetan-Trentino (Borgo Valsugana), Lombardo-Trentino (Mori, Bleggio, Tret), and Gardenese Ladin (Selva/Wolkenstein).

Simple codas can be filled by obstruents and sonorants, but each of the investigated varieties behaves in its own way with respect to this. Standard Italian only allows for sonorants to take up both the word-final (only in function words) and the word-medial context (nasals, liquids, and geminates), whereas obstruents only occur word-medially (limited to /s/ and geminates). In the Venetan-Trentino variety of Borgo Valsugana, sonorants are found both word-finally (where final *-o* falls after [n] and *-e* falls after [n, l, r], conforming to the Venetian model) and word-medially (where we find [m, n, l, r]), whereas obstruents (except for word-internal /s/) do not occupy the word-final coda position since the final vowel does not undergo deletion when preceded by obstruents. Final *-i*, *-a* are preserved in virtue of morphosyntactic needs to distinguish plural forms (*-i*) and gender (*-a*).

The picture is different in the Lombardo-Trentino dialects of Mori, Bleggio, and Tret. Indeed, these varieties allow for obstruents as well as sonorants to fill both the word-final and the word-medial context. In this respect, word-final obstruents are neutralized to their voiceless value after historical *-o*, *-e*-deletion, conforming to the Gallo-Italic model (the only exception being [b], whose status is unclear). When found word-medially, obstruents are rare (and restricted to /s/ and degemination). Final *-i*, *-a* are preserved for morphosyntactic reasons (plural formation and gender distinction, respectively), as in Venetan-Trentino. When codas are filled by sonorants, word-final *-o* apocopates not only after [n, l, r], but also after [m] (differently from the Venetan-Trentino variety of Borgo Valsugana), whereas *-e* falls after [n, l, r] (as for Borgo Valsugana).

A similar situation characterizes Gardenese Ladin. Indeed, both obstruents and sonorants take up the word-final as well as the word-medial position. Word-finally, obstruents are neutralized to their voiceless value after *-o*, *-e*-apocope. The process also affects [b], distinguishing, in this respect, Gardenese Ladin both from the examined Venetan-Trentino and Lombardo-Trentino dialects. A further peculiarity which Gardenese Ladin exhibits is the absence of *-i* in plural formation of words ending in an obstruent (which are palatalized in plural); whereas *-a* is preserved in order to keep gender distinction clear (as in the other

examined dialects). With respect to sonorants, final *-o*, *-e* are deleted, but *-i* characterizes plural forms in words ending in [l] when singular.
Among sonorants, /r/ is realized as apical [r] in all the investigated varieties, and it behaves in the same manner in all of them, being the most sonorous element before vowels (or, in Romance varieties, before glides). In virtue of this, Wiese's (2001, 2003) proposal according to which all realizations of /r/ occupy the same position in the sonority hierarchy (between /l/ and vowels – or glides, in the case of Romance varieties) has been adopted, and we have assigned it the sonority index 11. We have assigned this segment a point on Parker's sonority scale instead of a fixed place as it is for the other segments instead.
With respect to two-member coda clusters, Standard Italian and the variety of Borgo Valsugana behave identically, prohibiting complex codas. That is to say, they do not apocopate after C2 obstruent nor after C2 sonorant. On the contrary, the dialects of Mori, Bleggio, Tret, and Gardenese Ladin do allow for these structures, although exhibiting differences from one another. Indeed, Mori only displays the patterns sonorant+obstruent and obstruent+obstruent. Sequences formed by two sonorants turn out to be *potential* coda clusters due to the absence of final vowel-apocope – resembling, in this respect, Venetan-Trentino. On the contrary, Bleggio, Tret, and Gardenese Ladin display the complete range: sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent – each allowing for its own combinations. With respect to the former pattern, the licit types are liquid+nasal (only for Tret and Gardenese Ladin) and /r/+nasal (for Bleggio, Tret, and Gardenese Ladin).
In sonorant+obstruent sequences, the inventories of the investigated varieties partly exhibit the same types and clusters, allowing for labials to combine with labials ([ɱp]; only in Gardenese Ladin [ɱf]); coronals cluster with labials ([lp]), with coronals ([nt, nts, lt]; [ls, lts] only absent in Gardenese Ladin), and with dorsals ([ŋk, lk]). Furthermore, Gardenese Ladin exhibits [ns] and [nʧ] – the latter as the outcome of palatalization in plural formation. [r] is followed by all articulators as well: labials ([rp] only for Bleggio and Gardenese Ladin; [rf]), coronals ([rt, rs, rts]; [ʀʃ] only for Gardenese Ladin), and dorsals ([rk]). Gardenese Ladin also displays [ʀʃ, ʀʧ] as the result of palatalization in plural forms.
In the pattern obstruent+obstruent, Mori, Bleggio, and Tret share the same coda clusters, formed by a sibilant followed by a coronal or a dorsal plosive ([st, sk]). On the contrary, Gardenese Ladin exhibits a wider inventory, which allows for C1 plosive/fricative to combine with [s] in plural formation ([ps, ks, fs]); and for C1 [s, ʃ] to combine with plosives

([sp, st, ʃt, ʃk,]) or C1 affricate followed by a sibilant in plural forms ([ʧs]).
The examined Lombardo-Trentino dialects and Gardenese Ladin share the fact that C2 is never filled by a voiced obstruent since obstruents are neutralized to their voiceless value after vowel-deletion. In addition, a restriction operating on the co-occurrence of [LAB] and [DOR] segments in the same coda cluster is found, in virtue of which the absence of sequences such as [mk, fk] can be explained. Likewise, a limitation on [LAB] and [COR] segments in the same coda cluster explains why the examined Lombardo-Trentino varieties and Gardenese Ladin lack [mt, ms, mʃ, mts, mʧ]. All the investigated dialects which allow for coda clusters are characterized by the occurrence of coronal, [+ant] consonants [t, s] (but also affricates containing /s/ such as [ts, ʧ]) as C2, which can be added to any segments, but not always conform to the requirement of the SSG – forming sonority *plateaux* or rising sonority. The 'freedom' which coronal [+ant] segments enjoy has led us to treat them as extrasyllabic elements and, as such, not to consider them in the calculation of the various sonority distances.
The resulting clusters are the outcome of historical *-o* and *-e*-apocope. This process mainly affects masculine singular forms, and only in some cases feminine singular. The variety of Mori turns out to be the most reluctant to *-e*-deletion in feminine singular words; and *-o* is preserved in some cases, too – resembling, in this respect, the Venetian model and the dialect of Borgo Valsugana, which do not apocopate after complex sequences. On the contrary, the varieties of Bleggio, Tret, and Gardenese Ladin exhibit vowel-deletion in this case as well. Final vowel preservation is found in plural formation (*-i*) and in feminine singular forms ending in *-a* in order to keep gender distinction clear. Differently from Mori, Bleggio, and Tret, Gardenese Ladin builds masculine plural forms by palatalizing the obstruent in the stem, or by adding /s/ to the stem – therefore, not conforming to the Lombardo model.
Concerning sonority distances, the various dialects turn out to be tolerant, although to a different extent. All the varieties which allow for coda clusters embrace values which range from 10 to 2 intervals separating C1 from C2 in sonority. The highest distances are found when C1 is [r] followed by plosives ([rp, rt, rk]), whereas the lowest value varies according to the dialect. On the one hand, Mori sets the limit to 6 intervals ([ɱp, ŋk]), proving to be the less tolerant among the investigated dialects which exhibit coda clusters. On the other

hand, Bleggio allows for a lower threshold, setting the limit to 4 intervals ([rm, rn]). Tret and Gardenese Ladin turn out to be the most permissive varieties, allowing for at least 2 steps separating C1 from C2 in sonority. This value characterizes sequences formed by two sonorants ([lm]), which are not found for Mori nor for Bleggio. Indeed, the dialect of Mori does not apocopate at all after C2 sonorant (as in the Venetian model), whereas the dialect of Bleggio does delete final vowels after C2 sonorant, provided that C1 is not [l] (*ve[rm]*, *fo[rn]* vs. *colmo*).

Finally, three-member coda clusters only characterize Gardenese Ladin. These are of the pattern sonorant+obstruent+obstruent, which occurs in masculine plural formed by adding [COR] [s] to the stem. C1 is filled by any sonorants; C2 by a plosive or a fricative (*go[mfs]*, *sta[ŋks]*). The resulting clusters do not conform to the requirement of the SSG since sonority does not sink from C2 to C3 – the reason why C3 [s] has been considered as extrasyllabic.

The main characteristics of the examined varieties are synoptically collected in the tables below:

(220) Romance codas synoptically

a. One-member codas

Variety	One-member codas
Standard Italian (StIt)	- obstruents (restricted to [s] and geminates; only word-medially), - sonorants (word-finally: function words; word-medially)
Venetan-Trentino (VeTr)	- sonorants (word-finally; word-medially)
Lombardo-Tretino (LoTr)	- obstruents (word-finally; word-medially restricted to [s]); - sonorants (word-finally; word-medially)
Gardenese Ladin (GaLa)	- obstruents (word-finally; word-medially); -sonorants (word-finally; word-medially)

b. Two-member codas

Variety	Allowed patterns	Nas+vel	Nas+non-vel	SD
StIt	---	---	---	---
VeTr	---	---	---	---
LoTr: Mori	- S+O (C2 sib, [t] extrasyllabic); - O+O (C2 sib, [t] extrasyllabic)	[ŋk]	[ɱp; nt, nts]	10 [rk] – 6 [ɱp, ŋk]
LoTr: Bleggio	- S+S; - S+O (C2 sib, [t] extrasyllabic); - O+O (C2 sib, [t] extrasyllabic)	[ŋk]	[nt, nts]	10 [rp, rk] – 4 [rm, rn]
LoTr: Tret	- S+S; - S+O (C2 sib, [t] extrasyllabic); - O+O (C2 sib, [t] extrasyllabic)	[ŋk]	[nt, nts]	10 [rk] – 2 [lm]
GaLa	- S+S; - S+O (C2 sib, [t] extrasyllabic); - O+O (C2 sib, [t] extrasyllabic)	[ŋk]	[ɱp, ɱf; nt, ns, nts, nʧ]	10 [rp, rk] – 2 [lm]

c. Three-member codas

Variety	Allowed patterns	Structure
GaLa	S+O+O	nas+plos/fric+sib; liq+plos+sib

10. TWO-MEMBER CLUSTERS:
AN OPTIMALITY-THEORY ACCOUNT

10.1 Introduction

The present chapter is devoted to the analysis of the least sonorous two-member clusters which have emerged in the previous chapters for each examined variety, leaving marginal sequences out. The analysis will be made within the theoretical framework of Optimality Theory (OT). In order to do this, sonority distance values will constitute the first element to consider. Indeed, the lowest values act as thresholds under which a cluster is regarded as ill-formed. It has been shown that these values differ according to the variety. In light of this, some varieties turn out to be more tolerant than others with respect to the threshold they allow for. It will be shown how the SD values interact with faithfulness constraints. In the course of the evaluation for the various clusters, the role played by the universal hierarchy and the ranking of faithfulness constraints within it will emerge. In particular, the latter will determine the cut-off point of the allowed sonority distances for each variety.

The chapter is structured as follows. After a brief, synoptic revision of the lowest SD values which every variety exhibits, we will present the markedness constraints and those related to faithfulness. We will then illustrate the way in which they interact in each variety, always considering two types of clusters. Obviously, the evaluation will be done for onset clusters as well as for coda clusters.

10.2 Germanic and Romance SD synoptically: onset clusters and coda clusters

Before examining the investigated varieties in OT-terms, it is useful to provide a synoptical summary of the lowest thresholds allowed in each of them. Indeed, these values represent the focus of the various evaluations since faithfulness constraints will interact with them in different ways, according to the variety. Germanic and Romance SD are illustrated below:

(221) Germanic and Romance sonority distances in onset clusters: a comparison

Germanic varieties	**Lowest SD**	**Cluster(s)**	**Romance varieties**	**Lowest SD**	**Cluster(s)**
Standard German	SD= 5	[bl, gl]	Standard Italian	SD= 5	[bl, gl]
Tyrolean	SD= 2	[kf]	Venetan-Trentino	SD= 5	[bl, vr]
Mòcheno	SD= 3	[vl]	Lombardo-Trentino	SD= 5 (Bleggio, Tret) SD= 7 (Mori)	[bl] (both); [dl, gl] (Tret) [br, dr, gr]
Cimbrian	SD= 3	[vl]	Gardenese Ladin	SD= 5	[bl, dl, gl,vr]

It emerges from the table above that some Germanic varieties and some Romance varieties behave in the same way with respect to the minimum number of intervals separating C1 from C2 in sonority. Indeed, Standard German, Standard Italian, Venetan-Trentino, the dialects of Bleggio and Tret, and Gardenese Ladin require no less than 5 intervals for their onset clusters to be licit. This value emerges in "ordinary" onset clusters (lower values are found in marginally sequences – [gm] for Standard German; liquid+glide for Standard Italian and the Romance dialects). Furthermore, the Germanic group reveals that Tyrolean is more permissive than the other varieties, allowing for SD= 2. Mòcheno and Lusérn Cimbrian agree on the same SD value, amounting to 3 intervals. Concerning the Romance group, the dialect of Mori turns out to be less tolerant due to the absence of "ordinary" onset clusters with SD= 5. Indeed, it requires at least 7 steps.
The chart below illustrates the situation for coda clusters:

(222) Germanic and Romance sonority distances in coda clusters: a comparison

Germanic varieties	**Lowest SD**	**Cluster(s)**	**Romance varieties**	**Lowest SD**	**Cluster(s)**
Standard German	SD= 2	[lm, ln]	Standard Italian	---	---
Tyrolean	SD= 2	[lm, ln]	Venetan-Trentino	---	---
Mòcheno	SD= 2	[lm, ln]	Lombardo-Trentino	SD= 2 (Tret) SD= 4 (Bleggio) SD= 6 (Mori)	[lm] [rm, rn] [ɱp, ŋk]
Cimbrian	SD= 2	[lm, ln]	Gardenese Ladin	SD= 2	[lm]

As seen for onset clusters, some Germanic and some Romance varieties behave in the same way with respect to the limit they set for their coda clusters to be licit in sonority-related terms. All the investigated Germanic varieties, the dialect of Tret, and Gardenese Ladin agree on the same SD, requiring for their coda clusters to display at least 2 intervals separating C1 from C2 in sonority in order to be licit, a value which is found in "ordinary" coda clusters. The dialects of Bleggio and of Mori are not so permissive. Indeed, they set the limit to 4 and 6 intervals, respectively, for their coda clusters to be licit in sonority-related terms. Finally, Standard Italian and Venetan-Trentino turn out to be very intolerant since they do not allow for any complex codas – therefore, sonority distances could not be calculated.

In the following section we will present the relevant constraints that will be used for evaluating the various onset and coda clusters.

10.3 Markedness constraints and faithfulness constraints

In the following sections we will focus on how the interaction between sonority-related constraints and faithfully constraints operates to generate a grammar of cluster phonotactics for each variety. This approach is not new. As a matter of fact, Wiltshire&Maranzana (1999) and Krämer (2009) propose an analysis in these terms in order to account for onset well-formedness of Piedmontese and of Standard Italian, respectively. However, what differentiates the former's from our approach is the fact that Wiltshire&Maranzana (1999) examine also onset clusters of the type /s/C. As mentioned throughout our study, we have not considered any clusters containing a sibilant: indeed, in combining freely with other segments, /s/ often does not conform to the requirement of the SSG – a fact in virtue of which we have not treated them as valuable indicators of SD-calculation. On the other hand, Krämer's (2009) approach goes beyond the simple evaluation of onset clusters in terms of SD, going deep into definite article selection, place of articulation, and manner of articulation, just to name a few. Furthermore, we believe that our account may well give an insight into what is variation in terms of cluster phonotactics.

In order to establish how the various varieties build their grammars for clusters and to what extent they differ from one another with respect to allowed and disallowed clusters and SD, we need to build a relationship between the SD values presented in the previous chapters and faithfulness. As emerged from the discussion of the data (chapters 6-9), all the investigated varieties set a limit under which clusters are considered as ill-formed. For instance, the number of intervals separating in sonority C1 from C2 in Standard German onset clusters does not have to lie under 4, whereas Standard Italian does not allow for onset clusters which exhibit a distance lying under 5 steps, etc. In light of this, we have to establish that a certain SD between C1 and C2 (in onsets as well as in codas) in a specific variety has not to lie under a certain number of intervals in order for the cluster to be licit. To generate this, we will resort to Wiltshire&Maranzana's (1999) set of constraints which penalize specific sonority distances. These constraints are arranged on a fixed ranking:

(223) Constraints on onsets SD (see Wiltshire&Maranzana 1999; adapted from Krämer 2009: 145)

* SD {0}onset : assign one violation mark to onset clusters of sonority distance 0
* SD {1}onset : assign one violation mark to onset clusters of sonority distance lower than 1
* SD {2}onset : assign one violation mark to onset clusters of sonority distance lower than 2
* SD {3}onset : assign one violation mark to onset clusters of sonority distance lower than 3
* SD {4}onset : assign one violation mark to onset clusters of sonority distance lower than 4
* SD {5}onset : assign one violation mark to onset clusters of sonority distance lower than 5
* SD {6}onset : assign one violation mark to onset clusters of sonority distance lower than 6
* SD {7}onset : assign one violation mark to onset clusters of sonority distance lower than 7
* SD {8}onset : assign one violation mark to onset clusters of sonority distance lower than 8
Etc.

The constraint set illustrated above may be expanded through other constraints for which higher thresholds are required. The fixed ranking for the presented constraints is illustrated below:

(224) Fixed ranking for the constraints on SDonset

* SD {0}onset » * SD {1}onset » * SD {2}onset » * SD {3}onset » * SD {4}onset etc.

The hierarchy presented above holds for all the examined varieties, which will penalize certain constraints according to what is required for their onset clusters to be licit in sonority-related terms. In order to establish this, we include the family of faithfulness constraints, which we will label under “F” (= faithfulness) and which embrace, in our survey, constraints such as MAX-IO and DEP-IO[96]:

(225) Some faithfulness constraints (see McCarthy & Prince 1995: 264)

a. MAX-IO: Every segment of the input has a correspondent in the output.
b. DEP-IO: Every segment of the output has a correspondent in the input.

[96]The family of faithfulness constraints is larger than the one presented here (see McCarthy&Prince 1995 for an overview). However, the other faithfulness constraints are not required for the purpose of the present study, hence they have not been mentioned.

F penalizes all unfaithful outputs which could lead to avoid the realization of an onset cluster by not conforming to the required SD. These violations include, for instance, segment deletion and segment insertion, which we will indicate as "Ø":

(226) Possible outputs collected in "Ø"

a. segment insertion: /gn/ → [gən]
b. deletion of first segment: /gn/ → [n]
c. deletion of second segment: /gn/ → [g]
d. deletion of both segments: /gn/ → Ø

In the course of the analysis, we will present the various grammars which characterize every investigated variety. The evaluation will consider two candidates for each variety, as exemplified below:

(227) Onset cluster evaluation: candidates

Input	**Outputs**
/gn/ SD= 3	a. [gn]
	b. Ø

The exemplified input above may be realized in two output forms, represented by candidate a. and candidate b. Candidate a. stands for the candidate which contains both segments of the input without change. On the contrary, candidate b. represents the candidate which operates some change in the input segments. It will be shown that this violation avoids the violation of the constraint which takes care of the threshold for a cluster to be licit in terms of SD between its segments. In the case exemplified above for the evaluation of the outputs for the input /gn/ (SD= 3), candidate b. will choose to operate some change in the input segments in order to satisfy the constraint on the required SD.

