

# Velar fronting in German dialects

A study in synchronic and diachronic  
phonology

Tracy Alan Hall

Open Germanic Linguistics



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## 12 Targets, triggers, and rule generalization

### 12.1 Introduction

Rule generalization (§2.4.1) postulates that change begins with a highly restricted trigger and/or target in which phonetic conditions are particularly favorable and then progressively spreads through time and space to include more general triggers and/or targets. Recall how that model was applied in §11.8.1 to German dialects with an expanded set of velar fronting target segments (noncontinuants) which developed out of a narrower set (fricatives).

In this chapter I apply the model of rule generalization to a larger selection of German dialects. It is argued that velar fronting in both postsonorant and word-initial position was originally induced by a narrow set of front segments and that the target segment was likewise restricted to a single velar (fortis) fricative. Later stages expanded the set of triggers to include more and more front sounds, while the set of targets analogously increased to include the lenis velar and then finally velar noncontinuants. The spread from a narrow set of triggers/targets to a larger one occurred both spatially and temporally. Rule generalization is depicted abstractly in Figure 2.1.

In order to successfully implement the rule generalization model it is necessary to provide an in-depth discussion of attested triggers and targets for velar fronting in word-initial and postsonorant position for a selection of varieties of German dialects. In principle, those varieties should be well-distributed geographically and should also represent all of the subdivisions of German dialects (Appendix A). To achieve that end I consider over two hundred fifty varieties of German that meet those criteria. That number includes most of the varieties discussed in the preceding chapters, as well as many others.

It is not feasible to provide detailed case studies for all of the works cited below. The discussion in the present chapter is therefore necessarily superficial, although care has been taken to classify those varieties in terms of targets and triggers that is consistent with the way in which those dialects are described in the original sources.

## *12 Targets, triggers, and rule generalization*

Since the focus below is on the set of targets and the set of triggers I do not discuss other aspects of velar fronting investigated in previous chapters. Hence, velar fronting may be allophonic in some dialects (Chapters 3–4), while in others there may be palatal quasi-phonemes (Chapter 7) or phonemic palatals (Chapters 8–10). It is also conceivable that velar fronting is counterfeited by another process in the synchronic phonology (Chapter 5).

In §12.2 I introduce a methodology that enables all dialects to be classified into a small number of trigger types and target types and in §12.3 I present a survey of triggers/targets for velar fronting in German dialects (Appendix A) based on that methodology. §12.4 considers the areal distribution of triggers and targets, and §12.5 matches the trigger/target types with a series of incremental historical stages. In doing so, I demonstrate that there are certain regions where the postulated stages are represented by dialects described in the latter nineteenth century. §12.6 discusses a small number of German dialects that require very rare requirements governing triggers. §12.7 investigates how the present treatment sheds light on the typological literature on velar palatalization. In §12.8 I discuss three additional properties of velar fronting: the adjacency of its triggers and targets (§12.8.1), its domain (§12.8.2), and the status of irregularities (§12.8.3). §12.9 considers the ways in which velars like /x/ are realized in the phonetics if they do not undergo velar fronting. A brief conclusion is provided in §12.10.

## **12.2 Preliminary discussion**

### **12.2.1 Velar fronting triggers**

The preceding chapters have demonstrated that the set of triggers for velar fronting differ minimally from dialect to dialect. The way in which those triggers can vary is reflected in the different versions for those fronting processes, expressed featurally (Appendix D). The data presented in Chapter 3–Chapter 11 reveal that there are five triggers for velar fronting which account for virtually all of the dialects discussed.<sup>1</sup> Those triggers are presented in (1). In the notation adopted here and below, HFV=high front vowels, MHV=mid front vowels, LFV=low front vowels, and CC=coronal sonorant consonants.

- (1) Five attested triggers for velar fronting:

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<sup>1</sup>The set of triggers for Kreis Rummelsburg (front tense vowels) from §11.5 is omitted from the present discussion because it does not involve the height dimension. That unique example is discussed in §12.6.2 in the context of other rare dialects with nonheight features defining the triggers for velar fronting.

## 12.2 Preliminary discussion

$$\begin{array}{lllll}
 \text{a. } \left\{ \text{HFV} \right\} & \text{b. } \left\{ \begin{matrix} \text{HFV} \\ \text{MFV} \end{matrix} \right\} & \text{c. } \left\{ \begin{matrix} \text{HFV} \\ \text{MFV} \\ \text{CC} \end{matrix} \right\} & \text{d. } \left\{ \begin{matrix} \text{HFV} \\ \text{MFV} \\ \text{LFV} \end{matrix} \right\} & \text{e. } \left\{ \begin{matrix} \text{HFV} \\ \text{MFV} \\ \text{LFV} \\ \text{CC} \end{matrix} \right\}
 \end{array}$$

Table 12.1 refines the way in which the triggers in (1) are to be interpreted. In the first column I indicate with letters the names of the Trigger Types, which are defined in the second and third columns.

Table 12.1: Definition of Trigger Types

Type	Trigger	Presence in fronting context	
		Present	Not present
A	HFV	MFV, LFV, CC	
B	HFV, MFV	LFV, CC	
C	HFV, MFV, CC	LFV	
D	HFV, MFV, LFV	CC	
E	HFV, MFV, LFV, CC		
AA	HFV, MFV	LFV	CC
BB	HFV, MFV	CC	LFV
CC	HFV, MFV, CC		LFV
DD	HFV, MFV, LFV		CC
EE	HFV, MFV		LFV, CC

For Trigger Type A, the sole set of segments inducing fronting are high front vowels (HFV), but other front segments do not serve as triggers. In order to determine whether or not Trigger Type A is the correct one, it is therefore crucial that front segments other than high front vowels ( $\{\text{MFV}, \text{LFV}, \text{CC}\}$ ) occur in the context of the velar that undergoes fronting. Trigger Type B holds if fronting is induced by  $\{\text{HFV}, \text{MFV}\}$  but not by  $\{\text{LFV}, \text{CC}\}$ , Trigger Type C if the context for fronting is  $\{\text{HFV}, \text{MFV}, \text{CC}\}$  but not  $\{\text{LFV}\}$ , and Trigger Type D if fronting is induced by  $\{\text{HFV}, \text{MFV}, \text{LFV}\}$  but not by  $\{\text{CC}\}$ . If the context for fronting is the entire set of front segments then Trigger Type E holds.

In many dialects the set of triggers involves gaps. The attested patterns with certain front segments absent in the context of velar fronting are illustrated in the last five rows in Table 12.1, where the gaps in question are indicated with the segment type listed in the final column. If a segment type is listed in the third column this means that either: (a) that segment type is entirely absent in the

## 12 Targets, triggers, and rule generalization

dialect, (b) that segment type is present in the dialect but not in the context for fronting, or (c) that it cannot be determined on the basis of the original source whether or not that segment type induces fronting.

Consider Trigger Type BB as an example: A target segment (e.g. /x/) undergoes fronting in the context of {HFV, MFV}; since {CC} is present in the context for fronting it can be safely concluded that {CC} is not included in the set of triggers. By contrast, {LFV} does not occur in the context for velar fronting. Because of that gap it cannot be known with certainty whether or not {LFV} is a trigger.

A few remarks are in order concerning the three Trigger Types where {CC} is not present in the fronting context (AA, DD, EE). In several varieties discussed earlier (e.g. Sörth; §5.4) schwa intervenes between a coronal consonant and the fronted velar (e.g. [rəç] from /rx/), but a sequence of coronal consonant plus dorsal fricative is not attested without schwa (e.g. [rç]). Recall from §5.4 that processes of schwa epenthesis and schwa fronting are active in such systems, e.g. /kərx/ → |kərəx| → |kərəχ| → [kərəç]; cf. MoStGm *Kirche* ‘church’. Likewise some dialects (Chapter 6 and Chapter 11) were shown to require that coalescence feeds velar fronting, e.g. /milx/ → |milx| → [milç]; cf. MoStGm *Milch* ‘milk’. In the present chapter I only consider {CC} to be a trigger for velar fronting if that consonant and the velar are adjacent; this assumption means that dialects in which schwa epenthesis and schwa fronting or coalescence are active are classified as one of the three Trigger Types where {CC} is absent from the fronting context (AA, DD, EE). See §12.8.1 for a synopsis of German dialects where a sound intervenes between the target and trigger.

The Trigger Types listed in Table 12.1 all treat coronal sonorant consonants ({CC}) uniformly. Put differently, if /r/ is a trigger for velar fronting, then /l/ and /n/ will be as well. This assumption is confirmed in the case studies discussed throughout this book, although it is conceivable that there are systems in which the consonants described by {CC} should be treated individually.

The conclusions concerning Table 12.1 are important because they either support or refute claims made in the literature on velar fronting in German or in the cross-linguistic literature on velar palatalization (§2.3). Three patterns and the corresponding Trigger Types are listed in (2):

- (2)
  - a. Trigger Types indicating that {MFV, LFV} does not induce fronting: A
  - b. Trigger Types indicating that {LFV} does not induce fronting: A, B, C, AA
  - c. Trigger Types indicating that {CC} does not induce fronting: A, B, D, BB

## 12.2 Preliminary discussion

I discuss the relevance of (2) for my analysis of rule generalization in German dialects in §12.4 and for typology in §12.7.

### 12.2.2 Velar fronting targets

In the velar fronting varieties discussed in Chapter 3–Chapter 10 the targets are restricted to one or both of the velar fricatives listed in (3a). In Chapter 11 it was demonstrated that a number of places with velar fronting select their targets from the expanded list of velar consonants listed in (3b).<sup>2</sup>

(3) Targets for velar fronting:

- a. /x/, /χ/
- b. /x/, /χ/, /k/, /g/, /ŋ/

The segments in (3) can either be underlying velars or velars created from other synchronic rules. For example, the latter situation obtains in dialects for a target fortis velar fricative, which can be either underlying /x/ or |x| derived from /χ/ by Final Fortition.

Table 12.2 defines the way in which the targets in (3) are to be interpreted. In the first column I indicate with letter names of the Target Types, which are defined below. /g/ is enclosed in parentheses in the first four Target Types because that sound is absent in many dialects.

Table 12.2: Definition of Target Types

Type	Target	Presence in fronting context	
		Present	Not present
L	/x/	/χ k (g) ŋ/	
M	/x χ/	/k (g) ŋ/	
LL	/x/	/k (g) ŋ/	/χ/
MM	/χ/	/k (g) ŋ/	/x/
Type	Target drawn from		
N	/x χ k g ŋ/		

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<sup>2</sup>I do not consider the affricate /kx/, which serves as a target segment in various UGm dialects, because that sound behaves the same way as the corresponding fricative /x/.

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Target Types L and M are well-attested in the data presented earlier: They have in common that only fricatives serve as triggers. For Target Type L, the sole fricative undergoing fronting is /χ/, but for Target Type M both /χ/ and /γ/ serve as targets for that change.

Table 12.2 lists two Target Types with potential targets absent from the velar fronting environment, namely Target Type LL and Target Type MM. That type of system holds if only one of the two dorsal fricatives is present in the fronting context but not the other. The segments listed in the final column mean either: (a) that the segment type (/χ/ or /γ/) is absent entirely in the dialect, (b) that the segment type (/χ/ or /γ/) is present in the dialect but not in the context for fronting, or (c) that it cannot be determined on the basis of the original source whether or not the segment in question (/χ/ or /γ/) is present as a target.

The final row in Table 12.2 accounts for many of the dialects discussed in Chapter 11 with the expanded set of target segments listed in (3b). Target Type N clearly obtains if all velar consonants listed in (3b) undergo velar fronting. However, Target Type N also holds if only a subset of the velar consonants serve as targets. For example, several dialects were discussed in Chapter 11 in which the set of sounds undergoing velar fronting in word-initial position consist of /γ k/, but other velar sounds (e.g. /χ ŋ/) do not occur in that context. Target Type N also obtains if the set of undergoers includes only /k g/, but other velars do not occur in that context.<sup>3</sup>

The classification in Table 12.2 makes it possible to reach conclusions concerning the types of sounds that can or cannot undergo velar fronting. Two patterns and the corresponding Target Types are listed in (4):

- (4) a. Target Types indicating that /γ/ does not undergo fronting: L
- b. Target Types indicating that /k (g) ŋ/ do not undergo fronting: L, M, LL, MM

The significance of (4) for my analysis of rule generalization in German dialects is discussed in §12.4.

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<sup>3</sup>Target Type N is admittedly a grab bag category because it does not differentiate the individual manner types among the sounds in (3b). The drawback with Target Type N is that dialects classified as such cannot be properly interpreted without additional discussion. For example, if /γ k/ serve as targets (Target Type N), then one cannot know for sure whether or not both /χ/ and /ŋ/ also undergo fronting. It is demonstrated below that this type of information is important in able to draw conclusions regarding velar fronting from the typological perspective (§12.7). A similar point holds for the way in which triggers and targets spread in terms of time and space (§12.5).

### *12.3 Survey of triggers and targets for velar fronting in German dialects*

It is assumed above that the set of triggers are the same for any two target segments. This generalization is correct for most of the varieties investigated in previous chapters, although there are some systems attested in which one target segment (e.g. /x/) has a different set of triggers than for another target segments (e.g. /y/). One example discussed in this chapter is the RFr variety spoken in Beerfelden (§12.7.1). In §12.3 I focus on those varieties of German where the triggers are the same for all target segments. Some discussion of varieties of German in which the triggers for /x/ are not the same as the triggers for /y/ can be found in Chapter 14.

## 12.3 Survey of triggers and targets for velar fronting in German dialects

In the following paragraphs I classify a representative selection of HGm and LGm varieties in terms of the Target Types and Trigger Types defined in §12.2. The discussion is organized into subsections corresponding to the major dialects presented in Appendix C. All of the places cited in this section can be found on the respective locator maps (Map 3.1-Map 7.2 and Map 11.1-Map 11.2).

### 12.3.1 High and Highest Alemannic

In H(st)Almc there is a single dorsal fricative (/x/), which can occur as a geminate (/xx/); some varieties also possess the corresponding affricate (/kx/). Those velars are realized consistently as velar (e.g. [x]) in the overwhelming majority of H(st)Almc varieties; recall, for example, Glarus (Streiff 1915; §3.3). Additional H(st)Almc varieties of Switzerland in which [x]/[kx] are described as velar include Kerenzen (Winteler 1876: 17), Urserental in the canton of Uri (Abegg 1910: 9), Kesswil in the canton of Thurgau (Enderlin 1910: 8), St. Gallen (Hausknecht 1911: 16), Entlebuch in the canton of Lucern (Schmid 1915: 14, 17), Jaun in the canton of Freiburg (Stucki 1917: 21), the Berner Seeland (Baumgartner 1922: 11), the Zürcher Oberland (Weber 1923: 18), the Sensebezirk and the Southeast Seebezirk in the canton of Freiburg (Henzen 1927: 20), Unterschächental in the canton of Uri (Clauss 1929: 20), Schaffhausen (Wanner 1941: 8-9), Brienz in the canton of Bern (Schultz 1951: 37), and Zürich (Fleischer & Schmid 2006: 244). The same generalization holds for HAlmc varieties spoken in the German state of Baden-Württemberg. For example, Kaiser (1910: 9-10) writes that there is no palatal fricative in Todtmoos-Schwarzenbach and that [x] surfaces even after front vowels

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[“Ein palatales *ch*, das in der nhd. Gemeinsprache nach den hellen Vokalen eintritt, kennt die Mundart nicht, indem auch nach den hellen Vokalen stets gutturales *x* steht”]. Beck (1926: 56) similarly observes that [x] is velar in every context [“*x* ist in jeder Stellung velar”] in the Markgräflerland. A similar assessment is made for [x] in Jestetten by Keller (1963).

The varieties of H(st)Almc discussed in previous chapters (§3.3, §3.4, Chapter 6) with some version of velar fronting are therefore exceptions to the general pattern. In all of those places the target for that process is /x/ (and /kx/ if present). Variation among the velar fronting varieties of SwGm involves the sets of sounds comprising the triggers.

In Table 12.3, I list the four velar fronting dialects of SwGm discussed in previous chapters. In this and in all subsequent tables I give the corresponding Target Type and Trigger Type in the first two columns and the place where the dialect in question is/was spoken and the source in the third and fourth columns respectively. In the heading for each table I give the historical source for the target velar segment. For more detailed information concerning the location of the places listed in Table 12.3 and in all subsequent tables in §12.3 the reader is referred to Appendix C. As indicated in the heading below, the Trigger and Target Types hold for velar fronting in postsonorant position.

Table 12.3: Targets and triggers for (postsonorant) velar fronting in H(st)Almc (<W<sup>G</sup>mc <sup>+</sup>[k x])

Target	Trigger	Place	Source
LL	A	Visperterminen	Wipf (1910)
LL	B	Obersaxen	Brun (1918)
LL	C	Rheintal	Berger (1913)
LL	E	Maienfeld	Meinherz (1920)

It can be seen that all four SwGm varieties have the same Target Type. As indicated in the second column of Table 12.3, the differences among those four places is the Trigger Type: In Visperterminen the trigger is the set of high front vowels, in Obersaxen it is the high front vowels and the mid front vowels, in Rheintal it is the high front vowels, mid front vowels and coronal sonorant consonants, and in Maienfeld it is the set of all front vowels and coronal sonorant consonants.

Table 12.4 summarizes the targets and triggers for those SwGm dialects discussed earlier with word-initial velar fronting.

### 12.3 Survey of triggers and targets for velar fronting in German dialects

Table 12.4: Targets and triggers for (word-initial) velar fronting in H(st)Almc (<WGmc <sup>†</sup>[k])

Target	Trigger	Place	Source
LL	A	Visperterminen	Wipf (1910)
LL	B	Obersaxen	Brun (1918)
LL	C	Rheintal	Berger (1913)

Again, the three varieties listed here have the same Target Type, and they differ only in terms of the types of segments that trigger the fronting of a (word-initial) velar.

In Chapter 15 I discuss the Trigger Types from additional H(st)Almc velar fronting areas in Switzerland and Austria (Vorarlberg, West Tyrol). In that chapter I also consider data from the linguistic atlases from those regions (SDS, VALTS).

#### 12.3.2 Low Alemannic and Swabian

In the southwesternmost varieties of LAlmc, velars (/χ/) are realized as velars regardless of the nature of the adjacent sound. For example, in the LAlmc dialect spoken in Basel, Heusler (1888: 69) makes it clear that [χ] has no palatal variant [“Das χ ... ist in jeder Stellung velar, nie der ‘ich-Laut’”]. A similar statement can be found in descriptions of LAlmc dialects spoken in Germany (Baden-Württemberg) in and around Freiburg im Breisgau, e.g. Ehret (1911: 43) and Eckerle (1936: 50), and in Alsace (Elsass), e.g. Mankel (1886: 8) for Münsterthal and Henry (1900: 61) for Colmar. The reader is referred to Map 7 in Klausmann (1985a,b), which indicates the places in and around Freiburg im Breisgau where velar fronting is and is not active. In ALA a number of maps are given for words with [χ] and [ç] in Alsace. An examination of those maps indicates that Colmar (my Map 3.1) is the approximate boundary between velar fronting (to the north) and no velar fronting (to the south). A few places indicating the presence and absence of velar fronting from the maps in ALA are indicated on my Map 3.1. E.M. Hall (1991) investigates the LAlmc/Swb varieties in a broad area to the south of Villingen-Schwenningen. Map 22 in that source shows that velar fronting is active in places to the east and west of Villingen-Schwenningen, but not in the places to the south. Representative examples of two velar fronting places (Tuningen and Urach) and two non-velar fronting places (Titisee-Neustadt

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and Donaueschingen) are indicated on my Map 3.1.<sup>4</sup> The conclusions concerning the presence vs. absence of velar fronting in Southwest Germany are also consistent with the maps in SSA. For example, the map for words like *Sichel* ‘sickle’ in Volume 2 indicates a large region with [x] after a front vowel. That area extends to the south and west of Freiburg im Breisgau and to the south and southeast of Villingen-Schwenningen.

Another area characterized by the absence of velar fronting is the eastern part of the Swb dialect region. Consider first the assessment of Moser (1936: 8), who concerns himself with the dialect spoken in the Staudengebiet (southwest of Augsburg). Moser writes that the palatal articulation does not occur in the dialect, even in the neighborhood of front vowels. [“Die palatale Artikulation findet sich in unserer Mda. nicht, selbst nicht in der Nachbarschaft heller Vokale wie i, e ...”]. The same observation is made by König (1970: 46) for Graben, ca. 25 south of Augsburg.<sup>5</sup> In fact, the assessment of Moser and König concerning the realization of [x] holds for a much larger expanse. Ibrom (1971) investigates the broad region between Augsburg and Donauwörth and observes that the one dorsal fricative is realized consistently as [x] (p. 252-254). The maps in volume 7.2 of SBS provide similar data for the broad region between Augsburg and Ulm (see my Map 3.1).

As indicated on Map 3.1, the southeast part of the Swb dialect area both velar fronting as well as the absence of velar fronting are attested. For example, SBS Map 173 for *Sichel* ‘sickle’ indicates the realization [sixl] (= [sɪxl]) in Ebersbach (near Kaufbeuren). The maps in VALTS also reveal the absence of velar fronting in Wangen im Allgäu. By contrast, the SSA map for *Sichel* ‘sickle’ alluded to above indicates velar fronting for Niederwangen, and Bausinger & Ruoff (1959) show that velar fronting is attested for Beuren.

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<sup>4</sup>One of the first linguists to discuss the distribution of [x] and [ç] in terms of geography was Hermann Fischer in his *Geographie der schwäbischen Mundart* (AGSM), which appeared in 1895. In that work, Fischer observes (pp. 68-69) that the dorsal (‘guttural’) fricative is consistently realized as [x] after any type of vowel in SwGm but that north of the Alps (‘Nördlich der Alb’) the same fricative is articulated as velar after back vowels and palatal after front vowels. Fischer similarly observes (pp. 63-64) that postvocalic [g] is pronounced [ç]/[x] according to context (‘je nach der Lautumgebung’) in the north and northeast (of the Swb dialect region) and that [g] has the palatal articulation ([j]) after front vowels or [r] in the northwest (Rhinelander). The latter generalization is depicted on his Map 20. Fischer writes (p. 68) that one of the reasons he was unable to determine a clear isogloss separating velar fronting areas from non-velar fronting ones – to use my terminology – is that north of the Alps dorsal fricatives have more than two places of articulation (recall §1.5).

<sup>5</sup>König’s observation holds for the speech of the elderly. He adds that [x] is realized as palatal in unstressed syllables – presumably only after front segments – at faster rates of speech and by younger speakers.

### 12.3 Survey of triggers and targets for velar fronting in German dialects

The conservative (non-velar fronting) places described above should not detract from the predominant pattern for LAlmc/Swb, whereby velars like /x/ are realized as the corresponding palatals ([ç]) in the context after front sounds. Velar fronting is not attested in LAlmc/Swb in word-initial position. In all of the sources cited here the sole target for velar fronting fronting is /x/ (Target Type LL). Recall from earlier discussion that this means /x/ is the sole target for velar fronting because the corresponding lenis sound /y/ is absent. As a general rule, velar fronting applies after all coronal sonorants, although a few varieties are attested with a narrower set of triggers. In particular, some systems possess a low front vowel (/æ/); in one set of dialects that sound serves as a trigger for velar fronting, but in another set it does not.

I make a few brief comments below on some of the LAlmc/Swb varieties with uncommon triggers. Table 12.5 provides a summary of the Trigger Types and Target Types for the LAlmc/Swb sources I have consulted. A complex case of triggers varying within a small area is discussed after Table 12.5.

#### 12.3.2.1 Low Alemannic

Rheinbischofsheim has the full set of velar fronting triggers (Trigger Type E), e.g. [heçt] ‘pike’, [blæç] ‘tin’, [dmelç] ‘the milk’ vs. [na:xt] ‘night’. In Forbach and in a number of communities to the east of Freiburg im Breisgau (Glottental, Elztal, St. Peter, St. Märgen, Gütenbach) there are no low front vowels and epenthesis prohibits /x/ from occurring next to a consonant (=Trigger Type EE). Examples from Forbach include [liçt] ‘light’, [gne:çt] ‘vassal’ vs. [ho:x] ‘high’.

In Oberschopfheim the set of triggers for fronting consists solely of nonlow front vowels (Trigger Type AA), e.g. [heçt] ‘pike’ vs. [blæx] ‘tin’, [na:xt] ‘night’. For the areas in the Ortenaukreis investigated by Kilian (1935) the facts are essentially the same, e.g. [sɪçl] ‘sickle’, [de:çtər] ‘daughter’ vs. [dræ:xdər] ‘funnel’, [no:xt] ‘night’. Kilian notes that words like [dræ:xdər] are realized with [ç] in communities in which [æ:] corresponds to [ɛ:], i.e. [dre:çdər].

#### 12.3.2.2 Swabian

One variety with the broadest set of triggers (Trigger Type E) is Erdmannsweiler (§3.2), e.g. [fræç] ‘impudent’, [knæ:çt] ‘vassal’ [kalç] ‘lime’ vs. [laxə] ‘laugh-INF’. Freudenstadt is representative of Trigger Type CC, e.g. [ʃteçə] ‘sting’, [rɛ:çt] ‘right’, [milç] ‘milk’ vs. [k<sup>h</sup>oxə] ‘cook-INF’, and Memmingen of Trigger Type EE, e.g. [deçlə] ‘roof, dim’ vs. [naxt] ‘night’.<sup>6</sup>

<sup>6</sup>The phonetic transcriptions provided in the Swb dialect dictionary (SchwWb) point to Target Type L and Trigger Type CC.

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A narrow set of triggers (Target Type AA) is attested in Bavendorf (Schöller 1939: 49). Although he does not provide separate symbols for [ç] and [x], Schöller gives a clear statement concerning the distribution of those sounds. In particular, Schöller (1939: 49) writes that [ç] occurs after front vowels ([e, i, ö, ü ei]) and [x] after back vowels ([ɑ a o u]). The important point to observe in this passage is that [x] surfaces after [ɑ], which is Schöller's symbol for [ɛ] (p. 9). If [ɛ] is phonologically [+low] – the dialect has no phonetic [æ] – then the set of triggers for velar fronting consists of all nonlow front vowels (Trigger Type AA).

Haag (1898) describes a set of Swb dialects spoken in the vicinity of Villingen-Schwenningen. The following passage (Haag 1898: 82) is significant because it illustrates the way in which the distribution of [x] and [ç] can vary depending on both time and place (as well as religion). In the varieties discussed below, there is no phonetically low vowel (i.e. [æ]), but [ɛ] (/ɛ/) is assumed to be phonologically low and front. Due to the intricacies described below, I do not include it in Table 12.5.

*Ch* behält in allen Stellungen seine gutturale Artikulation mit Entschiedenheit nur noch im Südwesten: ex, rextə, riix, biixtə, ext, štexxə, migləx & ; nach l mit Gleitvokal ə: : miləx, khiləxə, khaləx & . Sonst geht es nach palatalen Vokalen in ç über: iç, riçtə, riiç, biiçtə, eçt, šteççə & . Nach Liquiden bleibt es guttural: šnarxlə, khalx, milx, khirxə, štrolx & ; mit Entschiedenheit freilich nur noch in der älteren Generation und im Osten; die jüngere, besonderes Protestanten, hat ç übernommen; Tuttlingen-Neuhausen, verschobene ç-Insel, auch noch: štaarç, štɔarç, mɛlçə & . In der Nordwestecke, hinter 25, ausschliesslich ç: šnarçlə, khalç, milç khirç, duic für durch & , Gleitvokal i leicht angedeutet. Von Westen her dringt die vordere Artikulation mehr und mehr ein. Dass diese auf dem Hauptgebiet neu ist, lehrt die Zwischenstufe zwischen x und ç, die, vor allem im Südosten, für letzteres gilt, und im Munde Aeltere immer wieder mit reinem x wechselt: ix, rixtə, rexxtə & , weshalb hier eine feste Grenzlegung schwierig ist; ferner im Osten Heuberg, Bära, Liart bis zum Albrand, wo fast reine gutturale Artikulation herrscht: gleix, feixt, reixbax. – Im Nordosten, in katholischen Gemeinden, bleibt Guttural nach ɛ: exxtə, rexxtə; protestantische eççtə, reççə. ‘ach-sound’

‘*Ch* retains its guttural articulation in all positions only in the Southwest: ex, rextə, riix, biixtə, ext, štexxə, migləx etc.; after *l* with its epenthetic vowel ə: miləx, khiləxə, khaləx etc. Otherwise it [ch] changes into ç after a front vowel: iç, riçtə, riiç, biiçtə, eçt, šteççə etc. After liquids it remains guttural: šnarxlə, khalx, milx, khirxə, štrolx etc; resolutely of course only in the older

*12.3 Survey of triggers and targets for velar fronting in German dialects*

Table 12.5: Targets and triggers for (postsonorant) velar fronting in LAlmc and Swb (<WGmc <sup>+</sup>[k x]).

Target	Trigger	Place	Source
LL	E	Reutlingen	Wagner (1889)
		Rheinbischofsheim	Weik (1913)
		Erdmannsweiler	Besch (1961)
LL	AA	Oberschopfheim	Schwend (1900)
		Ortenaukreis	Kilian (1935)
		Bavendorf	Schöller (1939)
LL	CC	Horb am Neckar	Kauffmann (1887)
		Münsingen	Bopp (1890)
		Oberweier	Wasmer (1915, 1916)
		Herrenberg	Zinser (1933)
		Freudenstadt Stuttgart	Baur (1967)
		Breisgau	Frey (1975)
		Tuningen, Urach	Klausmann (1985a,b)
			E.M. Hall (1991)
LL	EE	Forbach	Heilig (1897)
		Ries	Schmidt (1898)
		Pforzheim	Sexauer (1927)
		Freiburg im Breisgau	Eckerle (1936)
		Dreistammeseecke	Nübling (1938)
		Blaesheim	Philipp (1965)
		Memmingen	Hufnagl (1967)
		Kreis Balingen	Bethge & Bonnin (1969)
		Mulhouse	Bethge & Bonnin (1969)
			411
			Zeidler (1978)

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generation and in the East; the younger generation, especially Protestants, has adopted ç; Tuttlingen-Neuhausen, an advanced ç-island, also has: štaarç, štɔarç, melçə etc. In the Northwest corner [there is] exclusively ç: šnarçłə, khalç, milç khirç, duïç for durch etc., epenthetic vowel i implied. From the West the front articulation is occurring more and more. That this is new in the main area is indicated by the intermediate sound between x and ç which, above all in the Southwest, holds for the latter and alternates in the mouth of the elderly more and more with pure x: ix, rixtə, rexxtə & ; for this reason a clear boundary is difficult to determine; furthermore in the East Heuberg, Bära, Ilart up to Albrand, where a pure guttural articulation is still retained: gleix, feixt, reixbax. – In the Northeast, in catholic parishes, the guttural is retained after ε: exxtə, rexxtə; for Protestants: εççtə, reççə'.

On the basis of this passage it is possible to draw the following conclusions: (a) In the southwest there are speakers of conservative non-velar fronting (Stage 1) varieties; (b) there are many speakers (i.e. those belonging to the older generation and those in the east) who have both [ç] and [x]; [ç] occurs for those speakers after front vowels but not after liquids (Trigger Type D or BB); (c) other speakers (e.g. young Protestants) have [ç] and [x], but the former sound occurs after front vowels and liquids (Trigger Type E or CC), and (d) a distinction can be drawn between Protestants ([ε] is a trigger for velar fronting) and Catholics ([ε] is not a trigger).

### 12.3.3 Bavarian and East Franconian

The periphery of the Bav dialect continuum – in particular, SBav in North Tyrol (Austria) and South Tyrol (Italy) is characterized by the absence of velar fronting; thus, /x/ surfaces consistently as [x]. This point is clear from the many SBav non-velar fronting varieties indicated on Map 3.3. Within the SBav dialect area velar fronting is active in several places indicated on Map 3.3, including Graz (Moosmüller 1991) and in several isolated mountain valleys of Tyrol (e.g. Egger 1909). I discuss those velar fronting enclaves in greater detail in §15.10.

Non-velar fronting areas are well-attested throughout CBav. This point is clear from Ibrom (1971), who investigates a large area in the northwest of the CBav dialect area between Augsburg and Aichach, including a large part of Northeast Swb (recall §12.3.2). On the basis of his study he concludes that the one dorsal fricative (/x/) is realized either as uvular (p. 256) or velar (p. 257, 259). That assessment is confirmed on the basis of several maps in SBS, which documents non-velar fronting from Aichach to the south along the Lech River through Grafrath and Weilheim (both indicated on Map 3.3).

### 12.3 Survey of triggers and targets for velar fronting in German dialects

Outside of the areas discussed in Ibrom (1971) there is little doubt that (postsonorant) velar fronting predominates in both urban and rural areas in the CBav. The occurrence of velar fronting in the context after sonorants in Southeast Germany can be confirmed by examining the sources cited above, which are indicated on my Map 3.3. That velar fronting is the norm for CBav is also evident from the maps in the linguistic atlases for this region (SNiB for Lower Bavaria, SOB for Upper Bavaria). This point is discussed in greater detail in Chapter 13. It is nevertheless noteworthy that the maps in Volumes 3 and 4 in SNiB and some of the other sources cited below suggest that velar fronting is absent in certain places. Thus, although velar fronting predominates in CBav, there is nothing out of the ordinary for some communities to articulate [x] even after front vowels. Such places can therefore be thought of as NON-VELAR FRONTING ISLANDS – conservative enclaves which have preserved the original (WGmc) system with /x/ and no palatal allophone.

Velar fronting in NBav/EFr has a similar status. The sources cited in this book from those dialect areas (indicated on Map 3.4) as well as the maps in the linguistic atlases for these dialect areas (SUF, SMF, SNOB, SBS) point to a region characterized by velar fronting. However, it is also not unusual to find non-velar fronting enclaves, especially in NBav. A few representative examples from SNOB and SBS are indicated on my Map 3.4.

As in Almc, the typical pattern for NBav/CBav/EFr is that the sole target for postsonorant fronting is the one fricative /x/ because /y/ (< WGmc <sup>+</sup>[y]) is absent (Target Type LL). Velar fronting is typically induced by all front vowels and (if present) coronal sonorant consonants. Since low front vowels are often nonoccurring, Trigger Type CC is the most widely attested. In those varieties with no low front vowels the presence of Schwa Epenthesis (§5.4) means that Trigger Type EE is also well-attested.

The Trigger Types and Target Types of all NBav/SBav/EFr varieties discussed in this book are given in Tables 12.6 and 12.7. I discuss below a few systems from this area that are typical, but I focus primarily on those patterns that are unique for the region.

#### 12.3.3.1 Central and North Bavarian

Unmarked Target Type LL is represented by all varieties surveyed with the exception of Kallmünz (Target Type M). In that NBav variety, etymological [y] has the palatal allophone [j]; e.g. [gʃiçt] ‘history’, [næ:jɛl] ‘nail-DIM’ vs. [wox] ‘week’, [la:yɛ] ‘situation’. That pattern is shown below to be the unmarked one for most of CGm, but it is rare for UGm.

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Trigger Type CC is represented by Erdmannsdorf/Zillertal, e.g. [kø:ç] ‘porridge’, [milç] ‘milk’ vs. [mɔχn̩] ‘do-INF’ and Trigger Type EE by Marchfeld, [la:içt] ‘light’, [gŋε:çt] ‘vassal’ vs. [bra:uxn̩] ‘need-INF’. Bergstetten possesses low front vowels, which serve as triggers (Trigger Type E), e.g. [ʃtiçt] ‘sting’, [tsæ:ç] ‘tough’, [mɔ:lç] ‘milk’ vs. [tro:x] ‘trough’. Bergstetten can be contrasted with Großberghofen, where low front vowels do not induce velar fronting (Trigger Type AA), e.g. [riçtn̩] ‘judge-INF’, [eçt] ‘genuine’ vs. [brɔxt] ‘brought-PART’, [axt] ‘eight’, [tsæxə] ‘tear’. A similar pattern obtains in Kallmünz (Trigger Type DD).

The variety of CBav described by Maier (1965) deserves special comment because the data in that source reveal that the dialect is unique for its area. Maier investigates a broad CBav-speaking region in Upper Bavaria which is bounded in the south by Austria, to the east by the Inn River, and to the west by the Isar River. In his description of the ch-sound (‘ch-Laut’), Maier (1965: 4) observes that the region exhibits variation concerning the realization of the sound(s) depicted by those letters. The generalization is that in one corner of the larger region – defined as Kiefersfelden, Oberaudorf, and Niederaudorf – the only dorsal fricative is velar [x] (= [χ]) even in the context after front vowels, e.g. [tixtə] ‘capable’, [ʃlext] ‘bad’, [ɔxt] ‘eight’. Hence, those three places can therefore be thought of as non-velar fronting islands. By contrast, in the other areas within the region – e.g. Maier’s Isarwinkel, defined in terms of the villages and towns he lists on p. 1 – there are two dorsal fricatives, namely [x] and [ç] (= [χ]). The data in Maier (1965) reveal that the triggers for postsonorant velar fronting in Isarwinkel (Map 3.3) consist of all and only front vowels (including the low front vowels [æ]), but not the coronal consonants. Thus, Isarwinkel represents Trigger Type D, which is rare among German dialects. Examples from the original source include the following: [tiçtə] ‘capable’, [ʃleçt] ‘bad’, [ræç] ‘smoke’ vs. [kru:x] ‘smell’, [tɔxte] ‘daughter’, [bɔ:x] ‘stream’, [lɛrx] ‘lark’, [milx] ‘milk’.

One NBav variety is attested in which only front vowels but not coronal consonants are triggers for velar fronting (Eisendorf; Seemüller 1908c). According to the data from that source (=Trigger Type BB), [ç] surfaces after front vowels (no low front vowel is attested) and [x] after back vowels and liquids ([l r]), e.g. [iç] ‘I’, [ʃleçt] ‘bad’ vs. [woxv] ‘weeks’, [dmy:lx] ‘the milk’, [barx] ‘mountains’.

### 12.3.3.2 East Franconian

Unmarked Target Type LL is represented by all varieties surveyed with the exception of Schmalkalden (Target Type M) and Schefflenz (Target Type L). Representative examples from Schmalkalden are [lɛçt] ‘light’, [gi:jə] ‘violin’ vs. [bu:x] ‘book’, [bo:yə]. Schefflenz is unusual in that it possesses both /x/ and /y/, and

### 12.3 Survey of triggers and targets for velar fronting in German dialects

yet only the former serves as a trigger for velar fronting, e.g. [i:ç] ‘I’, [breçə] ‘break-INF’, [manç] ‘many’ vs. [laxə] ‘laugh-INF’, [fouy] ‘bird’, [fey] ‘birds’, [i:y] ‘hedgehog’. That pattern (Target Type L) is otherwise restricted to LGm (Wph), e.g. Soest (§4.3).

Unmarked Trigger Type CC is represented by Bonnland, e.g. [ɛçə] ‘oak tree’, [lærçə] ‘lark’ vs. [joux] ‘yoke’. In a few varieties low front vowels can be shown to induce velar fronting, e.g. Waldau (Trigger Type E) [breç] ‘break-INF’, [væ:ç] ‘soft’, [blæç] ‘pale’, [ɛlç] ‘elk’ vs. [lax] ‘laugh-INF’. By contrast, West Central Franconia (Trigger Type C) and Schmalkalden (Trigger Type AA) both possess low front vowels, which do not serve as triggers, e.g. Schmalkalden [knæ:xt] ‘vassal’, [sæyə] ‘blessing’ (together with data from that variety given above); West Central Franconia [liçt] ‘light’, [milç] ‘milk’ vs. [bu:x] ‘book’, [hɔ:x] ‘high’, [flæxt] ‘bad’.