Every variety exhibits a specific ranking with respect to the interaction between constraints on SD for onset clusters and F. The importance of F lies in a) which constraint F dominates in the hierarchy of a certain variety, and b) which constraint dominates F. To put it another way, the position of F in each variety will determine the cut-off point of the allowed SD for a specific variety. An analysis in these terms can precisely account for grammatical differences in each examined variety.

Concerning coda clusters, it was shown in the discussion that, for instance, the number of intervals separating in sonority C1 from C2 in Bleggio coda clusters does not have to lie under 4 ([rm, rn]), whereas Standard German is more tolerant, allowing for SD= 2 ([lm, ln]). In virtue of this, therefore, we have to establish, as was done for onset clusters, that a certain SD between C1 and C2 in a specific variety has not to lie under a certain number of intervals in order for the cluster to be licit. In order to generate this, we will propose a set of constraints for coda clusters which penalize specific sonority distances:

(228) Constraints on codas SD

* SD {0}coda: assign one violation mark to coda clusters of sonority distance 0
* SD {1}coda: assign one violation mark to coda clusters of sonority distance lower than 1
* SD {2}coda: assign one violation mark to coda clusters of sonority distance lower than 2
* SD {3}coda: assign one violation mark to coda clusters of sonority distance lower than 3
* SD {4}coda: assign one violation mark to coda clusters of sonority distance lower than 4
* SD {5}coda: assign one violation mark to coda clusters of sonority distance lower than 5
* SD {6}coda: assign one violation mark to coda clusters of sonority distance lower than 6
* SD {7}coda: assign one violation mark to coda clusters of sonority distance lower than 7
* SD {8}coda: assign one violation mark to coda clusters of sonority distance lower than 8
Etc.

As for onset clusters, the constraint set proposed above may be expanded through other constraints for which higher thresholds are required. The fixed ranking for the presented constraints is given below:

(229) Fixed ranking for the constraints on SDcoda

* SD {0}coda » * SD {1}coda » * SD {2}coda » * SD {3}coda » * SD {4}coda » * SD {5}coda » * SD {6}coda etc.

The ranking presented above holds for all the examined varieties, which will penalize certain constraints according to what is required for their coda clusters to be licit in sonority-related terms. As for onset clusters, these constraints will interact with the family of faithfulness constraints previously illustrated. As explained for onset clusters, F penalizes all unfaithful outputs which could lead to avoid the realization of a coda cluster by not conforming to the required SD. Again, these violations include, for instance, segment deletion and segment insertion, and will be collected under "Ø":

(230) Possible outputs collected in “Ø”

a. segment insertion: /rm/ → [rəm]
b. deletion of first segment: /rm/ → [m]
c. deletion of second segment: /rm/ → [r]
d. deletion of both segments: /rm/ → Ø

We will present the various grammars for coda clusters which emerge for every investigated variety. The evaluation will consider two candidates for each variety, as provided below:

(231) Coda cluster evaluation: candidates

Input	**Outputs**
/rm/ SD= 4	a. [rm]
	b. Ø

The exemplified input above may be realized in two output forms, represented by candidate a. and candidate b. As for onset clusters, candidate a. stands for the candidate which contains both segments of the input without change. On the contrary, candidate b. represents the candidate which operates some change in the input segments. It will be shown that this violation avoids the violation of the constraint which takes care of the threshold for a cluster to be licit in terms of SD between its segments. In the case exemplified above for the evaluation of /rm/ (SD= 4), candidate b. will choose to operate some change of the input form in order to satisfy the constraint on the required SD.
As for onset clusters, every variety imposes a specific ranking with respect to the interaction between constraints on SD for coda clusters and F. Again, the importance of F lies in a) which constraint F dominates in the hierarchy of a certain variety, and b) which constraint dominates F. To put it another way, the position of F in each variety will determine the cut-off point of the allowed SD for a specific variety. This will provide a precise account for grammatical differences in each examined variety.
In the following sections we will deal with the evaluation of onset and coda clusters of the varieties under investigation.

10.4 OT-evaluation of onset clusters

It has emerged from the discussion of the data that some varieties behave similarly to others with respect to the threshold under which onset clusters are illicit. In particular, Standard German, Standard Italian, Venetan-Trentino, Lombardo-Trentino, and Gardenese Ladin set the limit to 5 steps in order for their onset clusters to be licit. A further group is represented by Mòcheno and Lusérn Cimbrian, which turn out to be more tolerant than the above-mentioned varieties since they allow for at least 3 intervals in the onset cluster inventory. Finally, Tyrolean sets the limit to 2 intervals, being, therefore, the most permissive among the investigated varieties.

In the following subsections, onset clusters will be evaluated by choosing the lowest SD interval separating in sonority C1 from C2 in "ordinary" sequences, and an interval which is illicit according to the variety. It will emerge from the evaluations how F shifts within the hierarchy of markedness constraints, building the grammars of each group.

10.4.1. Mori

The dialect of Mori turns out to be quite restrictive, allowing for no less than 7 intervals separating C1 from C2 in sonority for its onset clusters. It follows that *SD {7}onset will be the most important constraint to satisfy. This means that this variety builds its grammar by putting F above *SD {8}onset. The constraint *SD {7}onset will be higher-ranked than F, and will directly dominate it. The emerging picture reveals, therefore, that a violation of F turns out to be less fatal than not conforming to *SD {7}onset:

(232) Mori

*SD {7}onset » F » *SD {8}onset » *SD {9}onset etc.

For the variety of Mori, the requirement of SD= 7 is fulfilled by the onset clusters [br, dr, gr]. The following tableau shows the interaction between markedness constraints and F in clusters with SD= 7[97]:

[97]We adopt a similar analysis as that of Krämer (2009).

(233) Tableau 1: interaction between *SD {7}onset and F I

/gr/ SD= 7	*SD {7}onset	F	*SD {8}onset
→ a. [gr]			*
b. Ø		*	

The input /gr/ consists of a voiced plosive and a liquid. Two candidates are evaluated for its possible output forms: candidate a. is the output which preserves the input segments by not changing anything, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.

*SD {7}onset is satisfied both by candidate a. and candidate b., showing that both are equal since they conform to what is required by the constraint in question, which guarantees that onset clusters display at least 7 steps. Concerning F, the constraint which is dominated by *SD {7}onset, candidate a. is faithful: no changes have affected the input segments. On the contrary, candidate b. has incurred a violation of F in order to satisfy higher-ranked *SD {7}onset. Although this violation is less fatal than a violation of *SD {7}onset, candidate b. loses the competition because candidate a. satisfies both constraints. Violating lowest-ranked *SD {8}onset does not prevent candidate a. from being chosen as the optimal output. Whether candidate b. satisfies *SD {8}onset, is not relevant at this point because the violation of higher-ranked F already suffices to exclude it from being the optimal output.

The tableau below illustrates the interaction between markedness constraints and F in a clusters with SD= 6:

(234) Tableau 2: interaction between *SD {7}onset and F II

/fl/ SD= 6	*SD {7}onset	F	*SD {8}onset
a. [fl]	*		
→ b. Ø		*	

Onset clusters formed by a fricative and a liquid such as [fl] (SD= 6) were not found for the dialect of Mori. Candidate a. is the output which does not operate any changes in the input segments, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.

With respect to *SD {7}onset, militating against onset clusters with less than 6 intervals in SD, a violation is incurred by candidate a., turning out to be worse than candidate b., which, on the contrary, satisfies the constraint in question. However, in order to do this, it violates lower-ranked F, whereas candidate a. does not. In this respect, candidate a. wins over candidate b. since it does not operate any changes in the input segments. Nevertheless, this does not suffice for candidate a. to be selected as the optimal output since the violation of higher-ranked *SD {7}onset is worse, therefore discarding it. Furthermore, no violation of lowest-ranked *SD {8}onset would have prevented candidate a. from being eliminated. Concerning candidate b., it is not relevant here whether it conforms to *SD {8}onset: it will be chosen as the optimal output in any case since it satisfies highest-ranked *SD {7}onset.

10.4.2 Standard German, Standard Italian, Venetan-Trentino, Bleggio, Tret, Gardenese Ladin

Requiring no less than 5 intervals for their onset clusters to be licit, *SD {5}onset will be the most important constraint to satisfy in the varieties discussed in this subsection. It follows that they build their grammar by putting F above *SD {6}onset. The constraint *SD {5}onset will be higher-ranked than F, thus dominating it. A violation of F, therefore, will be better than violating *SD {5}onset:

(235) Standard German, Standard Italian, Venetan-Trentino, Bleggio, Tret, Gardenese Ladin

*SD {5}onset » F » *SD {6}onset » *SD {7}onset etc.

For Standard German, Standard Italian, Venetan-Trentino, Bleggio, Tret, and Gardenese Ladin, the requirement of SD= 5 is fulfilled by the onset clusters [bl, gl] (the latter not found in Venetan-Trentino). In addition, Venetan-Trentino, Tret, and Gardenese Ladin exhibit [vr]; Tret and Gardenese Ladin also display [dl].

Tableau 3 shows the interaction between markedness constraints and F in clusters with SD= 5:

(236) Tableau 3: interaction between *SD {5}onset and F I

/bl/ SD= 5	***SD {5}onset**	**F**	***SD {6}onset**
→ a. [bl]			*
b. Ø		*	

In the above tableau, two candidates are evaluated for the possible output forms of the input /bl/, formed by a voiced plosive and a liquid. Candidate a. is the output which does not operate any changes in the input segments, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.

In the evaluation with respect to *SD {5}onset, which makes sure that onset clusters exhibit no less than 5 intervals, both candidate a. and candidate b. satisfy it, although, in order to do this, some change in the input segments have been operated by candidate b. Concerning F, therefore, candidate b. has incurred a violation of F in order to satisfy *SD {5}onset. On the contrary, candidate a. is faithful: no changes have affected the input segments, revealing that, in this respect, candidate a. is better than candidate b. The violation of F by candidate b. prevents it from being chosen as the optimal output, making candidate a. to win over it. Violating lowest-ranked *SD {6}onset is not important for candidate a.: indeed, the satisfaction of *SD {5}onset and F guarantee that it wins. Whether candidate b. satisfies *SD {6}onset, does not play any role at this point because the violation of higher-ranked F suffices to exclude it from being the optimal output.

The interaction between markedness costraints and F is shown below with respect to an onset cluster with SD= 4:

(237) Tableau 4: interaction between *SD {5}onset and F II

/fn/ SD= 4	***SD {5}onset**	**F**	***SD {6}onset**
a. [fn]	*		
→ b. Ø		*	

Onset clusters of the type obstruent+nasal such as [fn] (SD= 4) are illicit in all the varieties examined in this subsection. Candidate a. is the output which does not change anything in the input segments, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.

Candidate a. violates the highest-ranked constraint which militates against sonority distances lower than 5 steps. On the same constraint, candidate b. turns out to be better since it preserves the requirement imposed by *SD {5}onset by operating some change in the input segments. With respect to F, satisfying it does not prevent a. to win over b. since the violation of the highest-ranked constraint discards it, making b. the winner (to the detriment of violating F). Finally, it is not relevant whether lowest-ranked *SD {6}onset is violated by the two candidates: candidate b. already wins over candidate a. with respect to the highest-ranked constraint.

10.4.3 Mòcheno and Lusérn Cimbrian

Requiring at least 3 intervals for their onset clusters to be licit, *SD {3}onset is the most important constraint to satisfy in Mòcheno and Lusérn Cimbrian, which build their grammar by putting F above *SD {4}onset. The constraint *SD {3}onset will be higher-ranked than F, thus dominating it. In light of this, a violation of F will be better than violating *SD {3}onset:

(238) Mòcheno and Lusérn Cimbrian

*SD {3}onset » F » *SD {4}onset » *SD {5}onset etc.

The following tableau evaluates the possible outputs for te input /vl/:

(239) Tableau 5: interaction between *SD {3}onset and F I

/vl/ SD= 3	***SD {3}onset**	**F**	***SD {4}onset**
→ a. [vl]			*
b. Ø		*	

The onset cluster at stake here consists of a voiced fricative and a liquid. Candidate a. is an output which does not operate any changes in the input segments, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.

Both candidates satisfy highest-ranked *SD {3}onset, which takes care that onset clusters display no less than 3 intervals in sonority. Candidate a. and candidate b. turn out to be, therefore, equal with respect to this constraint. Concerning F, candidate a. does not incur any violations. On the contrary, candidate b. does not satisfy it: some change in the input segments has been operated in order to conform to what is required by highest-ranked *SD {3}onset. In light of this, candidate b. is discarded, and candidate a. wins over it since it satisfies both *SD {3}onset and F. The minor violation of *SD {4}onset incurred by candidate a. does not prevent it from winning the evaluation since both higher-ranked *SD {3}onset and F are satisfied. Concerning candidate b., it is of no relevance whether it satisfies *SD {4}onset: the violation of a higher-ranked constraint suffices to eliminate it.
The following tableau evaluates the possible outputs for /kf/:

(240) Tableau 6: interaction between *SD {3}onset and F II

/kf/ SD= 2	*SD {3}onset	F	*SD {4}onset
a. [kf]	*		
→ b. Ø		*	

The input which is at stake in the tableau above is a sequence of the type plosive+fricative. Candidate a. represents an output which does not operate any changes in the input segments, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.
With respect to highest-ranked *SD {3}onset, which takes care that onset clusters exhibit no less than 3 steps separating C1 from C2 in sonority, candidate a. incurs a violation. On the contrary, candidate b. turns out to be better than candidate a. because it satisfies the constraint in question by operating some change in the input segments. Concerning F, candidate b. is, therefore, worse than candidate a., which conforms to the requirements of faithfulness since it has not operated any change in the input segments. Nevertheless, violating F by candidate b. is not as fatal as the violation of highest-ranked *SD {3}onset incurred by candidate a. – which is why candidate b. will be chosen as the optimal output. Finally, satisfying lowest-ranked *SD {4}onset is of no importance here: candidate a. is discarded in any case in virtue of the fatal violation of highest-ranked *SD {3}onset.

10.4.4 Tyrolean

Requiring at least 2 intervals for their onset clusters to be licit, *SD {2}onset is the most important constraint to satisfy in Tyrolean, which build its grammar by putting F above *SD {3}onset. The constraint *SD {2}onset will be higher-ranked than F, thus dominating it. It emerges, therefore, that a violation of F is better than violating *SD {2}onset:

(241) Tyrolean
*SD {2}onset » F » *SD {3}onset » *SD {4}onset etc.

The following tableau illustrates the evaluation of the possible outputs for /kf/:

(242) Tableau 7: interaction between *SD {2}onset and F I

/kf/ SD= 2	*SD {2}onset	F	*SD {3}onset
→ a. [kf]			*
b. Ø		*	

The input considered here is a sequence of the type plosive+fricative. Candidate a. represents an output which odes not operate any changes in the input segments, whereas candidate b. represents a family of candidates all satisfying the SD-constraints.

With respect to highest-ranked *SD {2}onset, militating against onset clusters with less than 2 intervals separating C1 from C2 in sonority, both candidate a. and candidate b. satisfy it. Concerning F, candidate a. satisfies it since no changes have been made in the input segments. On the contrary, some change in the input segments are operated by candidate b., which, therefore, violates F in order to satisfy the higher-ranked markedness constraint.

It emerges, therefore, that candidates a. and b. agree on *SD {2}onset, but diverge on F. The violation incurred by candidate b. discards it from being the optimal output, whereas candidate a. wins over it. Of no relevance is the fact that candidate a. does not satisfy *SD {3}onset since no violations for both higher-ranked *SD {2}onset and F are incurred. Likewise, it is of no importance whether candidate b. satisfies *SD {3}onset: it is eliminated in any case in virtue of the violation of higher-ranked F if compared to candidate a.

The following tableau illustrates the evaluation of the possible outputs for the input /vn/:

(243) Tableau 8: interaction between *SD {2}onset and F II

/vn/ SD= 1	*SD {2}onset	F	*SD {3}onset
a. [vn]	*		*
→ b. Ø		*	

The evaluated outputs for the input /vn/, formed by a voiced fricative and a nasal, are a candidate which does not operate any change in the input segments (candidate a.), and a candidate which represents a family of candidates all satisfying the SD-constraints.

With respect to *SD {2}onset, taking care that onset cluster display no less than 2 intervals separating C1 from C2 in sonority, candidate a. violates it since the output exhibits less than 2 steps in sonority distance. On the same constraint, candidate b. does not incur any violations, conforming to what is required by the constraint in question. It emerges,

therefore, that, if compared to candidate a., candidate b. turns out to be better here. Concerning F, no violation is found in candidate a., which has not operated any changes in the input segments. On the contrary, candidate b. has operated some change in the input segments in order to satisfy the higher-ranked markedness constraint. It follows, therefore, that candidate a. turns out to be better than candidate b. with respect to the satisfaction of F. However, the violation incurred by candidate a. with respect to higher-ranked *SD {2}onset, reveals that it will not be selected as the optimal output, thus eliminating it – and making candidate b. win over it. It is of no importance whether candidate b. satisfies lowest-ranked *SD {3}onset: it will win in any case over candidate a. in virtue of the satisfaction of highest-ranked *SD {2}onset – although this means violating lower-ranked F.
The analysis of onset clusters in OT-terms is now complete to be summarized.

10.4.5 OT-evaluation of onset clusters summarized

In the previous subsections we have shown how the investigated Germanic and Romance varieties build their grammars for onset clusters through the interaction of markedness constraints on SD values and faithfulness constraints. After having presented the fixed ranking of constraints on SD, we have shown how each group builds its grammar. The hierarchy of markedness constraints is the same for each variety; what distinguishes one group from the other is the position occupied by F, which determines the cut-off point of the lowest allowed SD in each group. That is to say, F shifts within the fixed ranking according to which SD is the limit for onset clusters of a certain variety to be licit in sonority. The more leftwards it moves in the hierarchy, the more tolerant a variety will be. F is dominated by the most important constraint to be satisfied, which varies according to the variety. For instance, Standard German onset clusters must exhibit at least 5 steps in SD, making the markedness constraint *SD {5}onset higher-ranked than F. The various evaluations, for which a licit onset cluster and an illicit onset cluster have been examined, have proved that, in each variety, a violation of F turns out to be better than violating the markedness constraint which immediately dominates it.
The analysis will proceed now for coda clusters.

10.5 OT-evaluation of coda clusters

The discussion of the data has shown that some varieties behave similarly to others with respect to the threshold under which coda clusters are illicit. In particular, all the examined Germanic varieties, the dialect of Tret, and Gardenese Ladin set the threshold to 2 steps in order for their coda clusters to be licit. The dialect of Bleggio and the dialect of Mori turn out to be less permissive, requiring at least 4 and 6 intervals, respectively.

In the following subsections, we will evaluate coda clusters in the same fashion adopted for the analysis of onset clusters, choosing the lowest licit interval separatingC1 from C2 in sonority, and a value which is illicit according to the variety. The various evaluations will prove how F shifts within the hierarchy of markedness constraints, building the grammars of each group.