In sum, the material cited above points to a region with a clearly unmarked pattern which is disrupted only by a few outliers described above. However, the reader is referred to Chapter 13, which shows on the basis of data from SNiB that the most uncommon set of velar fronting triggers documented in the present chapter (high front vowels) is the norm in the villages and towns of Upper Bavaria.

#### 12.3.4 West Central German

In the WCGm dialect region a few conservative non-velar fronting places are situated in the northwest of the Rpn/LFr dialect continuum along the Dutch-/Belgian border (Map 5.1). One such LFr variety is the one described by Ramisch (1908) for the area south of Geldern. Two non-velar fronting Rpn places in East Belgium are Kreis Eupen (Welter 1929) and Montzen (Welter 1933), e.g. Kreis Eupen [liyə] ‘lie-INF’, [lyxt] ‘lies-3SG’. Further south, a cluster of non-velar fronting MFr varieties are indicated on Map 5.3, but those places will be shown in §14.6.3 to have lost the once historically active rule of velar fronting. By contrast, in the non-velar fronting varieties described by Ramisch (1908) and Welter (1929, 1933) velar fronting was never active historically.

The linguistic atlases for WCGm give no indication of non-velar fronting places, even along the country borders separating German (WCGm) from other languages. In ALLG there are a number of maps for German Lorraine (Deutsch-Lothringen), which includes the area between Thionville and Sarrebourg (see my Map 5.3). Map 7 (*lachen* ‘laugh-INF’) and Map 116 (*hauch* ‘breath’) in ALLG indicate consistent realizations with [x] after various back vowels, while Map 160 (*streicheln* ‘pet-INF’), 200 (*bleich* ‘pale’), and Map 269 (*Milch* ‘milk’) reveal

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Table 12.6: Targets and triggers for (postsonorant) velar fronting in SBav, CBav, and NBav (<WGmc<sup>+</sup>[k x])

Target	Trigger	Place	Source
M	DD	Kallmünz	Götz (1987)
LL	BB	Eisendorf	Seemüller (1908c)
LL	DD	Vienna	Moosmüller (1987)
		Salzburg	Moosmüller (1991)
LL	D	Isarwinkel	Maier (1965)
LL	E	Bergstetten	Dozauer (1967)
LL	AA	Großberghofen	Gladiator (1971)
LL	CC	Erdmannsdorf/Zillertal	Siebs (1906)
		Nürnberg	Gebhardt (1907)
		Eggerland	Eichhorn (1908)
		Hausruckviertel	Mindl (1924/1925)
		Untereichenbach	Hain (1936)
		Freutsmoos	Kufner (1957)
		Munich	Kufner (1961)
		Asch	Gütter (1962a)
		Schönbach	Gütter (1962b)
		Lauterbach	Gütter (1963b)
		Rezat-Altmühl	Schödel (1967)
		Kreis Schwabach	Bethge & Bonnín (1969)
		Kreis Wunsiedel	Bethge & Bonnín (1969)
		Windischeschenbach	Denz (1977)
		West Hungary	Manherz (1977)
		Eslarn	Bachmann (2000)
		Ramsau am Dachstein	Noelliste (2017)
LL	EE	West Bohemia	Gradl (1895)
		Vienna	Gartner (1900)
		Loosdorf	Seemüller (1908a)
		St. Georgen an der Gusen	Seemüller (1909d)
		Pilgersham	Seemüller (1909c)
		Marchfeld	Pfalz (1911)
		Neckenmarkt	Bíró (1918)
		Upper Austria	Haasbauer (1924)
		Böhmerwald	Kubitschek (1926)
		Central Bavarian	Kufner (1960)
		Graslitz	Gütter (1963a)
		Munich	Bethge & Bonnín (1969)
		Hallertau	Zehetner (1978)
		Graz	Moosmüller (1991)

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Table 12.7: Targets and triggers for (postsonorant) velar fronting in EFr  
(<WGmc <sup>+</sup>[k x y])

Target	Trigger	Place	Source
L	CC	Schefflenz	Roedder (1936)
M	AA	Schmalkalden	Kaupert (1914)
LL	C	West Central Franconia	Diegritz (1971)
LL	E	Waldau	Bock (1965)
		Vogtland (Trieb)	Gerbet (1908)
		Kleinschmalkalden	Dellit (1913)
		Suhl	Kober (1962)
LL	CC	Schöneck	Hedrich (1891)
		Pfersdorf	Hertel & Hertel (1902)
		Wachbach	Dietzel (1908)
		Bamberg	Batz (1911)
		Frankenland	Heilig (1912)
		Bonnland	Schmidt (1912b)
		Rot-tal	Knupfer (1912)
		Frankenwald	Werner (1961)
		Gaisbach	Sander (1916)
		East Franconia	Steger (1968)
		Spessart	Hirsch (1971)
		Obermainraum	Trukenbrod (1973)
		Heilbronn	Jakob (1985)
		Weingarts	Schnabel (2000)
LL	EE	Klein-Allmerspann	Blumenstock (1911)
		Fichtelgebirge	Meinel (1932)

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that [ç] appears after any coronal sonorant throughout the region without exception. MRhSA likewise gives no indication that there are conservative places without velar fronting, even among those places along the borders with France, Luxembourg, and Belgium.

Two places in the northeastern part of the Rpn dialect area had not yet phonologized velar fronting in the late 19<sup>th</sup> century: Mülheim an der Ruhr ([Maurmann 1889](#)) and Remscheid ([Holthausen 1885](#)). It is fairly clear from those descriptions that the ich-Laut is absent. [Maurmann \(1889: 10\)](#) indicates this by placing his velar consonants [k g x y ɳ] in a separate column from his one palatal ([j]), although his description of the phonetics (p. 11) suggests that there is some coarticulatory fronting of velars. [Holthausen \(1885\)](#) is very clear that velar fronting was not active at that time. He writes (p. 406): “x ist – ch in *acht*, vor und nach palatalen vocalen wird seine bildungsstelle – wie auch dies des k – ein klein wenig nach vorn verschoben, ohne dass jedoch die palatale articulation des ch in *ich* erreicht würde”. [‘x is – ch in *acht*, its place of articulation before and after front vowels – like that of k – advanced slightly towards the front without reaching the palatal articulation of the *ch* in *ich*.] That quote and the discussion in that article suggest that there is some coarticulatory fronting of postsonorant and word-initial /x/ but that velar fronting had not yet been phonologized. Both Mülheim an der Ruhr and Remscheid appear to be non-velar fronting islands because they are surrounded by dorsal fronting varieties. For example, Remscheid is located about 5km from Wermelskirchen to the south and 5km from Ronsdorf to the north, but both of those places have velar fronting (see [Holthaus 1887](#) and [Hasenclever 1905](#) on Map 5.1).

Those non-velar fronting varieties aside, the generalization is that postsonorant velar fronting is present throughout the WCGm area. In contrast to several of the H(st)Almc and Wph varieties discussed earlier, velar fronting in WCGm is not active synchronically in word-initial position. The diachronic change whereby word-initial +[y] surfaces as the corresponding palatal ([j]) before any type of sound is a common change throughout CFr (=Rpn/MFr). That topic is postponed in detail in Chapter 14 because it illustrates that velar fronting can apply as a nonassimilatory change.

In postsonorant position the set of targets for CGm consists of /x/ and – if present – /y/ (Target Type M). Many of the varieties below are classified as Target Type LL because /y/ is absent. In only a few rare cases does /x/ but not /y/ undergo velar fronting (Target Type L). This contrasts with the typical pattern for Wpf (§12.3.6). The difference between Target Type M for CGm (Rpn) and Target Type L for ELGm (Wph) was already recognized in 1915 by Otto Lobbes ([Lobbes 1915](#);

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Map 5.1). He writes (pp. 17-18) of the difference between Rpn and Wpf (separated by the Uerdingen line):

Im Rip. haben wir ... eine palatale stimmhafte Spirans (j), die auch inlautend nach palatalen Vocalen steht, während nach velarem Vocal die velare stimmhafte Spirans (γ) eintritt. ... Dagegen weichen die Mdaa. nördlich und östlich der Ürdinger Linie erheblich von den ripuarischen Mdaa. ... An Stelle des stimmhaften palatalen Reibelautes ... der rip. Mdaa. haben wir im Inlaut de[n] stimmhafte[n] velare[n] Spirant(en) (γ), der aber auch nach palatalem Vocal seinen velaren Charakter beibehält.

“In Ripuarian we have a palatal voiced fricative (j), which also stands word-internally after front vowels, while the velar voiced fricative (γ) occurs after back vowels ... By contrast, the dialects north and east of the Uerdingen line deviate considerably from the Ripuarian dialects ... In place of the voiced palatal fricative ... of the Ripuarian dialects we have word-internally the voiced velar fricative (γ), which also retains its velar character even after front vowels.”

In terms of triggers the clear pattern for CGm dialects is for all coronal sonorants to induce the change from velar to palatal, including low front vowels (if present). Recall that the broadest set of triggers is reflected with Trigger Type E. In a small number of cases identified below, low front vowels are present (/æ/), but they fail to trigger velar fronting (=Trigger Type C, AA, or CC).

The present findings concerning targets and triggers for postsonorant velar fronting are also documented in dialect dictionaries. Three dictionaries for Rpn (KWb and WbKM for Cologne and WbUS for the Lower Sieg region (die untere Sieg) – a large area in and around Bonn – document Trigger Type E and Target Type M. (KWb provides a description on pp.15-17 of how to pronounce the spelling of *ch* and *g*. KWb and WbUS give phonetic transcriptions for each lexical entry with different symbols for the lenis palatal and velar fricatives). More extensive (multiple volume) dialect dictionaries provide details concerning the pronunciation of words in specific places. One example is SHesWb for South Hesse, which provides phonetic transcriptions with separate symbols for velars and palatals; recall from §9.5 that SHesWb encodes the [x] vs. [ç] contrast. In that source, multiple phonetic transcriptions corresponding to specific places in the broad region are provided for any given word. In SHesWb, [x] regularly occurs after back vowels (e.g. *Loch* ‘hole’) and [ç] after front vowels and liquids (e.g. *Licht* ‘light’, *Dolch* ‘dagger’); since no low front vowel is present this pattern

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corresponds to Target Type C. The same source reveals that some places are attested with Target Type M (e.g. *Lager* ‘camp’ with [y] and *fegen* ‘sweep-INF’ with [j]) and others with the rare Target Type L (e.g. *Lager* ‘camp’ and *fegen* ‘sweep-INF’ with [jj]). A second multiple volume dialect dictionary for WCGm is RWb for the Rheinland. Like SHesWb, RWb provides phonetically transcribed words in numerous places for any given word. The area defined by RWb includes LFr, Rpn, RFr, and MFr. Segments inducing velar fronting imply that Trigger Type C is typical for the region, although a closer scrutiny of RWb may reveal different Trigger Types. Target Type LL and M are typical for RWb, although it is clear from the occurrence of [y] in a word-internal onset after a front vowel that the same source also recognizes Target Type L.

I discuss first the three Hes dialects (EHes, NHes, CHes) and provide a summary of the targets and triggers in Table 12.8. I then consider LFr, CFr (MFr/Rpn) and RFr and give a summary in Table 12.9.

### 12.3.4.1 East Hessian, North Hessian and South Hessian

According to all sources consulted, velar fronting affects both /x/ and /y/ (Target Type M) or only /x/ if /y/ is not present (Target Type LL). Target Type M is represented by Oberellenbach, e.g. [ijəl] ‘hedgehog’, [sæ:jŋ] ‘say-INF’, [blæç] ‘tin’, [melç] ‘milk’, [ærjər] ‘anger’ vs. [βo:yə] ‘scale’, [kɔx] ‘cook’. No Hes variety has been uncovered with /x/ and /y/ in which only /x/ triggers velar fronting (Target Type L).

If a low front vowel is present then that vowel typically induces velar fronting, e.g. (Trigger Type E) Oberellenbach (see above). A second example is Central Vogelsberg [ʃleçt] ‘bad’, [bræçə] ‘break-INF’, [melç] ‘milk’ vs. [nox] ‘still’. Atzenhain/Grünberg (§9.2) represents a variety in which low front vowels fail to induce velar fronting (Trigger Type AA), e.g. [gəsiçt] ‘face’, [bre:ç] ‘break-INF’ vs. [bux] ‘book’, [nɔ:xt] ‘night’, [blæx] ‘tin’.

Not included in Table 12.8 is the EHes region around Bad Hersfeld (Martin 1957), which nicely illustrates the way in which triggers and targets can differ from place to place. Throughout the area, /x/ surfaces as [ç] after a nonlow front vowel or consonant (e.g. [liçt] ‘light’, [melç] ‘milk’) and [x] after a back vowel (e.g. [ɔ:xt] ‘eight’). After [æ:] the dorsal fricative is realized as [ç] to the east of Bad Hersfeld and as [x] to the west, e.g. [ʃlæ:çt] vs. [ʃlæ:xt] ‘bad’, [flæ:çt] vs. [flæ:xt] ‘braid’. The [x] realization is attested in Kirchheim (Reckerode, Rotterode, Gershausen) and Nieraula (Kleba, Niederjossa, Hattenbach), while [ç] occurs in Wölfershausen, Unterneurode, Hillartshausen and Wehrshausen (Martin 1957: 31, 100). Martin’s regional variety also elucidates the distinction between Trigger

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Table 12.8: Targets and triggers for (postsonorant) velar fronting in EHes, NHes, and CHes (<WGmc <sup>+</sup>[k x y])

Target	Trigger	Place	Source
M	C	Rauschenberg	Bromm (1936)
M	E	Schlierbach	Schaefer (1907)
		Oberellenbach	Hofmann (1926)
M	CC	Bad Salzungen	Hertel (1888)
		Friedberg	Reuß (1907)
		Amtshausen	Hackler (1914)
		Niederhessen	Hofmann (1940)
		Battenberg	Martin (1942)
		Bad Wildungen	Martin (1942)
		Siegerland/Eichsfeld	Möhn (1962)
		Marburg	Spenter (1964)
		Holzhausen	Arend (1991)
M	EE	Frankfurt am Main	Bethge & Bonnin (1969)
LL	E	Bad Hersfeld	Salzmann (1888)
		Hanau	Urff (1926)
		Werra-Fuldaraum	Weber (1959)
		Schlitzerland	Krafft (1969)
		Central Vogelsberg	Hasselbach (1971)
		Central Hesse	Hasselberg (1979)
LL	AA	Atzenhain/Grünberg	Knauss (1906)
LL	CC	Pfahlgraben	Faber (1912)
		Kreis Alsfeld	Heidt (1922)
		Wetterfeld	Schudt (1927)
		Fulda	Noack (1938)
		Hintersteinau	Müller (1958a)
		Kassel	Müller (1958b)
		Fulda	Dingeldein (1995)
LL	DD	Naunheim	Leidolf (1891)
		Rhöntal	Glöckner (1913)
		Fuldaer Land	Wegera (1977)
LL	EE	Weidenhausen	Friebertshäuser (1961)
		Königsstein im Taunus	Schnellbacher (1963)
		Erbstadt	Schudt (1970)
		Bad Salzschlirf	Post (1985)

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Type M and Trigger Type LL: In the north, /y/ is realized as [y] in a word-internal onset after a back vowel (e.g. [svɔ:yəə] ‘brother-in-law’), but in the south (where [x] is realized after [æ:]), /y/ has restructured to /x/, e.g. [ʃvɔ:xəə] ‘brother-in-law’.

Target Type M is the norm for CFr/RFr. Few descriptions of LFr are available, and hence it is not possible to say what is typical for that dialect area. According to all of the sources for LFr/CFr/RFr surveyed, if a low front vowel is present then it serves as a trigger for velar fronting (Trigger Type D, E, DD). In this respect, LFr/CFr/RFr differs from Hes ones.

### 12.3.4.2 Low Franconian

Two varieties are attested with target Type L, namely Kalkar (§8.2) and Homberg. The sources for those places also reveal that low front vowels are velar fronting triggers (Trigger Type D), e.g. Kalkar [pleçt] ‘duty’, [flæçtə] ‘braid’ vs. [kloxt] ‘gap’, [rɛ:yə] ‘rain’. The facts are similar in Kleve (Trigger Type DD).

### 12.3.4.3 Central Franconian and Rhenish Franconian

A MFr variety illustrating Target Type M (Sörth) was discussed earlier (§5.4). A second MFr variety is Sehlem, e.g. [knɛ:çt] ‘vassal’, [hæ:çəl] ‘hackle’, [ʃpi:jəl] ‘mirror’, vs. [vɔx] ‘week’, [fra:yə] ‘ask-INF’, and a Target Type M from RFr is Zaisenhausen, e.g. [prɛçə] ‘break-INF’, [i:jl] ‘hedgehog’ vs. [laxə] ‘laugh-INF’, [fro:yə] ‘ask-INF’.

Typical for CFr/RFr is the nonoccurrence of dorsal fricatives after consonants due to Schwa Epenthesis, e.g. (Rpn) Dülken [ve:ç] ‘path’, [bøyjən] ‘bend-INF’ vs. [fraxt] ‘freight’, [dra:yə] ‘carry-INF’ and [foləç] ‘consequence’ (from /foly/). A similar pattern obtains in Wermelskirchen (Rpn), although that dialect allows palatals to surface after liquids in a word-internal onset, e.g. [ʃpreçən] ‘speak-INF’, [fɛ:jən] ‘sweep-INF’, [foljən] ‘follow-INF’ vs. [lɔx] ‘hole’, [fu:yəl] ‘bird’.

Two RFr varieties unique to their area are Mönchzell and Heppenheim because they both exhibit Target Type L, e.g. Mönchzell [bleç] ‘tin’, [ræçt] ‘right’, [fejə] ‘sweep-INF’, [foljə] ‘follow-INF’ vs. [wox] ‘week’, [kwy:l] ‘ball’, [flry:l] ‘wing’; Heppenheim [ʃle:ç] ‘bad’, [fənç:l] ‘fennel’, vs. [foyl] ‘bird’, [ʃtaiyə] ‘climb-INF’, [laxə] ‘laugh-INF’.

In sum, Target Type M is typical for WCGm. A small number of WCGm varieties (Hes) are attested in which low front vowels fail to induce velar fronting; otherwise the default pattern holds, whereby all coronal sonorants serve as triggers.

### 12.3 Survey of triggers and targets for velar fronting in German dialects

Table 12.9: Targets and triggers for (postsonorant) velar fronting in LFr, MFr, Rpn, and RFr (<WGmc <sup>+</sup>[k x y])

Target	Trigger	Place	Source
L	E	Mönchzell	Reichert (1914)
L	CC	Heppenheim	Seibt (1930)
L	DD	Homberg	Meynen (1911)
		Kalkar	Hanenberg (1915)
LL	CC	Werden	Koch (1879)
LL	DD	Ober-Flörsheim	Haster (1908)
		Saarhölzbach	Thies (1912)
LL	EE	Kreis Moers	Bethge & Bonnин (1969)
M	E	Kenn	Thomé (1908)
		Beuren	Peetz (1989)
M	CC	Cologne	Wahlenberg (1877)
		Wermelskirchen	Hasenclever (1905)
		Sörth	Hommer (1910)
		Vianden	Engelmann (1910)
		Schelsen	Greferath (1922)
		Speyer	Waibel (1932)
		Gleuel	Heike (1970)
		Krefeld	Bister-Broosen (1989)
M	DD	Sehlem	Ludwig (1906)
M	EE	Handschuhsheim	Lenz (1900)
		Aegidienberg	Müller (1900)
		Erftgebiet	Münch (1904 [1970])
		Zaisenhausen	Wanner (1907, 1908)
		Laubach	Wimmert (1910)
		Dülken	Frings (1913)
		Düsseldorf	Zeck (1921)
		Seelscheid	Mackenbach (1924)
		Plankstadt	Treiber (1931)
		Pfungstadt	Grund (1935)
		Schlebusch	Bubner (1935)
		Kreis Wittlich	Bethge & Bonnин (1969)
		Oftersheim	Liébray (1969)
		Großrosseln	Pützer (1988)
		Horath (Hunsrück)	Reuter (1989)
		Lxm	Gilles (1999)
LL	CC	Southeast Palatinate	Heeger (1896)

## 12 Targets, triggers, and rule generalization

### 12.3.5 East Central German

The present survey has failed to discover any references to non-velar fronting enclaves in the ECGm dialect region; hence, all places discussed below have some version of postsonorant velar fronting. Word-initial velar fronting occurs in HPr (§11.6) and the two Sln varieties referred to above (§11.4), but that type of system is otherwise unattested in this area. In NUSax-SMk it is common for the modern reflex of WGmc <sup>+</sup>[y] to be realized as the corresponding palatal, but this development is not discussed until Chapter 14.

One nearly exceptionless generalization holding for the sources cited is that if /x y/ are present, then both sounds undergo (postsonorant) velar fronting (Target Type M). One ECGm dialect has been found – commented on below – possessing /x y/, in which only /x/ undergoes fronting (Target Type L). Recall from Chapter 11 that two varieties of Sln (Sebnitz and Seifhennersdorf) as well as HPr (Reimerswalde) have a broad set of targets for velar fronting because it includes velar stops and the velar nasal (Target Type N).

As a general rule, the velar fronting triggers subsume all front vowels, including low front vowels (if present), and coronal sonorant consonants (Trigger Type E). A small number of varieties commented on below have been discovered in which low front vowels fail to trigger velar fronting. A pattern that is even more rare is one in which only front vowels but not coronal sonorant consonants induce velar fronting. Three such places (Trigger Type BB) have been identified and are discussed below.

I consider now the individual groupings within ECGm, beginning with Thrn, USax, and NUSax-SMk, and then I turn to Sln/HPr. The generalizations concerning targets and triggers are summarized in Tables 12.10–12.13.

#### 12.3.5.1 Thuringian, Upper Saxon, and North Upper Saxon-South Markish

Target Type M is represented by Leinefelde (Thrn), e.g. [zıçl] ‘sickle’, [tsejŋ] ‘goat’, [plæç] ‘tin’, [næ:çr] ‘closer’, [pʊrç] ‘castle’ vs. [lɔx] ‘hole’, [lo:yṛ] ‘camp’. Since historical <sup>+</sup>[y] restructured to [x] (/x/) in most varieties of Thrn/USax, Target Type LL is the predominant pattern, e.g. Sondershausen (Thrn) [breçə] ‘break-INF’, [blæç] ‘tin’, [forçə] ‘furrow’ vs. [bu:x] ‘book’. A rare case of Target Type M for USax is attested in Salzfurtkapelle, e.g. [bleç] ‘tin’, [i:jəl] ‘hedgehog’, [baljən] ‘scuffle-INF’, [zorjə] ‘worry’ vs. [brauxən] ‘need-INF’, [kra:yən] ‘collar’. The one case of Target Type L known to me is Eisenach (Thrn), e.g. [ɛç] ‘I’ vs. [paxt] ‘lease’, [bo:yŋ] ‘bow’, [be:yŋ] ‘bows’.

Trigger Type E is illustrated by Zschorlau (USax), e.g. [heç] ‘height’, [læçt] ‘light’, [dolç] ‘dagger’ vs. [ra:x] ‘smoke’. Four sources consulted make it clear

### 12.3 Survey of triggers and targets for velar fronting in German dialects

that there are low front vowels that fail to induce velar fronting (Trigger Type C). That pattern is reflected in USax (Vorerzgebirge) and Thrn (Buttelstedt, Southwest Thuringian, Eichsfeld), e.g. Vorerzgebirge [kneçt] ‘vassal’, [do:rç] ‘through’ vs. [nu:x] ‘still’, [naxt] ‘night’, [wæ:xiŋ] ‘because of’. The [æ:] in the latter example is described in the original source as low front vowel (‘überhelles a tiefster Mittelzungenvokal ...’); Bergmann (1965: 43).<sup>7</sup>

One unique place in this region where velar fronting fails to apply after [r] (Target Type BB) is Itzgrund, which occupies the southern corner of the Thrn dialect region (Map 7.2). Spangenberg (1989: 128) notes that the entire Thrn region is characterized by (postsonorant) velar fronting. He writes that after a consonant [ç] typically occurs but that in Itzgrund [x] is commonly realized after the rhotic. [“Nach Kons. erscheint wie in der StSpr. ç, doch im Itzgr. begegnet nach r wie in der Mda auch häufig x ...”]. The three examples Spangenberg gives are [dørx] ‘through’, [ʃna:rxt] ‘snores-3SG’, and [kirxŋko:r] ‘church choir’.

#### 12.3.5.2 Silesian and High Prussian

Target Type M is represented by Kieslingwalde (Sln), e.g. [lɪçt] ‘light’, [reçtə] ‘judge’, [ke:jl] ‘pin’, [melç] ‘milk’ vs. [ho:ył] ‘hail’, [nɔx] ‘still’, and Target Type LL by Reichenberg (Sln), e.g. [raeç] ‘rich’, [mançə] ‘some-INFL’ vs. [vɔxə] ‘week’. Sebnitz and Seifhennersdorf (§11.4) deviate from the other Sln dialects because they possess the broadest set of targets for postsonorant fronting (Target Type N).

The generalizations concerning targets and triggers for velar fronting in Sln are for the most part consistent with the maps in SchlSA (although recall the discussion in §9.5 on the occurrence of [ç] after a back vowel). A closer examination of SchlSA’s Map 6 reveals that there are parts of the Sln dialect region where the word *Kirche* ‘church’ is realized with [x] after the coronal consonant [r], e.g. Hohenelbe ([kerx]), Grulich ([kerxə], [karxə]), and Bärn ([kirx]). All three places are indicated on my Map 5.2. SchlSA’s Map 26 for *leuchten* ‘glow-INF’ reveals that velar fronting is active throughout Sln – including those three places – because [ç] is present after a front vowel (i.e. [leçdn̩]).

As noted above, word-initial velar fronting is restricted to two varieties of Sln and HPr. The data from those varieties are listed in Table 12.11.

In sum, ECGm is a region with a consistent pattern whereby /x/ – and /y/ if present – undergo fronting to the respective palatals after any coronal sonorant.

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<sup>7</sup> According to the transcriptions provided in the dictionary for Upper Saxon (ObersWb), it is evident that the target for velar fronting is /x/ (Target Type LL) and that the process is induced by coronal sonorants (Trigger Type CC).

## 12 Targets, triggers, and rule generalization

Table 12.10: Targets and triggers for (postsonorant) velar fronting in Thrn (<WGmc <sup>†</sup>[k x y])

Target	Trigger	Place	Source
L	E	Eisenach	Flex (1893)
M	E	North Thuringia	Schultze (1874)
		Stiege	Liesenbergs (1890)
		Leinefelde	Hentrich (1905)
		Honsteinisch	Rudolph (1924/1925)
LL	C	Buttelstedt	Kürsten & Bremer (1910)
		Southwest Thuringia	Kürsten (1910, 1911)
		Eichsfeld	Hentrich (1920)
LL	E	Bad Frankenhausen	Frank (1898)
		Sondershausen	Schirmer (1932)
		Unterellen	Spangenbergs (1962)
		Dudenrodt, Netra	Guentherodt (1982)
		Barchfeld	Weldner (1991)
LL	BB	Itzgrund	Spangenbergs (1989)
LL	CC	Osterland	Trebs (1899)
		Altenburg	Daube (1906)
		Niddawitzhausen	Rasch (1912)
		Weidenhain	Krug (1969)
		Ludwigsstadt	Harnisch (1987)

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Table 12.11: Targets and triggers for (postsonorant) velar fronting in USax and NUSax-SMk (<WGmc<sup>+</sup>[k x y])

Target	Trigger	Place	Source
M	CC	Salzfurtkapelle	Schönfeld (1958)
		Friedersdorf	Seibicke (1967)
		Grassau	Stellmacher (1973)
		Berlin	Schönfeld (1986), Bethge & Bonnin (1969)
M	EE	Aken (Elbe)	Bischoff (1935)
LL	C	Vorerzgebirge	Bergmann (1965)
LL	E	Leipzig	Albrecht (1983)
		Zwickau	Philipp (1897)
		Zschorlau	Lang (1906)
		Meißnisch	Große (1955)
		Dresden	Fleischer (1961)
		Erzgebirge	Goepfert (1878)
LL	CC	Greiz	Hertel (1887)
		Brüx	Hausenblas (1898)
		Dubraucke	Goessgen (1902)
		Schokau	Pompé (1907)
		Northwest Bohemia	Hausenblas (1914)
		West Lausitz	Protze (1957)
		South Upper Saxon	Becker (1969)
		Wittenberg	Langner (1977)

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Table 12.12: Targets and triggers for (postsonorant) velar fronting in SIn and HPr (<WGmc <sup>+</sup>[k x y ɲ])

Target	Trigger	Place	Source
M	CC	Kieslingswalde	Pautsch (1901)
		Schlesische Mundart	von Unwert (1908)
		Kreis Hirschberg	Graebisch (1912)
		Alt-Waltersdorf	Graebisch (1912)
		North Moravia	Weiser (1937)
		Kreis Jauer	Halbsguth (1938)
		Grafschaft Glatz	Blaschke (1966)
		Kunewald	Giernoth (1917)
		Seifhennersdorf	Michel (1891)
		Sebnitz	Meiche (1898)
N	EE	Reimerswalde	Kuck & Wiesinger (1965)
		Römerstadt	Rieger (1935)
		Hohenelbe, Grulich, Bärn	SchlSA
		Lehmwasser	Hoffmann (1906)
LL	E	Reichenberg	Kämpf (1920)
		East Bohemia	Festa (1925)
		Kay	Messow (1965)
		Groß-Schönau	Wenzel (1919)

### 12.3 Survey of triggers and targets for velar fronting in German dialects

Table 12.13: Targets and triggers for (word-initial) velar fronting in Sln and HPr (<WGmc <sup>+</sup>[k x y ŋ])

Target	Trigger	Place	Source
N	EE	Sebnitz	Meiche (1898)
		Seifhennersdorf	Michel (1891)
		Reimerswalde	Kuck & Wiesinger (1965)

That unified picture is disrupted by a small set of places in the eastern parts of the region have a broad set of targets as well as several enclaves where fronting is induced by only a subset of coronal sonorants.

#### 12.3.6 West Low German

As noted in §4.2, non-velar fronting varieties of WLGM (NLGm) are attested in the far western part of Lower Saxony, i.e. Lathen, e.g. [zyxtə] ‘sigh-INF’, [ri:yə] ‘row’. Wph varieties with no velar fronting include Grafschaft Bentheim (Rakers 1944: 13) and Ostbevern (Holtmann 1939). In all of these non-velar fronting places, WGmc <sup>+[y]</sup> is also preserved as a velar fricative in word-initial position regardless of the nature of the following sound, a pattern that is also reflected in Borken (Herdemann 1921 [2006] [2006]) and Gütersloh (Wix 1921). In contrast to Gütersloh, velar fronting is active in postsonorant position in Borken (see below).<sup>8</sup>

In all other sources consulted for WLGM dialects there is some version of postsonorant velar fronting and – in some places – word-initial velar fronting. In contrast to HGm, WLGM shows much more variation concerning targets and triggers. For example, several places (nearly all Wph) are attested with the rare target Type L. Wph is also important because it exhibits variation concerning the

<sup>8</sup>According to the section on pronunciation (p. 377) in the dictionary for the Wph dialect (WphWb), the MoStGm ich-Laut is absent in most varieties of Wph. This is a peculiar assertion, since it is blatantly contradicted by the studies on Wph cited throughout this book. A more realistic statement can be found in WMIWb. That source states clearly (p. 25) that Westmünsterland – roughly speaking, the area between Bocholt and Vreden (Map 4.2) – is characterized by postsonorant velar fronting of /x/. By contrast, WMIWb notes that the modern reflex of WGmc <sup>+[y]</sup> in word-initial position is a velar fricative even in the context before front vowels (p. 25).

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types of segments that can serve as triggers, i.e. rare Trigger Types A, B are both attested. Wph and Eph also contrast with HGm in the sense that some version of word-initial velar fronting can be shown to be synchronically active.

I discuss the three WLGM groupings separately, beginning with NLGm. The generalizations concerning targets and triggers are summarized in Tables 12.14–12.18.

### 12.3.6.1 North Low German

Velar fronting is active throughout this region, but only in postsonorant position. Typical for NLGm is Target Type LL because historical /y/ has restructured to /g/; recall Altengamme from §4.2. The set of triggers subsumes all front vowels – including low front vowels (if present) and coronal sonorant consonants (if present). In many varieties /g/ spirantizes in coda position, surfacing as [x] or [ç] depending on the nature of the preceding sound.<sup>9</sup>

Target Type LL is attested in Altengamme (§4.2), e.g. [sleç] ‘bad’, [fɛlç] ‘wheel rim’ vs. [ax] ‘eight’. Diepenau illustrates Target Type M, e.g. [fleçtn̩] ‘braid-INF’, [fɔljn̩] ‘follow-INF’ vs. [laxn̩] ‘laugh-INF’, [zɔ:yŋ] ‘hunt-INF’, while Jadebusen is the only NLGm example of rare Target Type L, e.g. [zœ:y] ‘sow’, [le:iyt] ‘lie-2PL’ vs. [eçt] ‘genuine’.

Oldenburg exemplifies the entire range of triggers (Trigger Type E), e.g. [dɪçt] ‘tight’, [leçt] ‘light’, [dæ:c] ‘hard-working’ vs. [lɔxt] ‘air’.

I consider now the region with the most variation in terms of targets and triggers, namely Wph. I focus first on postsonorant velar fronting and then turn to velar fronting in word-initial position.

### 12.3.6.2 Westphalian

In contrast to NLGm, Target Types L and M are both well-attested. Target Type M for the entire range of triggers (Trigger Type E) is represented by Elspe (§7.2), and Borken (§4.3); e.g. Borken [zeç] ‘says-3SG’, [fæ:jən] ‘sweep-INF’, [berç] ‘mountain’, [zejjən] ‘say-INF’ vs. [trɔx] ‘trough’. Target Type L is exemplified by three varieties discussed in previous chapters, namely Soest (§4.3), Adorf (§4.3), Schieder-Schwalenberg (§7.2), and Rhoden (§5.2).

The triggers for postsonorant velar fronting can consist of all coronal sonorants (Trigger Type E) or of a more restricted subset. One example of the latter is Rhoden (Trigger Type AA), e.g. [leçt] ‘light’ vs. [flæxt] ‘bad’.

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<sup>9</sup>This description of the distribution of [x]/[ç] and [g] in NLG matches the one for Hamburg as presented in HaWb (Volume 2: 231).

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Table 12.14: Targets and triggers for (postsonorant) velar fronting in NLGm (<WGmc<sup>+</sup>[k x y])

Target	Trigger	Place	Source
L	EE	Hollenstedt	Götze (1922)
		Jade	Götze (1922)
		Jadebusen	Schmidt-Brockhoff (1943)
M	E	Diepenau	Schmeding (1937)
M	EE	Badbergen	Vehslage (1908)
		Bergenhusen	Sievers (1914)
LL	CC	Bleckede	Rabeler (1911)
LL	E	Oldenburg	vor Mohr (1904)
LL	CC	Altengamme	Larsson (1917)
		Finkenwärder	Kloeke (1914)
LL	EE	Grambkermoor (Bremen)	Bollmann (1942)
		Kreis Herzogtum	Heigener (1937)
		Lauenburg	Pühn (1956)
		Hemmelsdorf	Keller (1961)
		Harburg	Bethge & Bonnin (1969)
		Kreis Kiel	
Oldenburger Ammerland			Mews (1971)

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The Byfang data (within Vest Recklinghausen) discussed in Hellberg (1936) point to a variety with the rare Trigger Type B (and Target Type L). In Byfang there is no phonetically low front vowel ([æ]), but front lax [ɛ] patterns phonologically as [+low]. Representative examples include [taiçəl] ‘brick’ (from /taixəl/), [tyç] ‘stuff’ (from /ty:y/) vs. [axtər] ‘behind’, [kɔyəl] ‘ball’, [liyən] ‘lie-INF’, [rex] ‘quite’, and [ʃlext] ‘bad’. Examples like [pɔ:lboeryər] ‘someone whose family has been living in a community over several generations’ and [berx] ‘mountain’ indicate that the set of triggers does not include coronal sonorant consonants.

Plettenberg displays the rare Trigger Type A. In that dialect, /x/ regularly undergoes fronting to [ç] after [i], e.g. [biçtə] ‘confession’, [filiçtə] ‘maybe’. After back vowels, coronal consonants and nonhigh front vowels, [x] occurs, e.g. [tuxt] ‘breeding’, [nox] ‘still’, [æxtr] ‘behind’, [noextə] ‘vicinity’, [lext] ‘light’, [rext] ‘justice’, [bierx] ‘mountain’. The set of segments undergoing fronting consists solely of /x/ because /y/ surfaces as [y] in a word-internal onset, even after [i], e.g. [niyə] ‘new’. The facts involving velar fronting in Plettenberg are discussed and further refined in §12.6.1.

One source not listed in Table 12.15 is Schulte’s (1941) survey of the Wph varieties spoken in the Southeast Sauerland.<sup>10</sup> Several generalizations can be made from that source that corroborate the facts from other Wph dialects. Schulte has both [ç] (= [χ]) and [x] (= [x]), and – not surprisingly – [ç] but never [x] occurs after high front vowels and [x] but not [ç] after back vowels, regardless of the village, e.g. [niç] ‘not’ vs. [ma:xŋ] ‘do-INF’. By contrast, dorsal fricatives occurring after the front vowels [ɛ œ] can vary according to regions between [x] and [ç]. For example, Schulte (1941: 26) observes that *schlechten* ‘bad-INFL’ is realized as [ʃleçtŋ] in some communities and as [ʃlextŋ] in others (Wenden, Hilmicke, Altendorf). Other items include [rext] ‘right’ and [frexən] ‘impudent-INFL’. Occasional examples in the original source also suggest that there is variation concerning the postconsonantal context, e.g. [ʃtoerçə] ‘storks’ is realized as [ʃtoerxə] in the northern regions (recall the [rx] sequences from Byfang). Schulte’s study is also important because it corroborates the two patterns for targets of postsonorant fronting described above for other varieties of Wph: Communities within the Southeast Sauerland can have either Target Type L or Target Type M; Schulte (1941: 61-62). For example, the words *Brücke* ‘bridge’ and *Rücken* ‘back’ can be realized as [bryyə]/[bryjə] and [riyŋ]/[ryjn] respectively. According to Schulte, pronunciation with [y] (= [y]) is typical for northern regions and [j] (= [j]) in parts of the west.

<sup>10</sup>The work is not cited in Table 12.15 because it is difficult to determine the correct set of targets and triggers for any one community. Nevertheless, as I point out below Schulte’s (1941) study represents a microcosm of the Wph region.

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Table 12.15: Targets and triggers for (postsonorant) velar fronting in  
Wph (<WGmc <sup>+</sup>[k x y])

Target	Trigger	Place	Source
L	A	Plettenberg	Gregory (1934)
L	B	Vest Recklinghausen (Byfang)	Hellberg (1936)
L	AA	Rhoden	Martin (1925)
		Willingen	Martin (1942)
L	CC	Schieder-Schwalenberg	Böger (1906)
		Altenluenne	Borchert (1955)
L	DD	Adorf	Collitz (1899)
L	E	Sudeck	Martin (1942)
		Kreis Tecklenburg	Bethge & Bonnin (1969)
L	EE	Soest	Holthausen (1886)
		Paderborn	Brand (1914)
		Freienhagen	Martin (1942)
		Laer	Niebaum (1974)
		Müschede	Niebaum et al. (1976)
M	E	Elspe	Arens (1908)
		Borken	Herdemann (1921 [2006])
M	EE	Münster	Keller (1961)
M	CC	Lippe	Hoffmann (1887)
		Hiddenhausen	Schwagmeyer (1908)
		Nienberge	Seymour (1970)
		Reelkirchen	Stellmacher (1972)

## 12 Targets, triggers, and rule generalization

Velar fronting in word-initial position in Wph (<WGmc<sup>+</sup>[y]) typically exemplifies Target Type LL because /x/ (<WGmc<sup>+</sup>[y]) is the only dorsal fricative present in that context. (Recall from §4.3 that Wph – represented by Soest – underwent Wd-Initial /y/ Fortition). A pattern that is uncommon for Wph is attested by Kirchspiel Courl (Target Type MM). In that place, WGmc<sup>+</sup>[y] is retained as /y/ in word-initial position and is not restructured to /x/. /y/ surfaces as [y] before a back vowel and as [j] before a front vowel or coronal consonant, e.g. [yɔ:ən] ‘go-INF’, [jeet] ‘goes-3SG’, [jraf] ‘grave’. This pattern represents Target Type MM because /y/ is the only velar serving as the target for word-initial velar fronting.

Word-initial velar fronting shows variation concerning triggers. For example, in certain parts of the Plettenberg region (§12.6.1), word-initial fronting of /x/ to [ç] is triggered by high front vowels (Trigger Type A), e.g. [çjøtŋ] ‘eaten-PART’ vs. [xelt] ‘money’. By contrast, Soest illustrates Trigger Type BB, e.g. Soest [çistan] ‘yesterday’, [çeo:s] ‘goose’ vs. [xuət] ‘good’, [xlykə] ‘fortune’. The same pattern obtains in the text provided (in phonetic transcription) for Laer (Niebaum 1974: 155–177), e.g. [çift] ‘poison’ cs. [xa:niks] ‘nothing at all’, [xlati:s] ‘black ice’. In Schieder-Schwalenberg (§7.2) the set of triggers for word-initial velar fronting consists of all coronal sonorant consonants (Trigger Type CC), e.g. [çistərn] ‘yesterday’, [çelt] ‘money’, [clas] ‘glas’ vs. [xafəl] ‘fork’. Note that /x/ surfaces as [x] before the uvular rhotic, e.g. [xraf] ‘grave’. Elspe (§7.2) exhibits the entire range of triggers (Trigger Type E), e.g. [çelt] ‘money’, [çæftə] ‘give-SUBJ’, [çlɔftə] ‘believed-PRET’ vs. [xɔlt] ‘gold’. In contrast to Schieder-Schwalenberg, the rhotic in Elspe is coronal [r], before which the palatal fricative occurs, e.g. [çræt] ‘big’.

Not reflected in Table 12.16 is postsibilant [x] (<WGmc<sup>+</sup>[sk]). In general, that [x] surfaces as velar even if a front vowel follows (see Hall 2021 for extensive discussion). This is the pattern attested in Diemelsee, e.g. [sxip] ‘ship’, Plettenberg, e.g. [sxiep] ‘ship’, Gütersloh, e.g. [sxyt] ‘shoots-3SG’, and Laer, e.g. [sxøin] ‘beautiful’. In Elspe, [x] surfaces as [ç] after word-initial [s] if a front vowel or coronal consonant follows that sound, e.g. [çyt] ‘shoots-3SG’, [çrapn] ‘scrape-INF’ vs. [sxvyn] ‘dread-INF’. By contrast, in Borken the /x/ in question surfaces as [ç] before a front vowel and as [x] when followed by a back vowel or coronal consonant, e.g. [scip] ‘ship’, [sçæ:məl] ‘stool’ vs. [sxap] ‘cupboard’, [sxrubbm] ‘scrub-INF’. In the same dialect word-initial [y] does not undergo fronting, e.g. [yæ:l] ‘yellow’. Hence, for Borken we have target Type L and Trigger Type D, but only for /x/ following a word-initial sibilant.

The final WLGM dialect to consider is Eph. I discuss first velar fronting in postsonorant position and then in word-initial position:

### 12.3 Survey of triggers and targets for velar fronting in German dialects

Table 12.16: Targets and triggers for (word-initial) velar fronting in Wph (<WGmc <sup>+</sup>[y])

Target	Trigger	Place	Source
LL	A	Plettenberg	Gregory (1934)
LL	E	Elspe	Arens (1908)
LL	BB	Soest	Holthausen (1886)
		Laer	Niebaum (1974)
LL	CC	Schieder-Schwalenberg	Böger (1906)
		Nienberge	Seymour (1970)
MM	CC	Kirchspiel Courl	Beisenherz (1907)

#### 12.3.6.3 Eastphalian

Typical for this region is Target Type M, although Target Type L is also well-represented. Target Type M is attested in four places discussed earlier, namely Magdeburger Börde (§4.4), Eilsdorf (§8.3), Dorste (§4.4), and Dingelstedt am Huy (§8.4). Target Type L is exemplified by Meinersen (§4.3), Börßum (§4.3), and Lesse (§8.3), e.g. Meinersen [daxt] ‘wick’, [sleçt] ‘bad’ vs. [va:yŋ] ‘car’, [ge:yŋ] ‘around’; Börßum [løxt] ‘air’, [biçtə] ‘confession’, [marçt] ‘market’ vs. [ze:yŋ] ‘say-INF’.

In contrast to Wph, the set of triggers for postsonorant velar fronting in all but one of the Eph sources consists of all coronal sonorants (if present); hence, no variety has been found in which a restricted set of coronal sonorants triggers fronting. An Eph variety illustrating Trigger Type E is Lesse, e.g. [sleçt] ‘bad’, [væ:c] ‘way’, [balç] ‘brat’ vs. [laxŋ] ‘laugh INF’, [bryyə] ‘bridge’, [fɔ:ył] ‘bird’.

The one place in the Eph region characterized by a more restricted set of triggers (and targets) is the area around Celle, documented in ACeM. It is clear from the maps in that source that velar fronting is active in postsonorant position. For example, the map for *wenig* ‘few’ on p. 133 shows realizations throughout the region with the symbol for a fortis palatal fricative after the front vowel [i]. Other examples discussed in that source reveal the occurrence of [x] after back vowels (e.g. pp. 44-45). Several items ACeM document the occurrence of the lenis velar fricative [y] in the context after back vowels and front vowels (e.g. [y] after

## 12 Targets, triggers, and rule generalization

[ai] and before another vowel in the word *fliegen* ‘fly-INF’, p. 139); hence the region is characterized by Target Type L. The area in and around Celle is worthy of note because of the context after a coronal sonorant consonant. According to the map for *Berg* ‘mountain’ (p. 59), the final segment is pronounced as [x] after [r] throughout the entire region, while [..rç..] is restricted to the town of Nordburg (ca. 15 km southeast of Celle). The realization of /x/ as [x] after [r] is also attested in the same area for the word *durch* ‘through’, p. 217, although [ç] (from /x/) also occurs to the north. I conclude that the region around Celle was characterized by Target Type L and the rare Trigger Type BB.

Table 12.17: Targets and triggers for (postsonorant) velar fronting in Eph (<WGmc +[x y])

Target	Trigger	Place	Source
L	E	Lesse	Löfstedt (1933)
L	BB	Celle	ACeM
L	EE	Kreis Hannover	Bethge & Bonnin (1969)
L	CC	Meinersen	Bierwirth (1890)
		Börßum	Heibey (1891)
M	CC	Eilsdorf	Block (1910)
		Dorste	Dahlberg (1937)
		Emmerstedt	Brugge (1944)
		Göddekenrode/Isingerode	Lange (1963)
M	EE	Magdeburger Börde	Roloff (1902)
		Dingelstedt am Huy	Hille (1939)
LL	CC	Braunschweig	Pahl (1943)
		Mascherode	Bethge & Flechsig (1958)
		Kreis Wolfenbüttel	Bethge & Bonnin (1969)

Word-initial velar fronting is not present in many varieties of Eph because

### 12.3 Survey of triggers and targets for velar fronting in German dialects

historical /γ/ was restructured to /g/ ([g]) by g-Formation-1 (§4.2), e.g. Börßum (§4.3), [glu:ɔbm̩] ‘belief-INF’, [gu:ɔt] ‘good’, [gæl] ‘yellow’. This generalization also holds for the region around Celle in the maps (pp. 221, 223, 291) provided in ACeM. In those places where WGmc <sup>+</sup>[γ] is retained as /γ/ in word-initial position, velar fronting applies (Target Type MM), e.g. Lesse [je:m̩] ‘give-INF’, [yaf] ‘gave-PRET’. That pattern is much more prevalent in Eph than in Wph, which prefers Target Type LL. Recall from §8.5 that Dingelstedt am Huy has alternations in word-initial position between [g] (before a back vowel or consonant) and [j] (before a front vowel). Those alternations derive from /γ/, which surfaces as [j] by word-initial velar fronting (Target Type MM, Trigger Type B). That same type of example is also attested in Cattenstedt (Eph). Target Type LL is attested in Dorste (Trigger Type BB), e.g. [çelt] ‘money’ vs. [xlas] ‘glass’, [xɔt] ‘God’. A similar pattern obtains in Kamschlaken, e.g. [çift] ‘poison’, [çe:m̩] ‘give-INF’ vs. [xalə] ‘gall bladder’, [xlygə] ‘fortune’. Reinhausen (§7.2) is also Target Type LL, although that dialect shows that coronal sonorant consonants also induce fronting (Trigger Type C), e.g. [çelt] ‘money’, [çli:k] ‘same’ vs. [xɔt] ‘God’.

Hassel (1942) offers an overview of the Eph dialect spoken in towns and villages in the area south of Göttingen in the Werra Valley (Werratal). That study is significant because it shows with maps that two different Trigger Types are attested directly next to one another. Hassel observes that WGmc <sup>+</sup>[γ] is realized in word-initial position in the north of the Werratal as [x] before back vowels and as [ç] before front vowels (e.g. [xolt] ‘gold’ vs. [çistərn] ‘yesterday’). In the context before a consonant there are two attested outcomes: In one cluster of towns the realization is [x], and in others it is [ç], e.g. [xli:k]/[çli:k] ‘fortune’; see Hassel (1942: 65-67). In terms of the present classification those places with the realization [xli:k] have Trigger Type BB and those with the pronunciation [çli:k] Trigger Type CC.

As indicated in the heading for Table 12.18, the target segment for word-initial velar fronting derives historically from WGmc <sup>+</sup>[γ]. No variety of Eph has been found in which word-initial velar fronting affects the original velar in WGmc <sup>+</sup>[sk] clusters (Hall 2021).

None of the Eph dialects in the present study are attested which have a word-initial dorsal fricative that always surfaces as velar regardless of the nature of the following sound; recall the Wph dialect once spoken in Gütersloh (Wix 1921).

#### 12.3.7 East Low German

Velar-fronting is active throughout this region, although previous chapters have documented various places within ELGm where that rule is characterized by var-

## 12 Targets, triggers, and rule generalization

Table 12.18: Targets and triggers for (word-initial) velar fronting in Eph (<WGmc <sup>þ</sup>[y])

Target	Trigger	Place	Source
LL	BB	Dorste	Dahlberg (1937)
		Kamschlaken	Göschel (1973)
		Reinhausen	Jungandreas (1926, 1927)
		Magdeburger Börde	Roloff (1902)
		Eilsdorf	Block (1910)
		Cattenstedt	Damköhler (1919)
		Lesse	Löfstedt (1933)
		Dingelstedt am Huy	Hille (1939)
		Braunschweig	Pahl (1943)
		Göddekenrode/ Isingerode	Lange (1963)

ious quirks. One anomaly not mentioned earlier is the EPo variety described by Stritzel (1937), in the region surrounding the town of Lauenburg (Kreis Lauenburg and Kreis Stolp; Map 11.2). Stritzel's material contains an oddity otherwise unattested in EPo. In particular, Stritzel (1937: 55) documents a small enclave where [x] surfaces consistently as [x] regardless of the nature of the preceding sound. He writes: "Der NW der Landschaft hat die Eigenart, jedes palatale χ der angrenzenden Mda. als gutturales x zu sprechen". ["The northwest of the region has the peculiarity of pronouncing every palatal χ in the bordering dialects as guttural x'.] According to Stritzel's Maps 16 and 21, those non-fronting varieties in the northwest occur in a number of communities in Kreis Stolp, while velar fronting areas include Kreis Lauenburg and Kreis Bülow (Map 11.2). Examples include [na:xt]/[nɔ:xt] 'night', [li:xt] 'light' and [ʃlext] 'bad' (where [x] derives from /χ/) as well as [krixt] 'gets-3SG', [zext] 'says-3SG', where [x] derives from /y/.

### 12.3 Survey of triggers and targets for velar fronting in German dialects

This one conservative non-velar fronting island aside, postsonorant velar fronting is active throughout ELGm. Recall from Chapter 11 that word-initial velar fronting is also attested in various places in this region. In terms of segments undergoing postsonorant velar fronting, there is a clear preference for Target Type M, but Chapter 11 documented several varieties with a broader set of target segments (Target Type N). One rare pattern for this area is Target Type L, which is only attested in two places in the present survey (see below).

In the sources cited here the triggers for postsonorant velar fronting consist of all front vowels and coronal consonants, but one variety commented on below is attested in which coronal consonants (/r/) fail to induce postsonorant velar fronting.

I consider first Brb/MeWPo and summarize the generalizations concerning targets and triggers in Tables 12.19 and 12.20. I conclude this section by summarizing the patterns attested for EPo and LPr.<sup>11</sup>

#### 12.3.7.1 Brandenburgish and Mecklenburgish-West Pomeranian

Target Type M for postsonorant velar fronting is represented by Neu-Golm (Brb), e.g. [he:çtə] ‘height’, [balç] ‘bellows’, [bɛ:ljə] ‘bellows’ vs. [laxŋ] ‘laugh-INF’, [fo:yʃ] ‘bird’. The two attested cases of Target Type L is found in the westernmost region of this dialect area, namely in the Rebenstorf and Lüneburger Wendland, e.g. Lüneburger Wendland [myç] ‘mosquito’, [reçt] ‘right’ vs. [laxŋ] ‘laugh-INF’, [mayp] ‘lean’, [nɛ:yʃl] ‘nail’.<sup>12</sup>

Front vowels (including low front vowels if present) induce velar fronting, e.g. South Mecklenburg [vɛç] ‘path’, [væ:c] ‘paths’ vs. [tɔxt] ‘breeding’, [ox] ‘eye’. The rare case of Target Type BB is attested in Wolgast, e.g. e.g. [pli:çt] ‘duty’, [zɛç] ‘said-PART’, [brø:c] ‘bridge’ vs. [dox], [balx] ‘brat-DAT SG’.

Bretschneider’s (1951) description of the Brb variety of Hinzdorf (Wittenberge) is significant because her discussion of the velar and palatal fricatives reveals

<sup>11</sup>The one ELGm subdivision I do not discuss is CPo. There is general agreement in the literature on German dialectology that CPo is a region not quite the same as the neighboring ones (e.g. Wiesinger 1983b, Schönfeld 1989), but there is sadly a dearth of detailed studies on the structure of CPo (see Wiesinger & Raffin 1982: 379–380). The only sources for CPo indicated on Map 11.1 are Brose (1955) and Prowatke (1973). On the basis of the phonetic transcriptions in both of those works it can be concluded that postsonorant velar fronting is active for the target /x/ and that the triggers are front vowels. The modern reflex of WGmc \* [y] for Brose’s speakers is [g] in word-initial and postsonorant position. Prowatke (1973: 77) observes that WGmc \* [y] is often realized as [j] in word-initial position.

<sup>12</sup>In the pronunciation guide to TeWb for the Teltow dialect there is a clear description of the realization of velar fricatives as palatal which corresponds to Target Type M and Trigger Type E (pp. 300–301).

## 12 Targets, triggers, and rule generalization

that there is a low front vowel which does not trigger velar fronting (=Trigger Type AA). She writes (p. 97): “Zu beachten ist besonders, daß überoffenes e, mit ä bezeichnet, als gutturaler Laut dem ach-Laut verbunden ist ...”. [‘Attention should be paid to [the fact that] the over-open e, indicated as ä, is connected with the guttural sound, the ach-Laut’. For example, the [ch] in [sächt] ‘says-3 sg’ is phonetically [x].]

In word-initial position WGmc <sup>+</sup>[y] is realized in some Brb varieties as [j] in the context before front vowels (Target Type BB). The more common change from velar to [j] in word-initial position before all segments (including consonants and back vowels) for Brb and other dialect regions is discussed at length in Chapter 14. Word-initial fronting (Target Type MM, trigger Type BB) is attested in Neu-Golm and Neumark (both Brb); e.g. Neu-Golm [gans] ‘goose’ vs. [jenzə] ‘geese’; Neumark [go:n] ‘go-INF’ vs. [je:st] ‘go-2SG’. The complex pattern of word-initial velar fronting in West Mecklenburg was discussed at length in §11.3. Table 12.20 provides a summary:

### 12.3.7.2 East Pomeranian and Low Prussian

This area is diverse in terms of variation for targets and triggers (§11.5, §11.6). Velar fronting places in this region typically select the target segments from the set of velar consonants in (3b); recall Table 11.3. In Tables 12.21 and 12.22 I list the Trigger Types and Target Types for EPo/LFr for postsonorant and word-initial position respectively.

The dictionary for the Pommern (Pomerania) dialect (PWb) provides a brief statement on the realization of WGmc <sup>+</sup>[y] in word-initial position (Volume 1: 891) in a broad area defined as the former province of Pomerania (Map B.1). According to that statement, the etymological lenis velar fricative is typically realized as a palatal ([j]) in the context before front vowels (=Trigger Type D or BB). In another area, WGmc <sup>+</sup>[y] is pronounced palatal before front vowels and [d] before liquids (=Trigger Type C or CC). The change from [j] to [d] before [l r] necessitates a separate change. No mention is made in PWb of velar noncontinuants serving as targets; hence, Target Type MM (and not target Type N) holds for all areas with word-initial velar fronting.

## 12.4 Areal distribution of trigger and target types

I present four maps below which indicate the distinction between various velar fronting triggers (§12.4.1) and targets (§12.4.2). An examination of those maps should indicate the difficulty of drawing isoglosses separating Trigger/Target

## 12.4 Areal distribution of trigger and target types

Table 12.19: Targets and triggers for (postsonorant) velar fronting in Brb and MeWPo (<WGmc <sup>+</sup>[x y])

Target	Trigger	Place	Source
L	EE	Lüneburger Wendland	Selmer (1918)
		Rebenstorf (Lübbow)	Götze (1922)
M	E	Jerichower Land	Bathe (1932)
M	AA	Hinzdorf (Wittenberge)	Bretschneider (1951)
M	CC	Neumark	Teuchert (1907b,c)
		Warte	Teuchert (1907a) Siewert (1907)
		Besten	Seelmann (1908)
		Prenden	Siewert (1912)
		Neu-Golm	Teuchert (1934)
		South Stargard	Schönfeld (1989)
		Tempelfelde	
		Magdeburg	Krause (1895)
N	EE	Kaarßen	Dützmann (1932)
		West Mecklenburg	Kolz (1914)
LL	BB	Wolgast	Warnkross (1912)
LL	CC	Stargard	Blume (1933)
		Arendsee	Törnqvist (1949)
		Heckelberg	Teuchert (1964)
		Schollene	Schönfeld (1965)
		Kreis Wismar	Bethge & Bonnin (1969)
LL	DD	South Mecklenburg	Jacobs (1925a,b, 1926)
LL	EE	Ivenack-Stavenhagen	Holst (1907)
		Barth	Schmidt (1912a)
		Kreise Arnswalde, Friedeberg	Seelmann (1913)
		Greifswald, Schwerin	Prowatke (1973)

## 12 Targets, triggers, and rule generalization

Table 12.20: Targets and triggers for (word-initial) velar fronting in Brb and MeWPo (<WGmc +[k y])

Target	Trigger	Place	Source
N	EE	West Mecklenburg	Kolz (1914)
MM	BB	Neumark	Teuchert (1907b,c)
		Neu-Golm	Siewert (1912)

Table 12.21: Targets and triggers for (postsonorant) velar fronting in EPo and LPr (<WGmc +[k x y η])

Target	Trigger	Place	Source
M	CC	Königsberg	Mitzka (1919)
		Kreis Schlawe	Mahnke (1931)
		Mandtkeim	Bink (1953)
N	C	Kamnitz	Tita (1921 [1965])
N	E	Kreis Bülow	Mischke (1936)
		Willuhnen	Natau (1937)
N	CC	Kreis Konitz	Semrau (1915a,b)
		Śepónó Krajeńskie	Darski (1973)
N	EE	Lauenburg	Pirk (1928)

Types. In contrast to well-known textbook examples in which targets and triggers for other changes correspond to discreet areas separated by large distances (e.g. OHG Consonant Shift), the areal distribution for the various velar fronting patterns does not always give a clean picture. The way in which the German dialects discussed below shed light on where velar fronting was phonologized is delayed until §16.4.

### 12.4.1 Velar fronting triggers

As indicated in (2), there are three Trigger Types that have not been recognized in the small literature on velar fronting in German dialects (e.g. Herrgen 1986, Robinson 2001), namely the restriction of fronting to the context of either (a)

## 12.4 Areal distribution of trigger and target types

Table 12.22: Targets and triggers for (word-initial) velar fronting in EPo and LPr (<WGmc <sup>+</sup>[k x y ŋ])

Target	Trigger	Place	Source
N	D	Lauenburg	Pirk (1928)
		Kamnitz	Tita (1921 [1965])
		Willuhnen	Natau (1937)
N	BB	Kreis Konitz	Semrau (1915a,b) Darski (1973)
		Sępóno Krajeńskie	
MM	BB	Kreis Bütow	Mischke (1936)
		Kreis Rummelsburg	Mischke (1936)
MM	CC	Königsberg	Mitzka (1919)
		Mandtkeim	Bink (1953)

high front vowels, (b) nonlow front vowels, or (c) front vowels to the exclusion of front (coronal) consonants. I consider each in turn in light of the present survey.

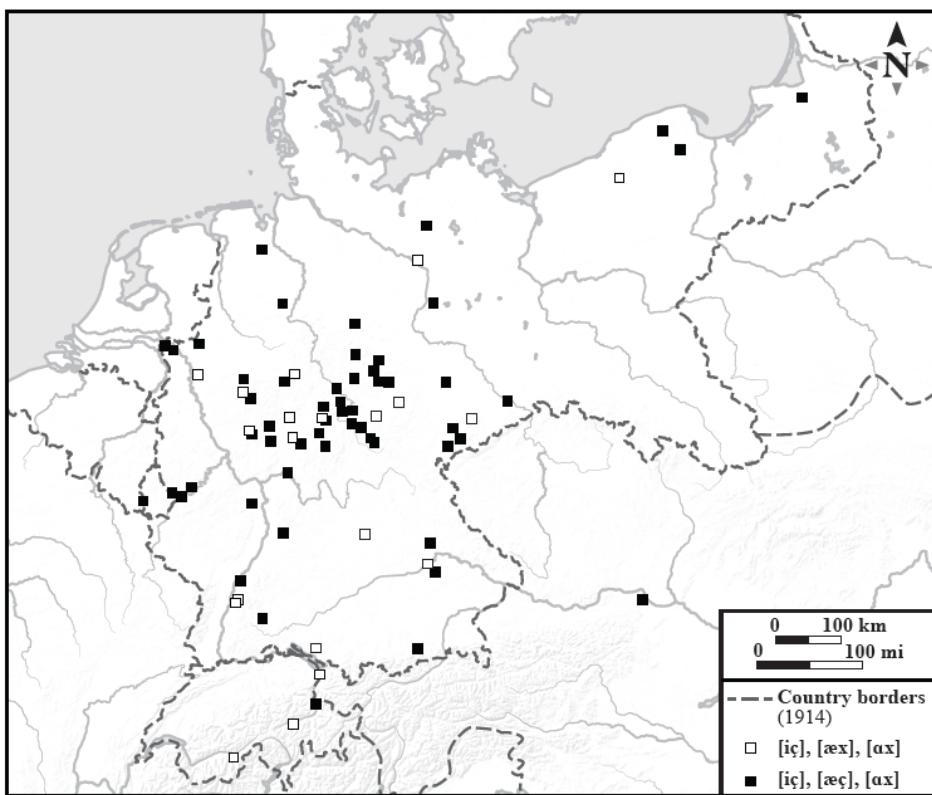
The high front vowel context is the rarest of all Trigger Types, since it is attested only two geographically noncontiguous varieties of German (in both word-initial position and postsonorant position), namely Visperterminen (HstAlmc) and Plettenberg (Wph).

Although the set of nonlow front vowels as triggers is robustly attested, that type of dialect is considerably less preferred to those in which all front vowels trigger fronting. Map 12.1 indicates the two types of dialect referred to here for the postsonorant context.

Map 12.1 reveals that those places in which low front vowels do not induce fronting (white squares) are clustered primarily in the west, from as south as Switzerland to as far north as Rhineland and Lower Saxony. Recall from (2b) that this pattern reflects Trigger Types A, B, C, and AA.<sup>13</sup> The more numerous and geographically well-distributed dialects are those in which all front vowels (including low front vowels) serve as triggers (black squares). Those dialects display Trigger Types D, E, and DD.

<sup>13</sup>Included among the white squares is one variety (EHes) discussed in §12.3.4 that I did not place in any of the tables, namely the area to the west of Bad Hersfeld (Martin 1957).

## 12 Targets, triggers, and rule generalization



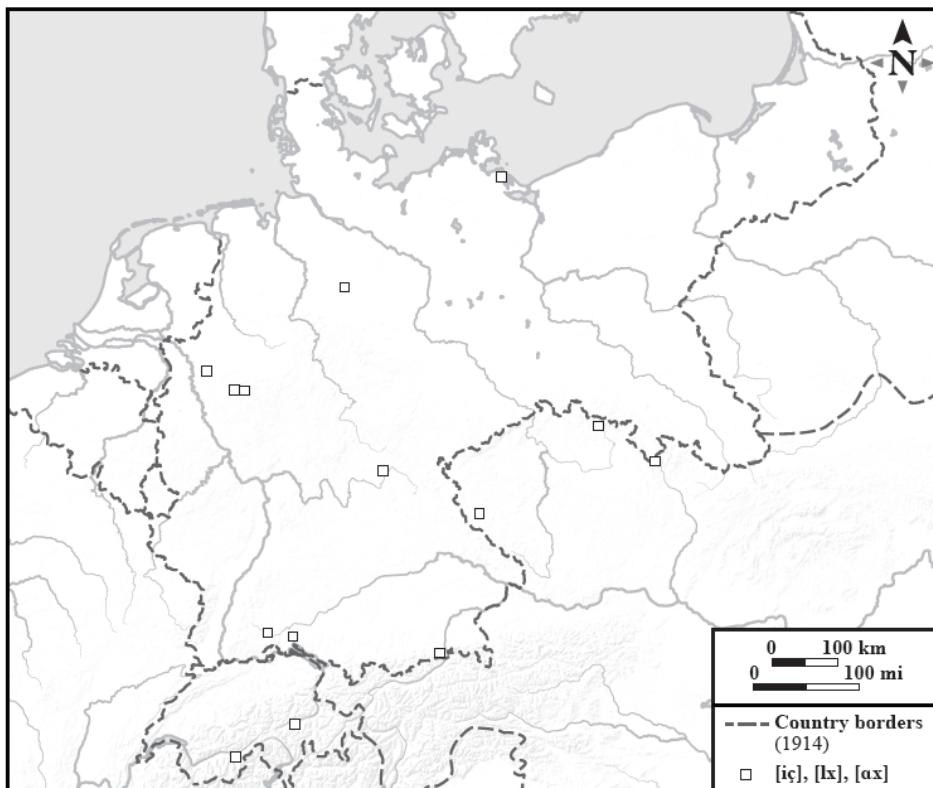
Map 12.1: Areal distribution of low front vowels as velar fronting triggers. Varieties of High German and Low German in which low front vowels do not serve as triggers for postsonorant velar fronting are indicated with white squares. Varieties in which low front vowels serve as triggers are indicated with black squares.

Chapter 13 assesses the state of velar fronting in Lower Bavaria on the basis of data from 221 villages, towns, and cities drawn from a linguistic atlas (SNiB). It is demonstrated in that chapter that the places within Lower Bavaria can differ according to Trigger Type. In particular, it is shown that the rarest Trigger Type referred to above (high front vowels) is the most common one, while the one with the largest set of triggers (all front vowels) is the rarest.

A dichotomy can be drawn between those dialects in which coronal sonorant consonants (e.g. /l/, /r/) do or do not trigger velar fronting (recall 2c). The type of dialect in which such sounds fail to trigger velar fronting in postsonorant position is rare; the present survey has uncovered fifteen; see Trigger Types A,

## 12.4 Areal distribution of trigger and target types

B, D, and BB in the tables presented earlier.<sup>14</sup> By contrast, the inclusion of coronal sonorant consonants among the triggers for postsonorant velar fronting is clearly the unmarked pattern (attested in 95 varieties of German). Map 12.2 depicts those rare varieties in which coronal sonorant consonants do not serve as triggers:



Map 12.2: Areal distribution of coronal sonorant consonants as triggers for postsonorant velar fronting. Varieties of High German and Low German in which coronal sonorant consonants (e.g. /l/, /r/) do not serve as triggers are indicated with white squares.

As a general rule, the realization of /x/ as [ç] after coronal consonants is the one documented in dialect dictionaries, regardless of region. The only exception to my knowledge is the dictionary for Dortmund (DoWb), which provides a clear

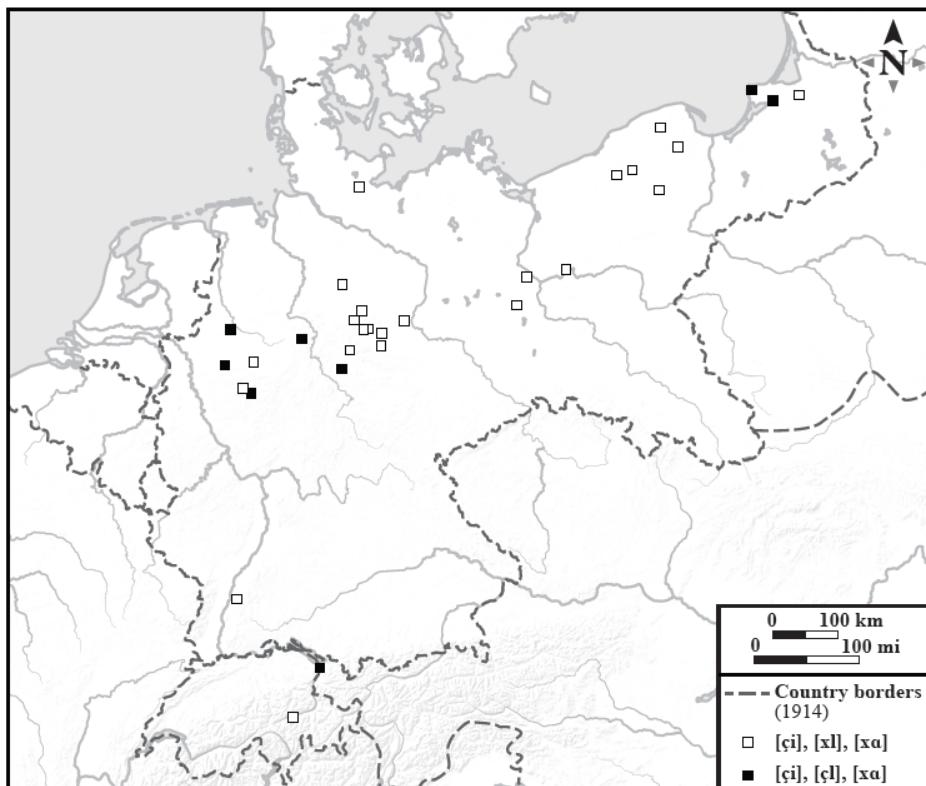
<sup>14</sup>Three of those places are not listed in the tables. See the discussion in §12.3.2 on the Swb varieties discussed by Haag (1898) and in §12.3.6 on the Wph ones by Schulte (1941). The third is Mühlingen (Müller 1911). Due to various complexities the data from that Swb variety cannot be discussed until §14.3.2.

## 12 Targets, triggers, and rule generalization

statement (p. XVIII) inferring that [ç] occurs after front vowels and [χ] after back vowels or consonants ([l]). Dortmund is indicated on Map 4.2.

For further discussion on the status of consonants like [l] and [r] as triggers for postsonorant velar fronting the reader is referred to §13.5.2 and Chapter 15.

Word-initial position illustrates the opposite distribution: 22 varieties are attested in which velar fronting is not induced by coronal sonorant consonants (=Trigger Types A, B, D, BB), but only eight have been discovered in which those segments do serve as a trigger. The areal distribution of those two types of dialect are indicated on Map 12.3 for word-initial position.



Map 12.3: Areal distribution of coronal sonorant consonants as triggers for word-initial velar fronting. Varieties of High German and Low German in which coronal sonorant consonants (e.g. /l/, /r/) do not serve as triggers are indicated with white squares. Varieties in which coronal sonorant consonants serve as triggers are indicated with black squares.

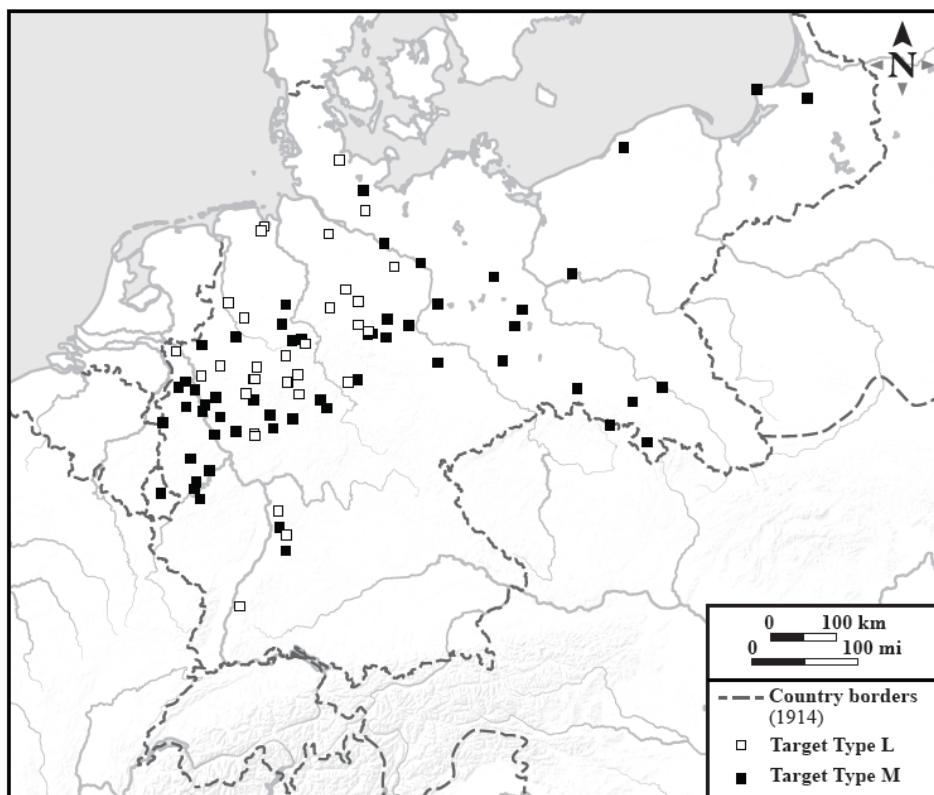
Map 12.3 reveals that most of the rare varieties where sounds like /l/ are not triggers (black squares) are clustered in the west central region of Germany. The

## 12.4 Areal distribution of trigger and target types

more common pattern (white squares) is well-attested in central/northern Germany.

### 12.4.2 Velar fronting targets

There are systems in which only fortis /x/ but not lenis /y/ undergoes velar fronting (Target Type L) as well as ones in which both /x y/ serve as targets for that process (Target Type M). Map 12.4 indicates the areal distribution of both types of dialect for postsonorant velar fronting. As indicated there, Target Type L is well-attested (twenty-two), although Target Type M is far more common (forty-three).



Map 12.4: Areal distribution of velar fricatives as targets for velar fronting. Varieties of High German and Low German in which /x/ but not /y/ serve as targets for postsonorant velar fronting (Target Type L) are indicated with white squares. Varieties in which both /x/ and /y/ serve as targets (Target Type M) are indicated with black squares.

## 12 Targets, triggers, and rule generalization

It can be observed that Target Type L (white squares) is well-represented in the central and northern part of Germany (WLGm) with only a few attestations further south. Target Type M (black squares) reveals a much broader distribution among German dialects (Wph, Eph, Sln, MFr, RFr, EPo, LPr).

German dialects in which velar fronting affects the entire class of velar consonants (Target Type N) are clustered in the northeast of 1914 Germany. It was noted in Chapter 11 that that type of dialect (Target Type N) can be contrasted with communities in the same region with a more restricted set of segments undergoing velar fronting (Target Type M). Those two types of systems are plotted on Map 11.3.

### 12.5 Rule generalization

I consider first the way in which the attested Target Types and Trigger Types match up with historical stages (§12.5.1) and then illustrate how those stages are reflected in certain clusters of dialects spoken in the same region (§12.5.2). A more in-depth discussion of how the various Target Types and Trigger Types can shed light on the relative age of velar fronting in certain regions is presented in Chapter 16. Chapter 13 looks at velar fronting throughout Lower Bavaria, showing how the three attested Trigger Types in that region can be interpreted historically in terms of rule generalization.

#### 12.5.1 Triggers, targets, and historical stages

In Table 12.23 I repeat the Trigger Types listed in the upper box in Table 12.1 and show how they correspond to the historical stages referred to throughout the remainder of this book. It is demonstrated here that Stage 2 is subdivided into a series of incremental stages defined according to Trigger Type.

Table 12.23: Trigger Types and the corresponding historical stages

Type	Trigger	Stage
A	HFV	2a
B	HFV, MFV	2b
C	HFV, MFV, CC	2c
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d

## 12.5 Rule generalization

Stages 2a, 2b, 2c, 2d proceeds chronologically in that order. Stage 2c' is coterminous with Stage 2c. The reason is that Stage 2b includes only {HFV, MFV} as triggers, at which point there is the option of expanding those triggers to include {CC} (=Trigger Type C=Stage 2c) or {LFV} (=Trigger Type D=Stage 2c').

The Trigger Types in the final five rows of Table 12.1 have in common that each one has at least one segment type not present in the context for velar fronting and hence there is indeterminacy concerning how those Trigger Types fit into the historical stages in Table 12.24. For example, for Trigger Type AA, the coronal consonant trigger ({CC}) is not present in the fronting context; hence, that Trigger Type could be either Stage 2b ({HFV, MFV}) or Stage 2c ({HFV, MFV, CC}). In Table 12.24 the five Trigger Types referred to here are matched to the historical stages from Table 12.23.