10.5.1 Mori

The dialect of Mori requires that its coda clusters exhibit no less than 6 intervals separating C1 from C2 in sonority, which means that this variety builds its grammar by putting F above *SD {7}coda. The constraint *SD {6}coda will be the most important to satisfy, and will directly dominate F. It will emerge, therefore, that violating F turns out to be a better choice than violating *SD {6}coda:

(244) Mori

*SD {6}coda » F » *SD {7}coda » *SD {8}coda etc.

The following tableau illustrates the evaluation of the outputs for the input /mp/:

(245) Tableau 9: interaction between *SD {6}coda and F I

/mp/ SD= 6	***SD {6}coda**	**F**	***SD {7}coda**
→ a. [ɱp]			*
b. Ø		*	

The evaluation of the possible outputs for /mp/, a sequence consisting of a nasal and a voiceless plosive, considers candidate a., the output which operates no changes in the input segments, and candidate b., which represents a family of candidates all satisfying the SD-constraints.

With respect to highest-ranked *SD {6}coda, which takes care for coda clusters to display no less than 6 intervals separating C1 from C2 in sonority, both candidates satisfy it. Concerning F, candidate a. satisfies it since no changes have been made in the input segments. On the contrary, candidate b. violates F by operating some change in the input segments in order to satisfy the higher-ranked markedness constraint. It emerges, therefore, that candidates a. and b. agree on *SD {6}coda, but diverge on F. The violation incurred by candidate b. eliminates it from being the optimal output, whereas candidate a. wins. The satisfaction of lowest-ranked *SD {7}coda is not relevant for candidate b. at this point: it will lose in any case if compared to candidate a. because of the violation of higher-ranked F, which candidate a. does not incur. With respect to candidate a., the minor violation of lowest-ranked *SD {7}coda does not play any role at this point: the satisfaction of both higher-ranked *SD {6}coda and F make it win over b.

The following tableau illustrates the evaluation of the possible outputs for the input /nkx/:

(246) Tableau 10: interaction between *SD {6}coda and F II

/nkx/ SD= 5	*SD {6}coda	F	*SD {7}coda
a. [ŋkx]	*		
→ b. Ø		*	

The input sequence consisting of a nasal and a velar affricate is the focus of the evaluation presented above. Candidate a. represents a candidate which does not change the input segments, whereas candidate b. operates some change in the input segments.

Comparing the two candidates with respect to *SD {6}coda, militating against onset clusters with a lower SD than 6 steps, it emerges that candidate a. violates it since the output displays a lower value in SD. On the contrary, candidate b. does not incur any violations, conforming to what is required by the constraint in question. It follows that candidate b. turns out to be better here. Concerning F, no violation is incurred by candidate a. since it has not operated any change in the input segments. On the contrary, candidate b. has operated some change in the input segments in order to satisfy the higher-ranked markedness constraint. It follows that candidate a. does better here than candidate b. with respect to the satisfaction of F. However, the violation incurred by candidate a. with respect to highest-ranked *SD {6}coda excludes it from being chosen as the optimal output. It is not relevant whether candidates a. and b. satisfy lowest-ranked *SD {7}coda: candidate b. will win over candidate a. in any case in virtue of not violating highest-ranked *SD {6}coda – although this means violating lower-ranked F.

10.5.2 Bleggio

The dialect of Bleggio requires for its coda clusters to display at least 4 intervals separating C1 from C2 in sonority. This means that the variety in question builds its grammar by putting F above *SD {5}coda. The constraint *SD {4}coda will be the most important to satisfy, thus dominating F. It follows that a violation of F is better than violating *SD {4}coda:

(247) Bleggio

*SD {4}coda » F » *SD {5}coda » *SD {6}coda etc.

The tableau below shows the evaluation of the outputs for the input /rn/:

(248) Tableau 11: interaction between *SD {4}coda and F I

/rn/ SD= 4	***SD {4}coda**	**F**	***SD {5}coda**
→ a. [rn]			*
b. Ø		*	

For the evaluation of the possible outputs for /rn/, a sequence formed by a liquid and a nasal, we consider candidate a., an output which operates no changes in the input segments, and candidate b., which represents a family of candidates all satisfying the SD-constraints.
*SD {4}coda, which makes sure that onset clusters exhibit no less than 4 steps separating C1 from C2 in sonority, is satisfied both by candidate a. and candidate b., revealing that both are equal in this respect. Concerning F, candidate a. satisfies it since it does not change the input segments, whereas candidate b. violates it by operating some change in the input segments in order to satisfy the higher-ranked markedness constraint. It emerges, therefore, that candidates a. and b. agree on *SD {4}coda, but diverge on F. The violation incurred by candidate b. eliminates it from being chosen as the optimal output, which makes candidate a. the winner. The minor violation of lowest-ranked *SD {5}coda by candidate a. is not relevant at this point: it will win in any case if compared to candidate b. because it satisfies

both lower-ranked constraints.

The following tableau illustrates the evaluation of the possible outputs for the input /nb/:

(249) Tableau 12: interaction between *SD {4}coda and F II

/nb/ SD= 3	*SD {4}coda	F	*SD {5}coda
a. [nb]	*		
→ b. Ø		*	

The evaluated outputs for the input /nb/, consisting of a nasal and a voiced plosive, a are a candidate which does not operate any change in the input segments (candidate a.), and a candidate which represents a family of candidates all satisfying the SD-constraints (candidate b.).

Comparing the two candidates with respect to *SD {4}coda, which makes sure that coda clusters display no less than 4 intervals separating C1 from C2 in sonority, candidate a. incurs a violation of this constraint, due to the fact that the output exhibits less than 4 steps in SD. On the contrary, candidate b. satisfies it, conforming to what is required by the constraint in question. It follows that candidate b. turns out to be better here than candidate a. Concerning F, no violation is incurred by candidate a. since it has not operated any change in the input segments. Candidate b. has operated some change in the input segments instead in order to satisfy the higher-ranked markedness constraint. This shows that candidate b. is worse than candidate a. here. However, the violation incurred by candidate a. with respect to highest-ranked *SD {4}coda excludes it from being selected as the optimal output. It is of no relevance whether candidate b. satisfies lowest-ranked *SD {5}coda: it will win over candidate a. in any case in virtue of not violating higher-ranked *SD {4}coda, although this means violating lower-ranked F.

10.5.3 Standard German, Tyrolean, Mòcheno, Lusérn Cimbrian, Tret, Gardenese Ladin

In the investigated Germanic varieties, in the dialect of Tret, and in Gardenese Ladin, coda clusters exhibit a sonority distance as low as 2. This, therefore, will be will be the most important requirement for coda clusters to satisfy. In this respect, these varieties build their grammar by putting F above *SD {3}coda. The constraint *SD {2}coda will be higher-ranked than F, thus dominating it. In light of this, violating F will be better than violating *SD {2}coda:

(250) Standard German, Tyrolean, Mòcheno, Lusérn Cimbrian, Tret, Gardenese Ladin

*SD {2}coda » F » *SD {3}coda » *SD {4}coda etc.

In the tableau below, possible outputs for the input /lm/ are evaluated:

(251) Tableau 13: interaction between *SD {2}coda and F I

/lm/ SD= 2	***SD {2}coda**	**F**	***SD {3}coda**
→ a. [lm]			*
b. Ø		*	

For the evaluation of the possible outputs for /lm/, a sequence formed by a liquid and a nasal, candidate a. operates no changes in the input segments, and candidate b. represents a family of candidates all satisfying the SD-constraints.
Both candidate a. and candidate b. behave in the same way with respect to *SD {2}coda, the constraint which is responsible for coda clusters to exhibit at least 2 steps separating C1 from C2 in sonority: both candidates satisfy this constraint. The requirement for outputs not to operate any changes in the input segments is followed by candidate a, which proves to be better than candidate b., in which some change has occurred in order to satisfy higher-ranked *SD {2}coda. The emerging picture shows that candidates a. and b. agree on *SD {2}coda, but diverge on F. The violation incurred by candidate b. prevents it from being selected as the optimal output, making, therefore, candidate a. win over it. The minor violation of lowest-ranked *SD {3}coda incurred by candidate a. is not relevant at this point: it will win in any case if compared to candidate b. because it satisfies both higher-ranked constraints.
Finally, the following tableau illustrates the evaluation of the possible outputs for the input /bv/:

(252) Tableau 14: interaction between *SD {2}coda and F II

/bv/ SD= 1	***SD {2}coda**	**F**	***SD {3}coda**
a. [bv]	*		
→ b. Ø		*	

The input /bv/ consists of a voiced plosive and a voiced fricative. Candidate a. does not operate any change in the input segments. Candidate b. represents a family of candidates all satisfying the SD-constraints.

In the evaluation of the two candidates with respect to *SD {2}coda, which takes care for coda clusters not to display less than 2 intervals separating C1 from C2 in sonority, candidate a. turns out not to follow it, incurring, therefore, a violation. On the contrary, candidate b. conforms to the requirement of this constraint, satisfying it – which proves that candidate b. is better than candidate a. here. With respect to F, no violation is incurred by candidate a. because no changes in the input segments have been operated. In candidate b., some change in the input segments has occurred instead in order to satisfy the higher-ranked markedness constraint. In light of this, candidate b. is worse here than candidate a. However, the violation incurred by candidate a. is worse than that incurred by candidate b.: not conforming to highest-ranked *SD {2}coda prevents candidate a. from being chosen as the optimal output. It is of no relevance whether candidate b. satisfies lowest-ranked *SD {3}coda: it will win over candidate a. in any case for not violating highest-ranked *SD {2}coda, although this means violating lower-ranked F.

We are now in the position of summarizing the most relevant fsacts which have emerged from the evaluation of the various coda clusters.

10.5.4 OT-evaluation of coda clusters summarized

In the previous subsections we have shown how the investigated Germanic and Romance varieties build their grammars for coda clusters through the interaction of markedness constraints on SD values and faithfulness constraints. After having presented the fixed ranking of constraints on SD, we have shown how each group builds its grammar. As for onset clusters, the hierarchy of markedness constraints is the same for each variety; what distinguishes one group from the other is the position filled by F, which determines the cut-off point of the lowest allowed SD in each group. In other words, F shifts within the fixed ranking according to which SD is the limit for coda clusters of a certain variety to be licit in sonority. The more leftwards it moves in the hierarchy, the more tolerant a variety will be. F is dominated by the most important constraint to be satisfied, which varies according to the variety. For instance, Bleggio coda clusters must exhibit at least 4 steps in SD to be licit, making the markedness constraint *SD {4}onset higher-ranked than F. The various evaluations, for which a licit coda cluster and an illicit coda cluster have been investigated,

have proved that, in each variety, incurring a violation of F is better than violating the markedness constraint which immediately dominates it.
A general summary will be the focus of the next section.

10.6 OT-summary

The discussion in OT-terms has enabled us to propose the constraint hierarchy for each group, taking into account both onset clusters and coda clusters. These hierarchies are synoptically collected below:

(253) Constraint hierarchy in cluster SD

a. Onset clusters

Variety	**Hierarchy**
Mori	*SD {7}onset » F » *SD {8}onset » *SD {9}onset etc.
Standard German, Standard Italian, Venetan-Trentino, Bleggio, Tret, Gardenese Ladin	*SD {5}onset » F » *SD {6}onset » *SD {7}onset etc.
Mòcheno, Lusérn Cimbrian	*SD {3}onset » F » *SD {4}onset » *SD {5}onset etc.
Tyrolean	*SD {2}onset » F » *SD {3}onset » *SD {4}onset etc.

b. Coda clusters

Variety	**Hierarchy**
Mori	*SD {6}coda » F » *SD {7}coda » *SD {8}coda etc.
Bleggio	*SD {4}coda » F » *SD {5}coda » *SD {6}coda etc.
Standard German, Tyrolean, Mòcheno, Lusérn Cimbrian, Tret, Gardenese Ladin	*SD {2}coda » F » *SD {3}coda » *SD {4}coda etc.

The hierarchies for onset clusters and coda clusters for the investigated varieties show how F shifts within them, determining a different cut-off point not only for each group of varieties, but also distinguishing the ranking for onset clusters from that for coda clusters. This reveals that, generally, the examined varieties are less tolerant with respect to onset clusters than with respect to coda clusters. This may be observed in the position filled by F, which is generally placed closer to constraints on low values in codas, whereas it occupies a position close to higher values in onsets. If we put together the hierarchies for onset clusters and that for coda clusters of each examined variety, we may observe how the two intersect.
This is due to the position filled by F which, in each variety, is dominated at the same time by the constraint on onset clusters militating against sequences exhibiting a sonority

distance lying under the limit set by the variety in question; and by the constraint on coda clusters which prohibits sequences of lower SD than that set as limit. In its turn, F dominates at the same time lower-ranked constraints on onset clusters and on coda clusters, as may be observed in the synoptic tables above. The emerging picture provides a precise account for each examined variety, showing how they differ from one another with respect to the position occupied by F.

In the next chapter we will draw some conclusions about the investigated varieties.

11. CONCLUSIONS

The present study has been focused on consonant clusters (in onset as well as in coda position) of some representative Northern Italian dialects spoken in the Germanic-Romance language contact area of Trentino-Alto Adige/Südtirol, for which we have tried to determine a) what dialects can reveal about syllable theory and the universality of the sonority scale and b) whether varieties which are in contact influence one another so as to allow for similar clusters.

A definition of consonant clusters has been provided and the concept of sonority has been illustrated. In this respect, the SSG and the sonority hierarchy proposed by Parker (2011) have been presented. The latter organizes segments on a scale displaying obstruents as the less sonorous elements, and vowels as the most sonorous elements. On Parker's hierarchy, each natural class is assigned a sonority index (SI), which are necessary for the count of the sonority distances between the segments of the various examined consonant clusters. A suggestion for modifying Parker's sonority hierarchy has been proposed with respect to the fact that not all segments can be placed on a definite step of the scale. This has been shown for *r*-sounds, whose different realizations in the investigated varieties and the 'freedom' of combining with any consonants of any articulators (labial, coronal, and dorsal) have spoken in favour of treating /r/ as a *point* on Parker's sonority hierarchy rather than a segment displaying a fixed SI for each of its realizations – adopting Wiese (2003). In virtue of these considerations, the homogeneous behaviour of /r/ in the examined Germanic and Romance varieties (also in a cross-linguistic comparison) has been an indicator for placing *r*-sounds on the same level. Within liquids, /r/ seems to be more sonorous than /l/, which has led to assume that is is found immediately under vowels – more or less, equalling approximants (SI= 11). A further concept related to sonority has been introduced by the Minimum Sonority Distance (MSD), which operates on the difference, in number of intervals, separating C1 from C2 in sonority. That is to say, the segments forming a cluster must be separated by a minimum number of steps on the sonority scale, under which a cluster is considered as ill-formed and not permitted in a certain language.

After having presented the most relevant characteristics of the various dialects – in particular, vowel-syncope, responsible for the formation of onset clusters in Tyrolean (which standard German lacks); and vowel-apocope, responsible for the formation of coda clusters in the tested Romance varieties (which Standard Italian lacks), the survey has focused on the inventories of onsets and codas in the investigated dialects, comparing them to the corresponding standard variety – which has represented the starting point for the comparison.

All the examined Germanic varieties allow from one to three segments to fill the onset position. In simple onsets, both obstruents and sonorants are found. Two-member onset clusters are of the patterns obstruent+sonorant and obstruent+obstruent. In the former pattern, a restriction operates on all varieties prohibiting sequences of the type obstruent+nasal unless C1 is a velar plosive. In this respect, [kn, gn, gm, kxn] characterize the various varieties. A further exception is represented by sibilants ([[ʃm, ʃn]) and – in the Germanic dialects – an affricate containing a sibilant ([tsn, ʧm, ʧn]). The only case in which a non-velar, non-sibilant consonant is followed by a nasal is [fn], which only characterizes Lusérn Cimbrian. In addition, C2 is mostly occupied by /r/, which freely combines with segments of any articulator. The pattern obstruent+obstruent requires C1 to be taken up by a sibilant in all the examined varieties. Differently from Standard German, Tyrolean also allows for plosives to occupy C1, which cluster with fricatives and sibilants ([kf, ks, ps]). This has led to adopt Alber/Lanthaler's (2005) proposal for a slight difference in the sonority hierarchy of Tyrolean, in which fricatives are more sonorous than plosives. Furthermore, in Mòcheno and Lusérn Cimbrian, C1 can also be an affricate containing a sibilant ([ʧt]). Homorganicity is generally not allowed. The only exception is found when postalveolar [ʃ] fills C1 ([ʃn, ʃl] in all the investigated varieties); whereas it can also be occupied by an affricate containing a sibilant in Tyrolean ([tsn]), Mòcheno ([tsn, ʧn, ʧl, ʧt]), and Lusérn Cimbrian ([tsn, ʧl]).