Table 12.24: Possible Trigger Types and the corresponding historical stages

Trigger	Stage
AA	2b or 2c
BB	2b or 2c'
CC	2c or 2d
DD	2c' or 2d
EE	2b, 2c, 2c', or 2d

In Table 12.25 I present Target Types L, M, and N from Table 12.3 and the corresponding historical stages. Due to gaps described earlier, the two remaining Target Types (LL/MM) cannot be unambiguously classified into one of the three stages listed in the final column of Table 12.25. The possible historical stages for Target Types LL/MM are listed in Table 12.26.

Table 12.25: Target Types and the corresponding historical stages

Type	Target	Stage
L	/x/	2aa
M	/x/, /ɣ/	2bb
N	/x/, /ɣ/, /k/, /g/, /ŋ/	2cc

The historical stages for triggers (Table 12.23) and targets (Table 12.25) are independent from one another. This point is illustrated in Figure 12.1.

## 12 Targets, triggers, and rule generalization

Table 12.26: Possible Target Types and the corresponding historical stages

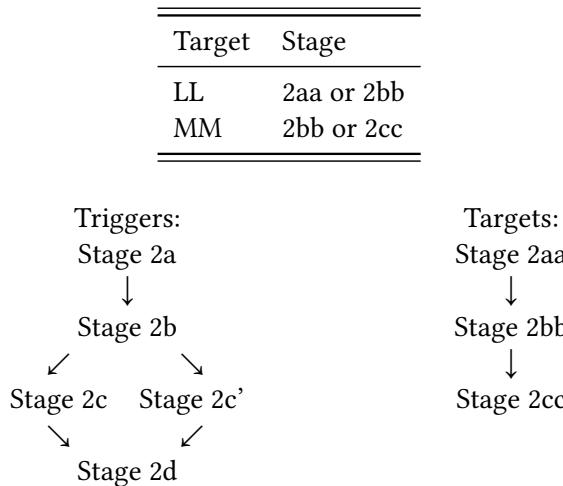


Figure 12.1: Historical stages for triggers and targets

Stage 2aa (/x/ as the sole target) could cooccur with any one of the stages for triggers, as could Stage 2bb (/x y/) and Stage 2cc (/x y k g η/).

### 12.5.2 Historical stages in selected areas

Velar fronting was phonologized first in the context of high front vowels (Stage 2a), at which point that group of triggers gradually expanded. The same progression occurred in targets from narrow to broad (Stage 2aa > Stage 2bb > Stage 2cc). As demonstrated below certain regions can be identified in which all or some of the historical stages for triggers and targets are reflected in specific communities in relatively close proximity.

Consider first the SwGm dialects (§12.3.1), which exemplify the various historical stages corresponding to different Trigger Types for both word-initial and postsonorant position. For word-initial position (Table 12.4) the stages are: Visperterminen (Stage 2a), Obersaxen (Stage 2b), and Rheintal (Stage 2c) and for postsonorant position (Table 12.3) they are Visperterminen (Stage 2a), Obersaxen (Stage 2b), Rheintal (Stage 2c), and Maienfeld (Stage 2d).

For the aforementioned SwGm varieties the progression from a narrow set of triggers to a broader one transpired along the time dimension, but not along the place dimension. The reason Stage 2a did not extend to Stage 2b in terms

## 12.5 Rule generalization

of geography is that the Stage 2 SwGm dialects listed above are separated from one another by large distances. Given the distances among the four velar fronting SwGm communities the implication is that velar fronting was phonologized independently in each of the four places (polygenesis); hence, there were four distinct focal areas in Switzerland.

A careful scrutiny of certain regions on the locator maps presented in previous chapters reveals places in close proximity representing the various historical stages. I consider two such LGm dialect clusters, namely Wph and EPo, in that order.

A reexamination of Map 4.2 for Wph is instructive because it reveals a number of varieties which represent the various Trigger Types. Seven of those Wph varieties are listed in (5). I also include here Grafschaft Bentheim as representative of Stage 1. The significant point is that the velar fronting varieties are all located within an area of about 100km from north to south and 80km from east to west. As illustrated in (5), six of the places indicated on Map 4.2 represent distinct historical stages for (word-initial) velar fronting Trigger Types. (In that context there is no variation in Target Type, since the only sound undergoing velar fronting is /x/). The word-initial velar fricative referred to here derived historically from WGmc <sup>+</sup>[y], although a similar set of stages also involved the reflexes of <sup>+</sup>[k] in WGmc <sup>+</sup>[sk] clusters. In §14.2.2 I expand (5) by adding an additional dialect.

- (5) Historical stages for triggers for (word-initial) velar fronting (Wph):

- Stage 1: Grafschaft Bentheim
- Stage 2a: Plettenberg
- Stage 2b: (Soest, Laer)
- Stage 2c: (Nienberge)
- Stage 2c': (Borken)
- Stage 2d: Elspe

Plettenberg represents the rare high front vowel trigger corresponding to Stage 2a, while Elspe possesses the broadest set of triggers (Stage 2d). There are no clear-cut examples of dialects representing Stage 2b, 2c, or 2c', although there are several potential ones, four of which are presented above in parentheses. What is clear from (5) is that there is a cluster of Wph dialects in which coronal sonorant consonants ({CC}) do not belong to the set of triggers (Plettenberg, Soest, Laer, Borken), while other varieties fronting is induced by some subset of the front vowels or coronal sonorant consonants (Elspe).

## 12 Targets, triggers, and rule generalization

In (6) I list the same Wph varieties for postsonorant velar fronting. I also include Byfang, which represents Stage 2b. Note that the seven velar fronting varieties in (6) represent two distinct historical stages for Target Types.

- (6) Historical stages for triggers and targets for (postsonorant) velar fronting (Wph):

Stage 1: Grafschaft Bentheim

Stage 2a: Plettenberg

Stage 2aa: Plettenberg, Byfang, Soest, Laer

Stage 2b: Byfang

Stage 2bb: Borken, Nienberge, Elspe

Stage 2c: (Nienberge)

Stage 2c': (Soest, Laer)

Stage 2d: Elspe, Borken

A comparison of the places listed in (5) and (6) with Map 4.2 reveals that they are situated in the same region, although it is not possible to say that one particular place is immediately adjacent to another one which represents the immediately following historical stage.

A similar cluster of EPo varieties (§12.3.7, listed in Table 12.21) is depicted in (7) for postsonorant velar fronting. All of the places listed here are located in an area of between approximately 80km from north to south and 80km from east to west on Map 11.2.

- (7) Historical stages for triggers and targets for (postsonorant) velar fronting (EPo):

Stage 1: Kreis Stolp

Stage 2a: —

Stage 2b: —

Stage 2bb: Kreis Schlawe

Stage 2c: Kamnitz, (Kreis Schlawe)

Stage 2cc: Kamnitz, Lauenburg, Kreis Bülow

Stage 2c': Lauenburg

Stage 2d: Kreis Bülow

Recall from §12.3.7 that Kreis Stolp is a rare example of a non-velar fronting island. The stages for Trigger Types are well-represented in this region, although there are two gaps (Stages 2a and 2b). Kreis Schlawe exemplifies Stage 2bb (which is rare for that region), while Kamnitz, Lauenburg, and Kreis Bülow illustrate the more common Stage 2cc.

## 12.6 Nonheight features as triggers

The data from German dialects presented in Chapter 3–Chapter 11 provide overwhelming evidence that variation among front vocalic triggers involves the vowel

## 12.6 Nonheight features as triggers

height parameter alone. In this section I discuss those rare cases in which velar fronting is triggered by nonheight features, namely rounding (§12.6.1), tenseness (§12.6.2), and stress (§12.6.3). I speculate below on how these deviant systems fit into the rule generalization model. One nonheight feature I do not discuss is [nasal], which is shown in §15.9 to be relevant in defining velar fronting triggers in a SwGm dialect of the Southwest Bernese Oberland.

### 12.6.1 Rounding

Consider once again the Wph dialect once spoken in the region around Plettenberg (Gregory 1934; Map 4.2). It was noted in §12.3.6 that Plettenberg displays the rare Trigger Type A (=Stage 2a) for both postsonorant velar fronting and word-initial velar fronting. That assessment requires further refinement on the basis of the material presented in the original source. Enough data are provided in Gregory (1934) to safely conclude that the high front vowel [i] serves as a trigger for both postsonorant fronting and word-initial fronting. It can also be deduced from that source that nonhigh front vowels do not serve as triggers. However, within the high front vowel category, Gregory's material includes not only unrounded [i] (= [i]) but also the rounded vowel [y] (= [ü]).<sup>15</sup> The complication is that [y] fails to serve as a trigger for velar fronting in both postsonorant and word-initial position. Consider first postsonorant fronting, which applies after [i] in (8a). [x] surfaces after nonhigh front vowels (in 8c), back vowels (in 8d), and coronal sonorant consonants (in 8e). Example (8f) shows that [x] (<WGmc +[sk]) also surfaces after an obstruent. Crucially, [x] and not [ç] occurs after [y] (in 8b). The [ç] and [x] in (8) derive historically from velars (WGmc +[y] or +[x]).

(8) Postsonorant dorsal fricatives in Plettenberg (from /x/):

a.	filixtə	[filiçtə]	vielleicht	'maybe'	22
	biχtə	[biçtə]	Beichte	'confession'	22
	slōpəriχ	[slo:pəriç]	schläfrig	'sleepy'	21
	xəsxixtə	[xəsxıçtə]	Geschichte	'history'	30
b.	füxŋ	[fyxŋ]	Fichten	'spruces'	37
	ʒəhüxtə	[yəhyxtə]	Dickicht	'thicket'	35
c.	kröxŋ	[krøxŋ]	husten	'cough-INF'	16
	döxtř	[døxtr]	Töchter	'daughters'	16

<sup>15</sup> Among high vowels Plettenberg has a length contrast, i.e. [i y u] vs. [i: y: u:] (= [i ü ū]), but high lax vowels found in other dialects ([ɪ ʏ ʊ]) are absent. No examples were found in the original source in which long high front vowels surface in the neighborhood of /x/.

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nöxtə	[nœxtə]	Nähe	'vicinity'	37
wiéx	[viex]	Weg	'path'	13
lęxn̩	[lexn̩]	lagen	'lay-PRET PL'	21
ręxt	[rext]	Recht	'justice'	35
lext	[slext]	Licht	'light'	29
knext	[knext]	Knecht	'vassal'	35
æxtr̩	[æxtr̩]	hinter	'behind'	35
d. tuxt	[tuxt]	Zucht	'breeding'	37
doxtr̩	[doxtr̩]	Tochter	'daughter'	37
e. bierz	[bierz]	Berg	'mountain'	37
f. tüsxr̩	[tysxr̩]	zwischen	'between'	15

In word-initial position the same generalization holds: Velar fronting affects /x/ (<WGmc <sup>+</sup>[y]), which surfaces as [ç] before [i] (see 9a), and as [x] before nonhigh front vowels (in 9c), consonants (in 9d), and most significantly [y] (in 9b). The data in (9e) reveal that word-initial [sx] (<WGmc <sup>+</sup>[sk]) surfaces as [sx] even if [i] follows.<sup>16</sup>

## (9) Word-initial dorsal fricatives in Plettenberg:

a. xistr̩n	[çistr̩n]	gestern	'yesterday'	13
xiéwn̩	[çievn̩]	geben	'give-INF'	13
xiét̩n̩	[çietn̩]	gegessen	'eaten-PART'	30
b. xüt	[xyt]	gießt	'waters-3SG'	30
xüötə	[xyoetə]	Grütze	'groats'	19
c. xeld	[xelt]	Geld	'money'	13
d. xriép	[xriep]	Griff	'handle'	14
e. sxiémn̩	[sxiemn̩]	schämen	'be ashamed-INF'	12
sxiép	[sxiep]	Schiff	'ship'	14
sxiufkár	[sxiufka:r]	Schubkarre	'wheelbarrow'	25

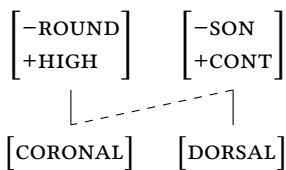
The data in (8) and (9) can be expressed by incorporating the feature [-round] in the set of velar fronting triggers:

## (10)

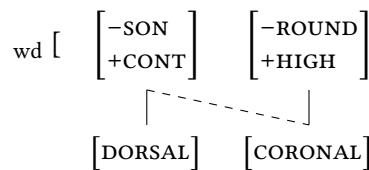
<sup>16</sup>In some varieties of Plettenberg referred to in the original source, WGmc <sup>+</sup>[y] is inherited without change as [y]. That sound fails to undergo fronting even before [i], e.g. [yelt] 'money', [yistr̩n] 'yesterday'. The contrast between (9a) and (9e) suggests that word-initial velar fronting in Plettenberg must specify that the target segment (/x/) is at the left edge of the word.

## 12.6 Nonheight features as triggers

a. Velar Fronting-11:



b. Wd-Initial Velar Fronting-7:



The two rules in (10) are unique to Plettenberg; however, the pattern discussed in the case study discussed below derives support from several German dialects.

Diachronically the Plettenberg data suggest that the historical stages for Trigger Types proposed in Table 12.23 need to be further refined. In particular, I claim that Stage 2a can be preceded by a stage in which only high front unrounded vowels (HFUV) but not high front rounded vowels serve as triggers. I refer to that stage as Stage 2a' (=Trigger Type A') in Table 12.27.

Table 12.27: Trigger Types and the corresponding historical stages for Plettenberg

Type	Trigger	Stage
A'	HFUV ([i])	2a'
A	HFV ([i y])	2a
B	HFV, MFV	2b
C	HFV, MFV, CC	2c
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d

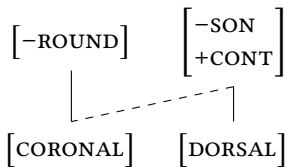
Data from South Mecklenburg (Jacobs 1925a, Jacobs 1925b, Jacobs 1926; §11.3, Map 11.1) lend further support to the claim that dialects can draw a distinction between front rounded and front unrounded vowels as triggers for velar fronting. However, the material presented below from that dialect suggest that there can be an additional stage intervening between Stage 2a' and Stage 2a. As noted earlier, Jacobs provides a wealth of material collected in a broad region in South Mecklenburg indicating that [x] surfaces after a back vowel and [ç] after any front unrounded vowel. In contrast to Plettenberg, [x] surfaces for many speakers after front rounded vowels regardless of height (=11a). Doublets are provided for many tokens (=11b); according to Jacobs, the ones with [ç] occur in the northwest and the ones with [x] in the south. The [x] and [ç] in (11) derive historically from velars (WGmc <sup>+</sup>[x] or <sup>+</sup>[y]). The formal rule expressing the fact that the set of triggers is restricted to front unrounded vowels is stated in (12).

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### (11) South Mecklenburg [x] and [ç]:

a.	lüxt žüxt zœ̄x hœ̄x brȫxt	[lyxt] [zyxt] [zœ̄:x] [hœ̄:x] [brȫxt]	Laterne zweifelhafte Flüssigkeit Sau Freude brachte	'lantern' 'questionable' 'liquid' 'sow' 'joy' 'brought-PRET'	1925b: 121 1925b: 121 1925b: 1925b: 111 1925b: 133
b.	mȫxt, mǖχt brǖx, brǖ·χ mǖx, mǖ·χ rǖx, rǖ·χ trǖx, trǖ·χ	[mø̄xt], [myçt] [bryx], [bry·ç] [myx], [my·ç] [ryx], [ryç] [tryx], [try·ç]	mochte Brücke Mücke Rücken zurück	'liked-PRET' 'bridge' 'mosquito' 'back' 'back'	1926: 129 1926: 129 1926: 129 1926: 129 1926: 129

### (12) Velar Fronting-12



The distribution of dorsal fricatives in (11) and the formal rule in (12) are shown to be attested in one German language island (§15.3).

The data from South Mecklenburg suggest that speakers with [x] after a front rounded vowel preserve an earlier historical stage in which the triggers for velar fronting were high front unrounded vowels (HFUV) and mid front unrounded vowels (MFUV). This means that Stage 2b was preceded by Stage 2a' (as in Plettenberg), followed by Stage 2a'' (= Trigger Type A'', consisting of front unrounded vowels).

Due to the rarity of Trigger Type A' and A'', it is not clear whether or not all German dialects begin at Stage 2a' and proceed to Stage 2a'', or if dialects have the option of beginning at Stage 2a' (as in Plettenberg) or Stage 2a.

#### 12.6.2 Tense ness

Recall from §11.5 that the EPo variety once spoken in Kreis Rummelsburg (Mischke 1936; Map 11.2) is unique among German dialects in the sense that the triggers for velar fronting are restricted to front tense vowels ([i e æ]) or coronal sonorant consonants. After front lax vowels ([ɪ ɛ]) and back vowels, underlying velars /x y/ surface as velar.

## 12.6 Nonheight features as triggers

Table 12.28: Trigger Types and the corresponding historical stages for South Mecklenburg

Type	Trigger	Stage
A'	HFUV ([i])	2a'
A''	HFUV, MFUV ([i e])	2a''
B	HFV, MFV ([i y e ø])	2b
C	HFV, MFV, CC	2c
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d

From the diachronic perspective it is not clear how the set of triggers for velar fronting in Rummelsburg translates into the historical stages proposed above. I describe here a possible scenario: Rummelsburg represents a point (Stage 2d') whereby high front tense vowels (HFTV), mid front tense vowels (MFTV), low front tense vowels (LFTV) and CC trigger velar fronting. As indicated in Table 12.29, Stage 2d' preceded Stage 2d. Given the rule generalization model adopted in the present study, one might expect the set of triggers for Rummelsburg to be narrower at an earlier stage. Since the triggers in question refer crucially to [+tense] front vowels, it would be consistent with the present approach to further restrict those triggers along the height dimension; hence, the triggers for velar fronting in pre-Rummelsburg stages might have been more restricted groupings of front [+tense] vowels, three of which are indicated in Table 12.29: Stage 2c'' (front tense vowels are triggers), Stage 2b' (nonlow front tense vowels are triggers), and Stage 2a''' (high front tense vowels are triggers).

Table 12.29: Trigger Types and the corresponding historical stages for Rummelsburg

Type	Trigger	Stage
A'''	HFTV ([i])	2a'''
B'	HFTV, MFTV ([i e])	2b'
C'	HFTV, MFTV, LFTV ([i e æ])	2c''
D'	HFTV, MFTV, LFTV, CC ([i e æ r])	2d'
E	HFV, MFV, LFV, CC	2d

Since Rummelsburg is unique, the tentative proposal sketched above can only

## 12 Targets, triggers, and rule generalization

be evaluated once similar case studies from German dialects or other languages become known.

### 12.6.3 Stress

In the MFr variety of Sörth in Westerwald (Hommer 1910; §5.4; Map 5.3), the reflex of WGmc <sup>+</sup>[y] in word-initial position (in the *ge-* prefix) is an underlying palatal (/j/) before schwa (in 13a), but before other sounds the original word-initial velar is retained as the velar stop [g]. The examples in (13) are representative. Note that [g] occurs before front vowels (in 13b), back vowels (in 13c) or consonants (in 13d).

(13) [j] (from /j/) and [g] (from /g/) in Sörth:

a.	jəlāxt	[jəla:xt]	gelacht	'laughed-PART'	24
b.	giwəl	[giwəl]	Giebel	'gable'	10
	gēlən	[gə:lən]	gelten	'be valid-INF'	22
c.	gōt	[go:t]	gut	'good'	24
d.	grūs	[gru:s]	groß	'large'	24

Since the schwa in [jə] was originally [i] (cf. OHG, MHG *gi-*) it appears that historical [y] fronted to palatal in word-initial position before that particular vowel. This assumption is consistent with Stage 2a: Velar fronting applied word-initially before high front vowels. The problem is that the change from velar to palatal did not occur in words like [giwəl] 'gable' in (13b). Note that the [i] in that type of example can also be traced back to [i] in earlier stages of German, cf. MHG *gibel*, OHG *gibil*.

There was neither a qualitative nor quantitative difference between the [i] in MHG *gi-* and the [i] in the first syllable of words like MHG *gibel*. The only difference between the two instantiations of [i] is that the one in *gibel* was stressed, while the one in *gi-* was not. The conclusion is that the set of triggers for the first stage of (word-initial) velar fronting in dialects like Sörth was an unstressed high front vowel.

Note that the data from Sörth contrast with the more common pattern whereby all front vowels (or a subset thereof) trigger fronting, regardless of whether or not the front vowels in question are stressed or unstressed (-Trigger Types A-E). One example discussed earlier (§8.4) is the Eph dialect once spoken in Dingelstedt am Huy (Hille 1939; Map 4.3): A word-initial velar (<WGmc <sup>+</sup>[y]) surfaces as palatal before any original front vowel, e.g. [jelt] 'money' (cf. OSax *gelt*), [ja:i:jə] 'violin'

## 12.6 Nonheight features as triggers

(cf. MHG *gīge*), [jəzīçtə] ‘face’ (cf. OHG *gisih*) vs. [gu:t] ‘good’ (cf. OSax *gōd*), [gla:s] ‘glass’ (cf. OSax *glas*).

Sörth is not an isolated example. According to the phonetically-transcribed texts in Cornelissen et al. (1989) there are four towns in the same general area of Westerwald as Sörth which display the same pattern. The data in (14) are from one of those places (Birken). I retain the original transcriptions which indicate that [j] (=[[J]/[ʃ]]) occurs only before schwa (=[[e]]) in (14a) and [g] (=[[G]/[g]]) before front vowels (=14b), full back vowels (=14c), or consonants (=14d).

(14) [j] (from /j/) and [g] (from /g/) in Birken:

- |    |             |              |                    |
|----|-------------|--------------|--------------------|
| a. | Jēdicht     | Gedicht      | ‘poem’             |
|    | Jēschwistēr | Geschwister  | ‘sibling’          |
|    | jēschlacht  | geschlachtet | ‘slaughtered-PART’ |
| b. | ging        | ging         | ‘went-PRET’        |
|    | Gänse       | Gänse        | ‘geese’            |
| c. | gōn         | gehen        | ‘go-INF’           |
|    | gōre        | gute         | ‘good-INFL’        |
|    | gaantsēn    | ganzen       | ‘whole-INFL’       |
| d. | glööf       | glaube       | ‘believe-1SG’      |

The same source indicates that the pattern in (14) is the same in Friesenhagen, Flammersfeld, and Morsbach.

On the basis of the sources discussed above I conclude that there must have been a stage preceding Stage 2a for word-initial position – at least, in parts of Westerwald. At that point (Stage 2a””), WGmc +[y] underwent velar fronting in the narrow context before an unstressed [i]. Table 12.30 situates that stage with some of the other ones posited above (HUFV=High unstressed front vowel).

Map 12.5 depicts the five places discussed above representing Stage 2a”” in Westerwald. The map also indicates those places in the same area which represent Stage 1 for word-initial position. Stage 1 means that the place of articulation of the original velar (WGmc +[y]) is retained as velar ([g]). For comparison, Map 12.5 also indicates a very common pattern discussed in greater detail in Chapter 14 whereby WGmc +[y] is realized as palatal in word-initial position before any type of segment (Stage 2e).

Map 12.5 only documents those places discussed in Cornelissen et al. (1989) that are to the north and east of the Rhine River. It is possible that the aforementioned source might also contain evidence of Stage 2a”” places in other areas.<sup>17</sup>

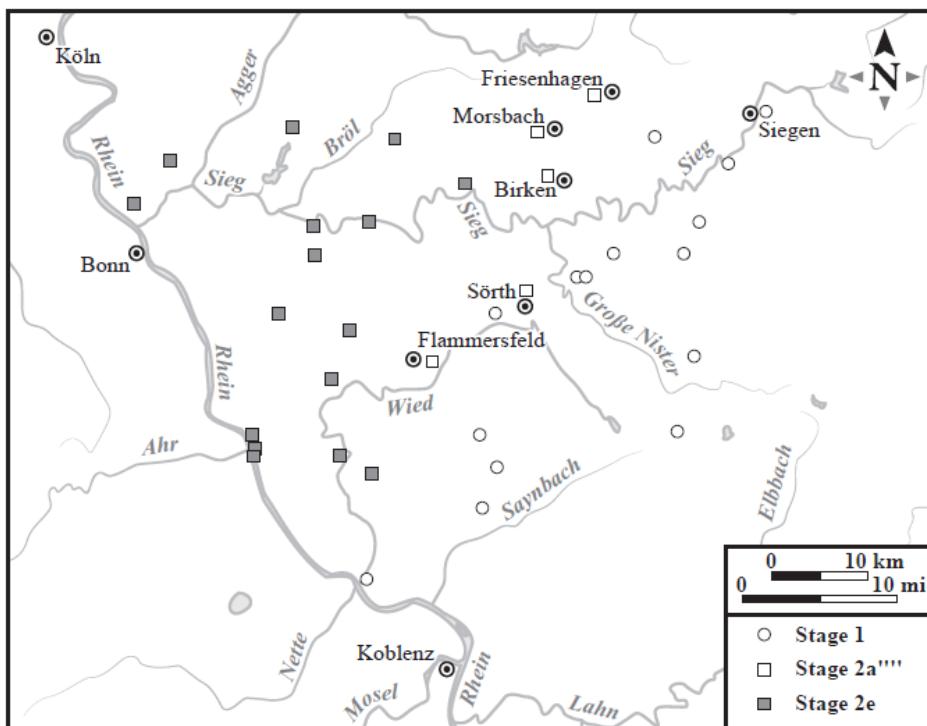
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<sup>17</sup>The areas on Map 12.5 to the south and west of the Rhine River fall within the domain of

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Table 12.30: Trigger Types and the corresponding historical stages for word-initial position

Type	Trigger	Stage
A'''	HUFV (unstressed [i])	2a'''
A	HFV	2a
B	HFV, MFV	2b
C	HFV, MFV, CC	2c
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d



Map 12.5: Westerwald. Circles represent the absence of velar fronting in word-initial position (WGmc <sup>f</sup>[y] is realized as [g]). White squares indicate the realization of WGmc <sup>f</sup>[y] as [j] in word-initial position before schwa ([ə]) and as velar ([g]) in the context before all other vowels as well as consonants (liquids). Lightly shaded squares indicate the realization of WGmc <sup>f</sup>[y] as a palatal fricative in word-initial position before any type of vowel or consonant (liquid). Sources: Hommer (1910) for Sörth and Cornelissen et al. (1989) for all other places.

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An independent source for a very different part of Germany (Kieser 1963) documents Stage 2a<sup>””</sup>. Kieser (1963) investigates the modern realizations of word-initial WGmc <sup>+</sup>[y] in South Brandenburg (Map 7.2). According to that source there is a broad area in which WGmc <sup>+</sup>[y] is realized as [j] in word-initial position, but only in the context before schwa (see Map 14.2 below).

## 12.7 Significance of triggers and targets for typology

The present survey of German dialects draws several conclusions concerning triggers and targets, some of which derive support in the cross-linguistic work on velar palatalization (§2.3). I consider triggers (§12.7.1) and targets (§12.7.2) in that order.

### 12.7.1 Velar fronting triggers

#### 12.7.1.1 Vowel height

The most significant finding in the present study is that the front vocalic triggers for velar fronting vary along the height dimension. The generalization is expressed as the implication in (15), which is motivated on the basis of a wide selection of typologically diverse languages (from Bateman 2007: 64), based on earlier studies by Neeld (1973: 37) and Chen (1973: 177). See also Kochetov (2011):

- (15) IMPLICATIONAL UNIVERSAL FOR PALATALIZATION TRIGGERS:  
If lower front vowels trigger palatalization, then so will higher front vowels.

(15) is exceptionless for the German dialects discussed in this book. No counterexamples from German dialects are known to the present writer.

The Implicational Universal for Palatalization Triggers accounts for the fact that several dialects are attested in which nonlow front vowels serve as triggers

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MRhSA. Maps 381 for *Garten* ‘garden’ and 382 for *grün* ‘garden’ in that source document the [j] realization consistent with Stage 2d, as well as the [g] realization for Stage 1. MRhSA notes on Map 381 that no comparable map is published for the word *gebissen* ‘bitten-PART’ (cf. MoStGm [gəbɪsən]) because the areal distribution for palatal and velar in that word is almost identical with the areal distribution of [j] and [g] in *Garten*. Map 73 in volume 4 of WDU indicates that the initial consonant of *gefallen* ‘please someone-INF’ (cf. MoStGm [gəfələn]) is realized as a palatal in an area of West Central Germany that includes the Westerwald. One cannot conclude that Map 73 provides independent evidence for Stage 2a<sup>””</sup> because WDU does not provide maps showing the realization of historical velars in word-initial position in other contexts, i.e. before full front and back vowels and consonants (liquids).

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but the low front vowels do not, e.g. sequences like [iç] and [eç] (with velar fronting) vs. ones like [æx] (without velar fronting). Significantly, none of the sources cited above have the reverse, i.e. sequences like [æç] (with velar fronting) vs. ones like [ix] and [ex] (without velar fronting). Apparent counterexamples discussed above are those dialects in which a front vowel traditionally described as mid fails to trigger fronting, while other vowels in the mid front range do, e.g. a sequence like [ex] (without velar fronting) vs. ones like [eç] and [iç] (with velar fronting). One example discussed earlier involves the fronting of word-initial /kx/ in the HAlmc variety of Rheintal (Berger 1913; §3.4; Map 3.2) before [i y ø: eə] but not before [ɛ: εə]. Recall that this is not a true counterexample to (15) because [ɛ:] and the first component of [εə] are phonologically [+low], in contrast to [i y ø:] and the first part of [eə], which are [-low].

Given the three types of front vowels that can function as triggers ({HFV, MFV, LFV}), the Implicational Universal for Palatalization Triggers accounts for the fact that four logically-possible triggers are unattested:

Table 12.31: Unattested Trigger Types involving vocalic triggers

Type	Trigger	Present in context for fronting
R	MFV	HFV
S	LFV	HFV, MFV
T	HFV, LFV	MFV
U	MFV, LFV	HFV

All four Trigger Types in Table 12.31 violate the Implicational Universal for Palatalization Triggers. For example, velar fronting is triggered by mid front vowels for Trigger Type R, but not for the high front vowels. The fact that (15) derives cross-linguistic support suggests that the four unattested Trigger Types in Table 12.31 are not simply accidental gaps.

### 12.7.1.2 Nonheight features

The material presented from German dialects also supports the finding from Batemann (2007: 62) that velar fronting is only rarely sensitive to nonheight features. Recall from the earlier discussion that this generalization cannot be a universal without exceptions because the language Fanti (Niger-Congo; Ghana) is attested in which only front oral vowels serve as triggers for velar fronting. Although the German dialects discussed in Chapter 3–Chapter 11 provide overwhelming

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support for Bateman's observation, there is a small number of dialects in which velar fronting triggers are partially defined in terms of nonheight features. I consider the three nonheight features referred to in that earlier section in turn and conclude this section by discussing the status of coronal sonorant consonants as velar fronting triggers.

### 12.7.1.2.1 Rounding

The data from Plettenberg in (8) and (9) and South Mecklenburg in (11) show that the triggers for velar fronting make a distinction between front rounded and front unrounded vowels. The cross-linguistic studies cited earlier on palatalization find no correlation between that process (regardless of whether or not the target is a coronal or a velar) and (un)rounding of vocalic triggers (Bhat 1978, Bateman 2007, 2011, Kochetov 2011).

The claim that front unrounded vowels are more favorable triggers for palatalization than front rounded vowels is discussed at length in Neeld (1973). The example he discusses is the fronting of velar [g] to postalveolar [ʒ] (= [ž]) before [i] but not before [y] in the history of French, e.g. [rezim] 'regime' vs. [regularite] 'regularity', where [ʒ] and [g] both derive from earlier [g].

Bhat (1978: 61) too notes that velar fronting in French apparently failed to take place before front rounded vowels. However, he suggests that the failure of a front rounded vowel to trigger the fronting of a velar may not be because of the roundedness of the trigger but instead because the trigger is not sufficiently front. One might be inclined to apply this proposal to the velar fronting data from Plettenberg and South Mecklenburg, but since no data from those varieties is available corroborating the claim that vowels such as [y] are slightly more retracted than ones like [i], the proposal must remain open for further study.

### 12.7.1.2.2 Tenseness

The set of vocalic triggers for velar fronting in the now extinct EPo community of Rummelsburg (Mischke 1936; §11.5, Map 11.2) is restricted to [+tense] front vowels. That variety is not only unique for German dialects; it is apparently unprecedented from the cross-linguistic perspective as well. See the literature cited earlier (Bhat 1978, Bateman 2007, 2011, Kochetov 2011), in which no reference is made to languages restricting the set of triggers for palatalization processes along the tenseness dimension. Although that typological literature suggests that Rummelsburg stands alone in the languages of the world, it is interesting to consider the way in which that dialect corroborates the conclusions drawn by Cavar (2007)

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in her analysis of palatalized consonants in Polish. Ćavar argues that there is a direct correlation between tenseness – expressed in her treatment with the feature [ATR] – and palatalization. In particular, she shows that the positive value of that feature occurs before palatalized consonants (i.e. alveolopalatals like [č]) as well as secondarily palatalized velars (e.g. [k<sup>j</sup>]). For example, most consonants of Polish have secondarily palatalized allophones in the context of [i] and [j], but the vowel [i] never induces that process. In Ćavar’s treatment, secondary palatalization is guaranteed by a constraint specifying that the vocalic trigger and the target (e.g. /k/) must share the tenseness feature [+ATR]. Since [i] and [j] are [+ATR] and [i] is [-ATR], the correct prediction is made that [k<sup>j</sup>i] but not [k<sup>j</sup>i] surfaces.<sup>18</sup>

### 12.7.1.2.3 Stress

Data from several varieties of German in Westerwald were discussed in §12.6.3 indicating that the trigger for velar fronting fronting in word-initial position is restricted to an unstressed high front vowel ([i]). Studies on the typology of palatalization observe that stress can be a conditioning factor for that process, although the conclusion from that research is that stressed syllables rather than unstressed syllables favor the fronting of velars. For example, Bhat (1978: 55) cites Uzbek (Turkic; Uzbekistan), Eastern Armenian (Indo-European; Armenia), Sindhi (Indo-Aryan; Pakistan), Common Samoyed (Uralic; Northern Eurasia) and Sirionó (Tupian; Bolivia) as languages in which velars are fronted (palatalized in his terms) before stressed (front) vowels. No language is cited in that source in which velar fronting is triggered by an unstressed vowel, although Bhat does show that unstressed vowels tend to trigger palatalization (i.e. raising) of alveolar sounds.

### 12.7.1.3 Coronal sonorant consonants

The typological literature cited above has little to say on the topic of consonants as triggers. The few languages in which true consonants – as opposed to glides like [j] – trigger palatalization (regardless of the type of target) involve long distance spreading and are therefore very different from the type of velar fronting under investigation in the present book. That finding from the typological literature suggests that the front segments triggering palatalization include vowels

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<sup>18</sup>One could alternatively argue that [i] and [i] are distinguished not by [ATR], but instead by a frontness feature (e.g. [back]). I do not attempt to evaluate the merits of Ćavar’s proposal here and choose to leave that question open for further research.

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(e.g. [i]) but not consonants (e.g. [l], [r], [n]). Although that assessment appears to be implicit in much of the cross-linguistic work cited earlier, it is clearly incorrect for German because the predominant pattern for (postsonorant) velar fronting is that the triggers consist of both front vowels or coronal sonorant consonants, in particular /l r n/.

Given that /l r n/ can trigger velar fronting, the present treatment predicts that – in principle – those sounds alone could trigger that process. To see this, consider once again the four front segment types that can function as triggers ( $\{\text{HFV}\}$ ,  $\{\text{MFV}\}$ ,  $\{\text{LFV}\}$ ,  $\{\text{CC}\}$ ) as well as their logical combinations. Given the three categories for vocalic triggers ( $\{\text{HFV}\}$ ,  $\{\text{MFV}\}$ ,  $\{\text{LFV}\}$ ), there are seven logical combinations, three of which are attested (Trigger Types A, B, D) and four of which are not (Trigger Types R-U from Table 12.31). Eight logically-possible triggers involve  $\{\text{CC}\}$  and front vowels ( $\{\text{HFV}\}$ ,  $\{\text{MFV}\}$ ,  $\{\text{LFV}\}$ ). Two of those eight are attested, namely Trigger Type C ( $\{\text{HFV}, \text{MFV}, \text{CC}\}$ ) and Trigger Type E ( $\{\text{HFV}, \text{MFV}, \text{LFV}, \text{CC}\}$ ). The remaining six are listed in the upper part of Table 12.32. In the lower part I list the two logical combinations of  $\{\text{CC}\}$  and front vowels in the case that  $\{\text{LFV}\}$  is absent.

Table 12.32: Trigger Types involving vocalic and consonantal triggers

Type	Trigger	Present in context for fronting	Stage
V	CC	HFV, MFV, LFV	2a <sup>”””</sup>
W	HFV, CC	MFV, LFV	2a <sup>”””</sup>
X	MFV, CC	HFV	---
Y	LFV, CC	HFV, MFV	---
Z	HFV, LFV, CC	MFV	---
ZZ	MFV, LFV, CC	HFV	---
VV	CC	HFV, MFV	2aa <sup>””</sup>
WW	HFV, CC	MFV	2aa <sup>”””</sup>

Trigger Types X, Y, Z, and ZZ are correctly predicted to be nonoccurring because they violate the Implicational Universal for Palatalization Triggers in (15). By contrast, there is no reason why Trigger Types V and W (and their equivalents VV and WW without low front vowels) should not occur. In the remainder of this section I demonstrate that this is the correct prediction for Trigger Type VV. Trigger Types V, W, and WW, while not attested, are predicted to be possible in principle.

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In the RFr variety of Beerfelden (Wenz 1911; Map 5.3), both [ç] and [x] occur in postvocalic position. Wenz transcribes both segments with the same symbol (=⟨χ⟩), but he is clear that they represent palatal [ç] after a front vowel and velar [x] after a back vowel, e.g. [iç] 'I' (=⟨iχ⟩) vs. [bx] 'book' (=⟨bùχ⟩). (Beerfelden has no low front vowels). There are no examples of either [ç] or [x] after a consonant because the crucial examples contain an epenthetic vowel, e.g. [miliç] 'milk' (=⟨miliχ⟩). The significance of Beerfelden can be seen in the distribution of [y]/[j], which display a pattern distinct from their fortis counterparts. As indicated below, velar [y] (=⟨y⟩), surfaces after a front vowel and before a vowel (in 16a), after a back vowel and before a vowel or syllabic liquid (in 16b), and after [i] from /r/ (in 16c). By contrast, palatal [j] (=⟨j⟩) occurs after a coronal consonant (always [l]) and before a vowel (in 16d).

### (16) [y] and [j] in Beerfelden:

a.	bîyə	[br:yə]	biegen	'bend-INF'	35
	féyə	[fe:yə]	fegen	'sweep-INF'	35
b.	fòyl	[fɔy̯l]	Vogel	'bird'	35
	fróyə	[fro:yə]	fragen	'ask-INF'	35
	sâyə	[sa:yə]	sagen	'say-INF'	35
c.	bòiyə	[bɔiyə]	borgen	'borrow-INF'	35
	gòiy̯l	[gɔiy̯l]	Gurgel	'throat'	35
d.	fòljə	[fɔljə]	folgen	'follow-INF'	35
	féljə	[féljə]	Radfelge	'wheel rim'	35

From the synchronic perspective, Beerfelden has Target Type M (=Stage 2bb) because both /x/ and /y/ undergo postsonorant fronting; however, the triggers differ for those two targets: For /x/ we have Trigger Type EE, but for /y/ it is Trigger Type VV (Table 12.32).

Synchronously /y/ (<WGmc <sup>+</sup>[y]) undergoes fronting to [j] in the {CC} context (i.e. after [l]). The data in (16) can be accommodated in the rule generalization approach endorsed here given the stages in Table 12.33. The first two stages are the ones unique to Beerfelden (see lower box in Table 12.32), while the final three are the same as ones proposed earlier.

The proposal in Table 12.33 is consistent with the approach to rule generalization described above where there is a progression of triggers from specific to general.

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Table 12.33: Alternate Trigger Types and historical stages for Beerfelden /y/

Type	Trigger	Stage
VV	CC	2aa''''
WW	HFV, CC	2aa'''''
B	HFV, MFV, CC	2b
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d

### 12.7.2 Velar fronting targets

A significant finding in the present study is that the targets for velar fronting in German dialects obey the implication in (17) without exception. Recall from §2.3 that (17) derives strong support from both phonetics and typology in a wide variety of languages. No counterexamples are known.

- (17) IMPLICATIONAL UNIVERSAL FOR VELAR FRONTING TARGETS-2:  
 If a lenis sound undergoes velar fronting then the corresponding fortis sound does as well.

(17) accounts for the fact that there are dialects in which the targets for velar fronting are fortis (/x/) and lenis (/y/) sounds (Target Type M), or fortis (/x/) but not lenis (Target Type L). Significantly, there is no dialect in which a lenis velar (/y/) undergoes fronting but the corresponding fortis sound (/x/) does not. Target Types L and M are restated in Table 12.34 in a slightly simplified form as well as nonoccurring Target Type M'.

Table 12.34: Unattested and attested Target Types

Type	Target	Present in fronting context
L	/x/	/y/
M	/x y/	-----
M'	/y/	/x/

Recall from earlier discussion that (17) derives support from studies outside of Germanic, e.g. Guion (1998: 20), Hall & Hamann (2006), Hall et al. (2006).

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Bateman (2007: 56ff.) observes that the most common targets for palatalizations are obstruents (stops, fricatives) as opposed to sonorants (e.g. /ŋ/). The generalization also holds for velar fronting in German dialects, although the only sonorant target for velar fronting in the material discussed above is [ŋ]. Only a small number of dialects exhibit the fronting of a velar nasal (Chapter 11); however, of those dialects with that change, velar stops and velar fricatives also undergo fronting. It is possible to posit an exceptionless implication [“If a velar sonorant undergoes fronting then so does a velar obstruent”]; however, that statement is not particularly meaningful given the small number of dialects where [ŋ] undergoes fronting.

Bateman also observes that languages with stops as targets outnumber those with fricatives, although she concedes that there are also many languages in which fricatives but not stops serve as targets. The present study demonstrates that the latter situation is the norm for German dialects (recall the Implicational Universal for Velar Palatalization Targets-1 from §2.3.2). Thus, there are many dialects in which only fricatives (/χ/) but not stops (/k/) undergo velar fronting (Target Types L and M), and there is also a small but not insignificant group of dialects in which both stops and fricatives undergo fronting (Target Type N). However, no dialect has been found in which only velar stops but not velar fricatives undergo fronting. Recall from §11.8 that a historical explanation was offered to account for the strong preference of velar fricatives over velar stops as targets for velar fronting in German dialects.

## 12.8 Additional properties of velar fronting

### 12.8.1 Adjacency of targets and triggers

In almost all case studies discussed above the velar fronting target either immediately precedes the trigger (postsonorant velar fronting) or immediately follows it (word-initial velar fronting). In a small number of systems, the trigger and target are separated by another sound (referred to below as Q). In the present section I provide a synopsis of those dialects and the patterns they represent.

Table 12.35 lists four patterns expressed in earlier chapters with the rules. Those patterns involve either the spreading of [coronal] from the trigger in the third column to the target (Q) in the second column by a version of schwa fronting, or by the merger of the [coronal] feature of a front vowel with the [coronal] feature of an adjacent consonant (Q) by one of two processes of coalescence.<sup>19</sup>

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<sup>19</sup>In contrast to the two schwa fronting processes, neither rule of coalescence has a target or a

## 12.8 Additional properties of velar fronting

The segments in bold in the fourth column share the same [coronal] feature. The four patterns are classified as one of the types listed in the first column. Note that the three rules listed for Types PP, QQ, and RR feed velar fronting in the post-sonorant context, while the coalescence indicated for Type SS feeds word-initial velar fronting. In the penultimate column of Table 12.35 I list the places discussed in earlier chapters with the four patterns. I comment on the target segment /v/ for Type SS below.

The one dialect listed above exemplifying Type PP is Rheintal. Recall from §3.4 that the front vowel trigger and the target schwa together form a diphthong. Type PP can be contrasted with the pattern whereby a velar surfaces as velar after a diphthong consisting of a front vowel plus schwa, e.g. Ramsau am Dachstein (§3.5). Some of the dialects discussed in this chapter in passing also reflect Type PP, although no data were presented. Two Wph examples are Laer (Niebaum 1974; §12.3.6) and Müschede (Niebaum et al. 1976). The original sources are clear concerning the facts involving the distribution of [x] and [ç] after diphthongs ending in schwa, e.g. Laer [dri-əç] ‘wore-PRET’ vs. [vu-əx] ‘weighed-PRET’. Niebaum (1974: 62–63) writes: “Dies zeigt, dass bei diesen Diphthongen für die Auswahl der Reibelautvariante jeweils die erste Diphthong-komponente entscheidend ist”. [‘This shows that for the selection of the fricative variant [i.e. [x] or [ç], T.A.H.] the first component of the diphthong is crucial’].

For Type QQ, schwa is epenthized, which undergoes Schwa Fronting-2. The two varieties of German discussed above exemplifying schwa epenthesis-cum-schwa fronting are Sörth and Schlebusch, although it was also noted in the context of the former dialect that that type of system is quite common among HGm dialects.

Types RR and SS are interesting from the point of dialectology and historical phonology because they are attested in areas that are not geographically contiguous. Thus, Type RR can be observed in Switzerland, Mecklenburg-Vorpommern and East Prussia, and Type SS in Mecklenburg-Vorpommern, West Prussia, and East Prussia (but not in Switzerland). It is also important to stress that not all varieties of German described in Mecklenburg-Vorpommern, East Prussia, West Prussia, and Switzerland represent Type RR and/or Type SS. For example, West Mecklenburg and Wolgast represent Type RR, but South Mecklenburg does not (because /x/ is realized as [x] after a liquid, even if the liquid is preceded by a front vowel). The conclusion is that the two coalescence processes – like velar fronting – can arise independently in noncontiguous areas (polygenesis).

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trigger. The front vowel referred to in the third column of Table 12.35 represents the trigger for velar fronting, and the adjacent consonant in the second column corresponds to Q.

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Table 12.35: Processes feeding velar fronting. IS: Intervening sound.

Type	IS (Q)	Trigger	Pattern	Rule	Place	Dialect	Sec.
PP	schwa	nonlow front vowel	/iɛx/ → [iɛç] → [iç] /uax/ → [uax]	Schwa Fronting-1	Rheintal	HAlmc	§3.4
QQ	schwa	liquid	/Vlx/ → [Vlɛx] → [Vlç] [Vlɛx] → [Vlç]	Schwa Fronting-2	Many places	HGm	§5.4, §10.3.1
RR	liquid	front vowel	/ilx/ → [ilx] → [ilç] /alx/ → [alx]	Coalescence-1	Vispertimenin Obersaxen	HAlmc	§6.2
					West Mecklenburg Wolgast Sebnitz Reimerswalde	MeWPo	§6.3 §11.3
SS	liquid or /v/	front vowel	/gli/ → [gli] → [hi] /gla/ → [gla]	Coalescence-2	West Mecklenburg Sebnitz Seiffnemersdorf Kreis Konitz	Sln Sln EPo	§11.4 §11.5

## 12.8 Additional properties of velar fronting

The leftmost segment (Q) of Coalescence-2 is a (coronal) liquid, as indicated in Table 12.35. However, Q can also be /v/, e.g. West Mecklenburg [cveə] ‘across’ (from /kveə/). Words like [cveə] pose a potential problem for the present treatment because /v/ is not a coronal consonant and therefore fail to undergo Coalescence-2, as formalized in §11.3. West Mecklenburg is not an isolated example because the same generalization involving [v] holds for the other dialects exemplifying Type SS. One possible alternative analysis is to reject Coalescence-2 and to posit that the trigger and target for velar fronting in Type SS systems need not be adjacent. Velar fronting can then spread across a liquid if liquids are not specified for coronality, and spreading can likewise occur across a labial (/v/) without incurring a violation of the line-crossing constraint in nonlinear phonology. However, that reanalysis may pose a problem for various cross-linguistic generalizations involving adjacency (Odden 1994 as well as work by latter authors). A more attractive option in my view is to analyze the /v/ referred to above not as an obstruent, but instead as a sonorant, i.e. as the glide-like (approximant) sound /v/. See Appendix H and Hall (2014c) for a discussion of similar data from Wph.

Given the processes of schwa fronting for Types PP and QQ it can be said that the trigger and target for velar fronting are adjacent on the surface. The reason is that the fronted schwa is a (derived) front vowel, and front vowels are triggers for velar fronting. For Type RR and SS the situation is a bit different because the trigger for velar fronting (front vowel) is not adjacent to the target velar even after coalescence merges the [coronal] feature of Q with [coronal] of the trigger. The same point holds if Q is /v/. Future work may want to consider Type RR and SS dialects in light of Bateman’s conclusion that the trigger and target for velar palatalization are always adjacent (Bateman 2007: 77–82).

### 12.8.2 Domain of velar fronting

In every case study discussed in this book the trigger and target for velar fronting belong to the same word. There is no evidence from any dialect that those two sounds can span a word boundary as in the rule of Flapping for American English (§2.2.1); hence, nothing suggests that velar fronting has the status of a phrase level (postlexical) rule in any German dialect. In the models referred to in §2.2.1, i.e. Lexical Phonology and Morphology (e.g. Kiparsky 1982b, Kaisse & Shaw 1985, Mohanan 1986, Hargus & Kaisse 1993) and Stratal Optimality Theory (Kaisse & McMahon 2011, Bermúdez-Otero 2015) velar fronting must be classified a word level (lexical) rule.

It is possible to test whether or not velar fronting applies across words (postlexically): One needs to consider a sequence of two lexical items (“Word A” and

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“Word B”), where Word A ends in a segment that serves as a trigger for velar fronting (e.g. /i/), and Word B begins with a target for velar fronting (e.g. /x/). If velar fronting is active with /i/ as a trigger and /x/ as a target, then the rule would be expected to apply to the sequence described above if velar fronting is a phrase level rule. In most of the dialects investigated in the present book there are no sequences such as /i/ plus /x/ in connected speech because the target velar segment (/x/) does not occur word-initially. In those velar fronting dialects with a word-initial target velar (/x/), that sound systematically fails to undergo velar fronting even after an appropriate trigger at the end of a preceding word. As a representative example, consider Rheintal (§3.4). In that dialect, /x/ and /kx/ regularly undergo fronting after a nonlow front vowel or a coronal sonorant consonant. The same velars also undergo fronting in word-initial position if the same triggers follow. One can test whether or not postsonorant velar fronting is a phrasal rule in Rheintal by considering a sequence of Word A and Word B, where Word A ends in a velar fronting trigger and Word B begins with [k] or [kx]. Fortunately, several examples of that structure are present in the texts provided by Berger (1913: 188-191). One example from the Rheintal variety is the phrase [i kxammər] ‘in the room’ (= [i kxammər]), with a velar after a front vowel trigger. On the basis of that type of example one can conclude that velar fronting in Rheintal is a word level (lexical) rule (i.e. target and trigger belong to the same word) and not a phrase level (postlexical) rule (i.e. target and trigger can span a word-boundary).<sup>20</sup>

Velar fronting is a word level rule in those dialects like Rheintal for which evidence is available, although I do not provide additional examples here.

The conclusion is that velar fronting is word-bounded, but it also needs to be stressed that the trigger and target for velar fronting never span a morpheme boundary, a generalization that is true without exception for all German dialects with that rule. Put differently, the trigger and target for velar fronting (word-initial and postsonorant) always belong to the same morpheme. As a representative example, consider the MStGm words [laxən] ‘laugh-INF’ (from /lax-ən/) and [ri:çən] ‘smell-INF’ (from /ri:x-ən/), in which the morpheme boundary is situated after the dorsal fricative of the stem and before the schwa-initial suffix. In those examples the vocalic trigger is tautomorphemic with the velar target. By contrast, there are no suffixes beginning with a velar fronting target (/x/) that

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<sup>20</sup>In the hypothetical example described above, the postlexical rule of velar fronting applies from left to right (progressively). Since no German dialect is attested in which postsonorant velar fronting applies regressively from a trigger to a target belonging to the same word (§2.3.5, §6.5.2, §16.5) it should come as no surprise that regressive spreading across a word boundary is also not attested; cf. MoStGm [bu:xist] ‘book is’ vs. \*[bu:çist].

## 12.8 Additional properties of velar fronting

could potentially undergo the rule and surface as palatal after a stem ending in a front vowel trigger, e.g. hypothetical morphologically-complex items like /li:-xə/ and /na-xə/, which would presumably surface as [li:çə] and [naxə] respectively. The famous example involving the occurrence of *-chen* ([çən]) even after a stem ending in a back vowel is not a counterexample because the initial sound of that suffix is an underlying palatal (/ç/) and not an underlying velar (/χ/); see §17.3.2 for discussion.

Since the trigger and target for velar fronting never span a morpheme boundary there is no German dialect in which the fronting of velars displays the kind of opaque effects typical of lexical rules discussed in the literature on Lexical Phonology and Morphology and Stratal Optimality Theory. For example, there is no German dialect in which certain suffixes trigger velar fronting but others do not, cf. *national* vs. *nationhood*, in which Trisyllabic Laxing is induced by the presence of *-al*, but not by *-hood*. Recall the discussion on stem level rules and word level rules from §2.2.1.

A recent model couched in the theory of Stratal Optimality Theory postulates a mechanism of historical change called domain narrowing (§5.5.1), which proposes that rules are phonologized at the end of the grammar and then gradually work their way up into smaller domains, e.g. the change from (a) phrasal level rule to a word level rule, and (b) word level rule to a stem level rule (Bermúdez-Otero 2007, 2015, Ramsammy 2015). Since phrase level velar frontings are not attested, this book offers no evidence for (a). And since there is no evidence for the distinction between word level suffixes and stem level suffixes (cf. English *-hood* vs. *-al*), no dialect supporting (b) either.

### 12.8.3 Status of irregular forms

The sources cited in this book rarely state explicitly that velar fronting (synchronic or diachronic) is regular. However, it can be said that the descriptions for HGm give no indication at all that the distribution of velars and palatals has idiosyncrasies modern linguists call lexical exceptions. That generalization holds not only for those HGm regions in which velar fronting has the status of an allophonic rule, but also for those HGm localities identified in Chapter 7–Chapter 10 in which that process is a neutralization (or quasi-neutralization). The present section considers first the aberrant items in the Wph variety of Rhoden that were characterized earlier as irregular forms (§5.2) and then takes a closer look at them in the context of other varieties with similar data. I show below that the anomalous forms do not fit the profile of lexical exceptions as that term is usually understood.

## 12 Targets, triggers, and rule generalization

Given the regularity of velar fronting in HGm it is interesting to recall that there are several lexical items in the LGm (Wph) variety of Rhoden (Martin 1925), which unexpectedly contain [x] after a front vowel trigger. In Rhoden, velar fronting converts the target /x/ to palatal [ç] after a nonlow front vowel, but a small number of words were transcribed in the original source with [x] after high front vowels, e.g. [gəʃxixtə] ‘history’, [fxxtə] ‘humidity’. Items like these are clearly surprising because a segment that belongs to the targets for velar fronting ([x]) stands after a segment that belongs to the triggers ([ɪ ʏ]).

Rhoden is not unique: A number of descriptive grammars for LGm present enough data to safely conclude that velar fronting is active, but those sources also note that [x] can occur unexpectedly in the context of front vowels; those vowels are typically lax ([ɪ ʏ ε œ]). The occurrence of [x] after front (lax) vowels is documented in the following quotes from original sources. The first one (Martin 1925) was already given in §5.2, but the others were not mentioned earlier:

Martin (1925: 14) on the Wph variety in Rhoden (Map 4.2):

...hört man sehr oft x ... nach palatalen Vocalen

‘...one hears very often [x] after a front vowel’

Kloeke (1914: 23) on the NLGm variety of Finkenwärder (Map 4.1):

Es ist mir öfter aufgefallen, dass in schneller und schlaff artikulierter Rede das [χ] (= [ç]) wie [x] gesprochen wird, so sagt man [vex] weg, fort, [zex] gesagt statt [vɛχ] und [zɛχ]. Diese Aussprache scheint nur auf nachlässiger Artikulation zu beruhen, denn wenn ich das Wort noch einmal auszusprechen bat, wurde immer [χ] gesprochen.

I have often observed that [χ] (= [ç]) is pronounced as [x] in fast and sloppily articulated speech; for example, [vex] ‘away, gone’, [zex] ‘said’ are uttered instead of [vɛχ] and [zɛχ]. This pronunciation appears to be based solely on careless articulation, because [χ] was always uttered when I requested that the word be repeated’.

Seelmann (1908: 24) on the Brb variety of Prenden (Map 8.1):<sup>21</sup>

Mnd. Ch erscheint nach palatalen Vokalen und nach Liquiden als χ, nach gutturalen Vokalen als x ... In gleicher Weise scheiden die meisten nd. Dialekte beide Laute, jedoch nicht alle. In mecklenburgischen Dörfern kann man sehr oft niuxt, rext u.ä sprechen hören.

<sup>21</sup>In the transcription system of Seelmann and Holst (see below), the front vowels [i] and [e] in the irregular items are lax ([ɪ ε]).

## 12.8 Additional properties of velar fronting

'Middle Low German *Ch* occurs after palatal vowels and liquids as *χ*, and after guttural vowels as *x* ... Most Low German dialects divide the sounds the same way, however not all [dialects]. In mecklenburgian villages one can quite often hear *nixt*, *rext* being uttered'.

Holst (1907: 156) on the MeWPo variety of Ivenack-Stavenhagen (Map 8.1):

Im ursprünglichen Auslaut ist *g* stimmloser Reibelaut geworden, und zwar gewöhnlich *ich-* oder *ach-Laut* (*χ – x*), je nach dem vorhergehenden Vokal (*dax* = Tag, (*ik*) *sēχ.* = ich sah. ... Doch kommt auch öfter ... *ach-Laut* für zu erwartenden *ich-Laut* vor (*vex* = Weg, *nix* = nicht).

'In an original coda position *g* has become a voiceless fricative, that is, the usual *ich-* or *ach*-sound depending on the preceding vowel (*dax* = Tag, (*ik*) *sēχ.* = I saw. ... However, the *ach*-sound often occurs in place of the expected *ich*-sound (*vex* = Weg, *nix* = nicht)'.

More recently, Lauf (1996: 208) observes that [ç] is often replaced with [x] in Wph colloquial speech ('westphälische Umgangssprache'), e.g. [mø:xliç] 'possible' (cf. MoStGm [mø:çliç]), [milx] 'milk' (cf. MoStGm [milç]). It is interesting to note that [ç] is replaced with [x] after the vowel [ø:] in [mø:xliç], but not after the [i].

It is clear from other sources that [x] can occur unexpectedly after the front rounded lax vowel [œ], although those data are often presented without comment. One example is the description of the Wph variety of Gütersloh (Wix 1921; Map 4.2). According to the material given in that source (pp. 80-81) it can be concluded that [x] (= [x]) occurs after a back vowel and [ç] (= [χ]) after a front vowel. While [ç] is consistently transcribed after high front vowels and mid front unrounded vowels and [x] after back vowels, Wix is not consistent in the way he transcribes dorsal fricatives in the context after [œ]. Thus, he has [broęçtə] 'brought-OPT' with his symbol for the palatal after his symbol for [œ] on p. 98, but the same word is given as [broęxtə] on p. 40. A second example of a word with [x] after [œ] is [koęxən] 'cough-INF' (p. 31).

The irregularity of velar fronting in the context after [œ] is also documented in the Wph variety of Lüdenscheid (Frebel 1957; Map 4.2). The author provides a clear description of the distribution of dorsal fricatives on p. 34 suggesting that [x] (= [x]) surfaces after back vowels and [ç] (= [χ]) after front vowels. Among the words with [ç] is [löęçtə] 'lamp', illustrating the occurrence of [ç] after [œ], but on the same page he gives [kōęxən] 'cough-INF', with [x] after the same vowel.

## 12 Targets, triggers, and rule generalization

In Table 12.36 I provide a list of the LGm varieties cited above together with representative examples of irregular forms. I also include examples from LGm dialects not mentioned earlier. The data from most of the sources below come from phonetically-transcribed texts of individual speakers. This type of source is advantageous because it eliminates the possibility that data from different speakers are being intermingled. As indicated on Map 12.6, all of the places listed in the first column of Table 12.36 are in the same general region in North Germany.

The items presented in the final column of Table 12.36 are referred to here as “irregularities” and not as “lexical exceptions” because they do not behave as the kind of lexical exceptions discussed in the literature on phonology. Consider my own informal definition: A word ( $W_a$ ) is a lexical exception to rule R if there is a string of segments (XYZ) in  $W_a$  which satisfies the structural description of R, but R does not apply. That definition succeeds in characterizing a textbook case of exceptionality, namely the word *obesity* (cf. *obese*), which fails to undergo the English rule of Trisyllabic Laxing (§2.2.1, §12.8.2), cf. *sincerity* (cf. *sincere*).<sup>22</sup> Note crucially that the definition posited here presupposes that R consistently fails to affect XYZ in every occurrence of  $W_a$ . Thus, the word *obesity* consistently fails to undergo Trisyllabic Laxing for any given speaker in any given utterance.

Given this definition it is doubtful if any of the irregular forms from Table 12.36 is a true lexical exception. The reason is that in the sources cited the /x/ in the word in question ( $W_a$ ) fails to undergo velar fronting (=R) in some instances in a given text but in other instances (i.e. a few pages later in the same text for the same speaker), R correctly applies to the /x/ in  $W_a$ . As a representative example, it was noted above that the irregular realization of the word [broextə] ‘brought-OPT’ in Gütersloh is also realized with the expected pronunciation [brœçtə] (Wix 1921). The quote given above from Kloeke (1914: 23) for the NLGm variety of Finkenwärder likewise implies that a speaker who utters an irregular form (e.g. [vex] ‘away’) might also pronounce the same word with the expected pronunciation (i.e. [vɛç]).

Three questions can be posed: (A) Why do all of these examples in Table 12.36 involve LGm varieties in the same area of northern Germany?; (B): If [x] is adjacent to a front vowel then why is that vowel typically lax?; (C) if the irregularities given in Table 12.36 do not fit the standard profile of lexical exception, then what are they?

Concerning (A): It is important not to lose sight of the fact that speakers with the items listed in Table 12.36 lived in an area (North Germany) at a time (first

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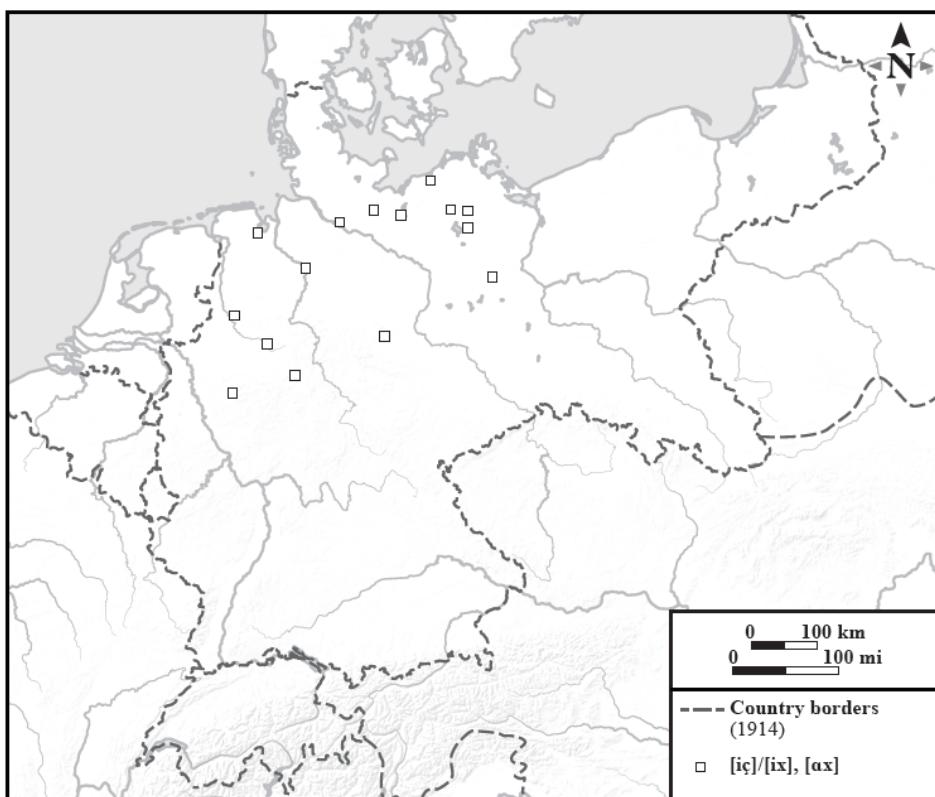
<sup>22</sup>There is a large body of research investigating the status of exceptions in phonology as well as other components of grammar (e.g. Zonneveld 1978, Wolf 2011, Simon & Wiese 2011). The question of how to define what is meant by exception is dealt with in works such as these.

## 12.8 Additional properties of velar fronting

Table 12.36: Selection of LGm velar fronting varieties with irregularities (word-initial and/or postsonorant)

Place/Region:	Dialect	Source:	Irregularities:
Finkenwärder	NLGm	Kloeke (1914)	[vex] ‘away’, p.23
Borgstede	NLGm	Feyer (1939)	[lɪx] ‘lies-3SG’ p. 39, [nɪx] ‘not’ p. 31
Baden	NLGm	Feyer (1941)	[lɪx] ‘lies-3SG’, p. 89
Gütersloh	Wph	Wix (1921)	[kœxən] ‘cough-INF’, p. 31
Rhoden	Wph	Martin (1925)	[gəʃxɪxtə] ‘history’, p. 188; [fxxtə] ‘humidity’, p. 36
Lüdenscheid	Wph	Frebel (1957)	[kœxən] ‘cough-INF’
Riesenbeck	Wph	Bethge (1970)	[xraɔdə] ‘straight’, p. 50; [xøŋ] ‘went-PRET’, p. 30
Laer	Wph	Niebaum (1974)	[sexs] ‘six’, p. 163
Prenden	Brb	Seelmann (1908)	[nixt] ‘not’, p. 24
Ivenack-Stavenhagen	MeWPo	Holst (1907)	[vex] ‘path’, p. 156
Schwerin	MeWPo	Teuchert (1927)	[dørəx] ‘trough’, p. 9
Ratzeburg	MeWPo	Teuchert & Schmitt (1933)	[brøext] ‘brought-PART’, p. 10
Rostock	MeWPo	Teuchert & Schmitt (1933)	[mitbrøext] ‘brought along-PART’, p. 9
Lank	MeWPo	Teuchert & Schmitt (1933)	[zex] ‘say-IMP SG’, p. 18
South Stargard	MeWPo	Teuchert (1934)	[brøext] ‘brought-PART’, [flıxt] ‘bad’, p. 13
Bristow	MeWPo	Schönfeld (1989)	[bəzøext] ‘visited-PART’, p. 99

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Map 12.6: Areal distribution of velar fronting varieties of LGm with irregularities involving the fluctuation between regular [ç] and unexpected [x] after coronal triggers.

part of the 20<sup>th</sup> century) when the triggers (and targets) for velar fronting still differed from place to place. Recall from §12.3.6 that the dialects spoken in that area (WLGm) displayed considerably more variation with respect to velar fronting triggers than HGm. This means that both during and after the acquisition of velar fronting the speakers referred to in Table 12.36 – in contrast to speakers of the typical variety of HGm – must have been exposed to speakers with different versions of velar fronting (Appendix D).

Concerning (C): Given the diversity of velar fronting triggers in North Germany I contend that the irregularities listed above simply reflect the fact that many speakers in that area are influenced by the speech of individuals with alternate realizations of dorsal fricatives. For example, a speaker ( $P_1$ ) who acquires a broad set of triggers (after all front vowels) might have contact with a speaker

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(P<sub>2</sub>) with a restricted set (e.g. after all front unrounded vowels). P<sub>1</sub> pronounces sequences like [iç], [œç], [ax] in their own speech, but P<sub>2</sub> has the pronunciation [iç], [œx], [ax]. When P<sub>1</sub> utters an occasional word with [œx] this is simply an indication that their speech has been influenced by the speech of P<sub>2</sub>.<sup>23</sup>

Concerning (B): As described in §11.5 one LGm (Epo) variety (Kreis Rummelsburg) had a set of triggers restricted to front lax vowels. In §12.7.2 I suggested that the triggers for Kreis Rummelsburg occupies a unique historical stage, namely Stage 2d'. I summarize the final three Trigger Types and historical stages from Table 12.29 in (18):

- (18) Three Trigger Types/Historical Stages:

C'	HFTV, MFTV, LFTV ([i e æ])	2c''
D'	HFTV, MFTV, LFTV, CC ([i e æ r])	2d'
E	HFV, MFV, LFV, CC	2d

The occurrence of [x] after front lax vowels for a speaker with a broad set of triggers (P<sub>1</sub>) indicates that their speech has been influenced by a speaker (P<sub>2</sub>) with a narrow one (Trigger Types C' and D').

A potential weakness with the present proposal is that Kreis Rummelsburg is the only dialect uncovered in this book with a set of velar fronting triggers defined according to tenseness. What is more, Kreis Rummelsburg is geographically further to the east than even the easternmost marker on Map 12.5. This may indeed be true, but it is also conceivable that in an earlier time frame Trigger Types C' and D' were much more widespread in Northwest Germany and that those restricted sets of triggers were simply not recorded in the descriptive literature for WLGM dialects.

A final question is whether or not it is correct to say that irregularities like the ones identified for LGm are absent from HGm. I would not make that claim. However, I do contend that it is difficult to find HGm dialects akin to the LGm ones discussed above because velar fronting is older in HGm than in LGm (Chapter 16). Given its age, velar fronting has had more time to diffuse itself in HGm regions by adopting the full set of triggers (Trigger Type E). Seen in that light, there may have once been many HGm varieties with irregular forms, but those aberrant items were eventually eliminated through time. In fact, I demonstrate

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<sup>23</sup>The fact that the irregularities listed above consist of a only small set of words is a consequence of the relatively short length of the phonetically-transcribed texts in the sources cited. The prediction is that speakers with irregular forms in all likelihood have more irregular forms that were not documented in the sources cited.

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below (Chapter 13) that Lower Bavaria has many velar fronting places with irregular forms. Not surprisingly, the villages and towns of Lower Bavaria differ in terms of what types of front vowels serve as triggers.

### 12.9 The fate of velars that do not undergo velar fronting

The topic of this book is the categorical change from velar to palatal (or alveolo-palatal), which is what I refer to as velar fronting. The goal of the present section is to discuss velars such as /x/ which do not undergo some version of that phonological process. The velars referred to here are present in dialects with or without velar fronting. In dialects with velar fronting, /x/ remains a simplex [dorsal] in the back vowel context. In dialects without velar fronting, /x/ is phonologically [dorsal] regardless of context. However, from the point of view of phonetics, all simplex [dorsal] segments can be pronounced in more than one way.

In §12.9.1 I discuss dialects in which velars (/x/) show phonetic fronting. In §12.9.2 I turn to systems in which velars surface either as velars or in which they are retracted to uvulars. The discussion focuses on the dorsal fricative /x/, although similar generalizations can be made concerning other velars (e.g. /k/, /g/); recall §11.2.

In the first column of Table 12.37 I give the categories for dorsal fricatives employed in the present book and the corresponding phonetic symbols for fortis fricatives. In the second column I give the analysis of those four articulations in terms of the features posited earlier.

Table 12.37: Realization of /x/ in phonetics and phonology

Phonetic realization	Phonological features
Palatal ([ç])	[coronal, dorsal]
Prevelar ([χ̪])	[dorsal]
Velar ([x])	[dorsal]
Uvular ([χ])	[dorsal]

It is important to stress that the realization of simplex [dorsal] sounds as fronted (prevelar) or retracted (uvular) is not expressed in phonological features because it is a function of phonetic rules.

## 12.9 *The fate of velars that do not undergo velar fronting*

Evidence for the phonetics of /x/ I summarize below is based on statements made in descriptive grammars of German dialects. Future work may want to conduct phonetic studies in order to (dis)confirm some of those claims.

### 12.9.1 Phonetic fronting

The phonetic fronting of velars to the sound I refer to as prevelar is well-attested in the literature on German dialects. The examples I discuss below are drawn from non-velar fronting (UGm) varieties in Switzerland, Austria, and Northeast Italy.

A number of sources provide a description of the pronunciation of velars which suggest that they are fronted in the context of front vowels by coarticulation. Consider the following examples:

Kurath (1965) describes the SBav dialect spoken in St. Ruprecht bei Villach (Map 3.3) in the Austria state of Carinthia (Kärnten). In the following passage Kurath (1965: 32) discusses the complementary distribution of [h] and [x], which he considers to be allophones, as well as the phonetics of [x]:

Im Anlaut, wo er [=x] nur vor Vokal vorkommt, wird er als [h] ausgesprochen, in anderen Stellungen als ein velarer Reibelaut [x]. Nach hintervokalen und nach dem velaren r ... ist [x] ausgesprochen hintergaumig, nach Vordervokalen und nach n, l mittelgaumig (nicht vordergaumig wie im Bühnenhochdeutschen) ....

‘In a [word-initial] onset, where it only occurs before vowels, [x] is pronounced as [h]; in other positions [it is pronounced] as a velar fricative. After back vowels and after the velar r it is a markedly back-palate sound, after front vowels it is a mid-palate sound (not a front-palate sound as in Standard German) ...’.

The point is that the velar fricative [x] in St. Ruprecht has a gradually fronted variant – Kurath’s mid-palate sound, which is the equivalent of my prevelar – in the context after coronal sonorants. Significantly, the prevelar is not articulated as palatal [ç] (“front-palate sound” in Kurath’s terms).

Rowley (1986) is a detailed description of the phonetics and phonology of the German-language (UGm) island of Fersental in Northeast Italy (Map 3.3 and Map 15.3 below). The dorsal obstruents in Fersentalerisch (Mòcheno) are classified as velar (p. 65). Rowley (1986: 143) provides the following remark on the pronunciation of velar fricatives [y] and [x]:<sup>24</sup>

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<sup>24</sup>The fricative [x] is analyzed as an allophone of /h/ and [y] as an allophone of /g/.

## 12 Targets, triggers, and rule generalization

Nach vorderen Vokalen /i/, /e/, /ɛ/ usw. wird das [x] bzw. [χ] etwas weiter nach vorne gebildet als nach hinteren Vokalen /o/, /u/ usw. Manchmal nähert sich die Aussprache dem hdt. [ç]: [mǐlx+] ...Milch.

'After front vowels /i/, /e/, /ɛ/ etc., [x] and [χ] are produced somewhat more front than after back vowels /o/, /u/ etc. Sometimes the pronunciation approaches standard German [ç]: [mǐlx+] ...Milch'.

As in St. Ruprecht, [x] undergoes coarticulatory fronting (to prevelar) in Fersentalerisch, but neither variety has the phonological process of velar fronting.

The coarticulatory fronting of velars has been documented for other German-language island (UGm) as well. Two examples are Gottschee (Bav) in modern-day Slovenia ([Tschinkel \(1908: 26\)](#)) and the Cimbrian variety of the Sieben Gemeinden ['Seven Communities'] in and around Asiago in Northeast Italy ([Kranzmayer \(1981: 50\)](#)). Both places are indicated on Map 3.3, Map 15.3, and Map 15.4.

Similar examples from SwGm dialects can be found in the descriptive literature as well. One case known to me is implied in the statement made by [Baumgartner \(1922: 11\)](#) on the realization of /x/ in the HALmc variety spoken in the area around Bern. On that page he notes that his dialect only has velar [x], which can be slightly fronted in the context of front sounds. ["Unsere Mundarten kennen nur das velare x ... In palataler Umgebung setzt der Laut ganz wenig vorn ein ...".]

The SBav variety of Laurein ([Kollmann 2007](#); Map 3.3) possesses a single fortis dorsal fricative (< WGmc <sup>+</sup>[k x]) as well as the corresponding affricate. According to [Kollmann \(2007: 175\)](#) those sounds surface as prevelar ('prävelar'), which is very close (but not identical) to the palatal articulation (ich-Laut) of MoStGm. The reason Laurein is different from the other UGm varieties discussed above is that it does not involve coarticulatory fronting. The reason is that /x/ and /kx/ are realized as prevelar in the context of any type of sound, including front vowels.

The requirement that /x/ and /kx/ be articulated as phonetically fronted velars (prevelars) – but not as palatals – is due to a dialect-specific rule of phonetic implementation. Recall from §2.2.1 that phonetic implementation is necessary to specify fine-grained place and manner distinctions for consonants that are not necessary in the phonology. For example, a rule of phonetic implementation is required to indicate the exact place of articulation of [coronal] stops (/t d/) as alveolar or dental. A similar rule is present in Laurein; namely that /x/ surface as a prevelar (but not as a palatal, velar, or uvular).

Laurein is the clearest case to my knowledge of a variety of German in which /x/ undergoes small-scale (phonetic) fronting even in the neighborhood of back sounds. Based on the terse statement regarding the realization of /x/ in the LAlmc

## 12.9 The fate of velars that do not undergo velar fronting

dialect spoken in northwest Switzerland (Map 3.1), Schläpfer (1956: 30) implies that the same kind of phonetic implementation is attested in that variety as well. [“χ (= [x]) wird normalerweise palatal ... gebildet.”] However, Schläpfer points out in a footnote on the same page that the fronted articulation is not as front as MoStGm [ç].

### 12.9.2 Phonetic retraction

An underlying segment like /χ/ can surface as velar ([x]) or it can have a retracted realization as uvular ([χ]); recall §1.5 and Table 12.37. I discuss below examples from the descriptive literature on German dialects for those two articulations.

It is important to stress at the outset that even in a well-researched language like MoStGm the term “velar” is often misused. Anyone knowledgeable about MoStGm knows that orthographic *ch* in words like *Bach* ‘stream’ and *machen* ‘do-INF’ is uvular and not velar (Kohler 1990b, Kohler 1990a), but there is nevertheless a tradition of referring to the sound as “velar” and transcribing it as [x]. One example of a work that follows this tradition is the most well-known pronouncing dictionary for MoStGm (Mangold 2005: 44, 46, 52).

It is conceivable that there is a system in which [x] and [χ] are both present and that the two are contextually determined. If there were such a German dialect, then the uvular realization would be a consequence of coarticulation. To the best of my knowledge, no German dialect has been described in this manner, although the reader is referred to the discussion in §1.5 on the contextually-determined distribution of [x] and [χ] in MoStGm.