Three-member onset clusters are of the pattern obstruent+obstruent +sonorant in all the investigated varieties, where C1 is always filled by a sibilant – except for Tyrolean , which also displays C1 plosive and C2 sibilant. In addition, Tyrolean allows for the pattern obstruent+obstruent+obstruent, in which C1 is taken up by a plosive, and C2 by a sibilant. Tyrolean also allows for four-member onset clusters of the pattern obstruent+obstruent+obstruent+sonorant, in which plosive fills C1, and a sibilant fills C2. The 'special' behaviour of sibilants to combine with any segments, resulting in sequences which not always conform to the SSG since sonority sinks from /s/ to C2, and – for Tyrolean

– from /s/ to C3, has led to consider them as extrasyllabic, thus not making part of the onset.
The examined Germanic varieties behave homogeneously with respect to the highest value separating C1 from C2 in sonority (SD= 10: [pʀ, tʀ, kʀ]), whereas the differ with respect to the minimum number of steps separating the segments of onset clusters – revealing that Standard German is less tolerant than the dialects (Standard German: SD= 5 [bl, gl]). Mòcheno and Lusérn Cimbrian display the same threshold under which onset clusters are ill-formed (SD= 3 [vl]), whereas Tyrolean proves to be the most permissive variety (SD= 2 [kf]).
In all the examined Romance varieties, onsets of one, two, and three segments are found, and both obstruents and sonorants fill this position. Two-member onset clusters are of the patterns obstruent+sonorant, obstruent+obstruent, and – unlike Germanic varieties – sonorant+sonorant. In the former pattern, a restriction prohibits sequences of the type obstruent+nasal in Standard Italian, Venetan-Trentino, and Lombardo-Trentino, whereas Gardenese Ladin allows for velars to fill C1 [kn]). A further exception is provided by sibilants in al varieties ([zm, zn]; [ʒm, ʒn] only in Gardenese Ladin). As seen for the Germanic varieties, C2 is mostly taken up by /r/, which freely clusters with segments of any articulator. The pattern obstruent+obstruent requires C1 to be filled by a sibilant in all the examined varieties. In the pattern sonorant+sonorant, C2 is always a glide. Homorganicity is generally not allowed, but exceptions may be found. On the one hand, sibilants combine with alveolars ([zn, zl]). On the other hand, sequences of two coronals segments occur in Standard Italian ([tl], only word-medially), Tret ([tl, dl]), and Gardenese Ladin ([tl, dl], in both contexts), whereas Venetan- Trentino does not permit these combinations.
Three-member onset clusters are of the pattern obstruent+obstruent+sonorant in all the investigated varieties (obstruent+sonorant+sonorant is rarely found in Venetan-Trentino), where C1 is always taken up by a sibilant. As shown for the Germanic varieties, sibilants cluster with any segments in the examined Romance varieties, often forming clusters which do not conform to the SSG because sonority decreases from /s/ to C2, in virtue of which the extrasyllabic status for /s/ has been adopted, thus excluding them from the onset.
The investigated Romance varieties behave homogeneously with respect both to the highest and the lowest values separating C1 from C2 in sonority (SD= 10: [pr, tr, kr]; SD= 5). Concerning the lowest value, the varieties differ with respect to the occurring onset clusters. Indeed, Standard Italian turns only allows for [bl, gl], whereas Venetan-Trentino and

Gardenese Ladin also exhibit [vr] (but not [gl] in Venetan-Trentino) – the outcome of historical intersonorant obstruent lenition, which has not affected Standard Italian. Among the Lombardo-Trentino dialects, Tret turns out to be the most tolerant one since it displays homorganic [dl] – which is also found in Gardenese Ladin.
Concerning codas, all the investigated Germanic varieties allow from one to two members to fill this position. Simple codas are taken up both by obstruents and sonorants. The former are always neutralized to their voiceless value.
Two-member coda clusters exhibit the patterns sonorant+sonorant, sonorant+obstruent, and obstruent+obstruent. In the former, /r/ freely combine with all sonorants, revealing its 'special' behaviour as opposed to the other sonorants. In the second pattern, nasals assimilate in place of articulation when followed by velars ([ŋk, ŋkx]). The same is true when the cluster with labials ([ɱp, ɱf, ɱpf]). In addition, combinations consisting of a nasal and a non-velar occur in all varieties, where C2 is always a [+ant], coronal segment /s/, [t], or an africate containing a sibilant ([mt, ms, mʃ, mts; nç (this one only in Tyrolean), nt, ns, nʃ, nts, nʧ] (the last one not in Standard German). The particular behaviour of these [+ant], coronal segment to freely combine with any C1 has led to treat them as extrasyllabic, thus not counting them in the calculation of SD. The same holds for the pattern obstruent+obstruent.
With respect to the allowed sonority distances, the investigated Germanic varieties reveal a homogeneous behaviour, allowing for the same highest (SD= 10: [ʀp, ʀk]) and lowest values. Concerning the latter, they set the limit to SD= 2 ([lm, ln]), from which it emerges that restrictions play a role in onset clusters rather than in coda clusters. Indeed, two intervals separating C1 from C2 in sonority are not found in onset position (except for Tyrolean) – which, as seen, requires at least 5 steps (excluding marginal sequences).
The investigated Romance varieties permit from one to three members to fill the coda position (the latter only in Gardenese Ladin). Simple codas can be taken up both by obstruents and sonorants in Standard Italian. However, the former are restricted to [s] and geminates, and only fill the word-medial context. The latter are found word-finally only in function words – otherwise, the occur word-internally. Venetan-Trentino only permits sonorants (word-finally and word-medially), proving to be less tolerant than the corresponding standard variety. On the contrary, both Lombardo-Trentino and Gardenese Ladin allow for obstruents (in Lombardo-Trentino, restricted to [s] in word-medial position)

and sonorants in simple codas in both positions. Word-final obstruents are neutralized to their voiceless value and result from historical vowel-apocope, which has not affected Venetan-Trentino and Standard Italian.
Two-member codas are of the patterns sonorant+sonorant, sonorant+obstruent, obstruent+obstruent in the dialects of Bleggio, Tret, and in Gardnese Ladin, whereas the variety of Mori only allows for the patterns sonorant+obstruent and obstruent+obstruent. The fact that this dialect does not apocopate after sequences formed by two sonorants as found in the other Lombardo-Trentino varieties reveal the non-homogeneous behaviour of the examined Romance dialects. Indeed, a distinction must be made not only between Venetan and Lombardo varieties, but also with respect to the intermediate position filled by the dialect of Mori.
In sonorant+sonorant sequences, /r/ freely clusters with other sonorants (except for [rl]) as opposed to the other segments, revealing its particular behaviour. Sonorant+obstruent coda clusters require C2 to be filled by a sibilant or [t]. The fact that these [+ant], coronal segments combine with any consonants and often violating the requirement of the SSG has led to consider them as extrasyllabic, therefore not making part of the coda. The same has been done in obstruent+obstruent sequences. Nasal+velar combinations are allowed, in which nasals assimilate in place of articulation to the following velar ([ŋk]). Sequences consisting of a nsal and a non-velar are also found ([ɱp, ɱf (the latter only in Gardenese Ladin); nt, ns (this one only in Gardenese Ladin), nts, nʧ] (this one only in Gardenese Ladin). Standard Italian and Venetan-Trentino do not allow for any complex codas, showing to be very intolerant in this respect.
Concerning the emerging SD values, the dialects exhibiting coda clusters behave homogeneously with respect to highest number of intervals separating C1 from C2 in sonority (SD= 10: [rp, rk]), whereas they differ from one another with respect to the lowest values. The variety of Mori turns out to be the most intolerant one, setting the limit to 6 steps ([ɱp, ŋk]) due to the fact that it does not apocopate after combinations of two sonorants. The dialect of Bleggio allows for SD= 4 ([rm, rn]), showing that it displays final vowel-deletion after a sequences formed by /r/ and a nasal. The most permissive varieties are that of Tret and Gardenese Ladin, which allow for very low values, setting the limit to 2 intervals for their coda clusters to be licit. This value is found in sequences consisting of /l/ and a nasal ([lm]), revealing that, generally, Romance varieties are more stringent with

respect to SD for onset clusters than those for coda clusters. In this respect, they behave like the investigated Germanic varieties.

Three-member coda clusters in Gardenese Ladin are only of the pattern sonorant+obstruent+obstruent, where C1 is filled by a nasal or a liquid.

It emerges from these consideration made so far that, for both the investigated Germanic and Romance dialects, a comparison with the corresponding standard variety has enabled to establish that, generally, dialects turn out to be more tolerant than the standard language with respect both to the allowed clusters and to the licit sonority distances between the members of the clusters.

An OT-evaluation of the interaction between markedness constraints on SD and faithfulness constraints has shown how the investigated dialects and their corresponding standard varieties build their grammars for clusters. The hierarchy of markedness constraints is the same for each variety; what distinguishes one from the other is the position occupied by F, which determines the cut-off point of the lowest allowed SD in each variety/group. It has been shown how F shifts within the fixed ranking according to which SD is the limit for clusters of a certain variety to be licit in sonority. The more leftwards it moves in the hierarchy, the more tolerant a variety will be. The various evaluations, for which a licit cluster and an illicit cluster have been discussed, have shown that, in each variety, violating F is better than violating the markedness constraint which immediately dominates it. Indeed, this constraint is the most important one to be satisfied for clusters to be licit. The analysis has shown that some of the investigated Germanic and Romance varieties behave similarly, both with respect to onsets and to codas. Concerning onset clusters, in Standard German, Standard Italian, Venetan-Trentino, Bleggio, Tret, and Gardenese Ladin the lowest value for sequences to be well-formed in sonority lies on 5 intervals. Mòcheno and Lusérn Cimbrian turn out to be more tolerant, allowing for at least 3 steps separating C1 from C2 in sonority. Finally, Tyrolean has proved to be the most permissive variety, exhibiting 2 intervals, whereas the dialect of Mori requires no less than 7 steps in sonority for its onset clusters to be licit – turning out to be the most stringent among the examined varieties. Coda clusters of very low values have been found in all the investigated Germanic varieties, which share 2 intervals with the dialect of Tret and Gardenese Ladin, turning out to be the most tolerant varieties. The dialect of Bleggio is the only one requiring at least 4 steps separating the members of its coda clusters in order to be well-formed in sonority-related terms, whereas the dialect of Mori turns out to be – once again – the most stringent one among the varieties allowing for coda clusters, displaying 6 intervals as its lowest threshold. Standard Italian and the dialect of Borgo Valsugana have not been taken into account with respect to coda clusters since they do not exhibit any.

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APPENDIX

1. Georg Wenker's sentences (see Schmidt/Herrgen 2001 at www.diwa.info)

The relevant words for our survey are in bold type.

1. Im Winter fliegen die trocknen Blätter durch die Luft herum.

2. Es hört gleich auf zu schneien, dann wird das Wetter wieder besser.

3. Thu Kohlen in den Ofen, daß die Milch bald an zu kochen fängt.

4. Der gute alte Mann ist mit dem Pferde durch´s Eis **gebrochen** und in das kalte Wasser **gefallen**.

5. Er ist vor vier oder sechs Wochen **gestorben**.

6. Das Feuer war zu stark/heiß, die Kuchen sind ja unten ganz schwarz **gebrannt**.

7.Er ißt die Eier immer ohne Salz und Pfeffer.

8. Die Füße thun mir sehr weh, ich glaube, ich habe sie **durchgelaufen**.

9. Ich bin bei der Frau **gewesen** und habe es ihr **gesagt**, und sie sagte, sie wollte es auch ihrer Tochter sagen.

10. Ich will es auch nicht mehr wieder thun!

11. Ich schlage Dich gleich mit dem Kochlöffel um die Ohren, Du Affe!

12. Wo gehst Du hin? Sollen wir mit Dir gehn?

13. Es sind schlechte Zeiten.

14. Mein liebes Kind, bleib hier unten stehn, die bösen Gänse beißen Dich todt.

15. Du hast heute am meisten **gelernt** und bist artig **gewesen**, Du darfst früher nach Hause gehn als die Andern.

16. Du bist noch nicht groß **genug**, um eine Flasche Wein auszutrinken, Du mußt erst noch ein Ende/etwas wachsen und größer werden.

17. Geh, sei so gut und sag Deiner Schwester, sie sollte die Kleider für eure Mutter fertig nähen und mit der Bürste rein machen.

18. Hättest Du ihn **gekannt**! dann wäre es anders **gekommen**, und es thäte besser um ihn stehn.

19. Wer hat mir meinen Korb mit Fleisch **gestohlen**?

20. Er that so als hätten sie ihn zum Dreschen **bestellt**; sie haben es aber selbst **gethan**.

21. Wem hat er die neue **Geschichte** erzählt?

22. Man muß laut schreien, sonst versteht er uns nicht.

23. Wir sind müde und haben Durst.

24. Als wir gestern Abend zurück kamen, da lagen die Andern schon zu Bett und waren fest am schlafen.

25. Der Schnee ist diese Nacht bei uns liegen **geblieben**, aber heute Morgen ist er **geschmolzen**.

26. Hinter unserm Hause stehen drei schöne Apfelbäumchen mit rothen Aepfelchen.

27. Könnt ihr nicht noch ein Augenblickchen auf uns warten, dann gehn wir mit euch.

28. Ihr dürft nicht solche Kindereien treiben!

29. Unsere Berge sind nicht sehr hoch, die euren sind viel höher.

30. Wieviel Pfund Wurst und wieviel Brod wollt ihr haben?

31. Ich verstehe euch nicht, ihr müßt ein bißchen lauter sprechen.

32. Habt ihr kein Stückchen weiße Seife für mich auf meinem Tische **gefunden**?

33. Sein Bruder will sich zwei schöne neue Häuser in eurem Garten bauen.

34. Das Wort kam ihm vom Herzen!

35. Das war recht von ihnen!

36. Was sitzen da für Vögelchen oben auf dem Mäuerchen?

37. Die Bauern hatten fünf Ochsen und neun Kühe und zwölf Schäfchen vor das Dorf **gebracht**, die wollten sie verkaufen.

38. Die Leute sind heute alle draußen auf dem Felde und mähen/hauen.

39. Geh nur, der braune Hund thut Dir nichts.

40. Ich bin mit den Leuten da hinten über die Wiese ins Korn **gefahren**.

2. Questionnaire for Tyrolean dialects

The tested words within the sentences are in bold type.
Abbreviations for the various dialects: M (Meran), K (Klausen), R (Ritten), D (Deutschnofen).

Utterance/word	Tested sequence(s)	Expected realization(s)	Actual realization(s)
1. Geheiß	geh-	[kx]eiß	[gə]heiß (K)
2. Ich habe an der **Besichtigung** des Museums teilgenommen.	bes-	[ps]ichtigung	[bə]sichtigung (all varieties)
3. zurück	zur-	[tsʀ]ück	[tsʀ]ück (M, K, R); [tsu]rück (D)
4. Ich **bezweifle** das.	bez-	[bə]zweifle	[bə]zweifle (M, K)
5. Er war ein Mann von mittlerer **Gestalt**.	ges-	[kʃt]alt	[gə]stalt(wesen) (M, K)
6. Was für ein lästiges **Gemecker**!	gem-	[gm]ecker	[gə]mecker (M, K, D); [gə]reusch (R)
7. zuhängen	zuh-	[tsu]hängen	[tsuɐ]hängen (all varieties)
8. bestrafen	bestr-	[pʃtʀ]afen	[bə]stråfn (M, K, R); [ʃtʀ]åfn (D)
9. zuzahlen	zuz-	[tsu]zahlen	[tsuɐ]zålen (M, K, R)
10. Wer hat mir meinen Korb mit Fleisch **gestohlen**?	gest-	[kʃt]ohlen	[kʃt]ohlen (all varieties)
11. Zuhauf	zuh-	[tsu]hauf	[tsu]hauf (M)
12. zufließen	zufl-	[tsu]fließen	[tsuɐ]fließen (all varieties)
13. Es **besteht** die **Gefahr**, dass sie verletzt werden.	best-; gef-	[pʃt]eht; [kf]ahr	[bə]steht (all varieties); [gə]fåhr (M, K, R); [kf]åhr (D)
14. Der Film hat mir sehr gut **gefallen**.	gef-	[kf]allen	[kf]ållen (all varieties)
15. zufolge	zuf-	[tsu]folge	[tsu]folge (M); [tsuɐ]folge (K)
16. Ich habe an **Gewicht** abgenommen.	Gev-	[gv]icht	[gə]vicht (M, K)
17. Das will ich zum Andenken **behalten**.	beh-	[bə]halten	[kx]oltn (all varieties)
18. geheuer	geh-	[kx]euer	[gə]heuer (M, K, R)
19. zufrieren	zufr-	[tsu]frieren	[tsuɐ]frieren (all varieties)
20. Du bist ja ein lustiger **Gesell**!	ges-	[ks]ell	[ks]ell (M, K)
21. Die Knödel waren **besonders** gut.	bes-	[ps]onders	[ps]onders (all varieties)
22. Kannst du mir **genau** sagen, was du **gesehen** hast?	gen-; ges-	[gn]au; [ks]ehen	[gə]nau (all varieties); [ks]ehen (all varieties)

23. Wir leben in der **Gemeinde** Meran.	Gem-	[gm]einde	[gə]meinde (all varieties)
24. Er sah so bles aus, als hätter er ein **Gespenst** gesehen.	Gesp-	[kʃp]enst	[kʃp]enst (all varieties)
25. Die Kinder haben den ganzen Nachmittag im Park **gespielt**.	gesp-	[kʃp]ielt	[kʃp]ielt (all varieties)
26. Es wird ständig nach ihm **gefragt**.	gefr-	[kfʀ]agt	[kfʀ]ok (all varieties)
27. Gefrett	gefr-	[kfʀ]ett	[kfʀ]ett (M, K, R)
28. Ich muss **geschwind** zur Bank gehen.	geschw-	[kʃv]ind	[kʃv]ind (M, K, R)
29. zutun	zut-	[tsu]tun	[tsuɐ]tun (M, D); [tsu]tian (K, R)
30. Gehabe	geh-	[kx]abe	[gə]habe (M, K)
31. Die Katze ist aus dem Balkon **gesprungen**.	gespr-	[kʃpʀ]ungen	[kʃpʀ]ungen (all varieties)
32. Besprechung	Bespr-	[pʃpʀ]echung	[bə]sprechung (M, K, R)
33. Dazu bin ich nicht **gehalten**.	geh-	[kx]alten	[gə]hålten (M)
34. Hast du Geaschwister?	Geschw-	[kʃv]ister	[kʃv]ister (all varieties)
35. beflecken	befl-	[bə]flecken	[bə]flecken (M, K)
36. Das neu eröffnete **Geschäft** verkäuft Lederwaren.	Gesch-	[kʃ]äft	[kʃ]äft (all varieties)
37. bespannen	besp-	[pʃp]annen	[bə]spånnen (all varieties)
38. zupacken	zup-	[tsu]packen	[tsuɐ]påckn (all varieties)
39. Gehüpfe	Geh-	[kx]üpfe	[gə]hüpfe (M, K); [kx]upfe (D)
40. Das werden wir noch **besprechen**.	bespr-	[pʃpʀ]echen	[bə]sprechen (M, K)
41. Daraus macht sie kein **Geheimnis**.	Geh-	[gə]heimnis	[gə]heimnis (M, k) [kx]eimnis (R)
42. bespucken	besp-	[pʃp]ucken	[bə]spucken (M, K, R)
43. Geschleck	Geschl-	[kʃl]eck	[gə]schleck (M, K); [kʃl]eck (D)
44. beflissen	befl-	[bə]flissen	[bə]flissen (M, K)
45. Der Lehrer will sich heute nur auf ein Thema **beschränken**.	beschr-	[pʃʀ]enken	[bə]schränken
46. Man kann nicht rein; die Tür ist **geschlossen**.	geschl-	[kʃl]osewn	[tsuɐ] (M, K, D); [tsuɐ]kschperrt (R)
47. befreien	befr-	[bə]freien	[bə]freien (M, K)
48. Habt ihr euch scoh wieder **gestritten**?	gestr-	[kʃtʀ]itten	[kʃtʀ]itten (all varieties)
49. Gesellschaft	Ges-	[ks]ellschaft	[ks]ellschaft (M, D); [gə]sellschaft (K, R)

50. Können Sie den Täter genau **beschreiben**?	beschr-	[pʃʀ]eiben	[bə]schreiben (all varieties)
51. Viele Leute haben kein festes **Gehalt**.	Geh-	[kx]alt	[gə]hålt (M, K, D)
52. beschmieren	beschm-	[pʃm]ieren	[bə]schmieren (M, K)
53. Fast undurchdringliches **Gestrüpp** wuchs rund ums Haus.	Gestr-	[kʃtʀ]üpp	[gə]strüpp (M); [kʃtʀ]üpp (K)
54. beschmutzen	beschm-	[pʃm]utzen	[bə]schmutzen (M, K)
55. Geflatter	Gefl-	[kfl]atter	[gə]flatter (M, K); [kfl]atter (D)
56. beschnitten	beschn-	[pʃn]itten	[bə]schnitten (M, K, R); [ʃn]itten (D)
57. Hör auf! Dauerndes **Geschnatter** kann ich überhaupt nicht leiden.	Geschn-	[kʃn]atter	[gə]schnåtter (M); [kʃn]åtter (K, D)
58. Das war ein gutes **Gespräch**.	Gespr-	[kʃpʀ]äch	[gə]spräch (M, K, R)
59. Er ist gestern nach Spanien **geflogen**.	gefl-	[kfl]ogen	[kfl]ogen (all varieties)
60. Befruchtung	Befr-	[bə]fruchtung	[bə]fruchtung (M, K, R)
61. Der Schnee ist diese Nacht bei uns liegen **geblieben**, aber heute Morgen ist er **geschmolzen**.	gebl-; geschm-	[gə]blieben; [kʃm]olzen	[gə]blieben (all varieties); [kʃm]olzen (all varieties)
62. Bestellung	Best-	[pʃt]ellung	[bə]stellung
63. Geschrei	Geschr-	[kʃʀ]ei	[kʃʀ]ei (M); [kʃr]ei (D); [kʃʀ]oa(R); [gə]schrei (K)
64. Der Peter, der hat einen guten **Geschmack**.	Geschm-	[kʃm]ack	[kʃm]åck (all varieties)
65. Beschäftigung	Besch-	[pʃ]äftigung	[bə]schäftigung (M, K, R)
66. Die **Beschläge** meine Koffers sind kaputtgegangen.	Beschl-	[pʃl]äge	[bə]schläge (M, K)
67. So ein dauerhaftes **Geschnarche** ist ja furctbar!	Geschn-	[kʃn]arche	[gə]schnårch (M); [kʃn]arche (K, D)
68. Wenn wir rechtzeitig ankommen wollen, müssen wir den Schritt **beschleunigen**.	beschl-	[pʃl]eunigen	[bə]schleunigen (K)
69. Du musst viel lernen, um die Prüfung zu **bestehen**.	best-	[pʃt]ehen	[bə]stehen (K)
70. Womit **beschäftigen** Sis sich?	besch	[pʃ]äftigen	[bə]schäftigen (M, K, R)
71. Hast du deinem Freund heute schon **geschrieben**?	geschr-	[kʃʀ]ieben	[kʃʀ]ieben (all varieties)
72. Zubehör	Zub-	[tsu]behör	[tsu]behör (M, K)