In the descriptive literature referred to throughout this book, the ach-Laut ([x]) is usually classified as a phonetic velar. By contrast, other authors observe that /χ/ is pronounced as uvular ([χ]) regardless of the neighboring sounds. Sometimes [x] and [χ] are assumed to be free variants; in other cases the difference between [x] and [χ] is shown to be a function of geography. In all such studies /χ/ is not a product of coarticulation, but instead of phonetic implementation. One study mentioned earlier (§12.3) is Ibrom (1971), who notes that /χ/ is pronounced as velar ([x]) in the Swb variety between Augsburg and Donauwörth (Map 3.1) but as either velar ([x]) or uvular ([χ]) in the CBav varieties between Augsburg and Aichach (Map 3.3). According to Stein-Meintker (2000), the uvular [χ] pronunciation is the most common realization of /χ/ in Garmisch-Partenkirchen (CBav; Map 3.3). In Zürich German (HALmc; Map 3.2), Fleischer & Schmid (2006: 244) observe that /χ/ (and its lenis counterpart) are in free variation with the corresponding uvulars. The final example mentioned here is Hove (2002: 100-101), who

## *12 Targets, triggers, and rule generalization*

demonstrates that there are three ways of realizing /x/ in SwGm, namely velar, velar with a slightly lowered tongue body, or uvular.

### **12.10 Conclusion**

The aim of this chapter has been to summarize the attested targets and triggers for velar fronting – in both word-initial and postsonorant position – in a large selection of German dialects representing of all subdivisions of German dialects from Appendix A. The study has determined that dialects can be classified according to the generality of targets and triggers; hence, some varieties have a very specific set of triggers and/or targets, while others have a much broader set. The findings have been argued to support the model of rule generalization, according to which language change – in this case, velar fronting – began with a small set of targets and triggers and then expanded through time and space to include more and more target segments and more and more triggers.

In the following chapter I consider data drawn from a linguistic atlas (SNI<sub>B</sub>) which provides evidence that velar fronting is active throughout Lower Bavaria. I demonstrate in Chapter 13 that three of the historical stages posited in the present chapter on the basis of velar fronting triggers are attested in Lower Bavaria, namely Stage 2a (after high front vowels), Stage 2b (after nonlow front vowels, and Stage 2c' (after all front vowels).

# 13 Velar fronting in Lower Bavaria

## 13.1 Introduction

The triggers for the synchronic rule of velar fronting were shown in Chapter 12 to mirror a series of historical stages, as in Table 13.1. Recall that HFV=high front vowel, MFV=mid front vowel, LFV=low front vowel, and CC=coronal sonorant consonant (/r l n/). The final column gives phonetic transcriptions for sequences corresponding to the various triggers for postsonorant velar fronting.

Table 13.1: Six velar fronting stages

Stage	Triggers	Example (postsonorant context)
1	----	[ix], [ix], [ex], [ɛx], [rx], [æx], [ax]
2a	HFV	[iç], [iç], [ex], [ɛx], [rx], [æx], [ax]
2b	HFV, MFV	[iç], [iç], [eç], [ɛç], [rx], [æx], [ax]
2c	HFV, MFV, CC	[iç], [iç], [eç], [ɛç], [rç], [æx], [ax]
2c'	HFV, MFV, LFV	[iç], [iç], [eç], [ɛç], [rx], [æç], [ax]
2d	HFV, MFV, LFV, CC	[iç], [iç], [eç], [ɛç], [rç], [æç], [ax]

Stage 1 represents the point where velar fronting was absent; hence, velar sounds like /x/ surface as [x] regardless of the nature of the preceding sound. At Stage 2a only high front vowels induced velar fronting, and each subsequent stage incorporates more segments into the set of velar fronting triggers. Recall that Stage 2c and Stage 2c' are coterminous. Thus, Stage 2b has the choice of adding coronal sonorant consonants to the set of triggers at a later stage (Stage 2c) or low front vowels (Stage 2c').

Of the five velar fronting stages listed above, Stage 2a is the least inclusive because it reflects the narrowest natural class (high front vowels), while Stage 2d is the most inclusive because it captures the broadest natural class (coronal sonorants). Recall that Stage 2d represents the default pattern for German dialects. By contrast, Stage 2a was shown to be extremely rare, being only attested

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in two places, namely Visperterminen (HstAlmc) in Switzerland (Upper Valais) and Plettenberg (Wph) in Germany (North Rhine-Westphalia).

What is lacking is a study of velar fronting in a particular area which documents cities, towns, and villages representing more than one of the postulated historical stages. The purpose of the present chapter is to eliminate this gap by discussing the synchronic state of velar fronting in Lower Bavaria (Niederbayern). The case study undertaken below demonstrates that velar fronting is the norm throughout Lower Bavaria, but a closer scrutiny of the data reveals that those velar fronting places exemplify four of the historical stages in Table 13.1, namely Stage 1, Stage 2a, Stage 2b, and Stage 2c'. A surprising – but welcome – result of the present investigation is that the rarest one of all, namely Stage 2a, is by far the most common one throughout Lower Bavaria.

The data are drawn exclusively from Part 5 of the six part *Bayerischer Sprachatlas*, namely the *Sprachatlas von Niederbayern* (SNiB). SNiB consists of 7 volumes containing maps and phonetic representations for the examples depicted on those maps. The reason this atlas is particularly suitable for this investigation is that Volume 3 on vowels, Volume 4 on consonants, and Volume 7 on the morphology of nouns contain phonetic representations for all of the 221 places in Lower Bavaria which were the sources for data (Belegorte).

Drawing data from a single source for a large number of places in a single area is advantageous because the result can be thought of as a snapshot of a particular area at a particular point in time. This snapshot is important because it gives clues as to how the original rule was originally phonologized and spread temporally and spatially.

The remainder of this chapter is organized as follows: §13.2 provides some important background information, and §13.3 gives data from SNiB representing Stage 1, Stage 2a, Stage 2b, and Stage 2c'. §13.4 discusses the areal distribution of those four stages in Lower Bavaria and provides a map illustrating that distribution. In §13.5 I discuss several issues that arise in the course of this chapter. §13.6 concludes.

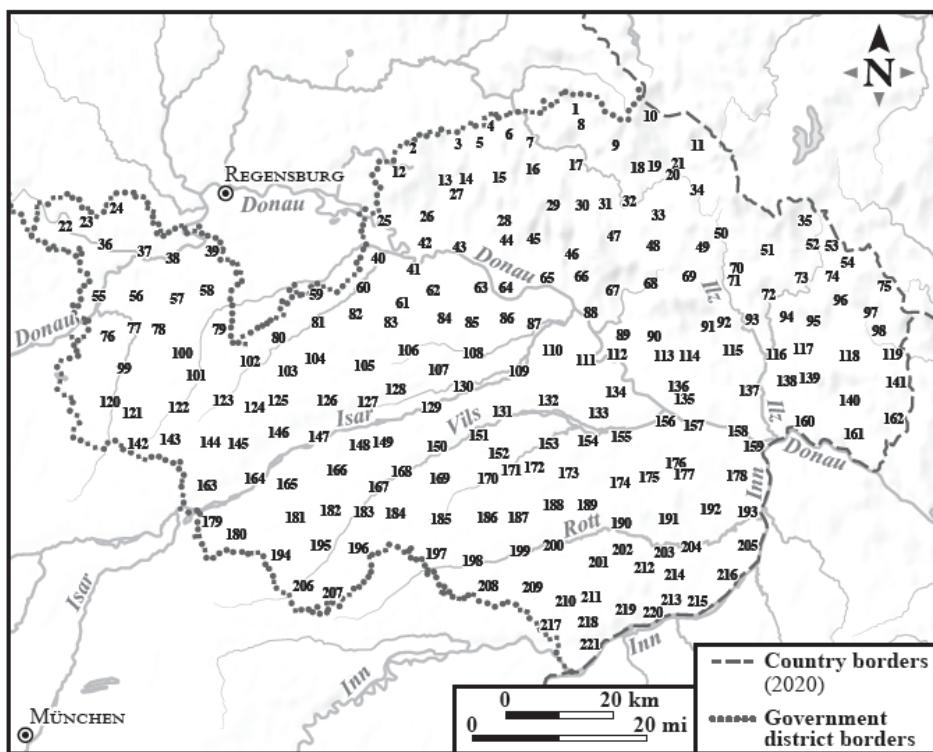
## 13.2 Background

Before providing the data from SNiB it is essential that some information be provided on the geography of Lower Bavaria (§13.2.1), the state of velar fronting in Bavarian phonology on the basis of the descriptions of that dialect area cited in previous chapters (§13.2.2), and the SNiB transcription system (§13.2.3).

## 13.2 Background

### 13.2.1 Geography of Lower Bavaria

Bavaria is divided into seven large administrative divisions called government districts (Regierungsbezirke), one of which is Lower Bavaria (Map 13.1). It is bounded by the government districts of Upper Bavaria (Oberbayern) to the south and west and Upper Palatinate (Oberpfalz) to the north. To the northeast is the Czech Republic (South Bohemia), and to the southeast is Austria (Upper Austria). The numbers depicted on Map 13.1 represent the cities, towns, and villages which constitutes the Belegorte for SNiB. The names of those places are provided in Appendix J.



Map 13.1: Lower Bavaria

In contrast to Upper Bavaria and Upper Palatinate, there are no large urban centers in Lower Bavaria. The largest three cities (with the approximate population in parentheses) are the capital Landshut (ca. 73,000), Passau (ca. 52,000), and Straubing (ca. 47,000).

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Almost all of Lower Bavaria is situated within the CBav dialect area (Map 3.3), although some of the places in the north are classified as NBav (Map 3.4). Four places in Lower Bavaria are depicted on those two maps, namely Heinling (= [58]) on Map 3.3 and Zinzenzell (= [2]), Herrnsaal (= [38]), and Atting (= [40]) on Map 3.3.

#### 13.2.2 Velar fronting in Bavarian phonology

Most of the studies cited in this book on CBav and NBav have shown that [x] and [ç] stand in an allophonic relationship which is expressed by some version of velar fronting. In this section I discuss briefly the segments that induce that process (triggers) as well as the sounds that undergo it (targets) with particular reference to Bav. I refer to the triggers as “potential” velar fronting triggers because the data discussed in this chapter reveal that those triggers are not the same in every place in Lower Bavaria.

Potential velar fronting triggers consist of some subset of the coronal sonorants – coronal sonorant consonants and front vocoids (vowels and glides). Consider first the vocoids. In a number of case studies discussed earlier it has been demonstrated that the system of vowels – both monophthongs and diphthongs – can differ from place to place, even within the same dialect area. The same is true for Bav; hence, it needs to be stressed that the inventory of monophthongs I posit in Table 13.2 might not be the same in all Bav varieties. The system in Table 13.2 is very similar to the ones posited by other authors of Bav dialects, e.g. Keller (1963: 207) for Upper Austrian (CBav), Rowley (1989: 422) for NBav, Wiesinger (1989: 485–486) for the variety of CBav spoken in and around Munich (München), Bachmann (2000: 17) for the NBav variety of Eslarn (Upper Palatinate), and Bolter (2022) for Austrian German varieties spoken in Styria. There is general agreement that front rounded vowels (e.g. /y ø/) are absent from the set of contrastive vowels (Wiesinger 1989: 452).<sup>1</sup>

The important takeaway from Table 13.2 is that there are four segments that are potential velar fronting triggers, namely /i e ε æ/. Those four segments are distinguished along the height dimension; hence, /i/ is high, /e ε/ are mid, and /æ/ is low. In this book I have not committed myself to a particular phonetic property distinguishing the two mid front vowels, /e/ and /ε/; in previous chapters I simply assume the cover feature [±tense], e.g. /e/ is [+tense] and /ε/ is [−tense]. It will be useful in the remainder of this chapter to think of those two vowels in terms

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<sup>1</sup>The differences between the vowels in Table 13.2 and the ones posited in the aforementioned studies is immaterial. For example, Keller assumes that front rounded vowels are phonemic in some varieties in Upper Austria, Keller and Bachmann also have nasalized vowels, Bachmann posits schwa (/ə/), and Keller, Rowley and Bolter have /a/ instead of /æ/.

## 13.2 Background

Table 13.2: Distinctive vowels of Bavarian

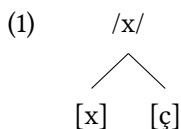
high	i	u
mid	e	o
	ɛ	ɔ
low	æ	a

of degrees of openness in the IPA tradition. Hence, /e/ is more close than /ɛ/; or – put differently – /e/ occupies a higher level than /ɛ/, which is implicit in the way those two vowels are displayed in Table 13.2. Some authors similarly posit two (phonemic) levels of high front vowels for Bav, e.g. Noelliste (2017) has both /i/ and /ɪ/ for Ramsau am Dachstein in Styria (CBav).

In addition to the monophthongs in Table 13.2 Bav has a number of phonemic diphthongs. Six of the diphthongs Rowley (1989) lists for NBav are /ei/, /oi/, /ai/, /ou/, /ɔu/, /au/. Of those diphthongs only the former three can potentially induce velar fronting because they end in a front vocoid. All diphthongs in Bav are falling in the sense that the second component and not the first is nonsyllabic, i.e. a glide (e.g. [ei] in a narrow transcription).

The set of potential velar fronting triggers also consists of the three sonorant consonants /r l n/. In Bav those sounds are either dental or alveolar and hence phonologically [coronal]. See for example the consonant phonemes in Rowley (1989: 423) as well as the other studies cited above. Both Rowley (1989) and Wiesinger (1989) note that the two liquids /l r/ are typically vocalized in coda position (recall §3.5). Since the vocalized /l/ surfaces as a front vocoid, it is a potential velar fronting trigger, e.g. the pronunciation [zɔɪdz] (from (/zɔldz/) for *Salz* ‘salt’ (Wiesinger 1989: 459, 486).

The works cited in this book on Bav dialects agree that [x] and [ç] are the only two dorsal fricatives and that those two sounds stand in complementary distribution in postsonorant position, e.g. Kranzmayer (1956: 71), Kufner (1960: 12–13) for Upper Bavaria; Dozauer (1967: 81–83; 103–104) for Bergstetten (Upper Palatinate); Bachmann (2000: 43) for Eslarn (Upper Palatinate), Noelliste (2017) for Ramsau am Dachstein (Styria). The relationship between the ich-Laut and the ach-Laut in Bav phonology presupposed by those authors is depicted in (1):



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Some of the authors referred to above observe that velar and palatal allophones also occur as geminates (e.g. Bachmann 2000 for Eslarn, Dozauer 1967 for Bergstetten). In some Bav varieties with the affricate /kx/ that sound can likewise occur as the equivalent palatal ([kç]) in the context of front sounds (Chapter 15). As is typical for UGm, the diminutive suffix *-chen* is absent in Bav; hence, there are no cases of [x] and [ç] occurring after back vowels, as in MoStGm [tauxən] ‘dive-INF’ vs. [tauçən] ‘rope-DIM’.

The literature cited throughout this book on Bav indicates that velar fronting in that dialect region is characterized by the broadest set of triggers (=coronal sonorants). This assessment is made explicit in Table 13.10, which lists sources for 38 varieties of Bav and classifies them in terms of the targets and triggers for postsonorant velar fronting. Only 3 of those 38 sources show that only a subset of the coronal sonorants induce velar fronting, namely (NBav) Eisendorf (Seemüller 1908c), and (CBav) Isarwinkel (Maier 1965), where velar fronting fails to be induced by a coronal consonant (/r/), and (CBav) Großberghofen (Gladiator 1971), where only nonlow front vowels trigger the change. In the remainder of this chapter I demonstrate that those three examples are more the rule than the exception in Lower Bavaria.

#### 13.2.3 SNiB transcription system

SNiB follows the tradition adopted in some linguistic atlases of providing extremely narrow phonetic transcriptions which express very subtle articulations that are usually ignored in the descriptive grammars cited throughout this book, including the ones mentioned in the previous section. It is not always clear how the symbols and diacritics in SNiB match up with the ones adopted in the previous section, nor is it evident what segments are phonemic. For these reasons I present data from SNiB throughout this chapter using that source’s transcription system and make no attempt to translate those transcriptions into the symbols employed in the first twelve chapters of this book. It is therefore imperative to clarify the SNiB system of symbols and diacritics for velar fronting triggers and targets.

Consider first vowels. SNiB adopts the five basic phonetic symbols [i e u o a], which represent the cross-linguistically common five vowel system. There are no front rounded vowels in the material discussed below, although SNiB also includes the symbols [ü ö].

The vowel symbols [i e u o a] are enhanced with diacritics which capture the degree of openness. Table 13.3 indicates that there are five such levels. I only consider [i] and [e] because those are the front vowels, which are potential velar

### 13.2 Background

fronting triggers. I refer to the vowels in the first and second columns below as **i-VOWELS** and **e-VOWELS** throughout the remainder of this chapter. The back vowels [u o a] can likewise be referred to as **U-VOWELS**, **O-VOWELS**, and **a-VOWELS**.

Table 13.3: SNiB symbols for front vowels

i-vowels	e-vowels	Description
[i]	[e]	very close
[i]	[e]	close
[i]	[e]	neutral
[i]	[e]	open
[i]	[e]	very open

It should be clear that the five levels for i-vowels and e-vowels is considerably more fine-grained than the one in Table 13.2. What is not expressed in Table 13.3 is that the transcriptions are even more narrow than what the diacritics suggest because SNiB occasionally encloses the diacritics expressing the five degrees of openness in parentheses. I do not include the parenthesis in the phonetic transcriptions given below.<sup>2</sup>

Two additional vocalic sounds that play an important role below are [ə] and [ɑ]. It is clear from the way in which the symbols [ə] and [ɑ] are employed in transcriptions that they represent two variant pronunciations of the sound referred to throughout this book as the vocalized-r, cf. MoStGm [ə] in [u:ə] ‘clock’ and [fə:te] ‘father’.

The vocalized pronunciation of coda /l/ is transcribed in SNiB as one of the i-vowels or e-vowels depending on the place in Lower Bavaria.

In addition to front vowels, coronal sonorant consonants (/r l n/) are potential velar fronting triggers. SNiB has a number of symbols for those three sounds, but the most important ones are [r l n]. The pronunciation guide for all three volumes consulted does not discuss the place of articulation for those three sounds, although it is reasonable to assume on the basis of what is known about the phonetics and phonology of consonants in other varieties of Bav (see §13.2.3) that [l n] are denti-alveolar and that they are therefore phonologically marked for

<sup>2</sup>Some works cited earlier for Bav depart from Table 13.2 by adopting more than two levels for i-vowels and/or e-vowels, but the maximum number of levels in those studies is three, e.g. Kranzmayer (1956: X) has three levels for e-vowels and Wiesinger (1970a: 1) has three levels for i-vowels and e-vowels. Neither of those studies has demonstrated that the vowels posited are actually contrastive (phonemic).

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the frontness feature ([coronal]). SNiB notes that [r̩] is an apical trilled sound ('Zungenspitzen-r (gerollt)'), which implies that [r̩] is phonologically [coronal]. SNiB also includes a symbol for an apical rhotic with a different manner of articulation ([ɹ̩]), which is referred to as 'rubbed' ('gerieben'), as well as two symbols for uvular rhotics ([R̩ ʁ̩]). None of the data discussed below include the rhotics transcribed as [ɹ̩ R̩ ʁ̩].

SNiB follows the tradition described in §1.5 of assigning three distinct places of articulation to dorsal fricatives. Since SNiB also postulates fortis and lenis obstruents, there are consequently six separate categories with unique symbols, which are given in Table 13.4:

Table 13.4: SNiB symbols for dorsal fricatives

SNiB term	lenis	fortis
Palatal (ich-Laut)	X	X
Between ich and ach	X	X
Velar (ach-Laut)	X	X

It has been made abundantly clear throughout this book that I follow the alternative tradition which posits two places of articulation for dorsal fricatives, namely front dorsals (palatals) and back dorsals (velars). This is also the position adopted by all of the authors cited in §13.2.2. As indicated in Table 13.5, I treat SNiB palatal sounds as front dorsals (palatals), but I collapse the SNiB velar sounds and the sounds belonging to the intermediate category as back dorsals. See also Chapter 15 for a similar interpretation of the three-way place distinction for dorsal fricatives presupposed in two other linguistic atlases, namely SDS and VALTS. The fortis and lenis articulations in Table 13.4 are grouped together in Table 13.5 because none of the data considered below suggest that the front and back dorsals belonging to those two categories behave differently.

In the second column of Table 13.5 I provide the place features for the three SNiB places of articulation, and in the final column I give what I consider to be the most likely phonetic realization of the corresponding sounds. Thus, the palatal place of articulation (front dorsal) is pronounced as [ç], but the simplex [dorsal] articulation can either be realized as velar or as uvular.

Recall from §12.9.2 and Table 12.37 that the distinction between velar and uvular is not relevant for the phonology of German dialects. Hence, the two simplex [dorsal] articulations from SNiB are realized as velar or uvular by phonetic rules.

### 13.2 Background

Table 13.5: SNiB symbols for dorsal fricatives and their probable interpretation

SNiB symbols	Phonological features	Probable phonetic realization
Palatal [χ]/[χ̥]	[coronal, dorsal] (front dorsal)	Palatal [ç]
Intermediate [χ]/[χ̥]	[dorsal] (back dorsal)	Velar [x]
Velar [χ]/[χ̥]	[dorsal] (back dorsal)	Uvular [χ̣]

The clearest argument for grouping SNiB’s intermediate category ([χ]/[χ̥]) together with the velar category ([χ̥]/[χ̣]) is that those two sets of sounds behave phonologically the same way, namely as back dorsals. This point can be made clear by considering the phonetic transcriptions in SNiB for the dorsal fricative in the context after a back vowel. A typical example is the word *Joch* ‘yoke’ from Map 94, Volume 4. The data accompanying that map reveal that there are 69 places in Lower Bavaria in which the dorsal fricative is transcribed after an o-vowel with the symbols for the intermediate category (= [χ χ̥]), 38 places where that fricative is transcribed with a symbol for the velar category (= [χ̥ χ̣]), and 5 places with transcriptions with symbols for the palatal category (= [χ̣ χ̥]). Although palatals can regularly occur after all or some back vowels in the areas discussed in Chapter 14 and Chapter 15, none of those places are in Lower Bavaria. This suggests that the five places with a palatal after the back vowel in *Joch* are simply anomalies; this assessment derives further support from the fact that dorsal fricatives in those five places are not realized as palatal after back vowels in other words. What is more significant is that the velar category ([χ̥ χ̣]) and the intermediate category ([χ χ̥]) both predominate in *Joch* (i.e. after an o-vowel), which is not surprising given that back vowels (such as o-vowels) are the prototypical context for the ach-Laut in MoStGm and in all of the velar fronting varieties discussed in previous chapters. Similar statistics can be obtained from the data accompanying SNiB maps for other words which contain a back vowel followed by a dorsal fricative.

As noted earlier, I provide all data below in the original transcriptions from SNiB. I make extensive reference to the 5 levels of i-vowels and e-vowels and show how those sounds can be understood given the featural system adopted in previous chapters. I refer to dorsal fricatives in terms of two place categories, namely front dorsals (palatals) and back dorsals (velars).

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### 13.3 Data representing four historical stages

The distribution of front dorsals and back dorsals in the data accompanying the SNiB maps reveal that the places indicated on Map 13.1 exhibit one of the four stages from Table 13.1, namely Stage 1 (§13.3.1), Stage 2 (§13.3.2), Stage 2b (§13.3.3), or Stage 2c' (§13.3.4).

#### 13.3.1 Stage 1

As is demonstrated below, velar fronting is the norm throughout Lower Bavaria. Nevertheless, conservative enclaves are attested without velar fronting. This statement is based on the maps in SNiB for the modern reflexes of MHG /x/ in the context after a vowel. Nonvelar fronting places are characterized by realizations of that sound with back dorsals ([χ] x x) after front and back vowels alike. Needless to say, front dorsals ([χ] χ) are absent in Stage 1 varieties.

In (2) I present data from one particular place representing Stage 1, namely Rinchnach (= [33]). In the first column I give the phonetic transcriptions from SNiB, and in the final column I list the volume and map number of the corresponding map and list of data. In many of the phonetic transcriptions from SNiB the original fricative (/x/) is now realized either as [h] or as a manner of articulation somewhere between that of a fricative and that of an approximant. I only consider data in which MHG /x/ is realized as a dorsal fricative and therefore do not take reduced variants into consideration. Some of the examples in (2) and below are the transcriptions for words embedded in a longer phrase, which I do not include. The data are arranged according to the degree of openness of the vowel preceding /x/, namely i-vowels (in 2a-c), e-vowels (in 2d-f), and back vowels (in 2g-m). The dataset in (2) shows that palatals ([χ] χ) are absent entirely and that MHG /x/ surfaces as a back dorsal [x] (= [χ x]) regardless of the nature of the preceding vowel.<sup>3</sup>

#### (2) Stage 1 for Rinchnach (= [33])

a. šd̥ɪχ	Stiche	'stings'	7: 139
b. šd̥ɪχ	Stich	'sting'	3: 4
weɪχə	weihen	'sanctify-INF'	4: 122

<sup>3</sup>The SNiB transcription system incorporates a number of diacritics which express various articulations not directly relevant to velar fronting. Examples include lip rounding (e.g. [ē]), nasalization (e.g. [ē]), length (e.g. [ē]), half-length (e.g. [ē]), unexpected conspicuous shortening (e.g. [ē]), aspiration (e.g. [th]/[t̪]), strengthened lenis sounds (e.g. [b]), and weakened fortis sounds (e.g. [t]).

## 13.3 Data representing four historical stages

c.	idlajx	(in die) Leich	'(to the) burial'	4: 28
	khōjx	Kalk	'lime'	4: 80
	bājx	Bäuche	'stomachs'	7: 82
d.	bēx	Pech	'misfortune'	4: 39
	qeχα	Eiche	'oak tree'	7: 57
	lēχα	Löcher	'holes'	7: 105
e.	reχα	Rechen	'rake'	3: 30
f.	weχα	weihen	'sanctify-INF'	4: 122
g.	rāoxα	rauchen	'smoke-INF'	4: 127
h.	jōx	Joch	'yoke'	4: 94
i.	dox	Dach	'roof'	4: 131
	moxα	machen	'do-INF'	3: 78
	woxən	Wochen	'weeks'	7: 61
	brāoxα	brauchen	'need-INF'	4: 128
j.	nōxt <sup>h</sup>	Nacht	'night'	7: 75
k.	dāqxα	Dächer	'roofs'	7: 113
	nāxd <sup>h</sup>	Nächte	'nights'	7: 76
l.	buāxα	Buche	'beech tree'	3: 130
	duāx	durch	'through'	3: 29
m.	sqviəχαd	Vieh (Gefiechert)	'cattle'	3: 5

The items *Kalk* in (2c) and *durch* (2l) illustrate Liquid Vocalization, which was already shown to be active in Austrian varieties of CGm in §3.5. The generalization is that /l/ vocalizes to a front vowel and /r/ to a back vowel.<sup>4</sup>

Stage 1 also includes places with the general pattern as in (2) but with one word with an unexpected palatal after an i-vowel. One example is Pocking-Hartkirchen (= [205]), which has data comparable to the ones in (2) with the symbols for [x] (= [χ x]) after all vowels, e.g. [nōxd] 'night', [vqeχn] 'spruce' (4: 125), [khojx] 'lime', [vīχ] 'cattle' with the exception of the word [deiχdα] 'daughters' (= 7: 123) with a palatal after the i-vowel [i].

<sup>4</sup>The presence of the underlying /r/ and /l/ in these items can be inferred from German orthography, as indicated in the second column of (2). One could take the alternative position that the [i] in *Kalk* and the [o] in *durch* are present in the underlying representation, in which case Liquid Vocalization is not a synchronic rule, although it was uncontroversially active diachronically. In the remainder of this section I assume that Liquid Vocalization operates synchronically, although my treatment of velar fronting is also compatible with the alternative approach.

### 13 Velar fronting in Lower Bavaria

#### 13.3.2 Stage 2a

In the SNiB transcription system Stage 2a dialects can be identified if [χχ] (=[ç]) occur after i-vowels and [χχχχ] (=[x]) after e-vowels and back vowels.

Stage 2a is attested in Wurmsham (=[207]), which possesses the four front vowels [i ɛ ə e]. The dataset in (3) shows that [χ] (=[ç]) surfaces after [i] (in 3a) and [χχχχ] (=[x]) after [ɛ] (in 3b, [ə] (in 3d), and back vowels (in 3e-h).

##### (3) Stage 2a for Wurmsham (=[207])

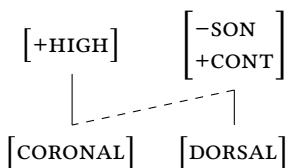
a.	šdiχ	Stich	‘sting’	3: 4
	šdiχ	Stiche	‘stings’	7: 139
	vīχ	Vieh	‘cattle’	3: 5
	khoiχ	Kalk	‘lime’	4: 80
b.	qdlæχgē	(auf die) Leich	‘(to the) burial’	4: 28
	væχn	Fichte	‘spruce’	4: 125
c.	bex	Pech	‘misfortune’	4: 39
	bæχ	Bäuche	‘stomachs’	7: 82
d.	dēχdα	Töchter	‘daughters’	7: 123
	gneχth	Knecht	‘vassal’	4: 124
e.	loχ	Loch	‘hole’	7: 104
	dōχdα	Tochter	‘daughter’	7: 122
	baοχ	Bauch	‘stomach’	7: 81
f.	dοχ	Dach	‘roof’	7: 112
	nοχth	Nacht	‘night’	7: 75
g.	nqχth	Nächte	‘nights’	7: 76
	dqχα	Dächer	‘nights’	7: 113
h.	oαχ	Eiche	‘oak tree’	7: 57
	bυαχ	Buche	‘beech tree’	3: 130
	dūαχ	durch	‘through’	3: 29

The word [khoiχ] in (3a) reveals that the vowel produced by Liquid Vocalization for a target /l/ is a high front vowel that serves as a trigger for velar fronting. Thus, the i-vowels that induce velar fronting include not only phonemic i-vowels, but also synchronically-derived i-vowels. As shown below in §13.5.2, the feeding relationship between Liquid Vocalization (for /l/) and velar fronting is not only true for Wurmsham (=[207]), but it represents the unmarked pattern for velar fronting in Lower Bavaria.

### 13.3 Data representing four historical stages

The five i-vowels [i i i ï ÿ] are phonologically [+high] throughout Lower Bavaria. In that type of Stage 2a system, velars ([x]) and palatals ([ç]) are allophones of underlying velars (/χ/), and velar fronting is restricted to the context after [+high] vowels. The rule of Velar Fronting-6 – posited earlier in §6.2.2 for Visperterminen – is way of expressing formally the restricted set of triggers characterized by Stage 2a. Recall that back vowels are analyzed in Visperterminen as [peripheral], which I replace with [dorsal] in (4).

(4) Velar Fronting-6:



Most of the Stage 2a varieties identified below display a very regular system like the one in (3). However, several Stage 2a places display one of two types of irregularity. In the first, [ç] regularly occurs after i-vowels and elsewhere [x], but there is a very small number of words (one or two) with an unexpected [x] after an i-vowel. In the second, [ç] and [x] have the expected distribution for a Stage 2a system, but there is an unexpected instance of [ç] after a non-i-vowel.

The first type of dialect is represented by Zinzenzell (=2]). The maps in SNiB reveal that this is a clear case of Stage 2a with palatals after two levels of i-vowels ([i ï]), and elsewhere velars, e.g. [ʃdiχ] ‘sting’, [veiχα] ‘cattle-PL’, [khōiχ] ‘lime’, [waiχα] ‘sanctify-INF’, [bqiχ] ‘stomachs’, [dəsiχ] ‘(the) colter’ (4: 132), vs. [bleχ] ‘tin’ (4: 130). The important point is that this Stage 2a system also possesses the aberrant item [indlq̩iχd] ‘(to the) burial’ with [χ] (= [x]) after an i-vowel.

Neukirchen am Inn (=178]) exemplifies the second type of Stage 2a system. The maps in SNiB indicate a clear Stage 2a pattern in which [ç] surfaces after i-vowels ([i ï]) and [x] after e-vowels ([e ɛ]) and back vowels, e.g. [ʃdiχ] ‘sting’, [vaiχn] ‘spruce’, [viχα] ‘cattle-PL’, [avdlq̩iχ] ‘(to the) burial’, [khoiχ] ‘lime’ vs. [bleχ] ‘tin’, [rɛχα] ‘rake’, and [daxə] ‘roofs’. The surprising item is the word [deχdə] ‘daughters’ with an unexpected palatal after an e-vowel.

Sandbach (=157]) is similar to Neukirchen am Inn ([178]) with the one difference being that the unexpected palatal occurs after a back vowel, i.e. [joχ] ‘yoke’. The occurrence of a palatal in the context after a back vowel is well-attested in various places outside of Lower Bavaria discussed in Chapter 14, but this is not a common feature in Lower Bavaria. Thus, phonetic transcriptions like [joχ] are sporadic and therefore do not reflect a significant pattern; recall the discussion in §13.2.3.

### 13 Velar fronting in Lower Bavaria

#### 13.3.3 Stage 2b

Stage 2b dialects are defined as places where [ç] occurs after i-vowels and [x] after back vowels. Within the class of e-vowels there is a threshold below which [x] occurs. The e-vowels after which [ç] surfaces are phonologically mid, while the e-vowels after which [x] occurs are phonologically low. The exact cut-off point between mid e-vowels and low e-vowels can differ from place to place.

I illustrate Stage 2b with three different places. The first is Voglarn (=201), which has one i-vowel [i] and four e-vowels [ɛ e e ɛ]. In that town, [ç] surfaces after the nonlow front vowels [i e ɛ e] (=5a-d) and [x] after the low front vowel [ɛ] (5e) and after back vowels (=5f-j).

##### (5) Data for Stage 2b in Voglarn (=201))

a.	šdīχ	Stich	'sting'	3: 4
	šdīχ	Stiche	'stings'	7: 139
	vīχ	Vieh	'cattle'	3: 5
b.	çdlæeχ	(auf die) Leich	'(to the) burial'	4: 28
	bæχ	Bäuche	'stomachs'	7: 82
c.	væeχðη	Fichte	'spruce'	4: 125
	khoeχ	Kalk	'lime'	4: 80
	bɛχ	Pech	'misfortune'	4: 39
d.	bleχ	Blech	'tin'	4: 130
e.	gnejt <sup>h</sup>	Knecht	'vassal'	4: 124
	dëχdɔ	Töchter	'daughters'	7: 123
f.	jøχ	Joch	'yoke'	4: 94
	loχ	Loch	'hole'	7: 104
g.	dɔχdɔ	Tochter	'daughter'	7: 122
h.	dɔχ	Dach	'hole'	7: 112
	bɔχ	Bach	'stream'	4: 33
	nɔχth	Nacht	'night'	7: 75
i.	nqχtη	Nächte	'nights'	7: 76
j.	oɔχ	Eiche	'oak tree'	7: 57

The featural system for the vowels of Voglarn is posited in Table 13.6. Recall from previous chapters that other dialects are attested in which certain e-vowels – typically [ɛ] in the symbols given in Table 13.2 – are phonologically low vowels, while other e-vowels (i.e. [e]) are phonologically mid. The nature of the features

### 13.3 Data representing four historical stages

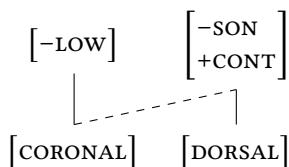
Table 13.6: Distinctive features for vowels (Voglarn)

	[i]	[ɛ e e]	[ɛ]	[ɔ o ɔ]	[ɑ a]
[coronal]	✓	✓	✓		
[dorsal]				✓	✓
[low]	-	-	+	-	+
[high]	+	-			

distinguishing two or more vowels in the same column is not important and is therefore not discussed.

Given the features in Table 13.6 the rule for all Stage 2b dialects (=6) spreads the frontness feature ([coronal]) to the right from any [coronal, -low] vowel onto a dorsal fricative (/χ/), thereby deriving [ç]. Recall that Velar Fronting-2 was shown to be active synchronically in a number of German dialects outside of Lower Bavaria, e.g. in Rheintal (Switzerland) in §3.4.

(6) Velar Fronting-2



The second Stage 2b system is Reicheneibach (=185), which possesses one i-vowel [i] and three e-vowels [ɛ e ɛ̄]. In that town, [ç] surfaces after the nonlow front vowels [i ɛ̄] (=7a,b) and [χ] after the low front vowels [ɛ e] (=7c-d) and after back vowels (=7e-i).

(7) Data for Stage 2b in Reicheneibach (=185)

a.	šdiχ	Stich	'sting'	3: 4
	šdiχ	Stiche	'stings'	7: 139
	yiχ	Vieh	'cattle'	3: 5
b.	adlaeχ	(in die) Leich	'(to the) burial'	4: 28
	yaeχt̪	Fichte	'spruce'	4: 125
	bæχ	Bäuche	'stomachs'	7: 82
	khoeχ	Kalk	'lime'	4: 80
	beχ	Pech	'misfortune'	4: 39
c.	bleχ	Blech	'tin'	4: 130

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d.	gneXt <sup>h</sup> tëXdα	Knecht Töchter	'vassal' 'daughters'	4: 124 7: 123
e.	lɔX dɔx dα	Loch Tochter	'hole' 'daughter'	7: 104 7: 122
f.	dox joX baqox	Dach Joch Bauch	'roof' 'yoke' 'night'	7: 112 4: 94 7: 81
g.	noXt <sup>h</sup>	Nacht	'night'	7: 75
h.	nqXt <sup>h</sup>	Nächte	'nights'	7: 76
i.	dûax	durch	'through'	3: 29

The system in (7) has the featural specifications in Table 13.7. The crucial difference between Table 13.7 and Table 13.6 is that [e e] are both mid vowels in Table 13.6, but in Table 13.7 only [e] is mid, while [e] is low.

Table 13.7: Distinctive features for vowels (Reichenbach)

	[i]	[e]	[e e]	[ø o ɔ]	[ɑ]
[coronal]	✓	✓	✓		
[dorsal]				✓	✓
[low]	-	-	+	-	+
[high]	+	-			

The third Stage 2b system is Martinshaun (= [125]), which has the two i-vowels [i ï] and the four e-vowels [e e e ɛ]. In that dialect, [ç] occurs after the nonlow front vowels [i ï e] (= 8a-c), while [χ] surfaces after the low front vowels [e e ɛ] (= 8d-f) and back vowels (= 8g-l).

## (8) Data for Stage 2b in Martinshaun (= [125])

a.	šdîχ yîχ	Stich Vieh	'sting' 'cattle'	3:
b.	šdîχ muîχ khoîχ šdîχ	Stich Milch Kalk Stiche	'sting' 'milk' 'lime' 'stings'	3: 4 3: 10 4: 80 7: 139
c.	îdlæeχ væχtn bæeχ	(in die) Leich Fichte Bäuche	'(to the) burial' 'spruce' 'stomachs'	4: 28 4: 124 7: 82

## 13.3 Data representing four historical stages

d.	beχ	Pech	'misfortune'	4: 39
	bleχ	Blech	'tin'	4: 130
e.	gnejexd	Knecht	'vassal'	4: 124
f.	rēxα	Rechen	'rake'	3: 30
	dexdα	Töchter	'daughters'	7: 123
g.	joχ	Joch	'yoke'	4: 94
	baox	Bauch	'stomach'	4: 129
h.	lōx	Loch	'hole'	7: 104
i.	doxdα	Tochter	'daughter'	7: 122
	bqx	Bach	'stream'	4: 33
j.	nqxd	Nacht	'night'	7: 75
	nqxd	Nächte	'night'	7: 76
k.	dqx	Dach	'roof'	7: 112
l.	dūαx	durch	'through'	3: 29

The featural system for the vowels in Martinshaun ([125]) is given in Table 13.8. These features differ crucially from the ones in Table 13.6 and Table 13.7 in terms of the cut-off point between front mid and front low vowels. Thus, Table 13.6 treats the two e-vowels [ɛ e] as mid ([−low, −high]), Table 13.7 analyzes [ɛ] as mid ([−low, −high]) and [e] as low ([+low]), and Table 13.8 analyzes both of those e-vowels as low ([+low]).