73. Franz ist sehr **gesellig**.	ges-	[ks]ellig	[gə]sellig (M, K); [ks]elliger (R)
74. zubekommen	zub-	[tsu]bekommen	[tsu]bekommen (K); [tsu]kriegen (M, D)
75. Dieses **Gehämmer** kann ich nicht leiden!	Geh-	[kx]ämmer	[kx]ammer (M); [gə]hämmer (K, R, D)
76. Zugehfrau	Zug-	[tsu]gehfrau	[tsu]gehfrau (M, K)
77. Gehetze	Geh-	[kx]etze	[gə]hetze (M, K)
78. Zugezogene	Zug-	[tsu]gezogene	die [tsuɐ]gezogenen (M); [tsu]gezogene (K)
79. Wegen seiner **Gehässigkeit** hat er viele Menschen verletzt.	Geh-	[kx]ässigkeit	[gə]hässigkeit (M, K)
80. zudecken	zud-	[tsu]decken	[tsuɐ]decken (M, K)
81. Geholper	Geh-	[kx]olper	[gə]holper (M, K, R)
82. zuschicken	zusch-	[tsu]schicken	[tsuɐ]schicken (all varieties)
83. Füll etwas Wasser ins **Gefäß**, bevor du die Blumen reinsteckst.	Gef-	[kf]äß	[gə]fäß (M, K, D)
84. zusagen	zus-	[tsu]sagen	[tsuɐ]sågen (all varieties)
85. Ich werde die **Bescheid** geben, sobald ich alles erledigt habe.	Bresch	[pʃ]eid	[bə]scheid (M, K, R)
86. Was habt ihr heute **gemacht**?	gem-	[gm]acht	[gm]åcht (M); [gə]tun (K, R)
87. zuschmeißen	zuschm-	[tsu]schmeißen	[tsɐ]schmeißen (M, K, R)
88. Gehänge	Geh-	[kx]änge	[gə]hänge (M, K)
89. Es zieht; ich muss das Fenster **zumachen**.	zum-	[tsu]machen	[tsuɐ]måchen (M, K, R)
90. zuschlagen	zuschl-	[tsu]schlagen	[tsuɐ]schlågen (M, K)
91. betrachten	betr-	[bə]trachten	[bə]tråchten (M, K)
92. Genosse	Gen-	[gn]osse	[gə]nosse (M, K)
93. Nach dem Zweiten Weltkrieg wurde Deutaschland in vier Besatzungszonen **geteilt**.	get-	[gə]teilt	[gə]teilt (M, K, D)
94. zuschnallen	zuschn-	[tsu]schnallen	[tsuɐ]schnllen (all varieties)
95. Ein Blumenstrauß? Was für ein liebes **Geschenk** von dir!	Gesch-	[kʃ]enk	[kʃ]enk (M, K, D); [gə]schenk (R)
96. besaufen	bes-	[ps]aufen	[bə]saufen (M, K, D); [ps]aufen (R)
97. Das Aufnahmegerät ist in gutem **Zustand**.	Zust-	[tsu]stand	[tsuɐ]stånd (M, K)

98. Ich habe das **Geschirr** schon weggeräumt.	Gesch-	[kʃ]irr	[kʃ]irr (M, R); [gə]schirr (K)
99. Sie haben sehr viel **gemeinsam**.	gem-	[gm]einsam	[gə]mainsam (M, K, R)
100. zuschneien	zuschn-	[tsu]schneien	[tsuɐ]schneien (all varieties)
101. Er ist von dieser Idee **besessen**.	bes-	[ps]esen	[bə]sessen (M, K, R)
102. Du solltest deine Freizeit **genießen**.	gen-	[gn]iessen	[gə]nießen (all varieties)
103. Es reicht aus, danke. Mein Teller ist ja **gehäuft**!	geh-	[kx]äuft	[gə]häuft (K)
104. Ich habe gesten meine Mutter **besucht**.	bes-	[ps]ucht	[ps]ucht (M); [bə]scuht (K, R, D)
105. fließendes **Gewässer**	Gew-	[gv]ässer	[gə]wässer (M, K, R)
106. bestreichen	bestr-	[pʃtʀ]eichen	[bə]streichen (M, K, R)
107. Schokolade? Für mich ist dei ein purer **Genuß**!	Gen-	[gn]uß	[gə]nuß (M, K)
108. Geflenne	Gefl-	[kfl]enne	[gə]flenne (K, R); [gə]plärr (M, D)
109. zugrunde	zugr-	[tsu]grunde	[tsu]grunde (all varieties)
110. Der spinnt wohl! Was hat er im **Gehirn**?	Geh-	[gə]hirn	[gə]hirn (D); Hirn (M, K, R)
111. befriedigen	befr-	[bə]friedigen	[bə]friedigen (M, K, R)
112. zugipsen	zug-	[tsu]gipsen	[tsuɐ]gipsen (M, R, D); [tsu]gipsen (K)
113. Du musst das Wasser **zudrehen**, wenn du es nicht brauchst.	zudr-	[tsu]drehen	[tsuɐ]dranen (all varieties)
114. Gehöft	Geh-	[kx]öft	[gə]höft (M, K)
115. zustreben	zustr-	[tsu]sreben	[tsuɐ]streben (M, K, R)
116. bestätigen	best-	[pʃt]ätigen	[bə]stätigen (M, K, R)
117. Gehör	Geh-	[kx]ör	[kx]ör (M, R, D); [gə]hör (K)
118. Er hat heute den Rasen schon **geschnitten**.	geschn-	[kʃn]itten	[kʃn]itten (K, R)
119. zugleich	zugl-	[tsu]gleich	[tsu]gleich (all varieties)
120. Er ist 1,20 Meter **gesprungen**.	grspr-	[kʃpʀ]ungen	[kʃpʀ]ungen (K, R); [kʃk]upft (M)
121. zusehen	zus-	[tsu]sehen	[tsu]sehen (K)

122. Die Achse ist **gebrochen**.	gebr-	[gə]brochen	[gə]brochen (M, K, D)
123. Mit meinem neuen Haarschnitt bin ich total **zufrieden**.	zufr-	[tsu]frieden	[tsu]frieden (all varieties)
124. Die **Gebrüder** Messner sind sehr **berühmt**.	Gebr-; ber-	[gə]brüder; [bʀ]ühmt	[gə]brüder (K); [bə]rühmt (M, K, D)
125. Machen wir die Übung **zusammen**.	zus-	[tsu]sammen	[tsu]sammen (K, R)
126. Er wurde **geschlagen**.	geschl-	[kʃl]agen	[kʃl]ågen (M, K, R)
127. Dass wir uns verpasst haben, ist reiner **Zufall**.	Zuf-	[tsu]fall	[tsuɐ]fåll (M); [tsu]fall (K, R)
128. Um den Ofen **benutzen** zu können, müssen wir Holz **beschaffen**.	ben-; besch-	[bə]nutzen; [pʃ]affen	[bə]nutzen (M); [bə]schaffen (K)
129. Seine **Gefräßigkeit** kann ich nicht leiden.	Gefr-	[kfʀ]äßigkeit	[gə]fräßigkeit (M, K)
130. zuflüstern	zufl-	[tsu]flüstern	[tsuɐ]flüschtern (M, D); [tsu]flüschtern (K, R)
131. Wir müssen den **Bestand** an unserer Waren aufüllen.	Best-	[pʃt]and	[bə]stånd (M, K)
132. Dort wird **Geflügel gezüchtet**.	Gefl-; gez-	[kfl]ügel; [gə]züchtet	[gə]fligel (M, K, R); [gə]zichtet (M, K, R)
133. Behandlung	Beh-	[bə]handlung	[bə]håndlung (M, K, R)
134. zubinden	zub-	[tsu]binden	[tsuɐ]binden (M, D); [tsu]binden (K, R)
135. Der gute alte Mann ist mit dem Pferde durch´s Eis **gebrochen** und in das kalte Wasser **gefallen**.	gebr-; gef-	[gə]brochen; [kf]allen	[gə]brochen (all varieties); [kf]ållen (all varieties)
136. Die Füße tun mir sehr weh, ich glaube, ich habe sie **durchgelaufen**.	gel-	[gl]aufen	durch[gə]låfn (K)
137. Ihm geht es heute **beschissen**.	besch-	[pʃ]issen	[bə]schissen (M, K, R)
138. zupressen	zupr-	[tsu]pressen	[tsuɐ]pressen (M); [tsu]pressen (K, R)
139. Ich hab's **genug**! Ich gehe jetzt.	gen-	[gn]nug	[gə]nua (all varieties)
140. Ich bin bei der Frau **gewesen** und habe es ihr **gesagt**, und sie sagte, sie wollte es auch ihrer Tochter sagen.	gew-; ges-	[gv]esen; [ks]agt	[gv]esn (M, D); [gə]wesen (K, R); [ks]åk (all varieties)
141. zupfen	zupf-	[tsu]pfen	[tsu]pfen (all varieties)
142. zuzwinkern	zuzw-	[tsu]zwinkern	[tsuɐ]zwinkern (M, D); [tsu]zwinkern (K, R)

143. Wir haben ein schallendes **Gelächter gehört**.	Gel-; geh-	[gl]ächter; [kx]ört	[gl]achter (M); [gə]lächter (K, R); [kx]ert (M, D); [gə]hört (K, R)
144. Es wäre **gescheit**, wenn wir gleich anfangen würden.	gesch-	[kʃ]eit	[kʃ]eider (M); [kʃ]eit (K, R)
145. zutragen	zutr-	[tsu]tragen	[tsuɐ]trågren (all varieties)
146. Kinder müssen ihren Eltern **gehorchen**.	geh-	[kx]orchen	[gə]horchen (K, R)
147. Guten Morgen! Hast du gut **geschlafen**?	geschl-	[kʃl]afen	[kʃl]åfen (all varieties)
148. zuhalten	zuh-	[tsu]halten	[tsuɐ]hålten (M, K, R)
149. gehörig	geh-	[kx]örig	[gə]hörig (K); [kh]erig (R)
150. Es ist sehr **gesund**, Obst und **Gemüse** mehrmals am Tag zu essen.	ges-; Gem-	[ks]und; [gm]üse	[ks]und (all varieties); [gə]müse (all varieties)
151. Diese Kirche wurde **geheiligt**.	geh-	[kx]eiligt	[gə]heiligt (M, K, R) [kx]eiligt (D)
152. zuwider	zuw-	[tsu]wider	[tsu]wider (M, K, R)
153. Woher kommt dieses lästige **Geblase**?	Gebl-	[gə]blase	[gə]blås (M, K, R)
154. Behaglichkeit	Beh-	[bə]haglichkeit	[bə]haglichkeit (M, K)
155. zubauen	zub-	[tsu]bauen	[tsuɐ]bauen (M, D); [tsu]bauen (K, R)
156. Er ist bei ihr **geblieben**.	gebl-	[gə]blieben	[gə]blieben (all varieties)
157. Beschleunigung	Beschl-	[pʃl]eunigung	[bə]schleunigung (M, K, R)
158. Er ist sehr **gefräßig**; das kann ich nicht leiden.	gefr-	[kfʀ]äßig	[gə]fräßig (M, K); [kfr]äßig (D)
159. Gesims	Ges-	[ks]ims	[gə]sims (M); [ks]ims (K)
160. Zugabe	Zug-	[tsu]gabe	[tsuɐ]gåb (M); [tsu]gabe (K)
161. Ich fand ihn **gemein**.	gem-	[gm]ein	[gə]mein (M, K, R)
162. Das Kind hat diue ganze Zeit **geschrien**.	geschr-	[kʃʀ]ien	[kʃʀ]ien (all varieties)
163. Zugeständnis	Zug-	[tsu]geständnis	[tsuɐ]geständnis (M); [tsu]geständnis (K)
164. geflügelt	gefl-	[kfl]ügelt	[gə]flügelt (M, K)
165. zubeißen	zub-	[tsu]beißen	[tsuɐ]beißen (all varieties)

166. Meine Fahrkarte hab ich zu Hause vergessen; könnten Sie ein Auge ausnahmsweise **zudrücken**?	zudr-	[tsu]drücken	[tsuɐ]drücken (all varieties)
167. Darüber haben sie viel **Geschrei gemacht**.	Geschr-; gem-	[kʃʀ]ei; [gm]acht	[kʃʀ]ei (all varieties); [gm]åcht (M, D); [gə]macht (K)
168. Behaarung	Beh-	[bə]haarung	[bə]håårung (M, K, R)
169. zubereiten	zub-	[tsu]bereiten	[tsuɐ]bereiten (M); [tsu]bereiten (K, R)
170. Hätte ich das **gewuss**, dann wäre ich auch zu ihm **gegangen**.	gew-; geg-	[gv]usst; [gə]gangen	[gv]ist (M, K, D); [gə]vist (R); gången (all varieties)
171. Gib nichts aufs **Geschwätz** der Leute.	Geschw-	[kʃv]ätz	[gə]schwätz (M, K)
172. behaglich	beh-	[bə]haglich	[bə]haglich (K)
173. zugunsten	zug-	[tsu]gunsten	[tsu]gunschten (M, K)
174. Gehuste	Geh-	[kx]uste	[gə]huschte (M, K); [kx]uschte (D)
175. zubetonieren	zub-	[tsu]betonieren	[tsuɐ]betonieren (M, D); [tsu]betonieren (K, R)
176. **gesegnete** Mahlzeit!	ges-	[ks]egnete	[gə]segnete (M, K, R)
177. Was für ein lästiges **Geheul**!	Geh-	[kx]eul	[gə]heul (M, K)
178. Ich muss **zugeben**, dass sowas sehr schwierig ist.	zug-	[tsu]geben	[tsuɐ]geben (M, K, D)
179. Sie stehen völlig unter seiner **Gewalt**.	Gew-	[gv]alt	[gə]wålt (M, K, R)
180. bestreuen	bestr-	[pʃtʀ]euen	[bə]streuen (M, k)
181. zugig	zug-	[tsu]gig	[tsu]gig (M, K, R)
182. Würdest du mir einen **Gefallen** tun?	Gef-	[kf]allen	[kf]ållen (M, R, D); [gə]fallen (K)
183. beschließen	beschl-	[pʃl]ießen	[bə]schließen (M, K, R)
184. zugehörig	zug-	[tsu]gehörig	[tsu]gehörig (M, K, R)
185. Sowas hat zu einer schweren Situation **geführt**.	gef-	[kf]ührt	[kf]irt (M); [kf]ührt (K, R)
186. beschlagen	beschl-	[pʃl]agen	[bə]schlagen (M, K, R); [pʃl]agen (D)
187. zugeknöpft	zug-	[tsu]geknöpft	[tsuɐ]geknöpft (all varieties)
188. gestrichen	gestr-	[kʃtʀ]ichen	[gə]strichen (M); [kʃtʀ]ichen (K, D)

189. Wie **gehässig** der ist!	geh-	[kx]ässig	[gə]hässig (M, K)
190. gefährlich	gef-	[kf]ährlich	[gə]fährlich (M); [kf]ährlich (K, R, D)
191. gefällig	gef-	[kf]ällig	[gə]fällig (M); [kf]ällig (K, R)
192. Gehopse	Geh-	[kx]opse	[gə]hopse (M, K, R); [kh]upse (D)
193. Diese Schuhe **gehören** mir.	geh-	[kx]ören	[kx]eren (all varieties)
194. Gestrampel	Gestr-	[kʃtʀ]ampel	[gə]strampel (M); [kʃtʀ]ampel (K, D)
195. zuschlagen	zuschl-	[tsu]schlagen	[tsuɐ]schlågen (all varieties)
196. gespreizt	gespr-	[kʃpʀ]eizt	[gə]spreizt (M, K)
197. befruchten	befr-	[bə]fruchten	[bə]fruchten (M, K, R)
198. Geschwulst	Geschw-	[kʃv]ulst	[gə]schwulscht (M); [kʃv]ulst (K, R, D)
199. zubringen	zubr-	[tsu]bringen	[tsuɐ]bringen (all varieties)
200. Der Mörder ist in **Gefängnis gebracht** worden.	Gef-; gebr-	[kf]ängnis	[kf]ängnis (all varieties); [gə]bracht (all varieties)
201. gehemmt	geh-	[kx]emmt	[gə]hemmt (M, K, R)
202. Dein Haus ist aber **behäbig!**	beh-	[bə]häbig	[bə]häbig (K)
203. Es wurde die ganze Nacht **gefeiert**.	gef-	[kf]eiert	[kf]eiert (all varieties)
204. zupfropfen	zupfr-	[tsu]pfropfen	[tsuɐ]pfropfen (M, K)
205. gestoßen	gest-	[kʃt]oßen	[kʃt]oßen (all varieties)
206. bestärken	best-	[pʃt]ärken	[bə]stärken (all varieties)
207. Behhäbigkeit	Beh-	[bə]häbigkeit	[bə]häbigkeit (M, K, R)
208. Deine Prüfung ist sehr gut **gewesen**.	gew-	[gv]esen	[gv]esn (M, K); [gə]wesen (R)
209. zubrüllen	zubr-	[tsu]brüllen	[tsuɐ]prillen (M); [tsu]brüllen (K)
210. Besteck	Best-	[pʃt]eck	[bə]steck (M, D); [pʃt]eck (K, R)
211. Was für ein **gehorsames** Kind!	geh-	[kx]orsames	[gə]horsames (K)
212. gefrieren	gefr-	[kfʀ]ieren	[gə]frieren (M); [kfʀ]ieren (K, R, D)

213. zudringlich	zudr-	[tsu]dringlich	[tsuɐ]dringlich (M, K, R)
214. Ich hoffe, dass meine Liebligsmannschaft das Spiel **gewinnen** wird.	gew-	[gv]innen	[gv]innen (M, D); [gə]winnen (K, R)
215. Der ist sehr **gesprächig**.	gespr-	[kʃpʀ]ächig	[gə]sprächig (M, R); [kʃpʀ]ächig (R)
216. Ich habe ein schlechtes **Gewissen**.	Gew-	[gv]issen	[gə]wissen (M, K, R); [gv]issen (D)
217. befragen	befr-	[bə]fragen	[bə]frågen (M, K, R)
218. Als er jung war, schickte er seiner Freundin **geheime** Botschaften.	geh-	[kx]eime	[gə]heime (all varieties)
219. geflochten	gefl-	[kfl]ochten	[kfl]ochten (MK); [gə]flochten (R)
220. beschriften	beschr-	[pʃʀ]iften	[bə]schriften (M, K, R)
221. Hast du ein erholsames Wochenende **gehabt**?	geh-	[kx]op	[kx]åp (all varieties)
222. zunageln	zun-	[tsu]nageln	[tsuɐ]någeln (all varieties)
223. bestellen	best-	[pʃt]ellen	[bə]stellen (M, K); [pʃt]ellen (D, R)
224. gesprossen	gespr-	[kʃpʀ]ossen	[gə]sprossen (M, K) [kʃpʀ]ossen (R)
225. Hast du **gehört**? Der Peter heiratet!	geh-	[kx]ört	[kx]ert (all varieties)
226. Darüber haben wir schon **gesprochen**.	gespr-	[kʃpʀ]ochen	[kʃpʀ]ochen (K)
227. Zuwachs	Zuw-	[tsu]wachs	[tsuɐ]wåchs (all varieties)
228. gesprengt	gespr-	[kʃpʀ]engt	[kʃpʀ]engt (all varieties)
229. Ich bin ihm sehr dankbar: er hat mir viel **geholfen**.	geh-	[kx]olfen	[kx]olfen (all varieties)
230. beschmeißen	beschm-	[pʃm]eißen	[bə]schmeißen (M, K, R)
231. geschmeidig	geschm-	[kʃm]eidig	[kʃm]eidig (M, K); [gə]schmeidig (R)
232. Ich habe den Beschluss **gefasst**, ins Ausland zu fahren.	Beschl-	[kf]asst	[kf]åst (M, K)
233. Gespritze	Gespr-	[kʃpʀ]itze	[gə]spritze (M, R); [kʃpʀ]itze (K, D)
234. Du wirt die Prüfung bestimmt **bestehen**.	best-	[pʃt]ehen	[bə]stehen (K)
235. Gefrage	Gefr-	[kfʀ]age	[gə]frage (M, R); [kfʀ]åge (K)

236. beschneiden	beschn-	[pʃn]eiden	[bə]schneiden (all varieties)
237. gefleckt	gefl-	[kfl]echt	[gə]fleckt (M, R); [kfl]eckt (K, D)
238. Er redet **zuviel**.	zuv-	[tsu]viel	[tsu]viel (all varieties)
239. Gefluche	gefl-	[kfl]uche	[gə]fluache (M, R) [kfl]uche (K, D)
240. zufällig	zuf-	[tsu]fällig	[tsuɐ]fällig (all varieties)
241. bestimmen	best-	[pʃt]immen	[bə]stimmen (all varieties)
242. Geflüster	Gefl-	[kfl]üster	[gə]flüschter (M, R); [kfl]üschter (K, D)
243. zufassen	zuf-	[tsu]fassen	[tsuɐ]fåssen (M, K, R)
244. beschimpfen	besch-	[pʃ]impfen	[bə]schimpfen (M, K, R)
245. gemocht	gem-	[gm]ocht	[gə]mocht (K, R)
246. Er ist ein neues **Gesicht**; ich sehe ihn heute zum ersten Mal.	Ges-	[ks]icht	[ks]icht (all varieties)
247. Er will dich einfach nur **beschützen**.	besch-	[pʃ]ützen	[bə]schützen (all varieties)
248. gemustert	gem-	[gm]ustert	[gə]muschtert (K)
249. zuhauen	zuh-	[tsu]hauen	[tsuɐ]hauen (all varieties)
250. beschönigen	besch-	[pʃ]önigen	[bə]schönigen (all varieties)
251. Der Schäfer hat die Schafe **geschoren**.	gesch-	[kʃ]oren	[kʃ]oren (all varieties)
252. Hier ist's aber sehr gemütlich!	gem-	[gm]ütlich	[gə]mütlich (all varieties)
253. Besäufnis	Bes-	[ps]äufnis	[bə]säufnis (K, R)
254. Wegen seiner exzessiven **Genauigkeit** ist er nicht so **beliebt**.	Gen-; bel-	[gn]auigkeit; [bə]liebt	[gə]nauigkeit (all varieties); [bə]liebt (all varieties)
255. geflossen	gefl-	[kfl]ossen	[gə]flossen (all varieties)
256. Er ist total **bescheuert**! Wie kann man sowas sagen?	besch-	[pʃ]euert	[bə]scheuert (M, K, R)
257. Geflimmer	Gefl-	[kfl]immer	[gə]flimmer (M, K, R)
258. Über deinen **Besuch** wird er sich shr freuen.	Bes-	[ps]uch	[ps]uach (M, R); [bə]such (K, D)
259. geschmeichelt	geschm-	[kʃm]eichelt	[gə]schmeichelt (M, K); [kʃm]eichelt (R, D)

260. Guck mal, der Karl ist toal **besoffen**!	bes-	[ps]offen	[ps]offen (M); [bə]sofen (K, R)
261. gesinnt	ges-	[ks]int	[gə]sinnt (M, K); [ks]innt (R)
262. besitzen	bes-	[ps]itzen	[bə]sitzen (M, K, R)
263. Geschmuse	Geschm-	[kʃm]use	[gə]schmuse (M, R); [kʃm]use (K, D)
264. Wann trat das **Gesetz** über Ehescheidung in Kraft?	Ges-	[ks]etz	[gə]setz (M, K, R)
265. Behausung	Beh-	[bə]hausung	[bə]hausung (M, K, R)
266. Werwird die Karten fürs Konzert dann **besorgen**?	bes-	[ps]orgen	[bə]sorgen (M, K)
267. Gespött	Gesp-	[kʃp]ött	[gə]spött (M, K, R); [kʃp]ött (D)
268. Behauptung	Beh-	[bə]hauptung	[bə]hauptung (all varieties)
269. gesamt	ges-	[ks]amt	[gə]såmt (M, K, R)
270. Diese **Geschichte** hab ich schon mehrmals **gehört**.	Gesch-; geh-	[kʃ]ichte; [kx]ert	[kʃ]ichte (all varieties); [kx]ert (all varieties)
271. Sie **behandeln** ihn wie ein Kind.	beh-	[bə]handeln	[bə]handeln (all varieties)
272. Den Brief hab ich gestern **geschickt**.	gesch-	[kʃ]ickt	[kʃ]ickt (K, R)
273. Behang	Beh-	[bə]hang	[bə]hång (M, K, R)
274. Was ist hier **geschehen**?	gesch-	[kʃ]ehen	[kʃ]ehen (M, K)
275. Er ill einfach seine Rechte **behaupten**.	beh-	[bə]haupten	[bə]haupten (M, K, R)
276. Sie hat dem Lehrer so eine blöde Frage **gestellt**!	gest-	[kʃt]ellt	[kʃt]ellt (M, K, R)
277. behangen	beh-	[bə]hangen	[bə]hången (M, K, R)
278. Hast du die Suppe schon **gesalzen**?	ges-	[ks]alzen	[ks]ålzen (all varieties)
279. Van Gogh ist immer noch ein sehr **geschätzter** Künstler.	gesch-	[kʃ]ätzter	[gə]schätzter (M, K); [kʃ]ätzter (R, D)
280. Das **behagt** mir nicht.	beh-	[bə]hagt	[bə]hagt (K)
281. **Gesetzlich** finde ich sowas **beleidigend**.	Ges-; bel-	[ks]etzlich; [bə]leidigend	[gə]setzlich (M); [ks]etzlich (K, R); [bə]leidigend (M, K)
282. Dieses Wort scheint mir viel zu **gehoben**.	geh-	[kx]oben	[gə]hoben (M, K); [kx]oben (R)
283. gesondert	ges-	[ks]ondert	[gə]sondert (K); [ks]ondert (M, R)
284. Der **Gehängte** ist gestern **aufgefunden** worden.	Geh-; gef-	[kx]ängte; auf[kf]unden	[gə]hängte (M, K); auf[kf]untn (M, K)
285. Wir haben's **geschafft**! Wir alle haben die Prüfung erfolgreich **bestanden**.	gesch-; best-	[kʃ]afft; [pʃt]anden	[kʃ]afft (M, K); [bə]standen (M, K)

286. geheuchelt	geh-	[kx]euchelt	[gə]heuchelt (M, K, R)

3. Questionnaire for Mòcheno (Palai/Palù)

Word	**Realization**	**German cognate**
1. ringraziare	padonken	bedanken
2. libero	[vr]ai	frei
3. nuotare	[zb]immen	schwimmen
4. macchiare	---	beflecken
5. interrogare	[vr]ön	befragen
6. liberare	ver[vr]aien	verfreien
7. accompagnare	mitgean	begleiten
8. Fierozzo	[vl]aröz	---
9. seppellire	pagrön	begraben
10. applaudire	---	beklatschen
11. sporcarsi	[ʧv]aisn se	bekleckern
12. rosicchiare, sgranocchiare	---	beknabbern
13. volontario	[vr]aibelle	freiwillig
14. venti	[tsb]oensk	zwanzig
15. motivare	---	begründen
16. combattere contro qualcuno	[śtr]aitn	bekriegen
17. bottiglia	[vl]os	Flasche
18. pitturare	zoachen/varm	bemalen
19. infarinare	---	bemehlen
20. vicino	[gl]aim	benachbart
21. necessitare di qualcosa	höm noet va eppes	benötigen
22. piantare alberi	pam setzn	bepflanzen
23. sorelle e fratelli	[ʧb]ister	Geschwister
24.derubare	[śt]öln	berauben
25. preparare (cibo)	köchen/paroatn eppas z esn	bereiten
26. significare, indicare	tsoachen	besagen
27. danneggiare	mochen sö	beschädigen
28. procurare, fornire	gem eppes	beschaffen
29. insultare	---	beschimpfen
30. affrettare il passo	---	beschleunigen
31. imbrattare (tovaglia)	[ʧv]aisn	beschmieren
32. sporcare	[ʧv]aisn	beschmutzen
33. limitato	---	beschränkt
34. descrivere	zon	beschreiben

35. colonizzare	besideln	besiedeln
36. diventare alticcio, brillo	kemmen [st]u[rn]	beschwipsen
37. possedere	höm	besitzen
38. eseguire, sbrigare (commissione)	mochen	besorgen
39. guardarsi allo specchio	sehen se en [śp]iegel	bespiegeln
40. discutere di qualcosa	kloffen	besprechen
41. spruzzare d'acqua	dernetzen pe bosser	bespritzen
42. superare un esame	gean guat an esam	bestehen
43. ornare di ricami	---	besticken
44. stabilire	---	bestimmen
45. punire	---	bestrafen
46. fare il pieno	mochen vol kem en eppes	betanken
47. dichiarare	tzön	beteuern
48. praticare un hobby	mochen an hobby	betreiben
49. autorizzare	derlam	bevollmächtigen
50. muoversi	meivern se	bewegen
51. contrassegnare	---	bezeichnen
52. rivestire	lendrau eppes ene pasonder	beziehen
53. dubitare	---	bezweifeln
54. concetto	---	Begriff
55. resoconto	---	Bericht
56. risposta	enkein	Bescheid
57. decisione	[ʧ]e[rl]	Beschluss
58. lamentela	lamentarn se	Beschwerde
59. posate	gabeler	Besteck
60. giuramento	[ʧb]eir	Schwur
61. considerazione	---	Betracht
62. ammontare, somma	s tzom va vil dinger	Betrag
63. asse di legno	[vl]ek	Brett
64. popolazione	de lait	Bevölkerung
65. rivestimento	eppes [tr]au gelek	Bezug
66. vincitore, dominatore	gabinner	Bezwinger
67. a scadenza	benasvervo[lt]	befristet
68. comodo	dester	bequem
69. pagabile	tsamentsöln	bezahlbar
70. mettere in pericolo	tsalengen en geferlich	gefährden
71. gelare, ghiacciare	ais kemmen	gefrieren
72. memoria	zalazidenkmer	Gedächtnis
73. dare un pizzicotto	[tsv]icke	zwicken

74. pericolo	---	Gefahr
75. prigione, carcere	tu[rn]	Gefängnis
76. recipiente	---	Gefäß
78. combattimento, scontro	a [str]ait	Gefecht
79. pollame	---	Geflügel
80. bisbiglio	eppes longsam kein	Geflüster
81. ingordo	gaite	gefräßig
82. scampanellio	[kl]ingerln	Geklingel
83. scoppi, botti	[śkl]öppn	Geknalle
84. risate	laita s lochen	Gelächter
85. terreno	erd/[dr]u	Gelände
86. brontolio	[br]umpler	Gemecker
87. comunità	gamoascha[ft]	Gemeinschaft
88. fischio continuo	bispln	Gepfeife
89. strilli	laitar schrein	Geplärr
90. chiacchiere, ciance	ga[pl]eppera	Geplauder
91. piagnucolio	---	Gequäke
92. attrezzo, utensile	[pl]under	Gerät
93. odore	smoch	Geruch
94. rumore	le[rm]	Geräusch
95. canto	zing	Gesang
96. storia	geschi[xt]	Geschichte
97. negozio	boteig	Geschäft
98. gusto	---	Geschmack
99. fuggire	[vl]iechen	fliehen
100. cucire	[vl]icken	nähen
101. farfalla	---	Schmetterling
102. pulce	lais	Laus
103. fiamma	---	Flamme
104. foglia (larga)	[vl]opp/lapp	Laub
105. minacciare	---	bedrohen
106. volare	[vl]uttern	fliegen
107. insieme	tsom	zusammen
108. pipistrello	mailvu[rf]	Maulwurf
109. tormentare	---	bedrängen
110. associazione	[vr]aischo[ft]	Gesellschaft
111. gioia	[vr]ait	Freude
112. fantasma	schai	Gespenst
113. esatto, esattamente	re[xt]	richtig
114. chiudere	[śp]ern	sperren

115. caso	---	Zufall
116. parente	[vr]ant	Verwandte
117. venerdì	[vr]aita	Freitag
118. sorella	[zb]ester	Schwester
119. casuale	---	zufällig
120. parentela	[vr]ant	Verwandtschaft
121. ciao (congedo)	[vr]eala	Tschüss
122. sfacciato	---	frech
123. temporale	better	Gewitter
124. normale, comune	normal	gewöhnlich
125. litigio	a strait	Gezänk
126. peso	beng	Gewicht
127. viso	[ʧ]i[xt]	Gesicht
128. scopo	rif	Zweck
129. fetta	[śt]ikl	Stück
130. secondo	[tsb]oate	zweite
131. gemello	[tsv]illen	Zwilling
132. straniero	[vr]em	fremd
133. divorare	[vr]essen	fressen
134. mattina	[vr]ia	Frühe
135. un tempo	a tsait	damals
136. freschezza	[vr]isseket	Frische
137. cognata	---	Schwägerin
138. nano	---	Zwerg
139. compagno, amico, compare	kamarott	Gesell
140. dialogo, colloquio	---	Gespräch
141. bibita	eppas za [tr]inken	Getränk
142. dipinto, quadro	an pi[lt]	Gemälde
143. pepato	pe drin pever	gepfeffert
144. curato	---	gepflegt
145. dritto	garö	gerade
146. chiuso	[śp]ert	gesperrt
147. sano	[ʧ]u[nt]	gesund
148. diviso	austoe[lt]	geteilt
149. rinfrescare	[vr]issn	erfrischen
150. spezie	---	Gewürze
151. rimanere chiuso	[śp]ert [pl]aim	zubleiben
152. contento	[vr]oa/content	froh
153. domanda	[vr]ög	Frage
154. rana	[kr]öut	Frosch

155. ammettere	zön va jö	zugeben
156. inviare, spedire	sicke	schicken
157. concordare, essere d'accordo	oene zai	zustimmen
158. riparo, rifugio	varstecken ze	Zuflucht
159. ala	[vl]aig	Flügel
160. maiale	[zb]ain	Schwein
161. tacere	[zb]ain	schweigen
162. Svizzera	[ʃv]aiz	Schweiz
163. difficile, pesante	hort/[zb]ar	schwer
164. suocera	---	Schwiegermutter
165. schiuma	---	Schaum
166. male	bea	schlecht
167. oggetto (di una lettera, ecc.)	be[tr]ef	Betreff
168. occhiali a stringinaso, pince-nez	ociai/an [gl]eizer	Zwicker
169. filo da cucire	[dr]öt za [vl]icke	Faden
170. sudore	[zb]its	Schweiss
171. gonfiare	au[ʧ]beln	aufschwellen
172. suocero	---	Schwiegervater
173. ricevere (un regalo)	[kr]ien	bekommen
174. dodici	[tsv]ölva	zwölf
175. debole	[zv]och	schwach
176. visita	pasuch	Besuch
177. tra	[tsb]issn	zwischen
178. mosca	[vl]aig	Fliege
179. sporco	[ʧv]issn	schmutzig
180. spargere, cospargere	ausberven	streuen
181. supplicare	pitn	bitten
182. svolazzare	[vl]uttern	schwärmen
183. suoceri	---	Schwiegereltern
184. giurare	[ʧb]eirn	schwören
185. cognato	---	Schwiegerbruder
186. nero	[zb]o[rts]	schwarz
187. sporcare	[ʧv]aizn	beschmutzen
188. due	[tsb]oa	zwei
189. carne	[vl]ais	Fleisch
190. accontentarsi	gabenen se	begnügen
191. infastidire	genundzu[ft]	belästigen
192. pensiero	gado[ŋk]	Gedanke
193. chiacchierare di qualcosa	[pl]eppern va eppes/kloffen va eppes	bequatschen

4. Questionnaire for Cimbrian (Lusérn)

Word	Realization	German cognate
1. infeltrito	gepalsta[xt]	verfilzt
2. gracidii	ge[kʀ]aka	Gequake
3. trattamento	notüan/machan	Behandlung
4. insudiciare	bozudln/buschaivn	besudeln
5. baluginio	bichtl	glänzen
6. sbevazzamento	[tʀ]inkan; gelunza	Gesöff
7. lallazione	[bʀ]untln; geschö[tr]a	Geplapper
8. brontolio	[bʀ]untln; [br]untln	Rumpeln
9. maneggiamento	håmfln	Handhabung
10. bisbiglio	gebi[ʧr]a; gevi[ʧl]a	Geflüster
11. saltellio	ge[spr]inga; [ʃpʀ]ingen	Gehüpfe
12. di strumento a fiato	faivan	pfeifen
13. anello	ge[vr]ingat	Ring
14. affumicato	gete[ɱpft]	geräuchert
15. negozio	botege	Geschäft
16. canto	zingen; gesinga	Gesang
17. salato	gesa[ltst]	gesalzen
18. battito	meka[ʁ]; gemeka	Schlagen
19. preciso	[pr]eciso; giu[st]; [r]echts	präzise
20. a sufficienza	genuma	genügend
21. indistintamente	alf genoatn; ale dilaich	undeutlich
22. starnuti	geniaza; niaza[r]	Niesen
23. l'ardere	ge[pʀ]enne; vo[r][pr]ennen; [pʀ]innen	verbrennen
24. da bucato	gebe[st]; vo[r] di besch; gebescha	wasch-
25. pigiato	ge[sk]i[pft]; ge[dr]u[kt]	gedrückt
26. chiuso	gespe[ʁt]	gesperrt
27. giocattoli	ge[sp]ila; ge[ʃp]ila; [ʃp]ila	Spielzeuge
28. litigio	[stʀ]aitn; zagatta[rn]; ge[stʀ]aita	Streit
29. il saltare	ge[ʃpʀ]inga; ge[ʃpr]inga	Gehopse
30. irrorazione	bessa[rn]	Sprühen
31. ammettere	ågebm	zugeben
32. ricoprire	dekan; audekxan; tsuadekxan	abdecken
33. volo	ge[fl]atta[ʁt]; ge[fl]a[tr]a	Flug
34. urlo	[ʃʀ]oa; böaka[r]	Schrei
35. attorcigliato	augebi[lt]; auge[r]iglt	verdreht
36. piccolo volatile	vögele; vogel	Vögelchen