Table 13.8: Distinctive features for vowels (Martinshaun)

	[i i]	[ɛ]	[e e ɛ]	[o o ɔ]	[ɑ ɑ]
[coronal]	✓	✓	✓		
[dorsal]				✓	✓
[low]	–	–	+	–	+
[high]	+	–			

Although the featural systems proposed for Voglarn ([201]), Reicheneibach ([185]), and Martinshaun ([125]) are not the same, all of those possess precisely the same version of velar fronting, stated in (6).

A number of other places in Lower Bavaria have Stage 2b as defined above, but those systems also possess irregularities where [x] surfaces after the e-vowels that are expected to always be the context for [ç]. Consider Malgersdorf (= [170]), where [ç] surfaces after i-vowels and [x] after [e], e.g. [ʃtīχ] 'sting' [svīχ] '(the)

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cattle' vs. **[k<sup>h</sup>œχ]** 'lime', **[dexdɑ]** 'daughters'. No example is attested in this place with a dorsal fricative after e-vowel lower than [e], i.e. [ɛ] or [e]. After the e-vowel one level above [e] palatals occur in examples like **[yæχtn̩]** 'spruce' **[bæχ]** 'stomachs', but Malgersdorf also has the two irregular forms **[dlæχ]** '(to the) burial' and **[peχ]** 'misfortune'.

#### 13.3.4 Stage 2c'

Stage 2c' is defined as any dialect in which front dorsals ([ç]) occur after all i-vowels and after all e-vowels, while back dorsals ([χ]) surface after back vowels.

Stage 2c' is exemplified by Herrnsaal (=38]), which possesses two i-vowels ([i i]) and three e-vowels ([ɛ e ɛ]). The dataset in (9) shows that palatals occur after every one of those front vowels (in 9a-e), while velars (=χ χ x x) surface after back vowels (=9f-j).

(9) Stage 2c' for Herrnsaal (=38):

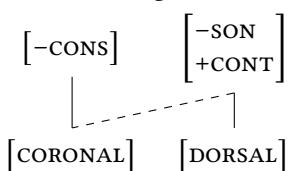
a.	hēiχα	höher	'higher'	4: 123
	mēiχ	Milch	'milk'	3: 10
	qɔydalēiχ	(auf die) Leich	'(to the) burial '	4: 28
b.	b̥v̥iχα	Vieh	'cattle'	3: 5
c.	leχα	Löcher	'holes'	7: 105
	bleχ	Blech	'tin'	4: 130
	b̥h̥eχ	Pech	'misfortune'	4: 39
d.	yæχtn̩	Fichte	'spruce'	4: 125
	bæχ	Bäuche	'stomachs'	7: 82
	læχα	leihen	'lend-INF'	4: 120
	œχα	Eiche	'oak tree'	7: 57
	œχan	Eichen	'oak trees'	7: 58
e.	gneχt̩	Knecht	'vassal'	4: 124
	r̥eχα	Rechen	'rake'	3: 5
f.	khuχl̩	Küche	'kitchen'	4: 165
g.	raoχα	rauchen	'smoke-inf'	4: 127
	b̥aox	Bauch	'stomach'	7: 81
	b̥rqoxα	brauchen	'need-inf'	4: 128
h.	l̩ox	Loch	'hole'	7: 104
	w̥oχα	Wochen	'weeks'	7: 61
	b̥oχ	Bach	'stream'	4: 33
	d̥ox	Dach	'roof'	4: 131

### 13.3 Data representing four historical stages

i.	naxt̪	Nacht	‘night’	7: 75
	naxt̪	Nächte	‘nights’	7: 76
	daxxa	Dächer	‘roofs’	7: 113
j.	mqxa	machen	‘do-inf’	3: 78

The Stage 2' rule of velar fronting needs to capture the fact that all and only front vowels – the conjunction of i-vowels and e-vowels – serve as triggers. This can be accomplished by positing that the trigger is a front ([coronal]) vowel ([–consonantal]), as expressed in (10):

(10) Velar Fronting-13



Velar Fronting-13 spreads the frontness feature from any front vowel ([–consonantal, coronal]) to a /x/ target. The featural system for Stage 2' dialects does not crucially require a particular analysis of e-vowels; hence, any of the matrices posited above work.

One might argue that the correct triggers for Herrnsaal (and presumably for any Stage 2c' dialect) is the class of front sonorants ([+sonorant, coronal]). Although that broader version of velar fronting works technically for the data in (9) there is good reason for questioning it. See §13.5.2 for discussion.

The Stage 2c' system for Herrnsaal is very regular in the sense that back dorsals ([χ x x̪]) are absent after both i-vowels and e-vowels. In other Stage 2c' systems it is possible to find an occasional example of a back dorsal in the front vowel context. This is precisely the case in Ruppertskirchen (= [152]), e.g. words like [edl̪iqχ] ‘(to the) burial’, [ʃdiχ] ‘sting’, [bleχ] ‘tin’, [beχ] ‘misfortune’, [gneχd̪] ‘vassal’ display the regular pattern as in (9), but there is the irregular form [vix] ‘cattle’.

The regular Stage 2c' system in for Herrnsaal ([38]) also has an irregularity, namely there is one word with a palatal after the back vowel [u], i.e. [bouχα] ‘beech tree’. Recall from §13.3.2 that one occasionally finds velar fronting varieties with a palatal in the context after a back vowel but – because of their rarity – that no significance can be attributed to this type of anomaly.

### 13 Velar fronting in Lower Bavaria

#### 13.4 Areal distribution of velar fronting stages in Lower Bavaria

Dialects representing the four stages described in the preceding section do not have an equal areal distribution in Lower Bavaria. As indicated in Table 13.9, Stage 2a represents by far the most common one (112). While Stage 2b is attested in a sizeable number of places (50), Stage 2c' is extremely rare (5). It is interesting to observe that the most common stage in the dialects discussed in Chapters 3–12 – Stage 2d from Table 13.1 – is not attested at all in Lower Bavaria. 30 places are classified as Stage 2, which I comment on below.<sup>5</sup>

30 places in Lower Bavaria are categorized as Stage 2. That type of system has palatals after i-vowels, but there are two reasons why those 30 places cannot be unambiguously placed into any of the three velar fronting stages (2a, 2b, 2c'): (a) There are not enough examples to determine which of the three velar fronting stages is correct, or (b) there is too much fluctuation between front dorsals and back dorsals after e-vowels to distinguish between Stage 2b and 2c'. Haidlfing (=[108]) illustrates (a). That place has front dorsals in [v̥ɪχa] 'cattle' and [v̥æχtŋ] 'spruce' and back dorsals after back vowels, but since there are no examples with dorsal fricatives after other e-vowels it is not possible to know whether or not Haidlfing represents Stage 2a, Stage 2b, or Stage 2c'. Peising (=[39]) illustrates (b). In that place palatals occur after i-vowels and after the fourth level of e-vowel ([ɛ]) and velars after back vowels. Those generalizations suggest that Peising represents Stage 2c'. The problem is that after e-vowels higher than [ɛ] velars occur in some words and palatals in others, e.g. some items have a front dorsal after [e]/[ɛ] while other ones have a back dorsal. It could be that the words with a back dorsal after e-vowels higher than [ɛ] are irregular, in which case Peising would represent Stage 2c'. On the other hand, it could be that Peising is a Stage 2b dialect and the two items with a palatal after [ɛ] are additional anomalies.

All of the places listed in Table 13.9 are indicated on Map 13.2:

As noted above, there are five places representing the broadest set of velar fronting triggers (Stage 2c'), namely Baiersdorf (=[23]), Kelheim (=[37]), Herrn-

<sup>5</sup>Table 13.9 only lists 213 places and not the 221 places depicted on Map 13.1. The eight places which have not been taken into consideration are Zell (=[5]), Teichnach (=[17]), Bischofsmais (=[47]), Ringelai (=[72]), Rottenmann (=[86]), Altreichenau (=[97]), Eging am See (=[114]), and Wegscheid (=[162]). The reason I ignore those places is that there are too few phonetic transcriptions with dorsal fricatives on the SNiB maps to know for certain whether or not velar fronting is active. For example, Wegscheid (=[162]) has several words with back dorsals after e-vowels, but no words are given for that place with dorsal fricatives after i-vowels. Wegscheid (=[162]) could therefore either represent velar fronting (Stage 2a) or non-velar fronting (Stage 1).

### 13.4 Areal distribution of velar fronting stages in Lower Bavaria

Table 13.9: Velar fronting and non-velar fronting places in Lower Bavaria

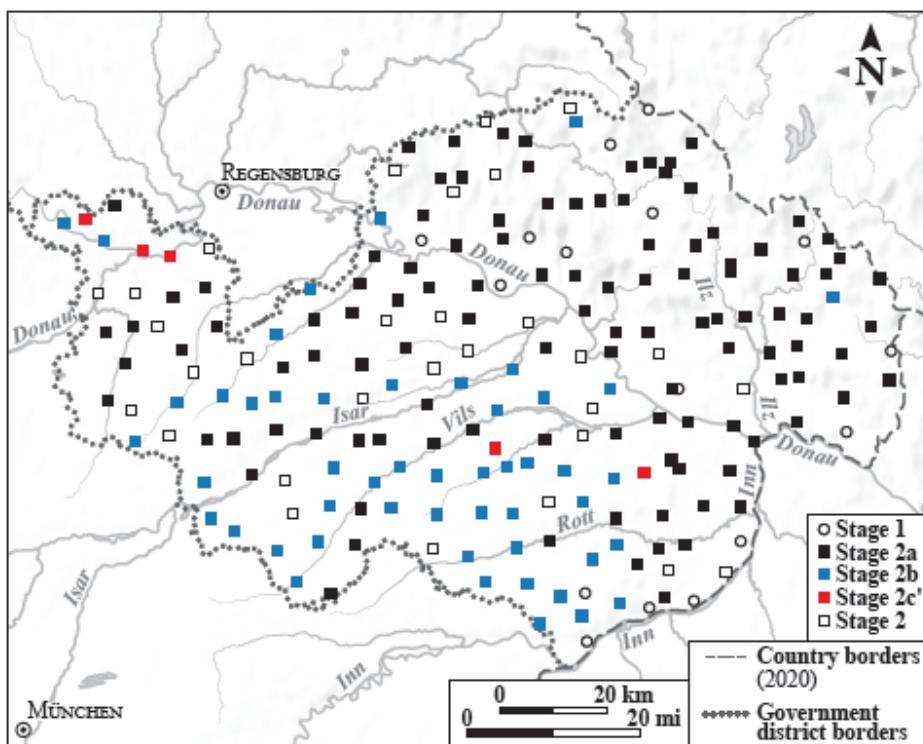
Stage	<i>n</i>	Places in Lower Bavaria
1	16	9, 10, 33, 42, 45, 46, 52, 64, 119, 135, 161, 205, 211, 215, 220, 221
2a	112	2, 3, 6, 7, 11, 13, 14, 16, 18, 19, 20, 21, 24, 26, 28, 29, 30, 31, 32, 34, 35, 40, 41, 43, 44, 48, 49, 50, 51, 53, 54, 57, 58, 60, 61, 62, 63, 65, 66, 67, 68, 69, 70, 71, 73, 74, 75, 76, 77, 79, 81, 82, 85, 88, 89, 90, 91, 92, 93, 94, 95, 98, 99, 100, 103, 104, 105, 106, 110, 112, 115, 116, 117, 118, 120, 129, 136, 138, 139, 140, 141, 144, 145, 146, 147, 148, 149, 150, 151, 153, 155, 156, 157, 158, 159, 160, 164, 176, 177, 178, 183, 190, 191, 192, 193, 196, 200, 203, 204, 207, 212, 213
2b	50	8, 22, 25, 36, 59, 80, 96, 109, 122, 123, 124, 125, 126, 128, 130, 131, 132, 134, 142, 163, 166, 167, 168, 169, 170, 171, 172, 173, 174, 179, 180, 182, 184, 185, 186, 187, 189, 194, 195, 198, 199, 201, 202, 206, 208, 209, 210, 217, 218, 219
2c'	5	23, 37, 38, 152, 175
2	30	1, 4, 12, 15, 27, 39, 55, 56, 78, 83, 84, 87, 101, 102, 107, 108, 111, 113, 121, 127, 133, 137, 143, 154, 165, 181, 188, 197, 214, 216

saal (=[38]), Ruppertskirchen (=[152]), and Sachsenham (=[175]). The first three are in close proximity in the northwest, while the latter two are about 30km apart in the south central region. Most places representing Stage 2b can be found in the area south of the Danube River. Stage 2a places are most visible in the northeast, although they are also attested in the south and west. Non-velar fronting places are found in two areas: (a) In the south along the Inn River and (b) in the area between the Danube River and the border with Upper Palatinate and the Czech Republic. Outside of those two areas Stage 1 varieties are not attested in Lower Bavaria.

In the remainder of this section I interpret the places on Map 13.2 representing Stages 2a, 2b, and 2c' historically in the rule generalization approach (§2.4.1). In the course of that discussion I refer only to the markers in Lower Bavaria, although a complete treatment would also have to take neighboring places in Upper Bavaria, Upper Palatinate, and Upper Austria into consideration. Since the data from those places are lacking I do not take them into consideration.

Stage 2c' has the broadest set of triggers; hence, the five places Baiersdorf (=[23]), Kelheim (=[37]), Herrnsaal (=[38]), Ruppertskirchen (=[152]), and Sachsenham (=[175]) can be thought of as focal areas for velar fronting. Baiersdorf

## 13 Velar fronting in Lower Bavaria



Map 13.2: Areal distribution of velar fronting stages in Lower Bavaria. Circles indicate the absence of (postsonorant) velar fronting. Black squares show velar fronting after high front vowels, blue squares after nonlow front vowels, and red squares after high front vowels, mid front vowels, and low front vowels.

(=[23]), Kelheim (=[37]), Herrnsaal (=[38]) are in close proximity; hence, I see them as a single focal area, which I refer to as F<sub>1</sub>. Ruppertskirchen (=[152]) and Sachsenham (=[175]) could represent two separate focal areas or possibly a single one. I assume the latter for simplicity, which I call F<sub>2</sub>. The focal areas are those places where velar fronting was originally phonologized. I refer to the point in time when phonologization occurred in F<sub>1</sub> and F<sub>2</sub> at T<sub>1</sub> with the narrowest set of triggers; hence, F<sub>1</sub> and F<sub>2</sub> were Stage 2a at T<sub>1</sub>. By contrast, all other places in Lower Bavaria – that is, all blue and black markers depicted on Map 13.2 – had no velar fronting (Stage 1) at T<sub>1</sub>.

Velar fronting then spread both temporally and spatially; recall that the two types of spreading are represented on Figure 2.1. Temporal spreading means that

### 13.4 Areal distribution of velar fronting stages in Lower Bavaria

the places I call  $F_1$  and  $F_2$  which represented Stage 2a at  $T_1$  added front mid vowels to the set of velar fronting triggers (at time  $T_2$ ), thereby becoming Stage 2b. Later on (at time  $T_3$ ), low front vowels were added to the set of velar fronting triggers in  $F_1$  and  $F_2$ , which is precisely the state of affairs represented by the red markers on Map 13.2.

At a point in time after  $F_1$  and  $F_2$  had phonologized velar fronting ( $T_2$ ) the rule started to spread spatially. This means that communities near  $F_1$  and  $F_2$  phonologized the rule with the high front vowels as triggers (Stage 2a); these are the black markers depicted in the present day ( $T_3$ ) on Map 13.1. Some of the Stage 2a places at  $T_2$  eventually added mid front vowels to the set of velar fronting triggers and thereby became Stage 2b places; these are the blue markers at  $T_3$  on Map 13.2.

Why is Stage 2a so well-attested in Lower Bavaria but so rare elsewhere? Before addressing this question it is important to bear in mind is that the areas representing Stage 2a probably include regions outside of Lower Bavaria. For example, the linguistic atlas for Upper Bavaria (SOB) provides some evidence that the most common velar fronting variety in Lower Bavaria (Stage 2a) is also the norm in Upper Bavaria. Map 36 in Volume 2 for the word *Vieh* ‘cattle’ shows the symbol for a palatal fricative in the context after a high front vowel throughout most of Upper Bavaria. By contrast, Map 2 in Volume 2 for *Blech* ‘tin’ illustrates that the front mid vowel is followed by symbols for the back dorsal. (SOB has a three-way place distinction for dorsal fricatives as in Table 13.4). If these examples are representative, then they suggest that Stage 2a is even more widespread than suggested in this chapter.

The prevalence of Stage 2a throughout Lower Bavaria (and probably Upper Bavaria) and its rarity elsewhere make sense when one considers when velar fronting might have been phonologized. As stressed throughout this book, velar fronting must have had more than one point of origin (focal area). Polygenesis is the only sensible explanation for the existence of velar fronting islands, which by definition phonologized velar fronting independently (Chapter 15). In Chapter 16 I argue on the basis of linguistic evidence that velar fronting must have been phonologized in WCGm and WLGm as early as OHG/OSax. Given the extreme age of velar fronting in LGm and CGm it makes sense that Stage 2a varieties would be rare in those areas because the original rule would have had many centuries to diffuse itself spatially and temporally. This meant that there was ample time to acquire the full set of triggers characterized by Stage 2d.

The reason Stage 2a is so common throughout Lower Bavaria and probably also Upper Bavaria is that velar fronting must have been phonologized in South-east Germany much more recently than in CGm and LGm areas. Although it is

### 13 Velar fronting in Lower Bavaria

not possible to give a precise century for the phonologization of velar fronting in Bavaria, it must have been recent because of the prevalence of places which still represent Stage 2a.

## 13.5 Discussion

This section addresses three issues. First, a number of velar fronting dialects listed in Table 13.9 only apply the rule after an i-vowel that is a monophthong but not after an i-vowel that is the second component of a diphthong (§13.5.1). Second, nothing has been said in this chapter about the status of consonants (e.g. /l/ and /r/) that serve as triggers for velar fronting in areas outside of Lower Bavaria. In §13.5.2 I assess whether or not there is evidence from SNiB that bears on this question. Third, reference was made above to irregular forms (recall §12.8.3 on LGm). In §13.5.3 I address the nature of irregularities with respect to velar fronting in Lower Bavaria.

### 13.5.1 Velar fronting in monophthongs and diphthongs

The velar fronting places listed in Table 13.9 have in common that the rule is always triggered by i-vowels. As indicated in the datasets presented in §13.3 those i-vowels can be either monophthongs or the second component of a diphthong. A typical example is Stage 2a Zinzenzell (= [2]). In the data presented above for that place, velar fronting applies after i-vowels ([i i]) in monophthongs (e.g. [ʂd̩iχ] ‘sting’, [dəʂiχ] ‘(the) colter’) and diphthongs (e.g. [yeiχα] ‘cattle-PL’, [khōiχ] ‘lime’, [wqiqχα] ‘sanctify-INF’, [bqiqχ] ‘stomachs’). That speakers in Zinzenzell do not draw a distinction between i-vowels in monophthongs and i-vowels in diphthongs makes sense if speakers treat the i-vowel in diphthongs phonologically the same way as the i-vowel in monophthongs. This is illustrated in (11):

(11)	a.	/i	x/	
		$\begin{bmatrix} -\text{CONS} \\ +\text{HIGH} \\ \text{CORONAL} \end{bmatrix}$	$\begin{bmatrix} +\text{CONS} \\ -\text{SON} \\ +\text{CONT} \\ \text{DORSAL} \end{bmatrix}$	
b.		/a	i	x/
		$\begin{bmatrix} -\text{CONS} \\ +\text{LOW} \end{bmatrix}$	$\begin{bmatrix} -\text{CONS} \\ +\text{HIGH} \\ \text{CORONAL} \end{bmatrix}$	$\begin{bmatrix} +\text{CONS} \\ -\text{SON} \\ +\text{CONT} \\ \text{DORSAL} \end{bmatrix}$

### 13.5 Discussion

Since the i-vowel in (11a) as well as the i-vowel in (11b) are [+high] they both trigger velar fronting.

The pattern represented by Zinzenzell can be contrasted with another one. In particular, a number of velar fronting varieties included among the ones listed in Table 13.1 are places where only i-vowels in monophthongs trigger velar fronting but not the i-vowels in diphthongs. A typical example is Schöllnach (= [90]). As indicated below, front dorsals occur after the i-vowels in monophthongs in (12a) but back dorsals are found after the i-vowels in diphthongs in (12b).

(12) Data for Stage 2a Schöllnach (= [90])

a.	ſdīχ	Stich	‘sting’	3: 4
	ſdīχ	Stiche	‘stings’	7: 139
	vīχðn	Fichte	‘spruce’	4: 125
	vīχ	Vieh	‘cattle’	3: 5
	vīχ	Vieh	‘cattle-PL’	3: 5
b.	edlaiχ	(in die) Leich	‘(to the) burial’	4: 28
	koiχ	Kalk	‘lime’	4: 80
	waiχɑ	weihen	‘sanctify-INF’	4: 122

Note that velar fronting is not sensitive to vowel length because palatals occur in (12a) after vowels that are short, long, or extra short.

Places in Lower Bavaria which display a pattern akin to the one in (12) are centered primarily in the north-central region bounded by the Danube (Donau), the border to the government district of Upper Palatinate, and the Czech Republic, namely Rattiszell (= [13]), Brandten (= [18]), Rabenstein (= [19]), Zwiesel (= [20]), Lindberg (= [21]), Perasdorf (= [28]), Achslach (= [29]), Zachenberg (= [30]), Schwarzach (= [44]), Kirchberg im Wald (= [48])). The other five places are isolates situated along the Isar River (Aholming=[110], Mamming=[129]), the Ilz River (Büchlberg=[138]), the Inn River (Malching=[213]), and ca. 20km south of Regensburg (Aholming=[58]).

From the formal perspective, speakers from Schöllnach ([90]) treat i-vowels in monophthongs as phonologically [+high], but i-vowels in diphthongs as unmarked for that feature. The two types of i-vowels are depicted in (13).

(13)	a.	/i	x/	
		$\begin{bmatrix} -\text{CONS} \\ +\text{HIGH} \\ \text{CORONAL} \end{bmatrix}$	$\begin{bmatrix} +\text{CONS} \\ -\text{SON} \\ +\text{CONT} \\ \text{DORSAL} \end{bmatrix}$	

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b.	/a	i	x/
	$\begin{bmatrix} \text{-CONS} \\ \text{+LOW} \end{bmatrix}$	$\begin{bmatrix} \text{-CONS} \\ \text{CORONAL} \end{bmatrix}$	$\begin{bmatrix} \text{+CONS} \\ \text{-SON} \\ \text{+CONT} \\ \text{DORSAL} \end{bmatrix}$

Given that treatment, velar fronting correctly produces a palatal from /x/ in (13a) but not in (13b).

The reason why i-vowels in monophthongs are treated differently from the i-vowels in diphthongs is that speakers of these dialects are cognizant of the fact that the feature [high] is not distinctive for the second component of diphthongs. In the system of monophthongs for every German dialect without exception an i-vowel like /i/ must be [+high] to distinguish it from /e/, which is [-high]. But in diphthongs like /ai/ the /i/ is not distinctively [+high] because /ai/ does not contrast with /ae/, which is non-occurring in this variety. The approach described here therefore makes the prediction that the pattern displayed in (13) could not obtain in a dialect with both /ai/ and /ae/.<sup>6</sup>

Independent evidence for the treatment proposed in (13b) comes from MoStGm. According to one pronouncing dictionary (Mangold 2005) the second component of the three native diphthongs of MoStGm is transcribed with the phonetic symbol for high vowels, i.e. /ai/, /au/, /ɔy/ (together with the bottom ligature). By contrast, another pronouncing dictionary (Krech 1982) transcribes the second component of the same diphthongs with the phonetic symbols for mid vowels, i.e. /ae/, /ao/, /ɔø/ (together with the bottom ligature). The reason those two sources differ in their transcriptions is precisely because vowel height is not distinctive – or, to be colloquial, it does not matter – for the second component of diphthongs. By contrast, Mangold (2005) and Krech (1982) both transcribe high monophthongs like /i:/ (but never as /e:/) because vowel height is distinctive for monophthongs, cf. [zi:] ‘they’ vs. [ze:] ‘lake’.<sup>7</sup>

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<sup>6</sup>The featural approach for diphthongs in (13b) is consistent with the contrastive hierarchy of Dresher (2009), which has been presupposed throughout this book. A complete analysis of Schöllnach (= [90]) and the other places mentioned above would need to take all of the contrastive diphthongs into consideration. That type of analysis is not possible because SNiB does not provide enough data to know for certain which diphthongs are contrastive in which place in Lower Bavaria.

<sup>7</sup>The approach to distinctive features in diphthongs described here is defended in Noelliste (2017) for Ramsau am Dachstein. See also the treatment of diphthongs like /ai/ in MoStGm in §16.2.

### 13.5 Discussion

#### 13.5.2 The status of velar fronting after consonants

Recall that the default set of triggers for velar fronting in German dialects consists of all front vowels and coronal sonorant consonants (/r l n/), which is precisely the pattern attested in MoStGm (Chapter 17). The datasets from SNiB in §13.3 all have in common that the segments inducing velar fronting consist solely of front vowels. The question I explore below is whether or not there is material available from SNiB that can shed light on whether or not consonants might also be velar fronting triggers, as in Stage 2c and Stage 2d in Table 13.1.

It is difficult to test whether or not there are Stage 2c/2d places in Lower Bavaria for two reasons. First, none of the maps in SNiB has a word with /n/ followed by /x/, e.g. *manchmal* ‘sometimes’ (cf. MoStGm [mançmal]). Second, in those maps in SNiB with liquids followed by /x/ the liquid stands in coda position and therefore undergoes Liquid Vocalization, at least in the unmarked case.

SNiB provides extensive discussion of the places in Lower Bavaria where coda liquids do and do not vocalize, e.g. Map 140 in Volume 4. What is important for present purposes are words with a coda liquid followed by a dorsal fricative. A careful examination of the data accompanying those SNiB maps reveals that there are a few places in Lower Bavaria where coda liquids surface but do not undergo Liquid Vocalization. In those places the dorsal fricative following [l] and [r] is realized as either a front dorsal (= [χ x]) or a back dorsal (= [χ x̥ x̥]). In Table 13.10 I list the places in Lower Bavaria with the four attestations [lx], [lç], [rx], [rc].

Table 13.10: Realization of /x/ as [x] or [ç] after [l]/[r]

Pattern	Places in Lower Bavaria	Example	Map
/lx/ → [lç]	79	[muïlχ] ‘milk’	3: 10
/lx/ → [lx]	24, 55, 78	[mïlx] ‘milk’	3: 10
/rx/ → [rc]	37, 179	[vurχn] ‘furrows’	3: 24
/rx/ → [rx]	56, 76, 77, 78, 101, 102, 121, 124, 140, 142, 143, 145, 146, 147, 148, 159, 163, 165, 166, 167, 180, 181, 182, 196, 197, 206, 207, 210, 219	[šnqrxa] ‘snore-INF’	3: 86

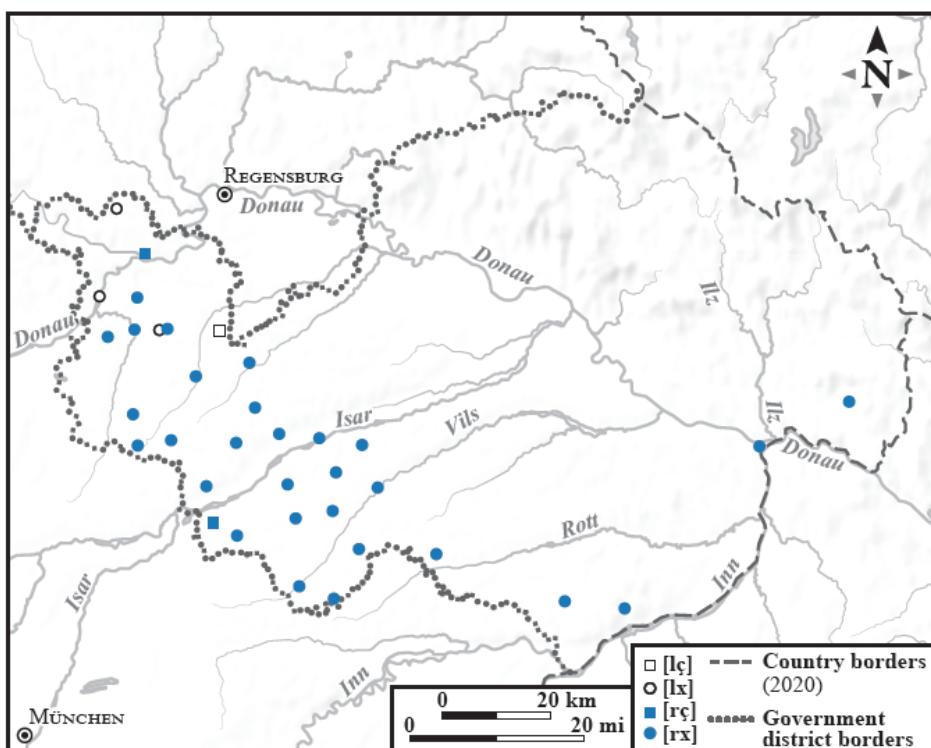
Consider first the two maps in Table 13.10 for words containing [l] followed by a dorsal fricative. The predominance of Liquid Vocalization with /l/ as the target segment is reflected in the fact that only four places have realizations of *Milch*

### 13 Velar fronting in Lower Bavaria

‘milk’ or *Kalk* ‘lime’ with a consonantal [l] followed by a dorsal fricative. Three of those places have a back dorsal ([x]) following that [l], while only one place has a palatal.

The maps with [r] followed by a dorsal fricative point to a similar picture. The first observation is that there are only two words (*schnarchen* ‘snore-INF’ and *Furchen* ‘furrows’) in which /r/ is realized as [r] followed by a dorsal fricative. The second observation is that the occurrence of a palatal after [r] is restricted to two places, but the pronunciation [rx] is robustly attested in 29 places.

The areal distribution of the four types of liquid plus dorsal fricative sequence in Table 13.10 is depicted on Map 13.3:



Map 13.3 shows that places with [rx] are clustered in the southwest with a small number of isolates to the east. The few places with [lx] are attested in the northwest. It is interesting to observe that there are more places in Lower

### 13.5 Discussion

Bavaria with [rx] than on Map 12.2, which depicts those sequences throughout German-speaking countries.

The most significant generalization from Table 13.10 is that if speakers do not vocalize /r/ in the context before /x/ then the default pattern is for the latter segment to be realized as a back dorsal ([x]) and not as a front dorsal ([ç]). This means that the set of triggers for velar fronting in those areas with [rx] must not include coronal sonorant consonants (specifically /r/). Those places include Stage 2a, Stage 2b, and Stage 2. The absence of places representing Stage 2c' from this list can be attributed to the rarity of Stage 2c'.

The occurrence of [l]/[r] followed by a palatal in Table 13.10 suggest that the version of velar fronting presupposed for those places may in fact be broader than what was assumed. The case of Kelheim (= [37]) – classified in Table 13.9 as Stage 2c' – is an interesting one. Assuming that the occurrence of [rç] in Kelheim is a regularity and not one of the irregular articulations referred above and assuming that [ç] also surfaces for those speakers after [l] and [n], then Kelheim represents the broadest set of triggers, namely Stage 2d. The case of Stage 2a Herrngiersdorf (= [79]) is intriguing as well. If the occurrence of [ç] after [l] (and [r], [n]) is regular in that place then the set of velar fronting triggers would consist of high front vowels or coronal sonorant consonants. Although that historical stage is absent from Table 13.10, it was discussed in §12.7.1. In that section a series of unattested velar fronting Trigger Types was discussed, including one consisting of high front vowels and coronal sonorant consonants (Trigger Type W in Table 12.32). Significantly, it was argued in that section that nothing in the present analysis speaks against that type of conjunction; hence, Herrngiersdorf potentially fills an accidental gap.<sup>8</sup>

A final issue to consider is the realization of dorsal fricatives after vocalized liquids. The datasets from §13.3 for words containing coda /l/ and coda /r/ reveal the predominant pattern discussed above: Liquid Vocalization produces a front vowel from /l/, and those derived front vowels count as velar fronting triggers. This pattern is reflected in a pronunciation such as [kaiç] for *Kalk*. By contrast, if /r/ undergoes Liquid Vocalization then the following /x/ is realized as [x] because the vocalized-r is not a front sound. This generalization can be seen in a pronunciation such as [duax] for *durch*. Put differently, realizations like [kaiç] and [duax] illustrate transparent outputs without any trace of opacity. In the former word Liquid Vocalization feeds velar fronting and in the latter velar fronting

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<sup>8</sup>The third place listed in Table 13.10 with a liquid followed by a palatal is Haunwang (= [179]).

Since that place is classified in Table 13.10 as the indeterminate Stage 2 one should not even attempt to speculate on what the realization of /rx/ as [rç] means for the reinterpretation of Haunwang's historical stage.

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and Liquid Vocalization do not interact, i.e. they are unordered in a rule-based model.

The data accompanying the SNIb maps for words with a vocalized-r followed by dorsal fricatives reveal two patterns: One with a back dorsal (= [χ χ x x]) and the other with a front dorsal (= [χ̥ χ̥]). Representative examples are given in (18a-d) for the word *Kirche* ‘church’ from the data accompanying Map 13 in Volume 3. The back dorsal realizations in (18a-b) can be compared with the front dorsal pronunciation in (18c-d). As noted earlier in §13.2.3, the narrow phonetic transcriptions in SNIb express the vocalized-r either as [ə] or [α]. All four of the places indicated below possess some version of velar fronting.

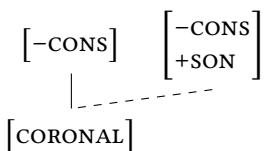
- (14) a. kh̥iəχα Hofendorf (= [102])  
 b. kh̥iəχα Schwarzach ([44])  
 c. kh̥iəχα Kelheim (= [37])  
 d. k̥iəχα Schöllnach (= [90])

Of the realizations in (14) the ones with the back dorsals in (18a-b) are much more common than the ones with front dorsals in (18c-d). For example, the data for Map 13 in Volume 3 indicate 69 places with [α] realizations followed by a back dorsal as in (12a), 18 realizations with schwa ([ə]) followed by a back dorsal as in (14b) but only 10 with palatal realizations after schwa as in (14d) and 7 with the palatal pronunciation after [α] as in (14c).

Although not particularly common, the palatals in (18c-d) nevertheless deserve comment. Consider first the pronunciation in (14d) in which the vocalized-r surfaces as schwa. I argue that the palatal in that context is synchronically derived from the i-vowel preceding schwa. The treatment endorsed here derives support from other varieties of German discussed in previous chapters. For example, in §3.4 it was demonstrated that dorsal fricatives surface in Rheintal as palatal after a nonlow front vowel even if a schwa intervenes between that sound and the target. Thus, /iəχ/ surfaces as [iəç], but /χ/ after a schwa preceded by either a low front vowel or a back vowel surfaces as velar, i.e. [uəχ].

To account for (14d), I argue that schwa inherits the frontness feature ([coronal]) from a preceding front vowel, which then spreads to /χ/ and creates [ç]. The rule referred to here (from §3.4) is stated in (15):

- (15) Schwa Fronting-1:



### 13.5 Discussion

According to the treatment proposed here r-Vocalization feeds Schwa Fronting-1, which in turn feeds velar fronting. This can be expressed with a diacritic indicating frontness: /irx/ → |iəx| → |i̥əx| → [i̥əç]. Since back vowels like /u/ do not bear the frontness feature they do not undergo Schwa Fronting-1; the /x/ in an underlying representation like /urx/ surfaces without change: /urx/ → |uəx| → [uəx].<sup>9</sup>

The analysis proposed here derives support from additional maps in SNiB which depict the modern realization of historical /x/ after schwa. Of particular relevance are words containing a back vowel plus the schwa realization of /r/ followed by /x/, e.g. in Map 24 in Volume 3 for *Furchen* ‘furrows’. The data accompanying that map reveal no realization at all with a palatal preceded by [u] plus schwa ([uəç]), while three places are attested with the back dorsal ([uəx]). (The most common realization for *Furchen* contains the sequence [uax]).

The treatment proposed above presupposes that the Lower Bavarian rule of r-Vocalization differs from the same process in other dialects (and in MoStGm) in the sense that the output is a placeless segment (schwa). It was assumed in preceding chapters that r-Vocalization for an input [dorsal] rhotic (i.e. /r/) simply changes [+consonantal] into [-consonantal]; thus, the [dorsal] input /r/ is [dorsal] in the output ([ə]). If the input is [coronal] (i.e. /r/) then r-Vocalization creates a [dorsal] output (i.e. [ə]); hence, r-Vocalization changes [+consonantal, coronal] into [-consonantal, dorsal]. In dialects like the one in Lower Bavaria with a more general process of Liquid Vocalization, a target /l/ surfaces as [-consonantal, coronal].<sup>10</sup>

Since Liquid Vocalization in Lower Bavaria can produce schwa ([ə]) for a target /r/, that rule changes [+consonantal] into [-consonantal] and deletes all place features. Thus, if /r/ is [coronal], that feature is deleted in coda position, thereby producing placeless schwa. This is an important assumption because only placeless sounds constitute the input to Schwa Fronting-1.

Consider now the occurrence of the palatal after the [[α]] realization of /r/, as in (14c). As noted above, of the four patterns in (14), the one with [[α]] in (14c) is the least common. The same generalization obtains when one considers other maps. For example, Map 3: 24 for *Furchen* ‘furrows’ has no attestations at all of a palatal followed by the [[α]] realization of the vocalized-r.

<sup>9</sup>As stated in (15) the frontness feature spreads from any front vowel. It was noted earlier in §3.4 that it may be necessary to restrict those segments further, e.g. only nonlow front vowels or high front vowels.

<sup>10</sup>To express the fact that /l/ surfaces as an i-vowel in many places in Lower Bavaria, Liquid Vocalization must ensure that /l/ surfaces as [+high]. I do not pursue this analysis further because it is not directly relevant to the question discussed above.

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I argue that the sound transcribed as [ɑ] (for the coda realization of /r/) is simply a low-level variant of [ɔ]. This means that the Lower Bavarian version of Liquid Vocalization changes a target /r/ sound into a [-consonantal] sound that lacks place features. That treatment implies that the palatal in (14c) is an underlying velar (/χ/), which inherits the frontness feature ([coronal]) from the preceding vowel [ɑ], which in turn receives that frontness feature from the preceding i-vowel by Schwa Fronting-1. The difference between the two low-level variants of the vocalized-r – [ɑ] and [ɔ] – lies outside the domain of phonology and can therefore only be understood by taking phonetics into consideration.<sup>11</sup>

#### 13.5.3 Irregularities

Reference was made throughout this chapter to irregular forms. For example, in a Stage 2a system an irregularity would be either (A) an unexpected [x] after an i-vowel, or (B) an unexpected [ç] after anything other than an i-vowel. Both cases need to be assessed, especially in light of the claim I have made throughout this book that the historical rule of velar fronting was a classic Neogrammarian change that regularly affected every target velar and that the synchronic reflex of velar fronting operates as an exceptionless rule.