37. rivolo	a [ʃp]ile; [r]ütsch	Rinnsal
38. capsula	kapsula; kapsl	Kapsel
39. cancro	kånk[ʀ]; [kr]ablar	Krebs
40. segatura	gezaga	Sägemehl

5. Questionnaire for Venetan-Trentino (Borgo Valsugana)

Word	Tested sequence(s)	Expected realization(s)	Actual realization(s)
1. lago - laghi	-go; -ghi	lago- laghi	lago -laghi
2. confronto, paragone	-ne	paragon	paragon
3. tempo	-mpo	tempo	tempo
4. cespuglio	---	cespuglio	siesa
5. paternale	-ale	paternale	predica
6. mela	---	pomo	pomo
7. tanfo	-nfo	tanfo	spusa
8. contro	-tro	contro	contro
9. cieco – ciechi	---	orbo – orbi	orbo – orbi
10. rugoso	–oso	rugoso	rugo[z]o
11. gonna	---	cotola	vesta
12. Mezzocorona	– zz –	Me[z]ocorona	Me[z]ocorona
13. freddo – freddi	–ddo; –ddi	fredo – fredi	fredo – fredi
14. di nascosto	---	de scondon	de scondon
15. strutto	–tt–	struto	struto
16. aspro	---	agro	aspro
17. abbonamento	–bb–	abonamento	abonamento
18. andare	---	nar	ndar
19. ramarro – ramarri	–rr–	ramaro – ramari	ramaro – ramari
20. manganello	–llo	manganelo	manganelo
21. fiocco	–cco	fioco	fioco
22. basilisco	–sco	basilisco	basilisco
23. cerchio	---	[s]er[ʧ]o	[s]er[ʧ]o
24. frittata con latte e farina	–tt–	fritata	furtaia con late e farina
25. viso – visi	– so; --si	fa[ʧ]a – fa[ʧ]e	fa[ʧ]a – fa[ʧ]e
26. pizzicare	– zz – ; – c –	pi[s]i[g]ar	[sp]i[s]egar
27. caldo – caldi	– ldo; – ldi	caldo – caldi	caldo – caldi
28. vento	– nto	vento	vento
29. scaraventare	– re	scaraventar	[zʤ]aventar
30. mano	– no	man	man
31. trapano	trapano	trapano	trapano
32. buontempone – buontemponi	buon –; – one	bontempon; bontemponi	bontempon – bontemponi
33. manzo – manzi	– zo; – zi	man[z]o – man[z]i	man[z]o – man[z]i
34. maiale	---	ma[sʧ]o	porco

35. fungo – funghi	– ngo; – nghi	fungo – funghi	fongo – fonghi
36. sbottonare	– tt – ; – are	sbotonar	[zb]otonar
37. sottogamba, alla leggera	– tt –	sotogamba	sotogamba
38. muro	– ro	muro	muro
39. proiettile a razzo	– tt – ; – zz –	proietile a ra[z]o	patrona a ra[z]o
40. basto	– sto	basto	basto
41. sporco	– rco	sporco	sporco
42. per Bacco!	– cco	per Baco!	per Baco!
43. fronte	– nte	fronte	fronte
44. antro	– tro	antro	caverna
45. contusione	– one	contu[z]ion	ra[s]ada
46. accudire neonati	– cc – ; – ire	acudir	[sk]asegar
47. cane	– ne	can	can
48. poco	– co	poco	poco
49. zabaione	z – ; – one	[z]abaion	[z]abaion
50. mangione, scroccone	– cc – ; – one	scrocon	scrocon
51. sporcaccione	– cc – ; – one	sporcacion	sporcacion
52. uomo	uomo	omo	omo
53. assenzio	– ss –; – [ts]io	asen[s]io	asen[z]io
54. pentolone – pentoloni	– one; – oni	pentolon – pentoloni	pignaton – pignatoni
55. dentro	– tro	rento	entro
56. stravolto	– lto	stratolto	stratolto
57. dolce – dolci	– lce; – lci	dol[s]e – dol[s]i	dol[s]e – dol[s]i
58. gettare	– tt – ; – are	butar	butar
59. scricciolo	– cc –	scriciolo	---
60. vino	– no	vin	vin
61. acquisto	---	comprar	comprar
62. raddrizzare	– dd – ; – zzare	indri[s]ar	ndri[s]ar
63. forte	– rte	forte	forte
64. miagolio	miagolio	[zɲ]aloio	[zmj]aolà
65. frumento	– nto	frumento	frumento
66. verde – verdi	– rde; – rdi	verde – verdi	verde – verdi
67. zuccone	zuccone	[s]ucon	[s]ucon
68. secco	– cco	seco	seco
69. gonfio	gonfio	[zʤ]onfo	[zʤ]onfo
70. bianco	– nco	bianco	bianco
71. pulire il bestiame	---	netar	netar le vache
72. uovo – uova	uovo – uova	ovo – ovi	ovo – ovi
73. sudicione	---	sporco	sporco

74. contento	– nto	contento	contento
75. bocca grande, spalancata	– cca	boca grande, spalanca'	boca granda, verta
76. gatto	– tto	gato	gato
77. mezzogiorno	– zz –	me[z]ogiorno	me[z]ogiorno
78. aborto	– rto	aborto	aborto
79. letto da tenda	– tto	leto da tenda	branda
80. pieno	pieno	pieno	pieno
81. bighellone	--llone	bighelon	bighelon
82. astro	– tro	astro	astro
83. geloso – gelosi	– oso; – osi	gelo[z]o - gelo[z]i	gelo[z]o - gelo[z]i
84. raccolto	raccolto	racolto	binauna
85. dove	---	dove	dove
86. dente	– nte	dente	dente
87. blocco	– cco	bloco	bloco
88. orzo – orzi	– zo; – zi	or[z]o – or[z]i	or[z]o – or[z]i
89. giallo	giallo	[z]alo	[ʤ]alo
90. scalzo – scalzi	– zo; – zi	discal[s]o – discal[s]i	descol[ts]o – descol[ts]i/ descol[s]o – descol[s]i
91. gonfiare	gonfiare	[zʤ]onfar	[zʤ]onfar
92. sottosopra	– tt –	sotosora	sotosora
93. pernice bianca	bianca	bianca	galineta
94. bosco	– sco	bosco	bosco
95. al verde	verde	al verde	al verde
96. attorno	– tt –	torno	intorno
97. vespro	– pro	vespro	vespro
98. epilessia	– ss –	epilesia	malcaduto
99. neve – nevi	– ve; – vi	neve – nevi	neve – nevi
100. millepiedi	– ll –	milepiedi	verme
101. vinello	– llo	vinelo	vinelo
102. agosto	– sto	agosto	agosto
103. varietà di piantaggine	– gg –	varietà de piantagine	---
104. leggero	– gg –	le[ʤ]ero	li[zj]ero
105. gente	gente	[z]ente	[z]ente
106. vendere	– ere	vendere	vender
107. marcio	– cio	mar[s]o	mar[s]o
108. aspo	– spo	aspo	aspo
109. miagolare	miagolare	[zɲ]aolar	[zmj]aolar
110. cartuccia	– cc –	cartucia	patrona
111. cavallo	– llo	cavalo	cavalo

112. terzo – terzi	– rzo; – rzi	ter[s]o – ter[s]i	ter[ts]o – ter[ts]i
113. ingordo – ingordi	– rdo; – rdi	ingordo – ingordi	(i)ngordo – (i)ngordi
114. fondo – fondi	– ndo; – ndi	fondo - fondi	fondo - fondi
115. mare	– re	mar	mar
116. destro	– tro	destro	destro
117. convulsione	– one	convulsion	convulsion
118. nuovo – nuovi	nuovo – nuovi	novo – novi	novo – novi
119. azza – mazze	– zza; – zze	ma[s]a – ma[s]e	ma[s]a – ma[s]e
120. grande – grandi	– nde; – ndi	grande – grandi	grande – grandi
121. romanzo – romanzi	– nzo; – nzi	roman[z]o – roman[z]i	roman[s]o – roman[s]i
122. granoturco – granoturchi	– rco; – rchi	sorgo – sorghi	sorgo – sorghi
123. collo	– llo	colo	colo
124. fresco	– sco	fresco	fresco
125. corpo	– rpo	corpo	corpo
126. cattivo – cattivi	– tt ivo; – ttivi	cativo – cativi	cativo – cativi
127. osso	– sso	oso	oso
128. falce	– lce	fal[s]e	fal[s]e
129. folto	– lto	folto	folto
130. pulito – puliti	– ito; – iti	neto – neti	neto – neti
131. lungo – lunghi	– ngo; – nghi	lungo – lunghi	longo – longhi
132. arco	– rco	arco	arco
133. morso	– rso	morso	morsegon
134. olmo	– lmo	olmo	olmo
135. brusco	– sco	brusco	brusco
136. gobbo – gobbi	– bbo; – bbi	gobo – gobi	gobo – gobi
137. antipasto	– sto	antipasto	antipasto
138. svelto	– lto	svelto	svelto
139. campo	– mpo	campo	campo
140. bronzo – bronzi	– nzo; – nzi	bron[z]o – bron[z]i	bron[z]o – bron[z]i
141. cinque	[ʧ]-	[s]inque	[s]inque
142. avanzo – avanzi	– nzo; – nzi	avan[s]o – avan[s]i	avan[s]o – avan[s]i
143. sordo – sordi	– rdo; – rdi	sordo – sordi	sordo – sordi
144. forno	– rno	forno	forno
145. marzo	– rzo	mar[s]o	mar[s]o
146. falso	– lso	falso	falso
147. colmo	– lmo	colmo	colmo
148. barca	– rca	barca	barca
149. inferno	– rno	inferno	inferno
150. discorso	– rso	discorso	discorso

151. fermo	– rmo	fermo	fermo
152. antiporta	– rta	antiporta	coridor
153. corvo – corvi	– rvo; – rvi	corvo – corvi	corvo – corvi
154. orso	– rso	orso	orso
155. corno	– rno	corno	corno
156. nervo – nervi	– rvo; – rvi	nervo – nervi	nervo – nervi
157. banca	– nca	banca	banca
158. verme	– rme	verme	verme
159. largo – larghi	– rgo; – rghi	largo – larghi	largo – larghi
160. aperto	aperto	verto	verto
161. sangue	– ngue	sangue	sangue
162. morte	– rte	morte	morte
163. diverso	– rso	diverso	diferente
164. sforzo – sforzi	– rzo; – rzi	sfor[s]o – sfor[s]i	sfor[s]o – sfor[s]i
165. volpe	– lpe	volpe	volpe
166. balzo – balzi	– lzo; – lzi	bal[s]o - bal[s]i	salto – salti
167. armaiolo	– olo	armaiolo	---
168. calce	calce	cal[s]e	cal[s]ina
169. parte	– rte	parte	parte
170. scarso	– rso	scarso	scarso
171. colpo	– lpo	colpo	colpo
172. risvolto	– lto	risvolto	piega
173. topo – topi	topo – topi	sor[z]e – sor[z]i	sor[z]e – sor[z]i
174. palco	– lco	palco	palco
175. tempia	– mpia	tempia	tempia
176. solco	– lco	solco	sol[s]e

6. Questionnaire for Lombardo-Trentino (Mori, Bleggio, Tret)

Abbreviations for the various dialects: M (Mori), B (Bleggio), T (Tret)

Word	Tested sequence(s)	Expected realization(s)	Actual realization(s)
1. lago - laghi	-go; -ghi	la[k]- laghi	la[k] – laghi (all varieties)
2. confronto, paragone	-ne	paragon	paragon (M, B)
3. tempo	-mpo	tempo	te[ɱp] (M, T); tempo (B)
4. cespuglio	---	cespuglio	cespuglio (M, B)
5. paternale	-ale	paternale	paternale (M, B)
6. mela	---	pom	pom (all varieties)
7. tanfo	-nfo	tanfo	udor (M); tanfo (B); spu[ts]a (T)
8. contro	-tro	contro	contro (M); contra (B, T)
9. cieco – ciechi	---	orbo – orbi	orbo – orbi (all varieties)
10. rugoso	–oso	rugo[s]	rugoso (M); rugo[s] (B); fi[ts]a (T)
11. gonna	---	gona	gona (M, B); vesta (T)
12. Mezzocorona	– zz –	Me[dz]ocorona	Me[dz]ocorona (all varieties)
13. freddo – freddi	–ddo; –ddi	fre[t] – fredi	fre[t] – fredi (all varieties)
14. di nascosto	---	de scondon	scondù (M); de scondon (B); de scondion (T)
15. strutto	–tt–	struto	struto (M, B); [zm]au[ts] (T)
16. aspro	---	agro	agro (M); asper (B); a[j]er (T)
17. abbonamento	–bb–	aboname[nt]	aboname[nt] (M); abonamento (B)
18. andare	---	nar	nar (all varieties)
19. ramarro – ramarri	–rr–	ramaro – ramari	bi[z]ergola – bi[z]ergole(M); ramarro – ramarri (B); lu[z]er (T)
20. manganello	–llo	manganel	manganel (M, B)
21. fiocco	–cco	fioco	fioco (M, T); fio[k] (B)
22. basilisco	–sco	basili[sk]	basilisco (M)
23. cerchio	---	[s]er[ʧ]o	[s]er[ʧ]o (M);

			cerchio (B); [ts]er[kj]el (T)
24. frittata con latte e farina	–tt–	fritata	fritata (M, T); fortaia (B)
25. viso – visi	– so; – si	fa[ʧ]a – fa[ʧ]e	fa[ʧ]a – fa[ʧ]e (M); vi[s] – vi[z]i (B); fa[ts]a – fa[ts]e (T)
26. pizzicare	– zz – ; – c –	pi[s]i[g]ar	[sp]i[s]egar (M); pi[ts]icar (B); pi[ts]ejar (T)
27. caldo – caldi	– ldo; – ldi	ca[lt] – caldi	ca[lt] – caldi (M, B); kau[t] – kaudi (T)
28. vento	– nto	ve[nt]	ve[nt] (all varieties)
29. scaraventare	– re	scaraventar	[sk]aventar (M, B); petar (T)
30. mano	– no	man	man (all varieties)
31. trapano	trapano	trapano	trapano (M); trapen (B); trapano (T)
32. buontempone – buontemponi	buon –; – one	bontempon – bontemponi	perditempo (M); bontempon – bontemponi (B); bonte[ɱp] (T)
33. manzo – manzi	– zo; – zi	man[ts] – man[dz]i	man[ts]o – man[dz]i (all varieties)
34. maiale	---		por[ts]el (M); por[ʧ]el (B); por[k]et (T)
35. fungo – funghi	– ngo; – nghi	fo[ŋk] – fonghi	fo[ŋk] – fonghi (M, B)
36. sbottonare	– tt – ; – are	sbotonar	[zb]otonare (M); [zb]otonar (B, T)
37. sottogamba, alla leggera	– tt –	sotogamba	sotogamba (M, B); sotajamba (T)
38. muro	– ro	mur	mur (all varieties)
39. proiettile a razzo	– tt – ; – zz –	proietile a ra[dz]o	proietile a ra[dz]o (M)
40. basto	– sto	ba[st]	ba[st] (M); basto (B, T)
41. sporco	– rco	spo[rk]	spo[rk] (all varieties)
42. per Bacco!	– cco	per Baco!	per Baco! (M, T)
43. fronte	– nte	fro[nt]	fronte (M); fro[nt] (B, T)
44. antro	– tro	antro	bu[s] (M); antro (B); grota (T)
45. contusione	– one	contu[z]ion	mal (M); contu[zj]on (B); paca (T)
46. accudire neonati	– cc – ; – ire	acudir	far da mamana (M);

			badar (B, T)
47. cane	– ne	can	can (all varieties)
48. poco	– co	po[k]	po[k] (M; B); [pw]ek (T)
49. zabaione	z – ; – one	[dz]abaion	[dz]abaion (M, B); [w]eu [zb]atù (T)
50. mangione, scroccone	– cc – ; – one	scrocon	[skr]ocar (M); [skr]ocon (B, T)
51. sporcaccione	– cc – ; – one	sporcacion	sporcacion (M, B); [bl]odek (T)
52. uomo	uomo	om	om (all varieties)
53. assenzio	– ss –; – [ts]io	asen[ts]io	asen[ts]io (M, B)
54. pentolone – pentoloni	– one; – oni	pentolon – pentoloni	parol – paroli (M); pentolon – pentoloni (B); padela (T)
55. dentro	– tro	rento	rento (M); denter (B); e[nt] (T)
56. stravolto	– lto	stravo[lt]	stravolto (M); stravo[lt] (B)
57. dolce – dolci	– lce; – lci	dol[ts] – dol[ts]i	dol[ts] – dol[ts]i (M, B); dou[ts] – dou[ts]i (T)
58. gettare	– tt – ; – are	butar	butar (all varieties)
59. scricciolo	– cc –	scriciolo	scriciolo (M, B)
60. vino	– no	vin	vin (all varieties)
61. acquisto	---	comprar	comprar (M); crompar (T)
62. raddrizzare	– dd – ; – zzare		ndri[ts]ar (M, T); radri[ts]ar (B)
63. forte	– rte	fo[rt]	forte (M); fo[rt] (B, T)
64. miagolio	miagolio	[zɲ]aloio	[mj]agolio (M, B); [zɲ]aolar (T)
65. frumento	– nto	frume[nt]	forme[nt] (M, T); frume[nt] (B)
66. verde – verdi	– rde; – rdi	ve[rt]– verdi	ve[rt] – verdi (all varieties)
67. zuccone	zuccone	[ts]ucon	[dz]ucone (M); [ts]ucon (B, T)
68. secco	– cco	se[k]	se[k] (all varieties)
69. gonfio	gonfio	go[ɱf]	gonfio (M); [zg]onfel (T)
70. bianco	– nco	bia[ŋk]	bia[ŋk] (M); [bl]a[ŋk] (T)
71. pulire il bestiame	---	netar	netar (M, B); governar (T)
72. uovo – uova	uovo – uova	o[f] – ovi	o[f] – ovi (M, B);

			[w]eu – [w]evi (T)
73. sudicione	---	spo[rk]	spo[rk] (M, B); [bl]odek (T)
74. contento	– nto	conte[nt]	conte[nt] (all varieties)
75. bocca grande, spalancata	– cca	boca grande, spalanca'	boca grande, spalanca'(M, B); gran boca spalancada (T)
76. gatto	– tto	ga[t]	ga[t] (all varieties)
77. mezzogiorno	– zz –	me[dz]ogiorno	me[dz]odì (M); me[dz]dì (B, T)
78. aborto	– rto	abo[rt]	aborto (M, T); abo[rt] (B)
79. letto da tenda	– tto	le[t] da tenda	le[t] da tenda (M, B); [br]anda (T)
80. pieno	pieno	pien	pien (M, B); [pl]en (T)
81. bighellone	--llone	bighelon	fa gne[nt] (M); bighelon (B)
82. astro	– tro	astro	astro (M, B); stela (T)
83. geloso – gelosi	– oso; – osi	gelo[s] - gelo[z]i	gelo[s] - gelo[z]i (all varieties)
84. raccolto	raccolto	raco[lt]	racolto (M, B); raco[lt] (T)
85. dove	---	dove	ndove (M); endoe (B); ndo (T)
86. dente	– nte	de[nt]	de[nt] (all varieties)
87. blocco	– cco	blo[k]	bloco (M); blo[k] (B, T)
88. orzo – orzi	– zo; – zi	or[ts] – or[dz]i	or[ts] – or[z]i (all varieties)
89. giallo	giallo	[dz]al	[dz]alt (all varieties)
90. scalzo – scalzi	– zo; – zi	desca[lts] – descal[ts]i	desca[lts] – descal[ts]i (M) sca[lts] – scal[ts]i (B); descou[ts] – descou[ts] i (T)
91. gonfiare	gonfiare	gonfiar	[zʤ]onfar (M); gonfiar (B); gon[fl]ar (T)
92. sottosopra	– tt –	sotosora	sotosora (M, B); par aria (T)
93. pernice bianca	bianca	bianca	pernis bianca (M)
94. bosco	– sco	bo[sk]	bo[sk] (all varieties)
95. al verde	verde	al ve[rt]	al ve[rt] (all varieties)
96. attorno	– tt –	into[rn]	ntorno (M); entorno (B); ntorna (T)
97. vespro	– pro	vespro	vespro (all varieties)

98. epilessia	– ss –	epilesia	epilesia (M, B)
99. neve – nevi	– ve; – vi	ne[f] – nevi	ne[f] – nevi (M, B); neu – neu (T)
100. millepiedi	– ll –	milepiedi	milepei (M); milepiedi (B, T)
101. vinello	– llo	vinel	vinel (all varieties)
102. agosto	– sto	ago[st]	ago[st] (all varieties)
103. varietà di piantaggine	– gg –	varietà de piantagine	---
104. leggero	– gg –	le[dz]er	li[dz]er (M); le[ʤ]er (B); le[dzj]er (T)
105. gente	gente	[dz]e[nt]	[ʤ]e[nt] (M, B); [dz]ent (T)
106. vendere	– ere	vender	vender (all varieties)
107. marcio	– cio	ma[rts]	mar[ts] (all varieties)
108. aspo	– spo	aspo	aspo (M, B)
109. miagolare	miagolare	miagolar	[zmj]agolar (M); [mj]agolar (B); [zɲ]aolar (T)
110. cartuccia	– cc –	cartucia	cartucia (all varieties)
111. cavallo	– llo	caval	caval (all varieties)
112. terzo – terzi	– rzo; – rzi	te[rts] – terzi	te[rts] – ter[ts]i (M, T); terzo – terzi (B)
113. ingordo – ingordi	– rdo; – rdi	ingo[rt] – ingordi	(i)ngordo – (i)ngordi (M, T)
114. fondo – fondi	– ndo; – ndi	fo[nt] - fondi	fo[nt] – fondi (all varieties)
115. mare	– re	mar	mar (all varieties)
116. destro	– tro	destro	[dr]it (M, T); destro (B)
117. convulsione	– one	convulsion	convulsion (M, B)
118. nuovo – nuovi	nuovo – nuovi	no[f] – novi	no[f] – novi (M, B); [nw]eu – [nw]evi (T)
119. azza – mazze	– zza; – zze	ma[ts]a – ma[ts]e	ma[s]a – ma[s]e (all varieties)
120. grande – grandi	– nde; – ndi	gra[nt] – grandi	gra[nt] – grandi (all varieties)
121. romanzo – romanzi	– nzo; – nzi	roma[nts] – roman[dz]i	roman[dz]o – romanzi (M, B); roma[nts] – roman[dz]i (T)
122. granoturco – granoturchi	– rco; – rchi	sorgo – sorghi	[dz]aldo – [dz]aldi (M); granoturco – granoturchi (B); granon (T)
123. collo	– llo	col	col (all varieties)
124. fresco	– sco	fre[sk]	fre[sk] (all varieties)
125. corpo	– rpo	co[rp]	corpo (M, T); co[rp] (B)
126. cattivo – cattivi	– tt ivo; – ttivi	cati[f] – cativi	cati[f] – cativi (M, B);

			catiu – cativi (T)
127. osso	– sso	os	os (all varieties)
128. falce	– lce	fa[lts]	falce (B); fau[ts] (T)
129. folto	– lto	fo[lt]	folto (B); fit (T)
130. pulito – puliti	– ito; – iti	ne[t] – neti	ne[t] – neti (B); neto – neti (T)
131. lungo – lunghi	– ngo; – nghi	lo[ŋk] – longhi	lo[ŋk] – longhi (all varieties)
132. arco	– rco	a[rk]	a[rk] (M); arco (B, T)
133. morso	– rso	mo[rs]	mordon (M); mo[rs] (B)
134. olmo	– lmo	o[lm]	olmo (M, B); o[lm] (T)
135. brusco	– sco	bru[sk]	brusco (M, B); bru[sk] (T)
136. gobbo – gobbi	– bbo; – bbi	go[p] – gobi	gobo – gobi (all varieties)
137. antipasto	– sto	antipa[st]	antipa[st] (M)
138. svelto	– lto	sve[lt]	svelto (M); sve[lt] (B, T)
139. campo	– mpo	ca[ɱp]	ca[ɱp] (all varieties)
140. bronzo – bronzi	– nzo; – nzi	bro[nts] – bron[dz]i	bro[nts] – bron[dz]i (all varieties)
141. cinque	[ʧ]-	[ts]inque	[ts]inque (M); [ts]ink (T)
142. avanzo – avanzi	– nzo; – nzi	ava[nts] – avan[ts]i	dava[nts] – davan[ts]i (M); ava[nts] – avan[ts]i (B); van[ts]a' (T)
143. sordo – sordi	– rdo; – rdi	so[rt] – sordi	so[rt] – sordi (M, B); sto[rn] – storni (T)
144. forno	– rno	fo[rn]	forno (M); fo[rn] (B, T)
145. marzo	– rzo	ma[rts]	ma[rts] (m, T); marzo (B)
146. falso	– lso	fa[ls]	fa[ls] (M, B); faus (T)
147. colmo	– lmo	co[lm]	colmo (all varieties)
148. barca	– rca	barca	barca (all varieties)
149. inferno	– rno	infe[rn]	inferno (M, B); infe[rn] (T)
150. discorso	– rso	disco[rs]	discorso (M); disco[rs] (B, T)
151. fermo	– rmo	fe[rm]	fermo (B); fe[rm] (T)
152. antiporta	– rta	antiporta	antiporta (M, B)
153. corvo – corvi	– rvo; – rvi	co[rf] – corvi	co[rf] – corvi (M, B)
154. orso	– rso	o[rs]	o[rs] (all varieties)

155. corno	– rno	co[rn]	corno (M); co[rn] (T)
156. nervo – nervi	– rvo; – rvi	ne[rf] – nervi	ne[rf] – nervi (B); nervo – nervi (M, T)
157. banca	– nca	banca	banca (all varieties)
158. verme	– rme	ve[rm]	verme (M); ve[rm] (B, T)
159. largo – larghi	– rgo; – rghi	la[rk] – larghi	la[rk] – larghi (all varieties)
160. aperto	aperto	ve[rt]	dave[rt] (all varieties)
161. sangue	– ngue	sa[ŋk]	sangue (M); sa[ŋk] (B, T)
162. morte	– rte	mo[rt]	morte (M); mo[rt] (B, T)
163. diverso	– rso	diverso	dive[rs] (M, B); diverso (T)
164. sforzo – sforzi	– rzo; – rzi	sfo[rts] – sforzi	sfo[rts] – sfor[ts]i (M, T); sforzo – sforzi (B)
165. volpe	– lpe	vo[lp]	vo[lp] (M, B); bo[lp] (T)
166. balzo – balzi	– lzo; – lzi	ba[lts] – balzi	[zb]a[lts] – [zb]alzi (M); balzo – balzi (B); saut (T)
167. armaiolo	– olo	armaiol	armaiol (M, B); armaiolo (T)
168. calce	calce	cal[s]e	calce (M, B); cau[ts] (T)
169. parte	– rte	pa[rt]	pa[rt] (all varieties)
170. scarso	– rso	sca[rs]	sca[rs] (all varieties)
171. colpo	– lpo	co[lp]	co[lp] (all varieties)
172. risvolto	– lto	risvo[lt]	risvolto (M, T); risvo[lt] (B)
173. topo – topi	topo – topi	so[rtz] – sorzi	so[rtz] – sorzi (M); topo – topi (B); sore[s] – sor[z]i (T)
174. palco	– lco	pa[lk]	palco (all varieties)
175. tempia	– mpia	tempia	tempia (all varieties)
176. solco	– lco	so[lk]	so[lk] (all varieties)

7. Questionnaire for Gardenese Ladin

Word	Tested sequence(s)	Expected realization(s)	Actual realization(s)
1. grosso – grossi	– sso; – ssi	gro[s] – gro[ʃ]	gro[s] – gro[ʃ]
2. muso – musi	– so; – si	mu[s] – mu[ʃ]	mu[s] – mu[ʃ]
3. geloso – gelosi	– oso; – osi	gelo[s] – gelo[ʃ]	gelou[s] – gelou[ʃ]
4. rugoso	– oso	runfle[s]	da runfle[s]
5. basso – bassi	– sso; – ssi	ba[s] – ba[ʃ]	ba[s] – ba[ʃ]
6. osso – ossi	– sso; – ssi	o[s] – o[ʃ]	o[s] – o[ʃ]
7. grigio – grigi	– gio; – gi	gri[s] – gri[ʃ]	gri[ʃ] – gri[ʒ]es
8. lupo – lupi	lupo – lupi	lo[f] – lo[fs]	lou[f] – lou[fs]
9. stufo – stufi	– fo; – fi	stu[f] – stu[fs]	[ʃt]u[f] – [ʃt]u[fs]
10. nuovo – nuovi	– vo; – vi	no[f]; no[fs]	[nw]e[f] – [nw]e[fs]
11. uovo – uova	– vo; – va	uo[f] – uo[fs]	[w]e[f] – [w]e[fs]
12. fermo – fermi	– rmo; – rmi	fe[rm] – fe[rms]	fe[rm] – fe[rms]
13. corno	– rno	co[rn]	co[rn]
14. verme	– rme	ve[rm]	je[rm]
15. spesso – spessi	– sso; – ssi	spe[s]	[ʃp]e[s] – [ʃp]e[ʃ]
16. verde – verdi	– rde; – rdi	ve[rt] – ver[rʧ]	ve[rt] – ver[rʧ]
17. volpe – volpi	– lpe; – lpi	vo[lp] – vo[lps]	vo[pl] – vo[lps]
18. sordo – sordi	– rdo; – rdi	so[rt] – so[rʧ]	sou[rt] – sou[rʧ]
19. parte – parti	– rte; – rti	pe[rt] – perte[s]	pe[rt] – perte[s]
20. corpo	– rpo	co[rp]	co[rp]
21. letame	– me	ledam	da ldam
22. cuoco – cuochi	– co; – chi	[kw]o[k] – [kw]o[ks]	[kw]o[k] – [kw]o[ks]
23. gatto	– tto	[ʤ]a[t]	[ʤ]a[t]
24. secco – secchi	– cco; – cchi	se[k] – se[ʧ]	se[k] – se[ʧ]
25. lago – laghi	– go; – ghi	le[k] – le[ks]	le[k] – le[ks]
26. freddo – freddi	– ddo; – ddi	fre[t] – fre[ʧ]	frei[t] – frei[ʧ]
27. caldo – caldi	– ldo; – ldi	ca[lt] – ca[lʧ]	[ʧ]au[t] – [ʧ]au[ʧ]
28. poco	– co	[pw]e[k]	[pw]e[k]
29. blocco	– cco	blo[k]	plo[k]
30. letto	– tto	le[t]	[lj]e[t]
31. vuoto	– to	[w]e[t]	[w]e[t]
32. agosto	– sto	ago[st]	ago[ʃt]
33. bosco – boschi	– sco; – schi	bo[ʃk] – bo[ʃ]	bo[ʃk] – bo[ʃ]
34. cesto	– sto	ce[st]	ce[st]
35. fresco – freschi	– sco; – schi	fre[sk] – fre[ʃ]	fre[ʃk] – fre[ʃ]

36. ruvido – ruvidi	– do; – di	gro[b]e – gro[v]es	gro[b]e – gro[v]es
37. miagolare	mia--	[mj]aulé	[mj]aulé
38. gonfio – gonfi	– fio; – fi	go[ɱf] – go[ɱfs]	go[ɱf] – go[ɱfs]
39. soffiare	– ffia –	su[f]é	su[fl]é
40. dente	– nte	de[nt]	de[nt]
41. bianco – bianchi	bianco; bianchi	[bl]a[ŋk] – [bl]a[nʧ]	[bl]a[ŋk] – [bl]a[nʧ]
42. pasta	pa[s]ta	pa[s]ta	pa[ʃ]ta
43. pulito	– to	---	mo[nt]
44. fungo – funghi	– go; – ghi	fo[ŋk] – fo[nʧ]	fo[ŋk] – fo[nʧ]
45. vento	– nto	ve[nt]	ve[nt]
46. cinque	[ʧ]-	[ʧ]i[ŋk]	[ʧ]i[ŋk]
47. gente	gente	[ʤ]e[nt]	[ʒ]e[nt]
48. grande – grandi	– nde; – ndi	gra[nt] – gra[nʧ]	gra[nt] – gra[nʧ]
49. fronte	– nte	fro[nt]	fro[nt]
50. confronto	– nto	confro[nt]	cunfro[nt]
51. abbonamento	– nto	aboname[nt]	abuname[nt]
52. contento – contenti	– nto; – nti	conte[nt] – conte[nʧ]	cunte[nt] – cunte[nʧ]
53. sotto	– tto	so[t]	so[t]
54. lungo – lunghi	– ngo; – nghi	lo[ŋk] – lo[nʧ]	lo[ŋk] – lo[nʧ]
55. campo	campo	[ʧ]a[ɱp]	[ʧ]a[ɱp]
56. sangue	– ngue	sa[ŋk]	sa[ŋk]
57. bronzo – bronzi	– nzo; – nzi	bro[nts] – bro[nts]	bro[nt] – bro[nt]
58. tanfo	– nfo	ta[ɱf]	pu[ts]
59. inverno	– rno	inv[rn]	nvie[rn]
60. colmo	– lmo	co[lm]	co[lmo]
61. inferno	– rno	infe[rn]	nfie[rn]
62. muro	– ro	mur	mur
63. maiale	– le	porcel	pur[ʧ]el
64. gettare	gettare	[zm]aché	[ʒm]aché
65. leggero	leggero	le[z]er	le]zj]er
66. vendere	– ere	vender	vender
67. cavallo	cavallo	[ʧ]aval	[ʧ]aval
68. mare	– re	mar	mer
69. collo	– llo	col	col
70. topo – topi	– po; – pi	suri[ʧ]a	suri[ʧ]a – suri[ʧ]es
71. manzo – manzi	– nzo; – nzi	ma[nts]	ma[nts]
72. orzo – orzi	– rzo; – rzi	o[rts]	orde
73. scalzo – scalzi	scalzo; scalzi	descou[ts]	deschcou[ts]
74. terzo – terzi	– rzo; – rzi	te[rts]	terzo – terzi
75. romanzo – romanzi	– nzo; – nzi	roma[nts]	roman – roma[ns]

76. braccio – braccia	– ccio; – ccia	bra[ʧ] – bra[ʧ]es	bra[ʧ] – bra[ʧ]es
77. gobbo – gobbi	– bbo; – bbi	gobo – gobi	go[p] – go[ps]
78. accecato – accecati			asvie[rʧ] – asvie[rʧ]es
79. rotto – rotti	– tto; – tti	ro[t] – ro[ʧ]	ro[t] – ro[ʧ]
80. fatto – fatti	– tto; – tti	fa[t] – fa[ʧ]	fa[t] – fa[t]
81. dritto	– tto	dre[t]	dre[t] – dre[ʧ]
82. stanco – stanchi	– nco; – nchi	sta[ŋk] – sta[ŋks]	[ʃt]a[ŋk] – [ʃt]a[ŋks]
83. nodo – nodi	– do; – di	gro[p]	gro[p] – gro[ps]
84. fuoco – fuochi	– co; – chi	fue[k] – fue[ks]	[fw]e[k] – [fw]e[ks]
85. giogo – gioghi	– go; – ghi		[ʒw]e[k] – [ʒw]e[ks]
86. fiocco – fiocchi	– cco; – cchi	[fl]o[k]; [fl]o[ks]	[fl]o[k]; [fl]o[ks]
87. chiave – chiavi	– ve; – vi	[kl]e	[tl]e – [tl]eves
88. neve	– ve	ne[f]	nei[f]
89. violento - violenti	– nto; – nti		[rj]et – [rj]ei
90. corvo – corvi	– rvo; – rvi	co[rf] – corves	co[rf] – corves
91. nervo – nervi	– rvo; – rvi	ne[rf] – ne[rfs]	[nj]e[rf] – [nj]erves
92. autunno	– nno	autun	auton
93. stagione – stagioni	– one; – oni	stajon – stajo[ns]	sa[ʒ]on – sa[ʒ]o[ns]
94. mano	– no	man	man
95. cane	– ne	can	[ʧ]an
96. forte – forti	– rte; – rti	fo[rt] – fo[rʧ]	[ʃt]er[k] – [ʃt]er[ʃ]
97. aborto	– rto	abo[rt]	abo[rt]
98. arco	– rco	a[rk]	archet
99. svelto	– lto	sve[lt]	asve[lt]
100. vino	– no	vin	vin
101. gallo	– llo	gal	giel
102. giallo	– llo	[ʤ]al	[ʤ]al
103. sole	– le	sol	suredl
104. stella	– lla	stela	[ʃt]eila
105. dritto	– tto	drit	dreta
106. contro	– tro	contro	contra
107. raddrizzare	– re	indri[ts]é	ndre[ts]é
108. largo – larghi	– rgo; – rghi	la[rk] – la[rks]	le[rk] – ler[ʤ]es
109. aperto	aperto	ve[rt]	davie[rt]
110. colpo	– lpo	co[lp]	co[lp]
111. palco	– lco	pa[lk]	pa[lk]
112. solco	– lco	so[lk]	so[lk]
113. morso	– rso	mo[rs]	mo[rs]
114. falce	– lce	fa[ls]	fau[ts]
115. marzo	– rzo	ma[rts]	me[rts]

116. sforzo – sforzi	– rzo; – rzi	sfo[rts] – sforzi	[ʃf]o[rts] – [ʃf]o[rʧ]
117. salto – salti	– lto; – lti	sa[lt] – sa[lʧ]	sau[t] – sau[ʧ]
118. dolce – dolci	– lce; – lci	do[lts] – dol[lts]	dou[ʧ] – dou[ʧs]
119. falso – falsi	– lso; – lsi	fa[ls]	fau[ʧ] – fau[ʧs]
120. ghiaccio	---	[gl]acin	[dl]acin
121. ago – aghi	---	---	o[dl]a – o[dl]es