In §12.8.3 I discussed the status of irregularities like the ones in (A) and (B) for a different set of dialects (LGm) in a very different area (North Germany). One takeaway from that section is that irregularities do not fit the textbook example of lexical exceptions. Recall that the English word *obesity* is a true lexical exception to the rule of Trisyllabic Laxing, which applies in words like *sincerity*. The reason the LGm irregularities are very different from an English word like *obesity* is that LGm speakers fluctuate between the irregular (unexpected) pronunciation and the regular (expected) pronunciation of the same word. It is possible to draw this conclusion from observations of several different linguists describing those LGm dialects as well as from phonetically-transcribed texts from a single speaker. In §12.8.3 I conjectured that the irregular forms in LGm are tokens from neighboring dialects that are adopted by speakers having contact with speakers of those other dialects.

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<sup>11</sup>In MoStGm and in many of the dialects discussed in earlier chapters palatals occur in the context after the vocalized-r, e.g. [fveçtan] ‘fear-INF’; see Chapter 17. In Chapter 7 it was shown that the palatals in this context are underlying palatals in the synchronic phonology (/ç/) because they cannot be derived by any version of velar fronting. Pronunciations like [fveçtan] are historically opaque because the trigger for the once allophonic rule of velar fronting (i.e. /r/) is no longer present in the phonetic representation. One cannot argue that the palatal in (14c) is an underlying palatal as in MoStGm because this would imply that the /r/ was once a trigger for velar fronting.

### 13.6 Conclusion

I claim that the same explanation holds for the irregularities present in Lower Bavaria belonging to both category (A) and category (B). The data from Lower Bavaria discussed in this section have been drawn from a linguistic atlas; hence, it is difficult to observe the kind of fluctuation referred to in the preceding paragraph between the irregular and the regular pronunciation of any given word. However, it is important to stress that not a single variety of German has been discovered in this book with true lexical exceptions to velar fronting. Given this finding it would be surprising to find true lexical exceptions to velar fronting in the material discussed in the present chapter.

## 13.6 Conclusion

The aim of this chapter has been to assess the state of velar fronting in Lower Bavaria on the basis of data drawn from a linguistic atlas (SNiB). It has been shown that over 200 places in Lower Bavaria reflect three of the historical stages for velar fronting defined according to Trigger Types which were posited in Chapter 12: Velar fronting after high front vowels (Stage 2a), after nonlow front vowels (Stage 2b), and after all front vowels (Stage 2c'). The data discussed above demonstrate that Stage 2a places constitute the majority pattern while Stage 2c' places reflect the rarest one. The areal distribution of towns belonging to the three velar fronting stages was interpreted historically on the basis of the rule generalization model.

The discussion of targets and triggers for velar fronting is continued in Chapter 14: In that chapter I discuss a number of dialects where the triggers for velar fronting include not only front (coronal) segments, but also back sounds, such as back vowels.



# 14 The nonassimilatory fronting of velars

## 14.1 Introduction

The synchronic and diachronic processes fronting velar segments in word-initial and postsonorant position investigated in previous chapters are uncontroversially assimilatory. As documented above, the generalization is that velar fronting is induced by front (coronal) sonorants or some subset thereof. Regardless of how one captures the fronting of velars in a formal model, that process spreads the fronting feature from the triggers to the appropriate targets in an assimilatory fashion, thereby creating palatals.

Considerable evidence from the literature on German dialects points to the nonassimilatory fronting of historical velars to palatals. An example is the change from an etymological velar (WGmc <sup>+</sup>[y]) to palatal in word-initial position before back vowels, e.g. [jɑ:bəl] ‘fork’ (cf. MoStGm [gɑ:bəl]). The change in question was not an assimilation because it occurred before all or some back vowels, in addition to coronal sonorants, e.g. [ji:sən] ‘water-INF’ (cf. MoStGm [gi:sən]). The nonassimilatory change referred to here affected historical velar fricatives in word-initial position in many varieties of CGm and in some varieties of LGm. The analogous nonassimilatory change in postsonorant position likewise shifted historical velar fricatives to palatals and is attested primarily in WCGm.

Some earlier studies have discussed the motivation for nonassimilatory velar fronting in word-initial position. For example, Scheutz (2005: 1707) and more recently Hinskens (2021: 10) both note that the change from an original velar to palatal in words like [jabəl] ‘fork’ mentioned above was the extension of the assimilatory change from velar to palatal only in the context before a front vowel in items like [ji:sən] ‘water-INF’. In present terms, the change from velar to palatal before back vowels involved rule generalization, as defined earlier.

In this chapter I adopt the rule generalization approach endorsed by Scheutz and Hinskens, but I propose a much more fine-grained treatment. For example, I consider the change from velar to palatal in word-initial position before coronal sonorant consonants, e.g. [jro:s] ‘large’ (cf. MoStGm [gro:s]) as well as the same

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change in postsonorant position after all types of segments, namely front vowels, coronal sonorant consonants, and back vowels. The main idea of the present chapter is that the nonassimilatory change in question is the final historical stage defined in terms of velar fronting triggers.

In §14.2 I discuss the nonassimilatory fronting of historical velars in word-initial position. §14.3 considers dialects in which velars fronted to palatals after only a subset of back vowels, and §14.4 examines those varieties in which the same fronting processes transpired after all back vowels. §14.5 looks at the state of nonassimilatory velar fronting in a cluster of MFr dialects in the area of Nordösling (North Luxembourg). §14.6 investigates several questions related to the nonassimilatory fronting of etymological velars that arise in the course of the chapter, and §14.7 considers various issues relating to the connection between velar fronting in word-initial and postsonorant position. The chapter concludes in §14.8.

### 14.2 Word-initial velar fronting

#### 14.2.1 Introduction

The nonassimilatory change from velar to palatal in word-initial position to be documented below is depicted in (4). The velar referred to here could be WGmc <sup>+</sup>[y] or the <sup>+</sup>[x], which developed out of the <sup>+</sup>[k] in WGmc <sup>+</sup>[sk] clusters.<sup>1</sup> The fronting process in (4) is not an assimilation because it occurred regardless of the nature of the following sound; in particular, it transpired before front vowels (FV), coronal consonants (CC), and (crucially) back vowels (BV). In all dialects investigated in previous chapters with velar fronting in word-initial position that change is assimilatory (as in 2-3).

- (1) Velar fronting (word-initial) as an assimilation (in 2-3) and as a nonassimilatory change (in 4):
- (2) velar > palatal / <sub>wd</sub> [ (C) \_\_\_\_ FV
- (3) velar > palatal / <sub>wd</sub> [ (C) \_\_\_\_ FV, CC
- (4) velar > palatal / <sub>wd</sub> [ (C) \_\_\_\_ FV, CC, BV

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<sup>1</sup>Recall from earlier chapters that a small number of dialects fronted WGmc <sup>+</sup>[k] in word-initial position (e.g. HAlmc and ELGm). That type of fronting is assimilatory in all varieties investigated earlier. No dialect is known which exhibits the nonassimilatory fronting of word-initial WGmc <sup>+</sup>[k].

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(2) and (3) were expressed formally in previous chapters as the spreading of [coronal] to a target. The nonassimilatory change in (4) cannot be captured in the same way because back vowels are not [coronal]. I do not provide a formal rule for (4), although that process would have to be stated as one which adds (but does not spread) the frontness feature [coronal]. Since the formal rule applies before any segment it would be sufficient to state that the change with the word-initial context without reference to any segmental triggers at all. Seen in that light, it is not true that the change in (4) is “triggered” by all back vowels. I continue to refer to the back vowels in (4) as triggers for the sake of comparison with (2) and (3).

I assume that (4) – as well as the mirror-image development in postsonorant position discussed in §14.3 and §14.4 – affected underlying representations, e.g. WGmc <sup>+</sup>/y/ shifted to /j/. Alternatively, one could argue that nonassimilatory changes like the one in (4) did not alter underlying representations, but instead remain in the respective dialects as synchronic rules, e.g. WGmc <sup>+</sup>/y/ was inherited without change as /y/, which then surfaced at that later stage as [j] by the synchronic reflex of (4) in word-initial position; see §14.6.2.

I contend that (4) represented the final stage in the rule generalization scenario described in Chapter 12 for word-initial position. Trigger Types A-E and the corresponding historical stages proposed earlier are listed in Table 14.1. In the final row (Trigger Type F=Stage 2e) I include the change from velar to palatal in the elsewhere case, i.e. before back vowels, which represents (4).

Table 14.1: Trigger Types for front (coronal) segments and the corresponding historical stages

Type	Trigger	Stage
A	HFV	2a
B	HFV, MFV	2b
C	HFV, MFV, CC	2c
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d
F	HFV, MFV, LFV, CC, BV	2e

One could argue that Stage 2e – like the changes from Stage 2a to 2b etc. – should be broken down into a series of substages defined according to the height of the vocalic trigger: On that view, the first nonassimilatory change – call it Stage 2e’ – occurs before a high back vowel, later (Stage 2e’’) before a high back

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vowel or a mid back vowel, and finally (Stage 2e'') before all back vowels. No evidence from is known to me which supports the decomposition of Stage 2e in that manner for word-initial position. However, I demonstrate in §14.3 and §14.4 that the nonassimilatory change from velar to palatal after a sonorant proceeded in an incremental fashion according to vowel height.

The change from velar to palatal in word-initial position at Stage 2e occurred before all back vowels in every example meeting its structural description. None of the studies described below for Stage 2e dialects provides evidence for lexical exceptions. For example, if an original velar shifted to palatal before [u o a], then the change occurred in every item with those three vowels; there were no aberrant items beginning with an unshifted velar followed by any one of [u o a]. The nonassimilatory change in (4) can therefore be thought of as a Neogrammarian-style development. It is conceivable that the across-the-board change referred to here began its life as a lexical diffusion type change that applied sporadically, on a word-by-word basis, but as yet no evidence is available to my knowledge for that claim.

In (5) I state the four diachronic stages affecting WGmc <sup>+</sup>[y] in word-initial position. In the headings for (5a-d) I list four of the historical stages given in Table 14.1. The initial segment in the three sequences listed in phonetic representation for each of the stages corresponds to the attested realization of that original velar fricative <sup>+</sup>[y]. The symbols “[i]”, “[l]” and “[a]” represent the natural classes of front vowels, coronal sonorant consonants and back vowels respectively. The initial sound in some of the three sequences in (5a-d) underwent Wd-Initial y-Fortition (§4.3).

### (5) Modern reflexes of WGmc <sup>+</sup>[y] in word-initial position:

a. Stage 1:	b. Stage 2b/2c':	c. Stage 2c/d:	d. Stage 2e:
[yi yl ya]	[ji yl ya]	[ji jl ya]	[ji jl ja]
[xi xl xa]	[çi xl xa]	[çi cl xa]	[çi cl çä]
	[ji cl ja]		

At Stage 1 (=5a) the original velar <sup>+</sup>[y] is retained as a velar. Not taken into consideration in (5a) is the default pattern – represented in MoStGm and UGm – whereby word-initial <sup>+</sup>[y] is realized as a stop ([g]) regardless of the nature of the following sound (by g-Formation-1 from §4.2). (5b) is the point where the change to palatal is induced by front vowels but not by coronal consonants (=2). (5c) shows the assimilatory change whereby <sup>+</sup>[y] undergoes fronting before a front vowel or a coronal sonorant consonant (=3). The assimilatory changes in (5b,c) were examined from the point of view of rule generalization in Chapter 12.

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Stage 2e (=5d) reflects the most advanced fronting stage – the nonassimilatory one – because original <sup>+</sup>[y] is realized as palatal before front vowels, coronal consonants and back vowels.

The reflexes of WGmc <sup>+</sup>[sk] clusters in word-initial position as described in late-nineteenth and early twentieth century sources are summarized in (6); see also Hall (2021). The symbols “[i]”, “[r]” and “[ɑ]” are cover symbols representing front vowels, the coronal rhotic consonant, and back vowels respectively. The symbol “[s]” is similarly a cover symbol for a sibilant fricative ([s] or [ʃ]).<sup>2</sup> (6e) represents the final stage (reflected in MoStGm); it is not directly relevant to the present chapter, but it is included for completeness.

(6) Reflexes of WGmc <sup>+</sup>[sk] clusters in word-initial position:

- a. [sxi sxr sxɑ] (=Stage 1)
- b. [sçi sxr sxɑ] (=Stage 2c')
- c. [sçi sçr sxɑ] (=Stage 2c or 2d)
- d. [sçi sçr sçɑ] (=Stage 2e)
- e. [ʃi ſr ſɑ]

The patterns depicted in (6a) and especially the assimilatory ones in (6b,c) were discussed in Chapter 12. Pattern (6d) exhibits the historical stage involving the nonassimilatory change from [sx] to [sç] before any type of sound.

### 14.2.2 Data and discussion

In (7–15) I present data from nine varieties of German reflecting the four stages depicted in (5). The respective heading provides information concerning place, dialect classification, source, and respective stages. For each data set I provide one or two representative examples for the reflex of WGmc <sup>+</sup>[y] in the three contexts (a) before front vowels, (b) before sonorant consonants, and (c) before back vowels. For comparison, I also include one word possessing the modern reflex of WGmc <sup>+</sup>[j], which underwent Glide Hardening to [j] in all varieties discussed below. The most important examples for purposes of this chapter are given in (13)–(15), which illustrate the nonassimilatory change from velar to palatal in word-initial position in (4).

(7) a. Kalkar (LFr; Hanenberg 1915; §8.2; Map 5.1, Stage 1):

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<sup>2</sup>The developments depicted in (6a-d) only hold for word-initial position because the reflexes of WGmc <sup>+</sup>[sk] in word-internal and word-final position in the dialects discussed below were either [sk], [s], or [ʃ], but never [sx]/[sç]; Hall (2021).

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b.	gērn	[ɣε:rn]	gern	'gladly'	192
c.	grōnd	[ɣro:nt]	Grund	'reason'	195
d.	gūt	[yu:t]	gut	'good'	216
e.	jaxt	[juxt]	Jagd	'hunt'	209
(8)	a.	Gütersloh (Wph; <b>Wix 1921</b> ; §4.3; Map 4.2, Stage 1):			
	b.	xeln	[xeln̩]	gelten	'be valid.INF'
	c.	xlas	[xlas]	Glas	'glass'
	d.	xolt	[xɔlt]	Gold	'gold'
	e.	jou̥	[jɔu̥]	Jahr	'year'
(9)	Eilsdorf (Eph; <b>Block 1910</b> ; §8.3; Map 4.3, Stage 2b/2c):				
	a.	jelt	[jɛlt]	Geld	'money'
	b.	ʒlas	[ylas]	Glas	'glass'
	c.	ʒuut	[yu:t]	gut	'good'
	d.	jåå	[ja:]	ja	'yes'
(10)	a.	Soest (Wph; <b>Holthausen 1886</b> ; §4.3; Map 4.2, Stage 2b/2c):			
	b.	cistan	[çistən]	gestern	'yesterday'
	c.	xlykə	[xlykə]	Glück	'fortune'
	d.	xuət	[xuət]	gut	'good'
	e.	jɑ	[jɔ:]	ja	'yes'
(11)	Kirchspiel Courl (Wph; <b>Beisenherz 1907</b> ; Map 4.2, Stage 2c/2d):				
	a.	ʒiel	[jɪel]	gelb	'yellow'
		ʒe̚t	[jɛet]	geht	'goes-3SG'
	b.	ʒraf	[jraf]	Grab	'grave'
		ʒliən	[jli:ən]	glitten	'slid-PRET PL'
	c.	garvə	[yarvə]	Garbe	'sheaf'
	d.	(im) jō̚rə	[jɔ:ərə]	(im) Jahre	'(in the) year'
(12)	Elspe (Wph; <b>Arens 1908</b> ; §7.2; Map 4.2, Stage 2c/2d):				
	a.	χelt	[çelt]	Geld	'money'
	b.	χre̚t	[çre̚t]	groß	'large'
	c.	xolt	[xɔlt]	Gold	'gold'
	d.	jōa	[jo:a]	Jahr	'year'
(13)	Schlebusch (Rpn; <b>Bubner 1935</b> ; §10.3.1; Map 5.1, Stage 2e):				

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a.	jel jī:hō:zəš	[jɛl] [jī:hō:zəʃ]	gelb jähzornig	'yellow' 'irascible'	72 72
b.	jlat jras	[jlat] [jras]	glatt Gras	'smooth' 'grass'	72 72
c.	jas jəpék	[jas] [jəpék]	Gast Gepäck	'guest' 'luggage'	72 72
d.	jō jets	[jɔ:] [jets]	ja jetzt	'yes' 'now'	88 88

- (14) Kreis Lippe (Wph; Hoffmann 1887; §7.2; Map 4.2, Stage 2e):

a.	χæust χnaidiχ χlet χrunt	[çæust] [çnaidiç] [çlet] [çrunt]	Geist gnädig Glied Grund	'intellect' 'merciful' 'member' 'reason'	23 32 17 20
c.	χaus χəwolt	[çaus] [çəvolt]	Gans Gewalt	'goose' 'violence'	3 14
d.	juŋk	[juŋk]	jung	'young'	20

- (15) Mansfeld (Thrn; Hennemann 1901; Map 7.2, Stage 2e):

a.	jæl χras χlas	[jæ:l] [çra:s] [clat]	gelb Gras Glas	'yellow' 'grass' 'glass'	20 40 40
c.	jōrtṇ jənauə	[jo:rtn] [jənauə]	Garten genau	'garden' 'exactly'	17 35
d.	joxṇ	[joxn]	jagen	'hunt.INF'	39

In (16–19) I present data from four Wph varieties illustrating the stages depicted in (6a-d) for WGmc <sup>+</sup>[sk] in word-initial position (Hall 2021). The LGm dialect in (20) represents a stage postdating Stage 2e, whereby WGmc <sup>+</sup>[sk] is consistently realized as [ʃ] (=6e). Note that the dorsal (uvular) rhotic in (16b) and (17b) shows the effects of r-Retraction (§3.5) from [r] to [r̥].

- (16) Adorf (Wph; Collitz 1899; Map 4.2, Stage 1):

a.	šħip šħrā šħou	[ʃxi:p] [ʃxra] [ʃxou]	Schiff mager Schuh	'ship' 'lean' 'shoe'	45 79 29
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- (17) Soest (Wph; Holthausen 1886; §4.3; Map 4.2, Stage 2c'):

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- |    |                   |                       |                      |                             |          |
|----|-------------------|-----------------------|----------------------|-----------------------------|----------|
| a. | scyclic<br>scèpm  | [şçylıç]<br>[şçepm]   | schuldig<br>schöpfen | ‘guilty’<br>‘ladle-INF’     | 43       |
| b. | sxruivə<br>sxriżn | [sxruivə]<br>[sxriżn] | schreibe<br>schreien | ‘write-1SG’<br>‘scream.INF’ | 43<br>62 |
| c. | sxult<br>sxqp     | [sxvlt]<br>[sxɔ:p]    | Schuld<br>Schaf      | ‘fault’<br>‘sheep’          | 15<br>43 |
- (18) Elspe (Wph; Arens 1908; §7.2; Map 4.2, Stage 2d):
- |    |                 |                    |                    |                          |          |
|----|-----------------|--------------------|--------------------|--------------------------|----------|
| a. | šxyt<br>šxelə   | [ʃçyt]<br>[ʃçelə]  | schießt<br>Schale  | ‘shoots-3SG’<br>‘bowl’   | 97<br>33 |
| b. | šxrapn          | [ʃçrapn]           | schaben            | ‘scrape.INF’             | 27       |
| c. | šxugn<br>šxā' p | [ʃçuŋn]<br>[ʃxa:p] | scheuen<br>Schrank | ‘dread.INF’<br>‘cabinet’ | 96<br>23 |
- (19) Kreis Lippe (Wph; Hoffmann 1887; §7.2; Map 4.2, Stage 2e):
- |    |         |           |             |              |    |
|----|---------|-----------|-------------|--------------|----|
| a. | sxoin   | [sçoin]   | schön       | ‘beautiful’  | 3  |
| b. | šri:bən | [ʃri:bən] | geschrieben | ‘wrote-PART’ | 17 |
| c. | sxēu    | [sçe:u]   | Schuh       | ‘shoe’       | 3  |
- (20) Diepenau (NLGm; Schmeding 1937; Map 4.1):
- |    |              |                   |                    |                       |          |
|----|--------------|-------------------|--------------------|-----------------------|----------|
| a. | šulən<br>šāp | [ʃulən]<br>[ʃa:p] | Schulter<br>scharf | ‘shoulder’<br>‘sharp’ | 14<br>19 |
|----|--------------|-------------------|--------------------|-----------------------|----------|

The closest variety found for stage 2e is Kreis Lippe (in 19). Hoffmann (1887: 3) notes that in the year 1887 the realization [sç] was rapidly being replaced with [ʃ] and that one hears [sç] only in the speech of the elderly. In that dialect there are apparently no [sç] sequences before the rhotic consonant – even in the speech of the elderly – because WGmc +[sk] underwent coalescence to [ʃ] in that context, as in (19b).

In contrast to WGmc +[sk] clusters, many varieties of German are attested which exhibit the change from +[y] in word-initial position before any sound, as in (13)-(15). A list of those varieties from the original sources cited in this book is given in Table 14.2. The final column indicates the palatal realization before a front vowel (“[i]”), coronal sonorant consonant (“[l]”), or back vowel (“[ç]”); recall (5).<sup>3</sup> Many Brb and NUSax-SMk varieties exemplify Stage 2e, four

<sup>3</sup> According to the source for Friedersdorf (Seibicke 1967: 37) the palatal in the context before a consonant exhibits a strong tendency to surface as [j] and not as [ç]. Speakers who exhibit that realization therefore display pattern (5a) and not (5c). The same point holds for Weidenhain (Krug 1969: 39).

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of which are listed below. The location of those places can be found on Map 7.2 and Map 11.1.

Table 14.2: Velar fronting (word-initial) of WGmc <sup>+</sup>[y] (=Stage 2e)

Place	Dialect	Source	Pattern
Krefeld	Rpn	Röttsches (1877), Bister-Broosen (1989)	[ji jl ja]
Aachen	Rpn	Jardon (1891)	[ji jl ja]
Aegidienberg	Rpn	Müller (1900)	[ji jl ja]
Erftgebiet	Rpn	Münch 1904 [1970]	[ji jl ja]
Wermelskirchen	Rpn	Hasenklever (1905)	[ji jl ja]
Cologne	Rpn	Müller (1912)	[ji jl ja]
Dülken	Rpn	Frings (1913)	[ji jl ja]
Niederembt	Rpn	Grass (1920)	[ji jl ja]
Düsseldorf	Rpn	Zeck (1921)	[ji jl ja]
Schelsen	Rpn	Greferath (1922)	[ji jl ja]
Seelscheid	Rpn	Mackenbach (1924)	[ji jl ja]
Eckenhagen, Berghausen	Rpn	Branscheid (1927)	[ji jl ja]
Schlebusch	Rpn	Bubner (1935)	[ji jl ja]
Aachen	Rpn	Welter (1938)	[ji jl ja]
Burscheid	Rpn	Heinrichs (1978)	[ji jl ja]
Rimburg	Rpn	Hinskens (1992)	[ji jl ja]
Gleuel	Rpn	Heike (1970)	[ji jl ja]
Moresnet	Rpn	Jongen (1972)	[ji jl ja]
Burg-Reuland	Rpn	Hecker (1972)	[ji jl ja]
Niederbachem, Oberbachem	Rpn	Fuss (2001)	[ji jl ja]
Prüm	MFr	Büscher (1888)	[ji jl ja]
Ihren, Sellerich, Weinsheim	MFr	Meyers (1913)	[ji jl ja]
Elsenborn	MFr	Hecker (1972), Cajot & Beckers (1979)	[ji jl ja]

The earliest attestation of Stage 2e among my sources is Rovenhagen (1860) for Aachen. He writes (p. 8): “The breathing sound j (engl. y) ... [is] ... in most cases a substitute for g; thus at the beginning of words g has always this sound ... this pronunciation is common in the Berlin etc. vulgar speaking ...”.

In §12.5.2 I presented a cluster of Wph dialects which represent several historical stages involving the trigger for the fronting of word-initial WGmc <sup>+</sup>[y]. In (21) I reproduce those dialects and include Kreis Lippe (from 19 and Table 14.2) for Stage 2e.

- (21) Historical stages for triggers for (word-initial) velar fronting (Wph) for WGmc <sup>+</sup>[y]:

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Aken (Elbe)	NUSax-SMk	Bischoff (1935)	[ji jl ja]
Grassau	NUSax-SMk	Stellmacher (1973)	[ji jl ja]
South Brandenburg	NUSax-SMk	Kieser (1963)	[ji jl ja]
Friedersdorf	NUSax-SMk	Seibicke (1967)	[ji cl ja]
Weidenhain	NUSax-SMk	Krug (1969)	[ji cl ja]
Wittenberg	NUSax-SMk	Langner (1977)	[ji jl ja]
Berlin	NUSax-SMk	Schönfeld (1986)	[ji jl ja]
Saalkreis	USax	Bremer (1909)	[ji jl ja]
Salzfurtkapelle	USax	Schönfeld (1958)	[ji jl ja]
Stiege	Thrn	Liesenbergs (1890)	[ji jl ja]
Mansfeld	Thrn	Hennemann (1901)	[ji cl ja]
Südharz	Thrn	Rudolph (1924/1925)	[ji jl ja]
Magdeburg	Brb	Krause (1895)	[ji jl ja]
Kreis Jerichow I	Brb	Krause (1896)	[ji jl ja]
Besten	Brb	Siewert (1907)	[ji jl ja]
Prenden	Brb	Seelmann (1908)	[ji jl ja]
Strodehne (Havelaue)	Brb	Hildebrand (1913)	[ji jl ja]
Jerichower Land	Brb	Bathe (1932)	[ji jl ja]
Kleinwusterwitz	Brb	Bathe (1937)	[ji jl ja]
Heckelberg	Brb	Teuchert (1964)	[ji jl ja]
Schollene	Brb	Gebhardt (1965), Schönfeld (1965)	[ji jl ja]
Kreis Lippe	Wph	Hoffmann (1887)	[ci cl ca]
Hiddenhausen	Wph	Schwagmeyer (1908)	[ci cl ca]

Stage 1: Grafschaft Bentheim

Stage 2a: Plettenberg

Stage 2b: (Soest, Laer)

Stage 2c: (Nienberge)

Stage 2c': (Borken)

Stage 2d: Elspe

Stage 2e Kreis Lippe

Recall that parentheses in (21) indicate that the dialect in question cannot be unambiguously classified as a particular Target Type, e.g. Soest could be either Stage 2b or Stage 2'.

## 14.2 Word-initial velar fronting

### 14.2.3 Areal distribution of the reflexes of WGmc <sup>+</sup>[y] in word-initial position

Stage 2e dialects for word-initial position have been discussed at length in the literature on German dialectology, although to the best of my knowledge no one has proposed the historical stages in Table 14.1. Before presenting my own map, I consider briefly some of the findings in dialectology on the fronting of historical <sup>+</sup>[y] in word-initial position.

An inspection of the earlier literature on the modern realizations of WGmc <sup>+</sup>[y] reveals that the change from that sound to palatal in word-initial position (=Stage 5e) has an areal distribution akin to the one suggested in by the works listed in Table 14.2. One such work is Diederichs (1884), who provides a list of places in Germany and indicates how WGmc <sup>+</sup>[y] is realized in those places word-initially, word-medially, and word-finally. Among those places are several in North and Central Germany with [j] in initial position (=Stage 5e), but also a few with a velar before a back vowel and a palatal before a front vowel (recall the Eph dialects discussed in §8.3, §8.4). A second work is KDSA. In particular, Map 80 (for *Gänse* ‘geese’), Map 81 (for *Garten* ‘garden’), and Map 95 (for *glaube* ‘believe-1SG’) indicate the areas in pre-1918 Germany where the initial sound (an etymological velar) is realized as *j* (=[j]). The dialect regions on those maps correspond to the ones reflected in the second column of Table 14.2.

Stage 2e for word-initial position has been discussed in works focusing on a specific region. One dialect area particularly well-known for the change in question is CFr (=Rpn and MFr). The extent of that change in MFr is evident from Maps 381 and 382 in volume 4 of MRhSA, which depicts the realization of the original velar as palatal or alveolopalatal in the words *Garten* ‘garden’ and *grün* ‘green’. The (alvelo)palatal realization is the dominant pronunciation to the west of Koblenz and north of the Mosel River (see MFr region on Map 5.3). According to Cornelissen (2000: 397–398) the change from original lenis velar to palatal fricative in word-initial position (=Stage 2e) is typical for the Rpn variety in and around Cologne extending north to the Uerdinger Line, the approximate boundary between Rpn and LFr (Map 5.1). van de Wijngaard (2007: 49–50) likewise documents that change in the Rpn areas in the Netherlands (Limburg), especially around Kerkrade. The phonetic transcriptions of various dialogues from informants throughout the Rpn/MFr region presented in Cornelissen et al. (1989) similarly reveal the extent of Stage 2e. Several places from that source in the Rpn dialect region are indicated on Map 5.1.

The change from word-initial WGmc <sup>+</sup>[y] to a palatal fricative is also well-documented in the literature on ECGm (Thrn, NUSax-SMk) and ELGm (Brb).

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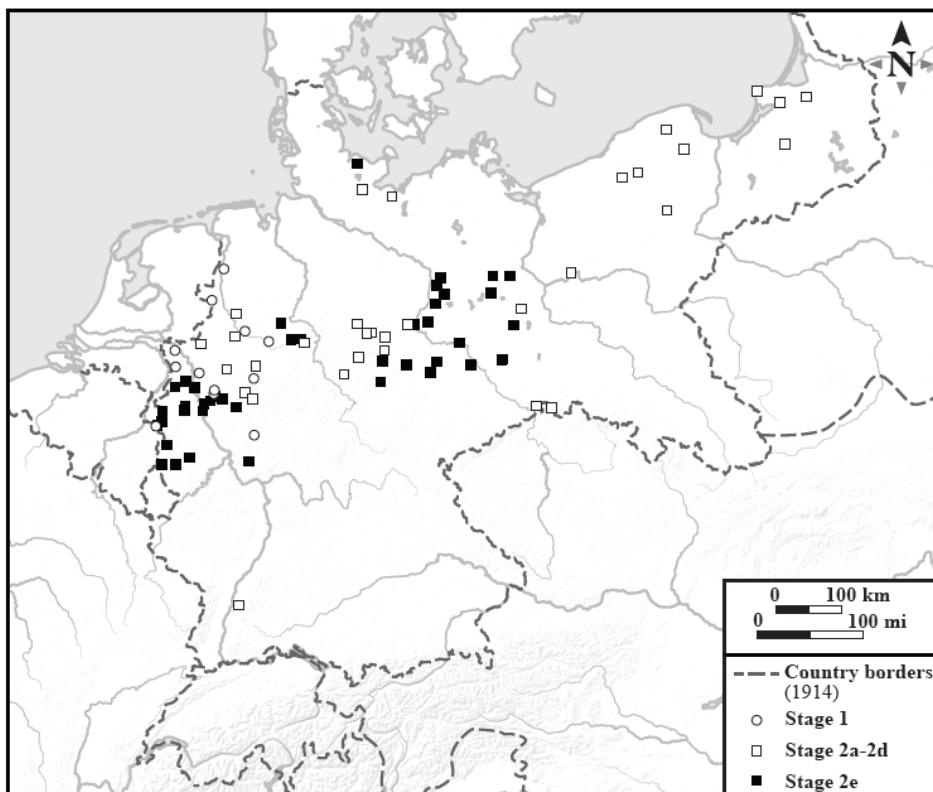
Three detailed case studies documenting that change are [Hankel \(1913\)](#), [Kieser \(1963\)](#), and [Bathe \(1965\)](#). The former author discusses data collected in a number of communities (Thrn) in the northeastern part of the state of Thuringia (Map 7.2). [Kieser \(1963\)](#) focuses on the realization of WGmc <sup>+</sup>[y] as palatal in a number of NUSax-SMk-speaking communities in South Brandenburg (Map 7.2). [Bathe \(1965\)](#) likewise documents the same change, concentrating on Brb varieties in a broad area in western Brandenburg (Map 11.1). All three authors demonstrate that the contexts for the change from velar to palatal can differ from village to village within a small area. A closer examination of that small-scale variation confirms the stages posited above; thus, WGmc <sup>+</sup>[y] shifts to palatal before front vowels in some towns and villages (=5a), before front vowels and coronal consonants in others (=5b), and before any type of segments in other places (=5c).

Stage 2e for word-initial position (< WGmc <sup>+</sup>[y]) is also well-attested in a number of dialect dictionaries for the dialect areas in Table 14.2. For Rpn, two dictionaries for the Cologne dialect (NKSS, WbKM) provide a brief statement in the pronunciation guide (NKSS Volume 1: 265; WbKM: 17) that word-initial g is articulated as j (= [j]). KWb gives phonetic transcriptions for all lexical entries beginning with g as [j]. Also for Rpn, the dictionaries for Neunkirchen-Seelscheid (NSSS), the Lower Sieg (WbUS), Aachen (AaWb) and Dremmen (DrWb) list all words beginning with [g] in MoStGm as j-initial, e.g. *Jeld* ‘money’ (cf. MoStGm [gełt]), *Jlaas* ‘glass’ (cf. MoStGm [glas]), and *Jold* ‘gold’ (cf. MoStGm [gołt]). For Rpn and MFr, RWb includes among words with initial g such as *gut* ‘good’, *gießen* ‘water-INF’, and *Glück* ‘fortune’ the realization [j] (= [j]). Finally, for Brb, the dictionary for Teltow (TeWb), provides a clear statement to the effect that historical <sup>+</sup>[y] is realized in word-initial position as a lenis palatal fricative [j] before vowels and consonants alike (p. 300).

Map 14.1 depicts the modern realization of WGmc <sup>+</sup>[y] in word-initial position representing three historical stages: No velar fronting (=Stage 1), velar fronting as an assimilatory change (Stage 2a-d), and velar fronting as a nonassimilatory change (=Stage 2e). For Stage 1 I only include those dialects mentioned earlier (§12.3) in which WGmc <sup>+</sup>[y] is realized as a velar fricative ([y] or [x]); hence, I ignore the prevalent pattern reflected in UGm whereby that original sound is now realized as a velar stop ([g]). For Stage 2e I list all of the places listed in Table 14.2. For those localities where velar fronting applies as an assimilatory change I do not attempt distinguish the five incremental steps discussed in Chapter 12 (summarized in Table 14.1). Those varieties are listed in Tables 12.13, 12.16, 12.18, 12.20, and 12.22 in §12.3.

It can be seen on Map 14.1 that Stage 1 varieties are restricted to the far western regions of modern-day Germany, including German-speaking parts of Belgium.

## 14.2 Word-initial velar fronting



Map 14.1: Areal distribution of the realization of WGmc <sup>+</sup>[y] in word-initial position. Circles are varieties of High German and Low German with no word-initial velar fronting (Stage 1), white squares are varieties with word-initial velar fronting as an assimilatory change (Stage 2a-d), and dark squares are varieties with word-initial velar fronting as a nonassimilatory change (Stage 2e). The velars and palatals referred to for Stages 2a-e can be either fortis ([x ç]) or lenis ([y j]).

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The numerous Stage 2e varieties belong overwhelmingly to CGm. By contrast, velar fronting as an assimilation word-initially is a common pattern for LGm.

It is difficult – although not impossible – to project isoglosses onto Map 14.1 separating those areas where velar fronting applies as an assimilation (white square) vs. those places where the change is nonassimilatory (black square). I hypothesize that many centuries ago – but some time after velar fronting had been phonologized in word-initial position – the white square areas were much more prominent and black square areas were rare. At that earlier point in time I claim that it would have been possible to discern isoglosses separating the four assimilatory stems (Stage 2a-Stage 2d) from Table 14.1.

### 14.2.4 Word-initial velar fronting before all vowels

The treatment proposed in this chapter asserts that the assimilatory process of velar fronting (=22a,b) applies historically before the corresponding nonassimilatory process (=22c). Nothing has been said up to this point about the change in (22d), which applies before front vowels and back vowels but not before coronal consonants. That development poses a potential problem because it includes a nonassimilatory change (velar > palatal before a back vowel) but not an assimilatory one (velar > palatal before a sonorant coronal consonant).

- (22) Velar fronting (word-initial) as an assimilation (in 22a,b) and as a nonassimilatory change (in 22c,d):
  - a. velar > palatal / wd [ \_\_\_\_ FV
  - b. velar > palatal / wd [ \_\_\_\_ FV, CC
  - c. velar > palatal / wd [ \_\_\_\_ FV, CC, BV
  - d. velar > palatal / wd [ \_\_\_\_ FV, BV

In fact, the historical change in (22d) is attested in more than one region; hence, the goal of this section is to explain why it is compatible with the present treatment of velar fronting.

As a representative example of (22d), consider Kieser's (1963) study of the pronunciation of word-initial g in South Brandenburg (NUSax-SMk; Map 7.2). Kieser shows that that broad region displays more than one pattern (=Trigger Types or historical stages in the present framework). Most significant is the area between Marxdorf and Rothstein and further to the east in the area around Deutsch Sorno. Those areas are characterized by the change from WGmc <sup>+</sup>[y] in word-initial position to palatal ([j]=[j]) in the context before front vowels (=23a) or back vowels (=23b), but not before coronal sonorant consonants, where the original velar is

## 14.2 Word-initial velar fronting

retained as a velar stop (=23c). I retain Kieser's original transcriptions because it is not clear how some of his phonetic symbols and diacritics match up with the ones adopted in this book.

- (23) Nonassimilatory velar fronting:

a.	jɪb'	gib	'give-IMP SG'
	jɛrnə	gerne	'gladly'
b.	jans	Gans	'goose'
	jūd'	gut	'good'
c.	glai	sogleich	'immediately'
	grīnəs glås	grünes Glas	'green glass'

The data in (23) can be accommodated in the present framework by taking phonotactics into consideration. I argue that the pattern in (23) obtains because its speakers have adopted a condition governing the type of complex onset that is (not) allowed. In (24) I give a list of the complex (two-member) onset clusters attested in MoStGm (e.g. Hall 1992, Wiese 1996b). It is not possible to give the onset clusters for the dialect in (23) because the source cited does not give them. However, the data presented in Kieser (1963) suggest that the basic generalization is the same in MoStGm and in (24): A complex onset can consist of an obstruent plus liquid (=24a), an obstruent plus nasal (=24b), an obstruent plus [v] (=24c), or a sibilant plus stop (=24d).

- (24)
- |    |                      |                    |                    |                    |                    |                    |                    |                    |
|----|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| a. | pl                   | bl                 | kl                 | gl                 | fl                 | ʃl                 |                    |                    |
|    | p <small>R</small>   | b <small>R</small> | t <small>R</small> | d <small>R</small> | k <small>R</small> | g <small>R</small> | f <small>R</small> | ʃ <small>R</small> |
|    | pfl                  |                    |                    |                    |                    |                    |                    |                    |
|    | pfr <small>R</small> |                    |                    |                    |                    |                    |                    |                    |
| b. |                      |                    |                    | kn                 | gn                 |                    |                    |                    |
| c. | tsv                  | kv                 | ʃv                 |                    |                    |                    |                    |                    |
| d. | ʃp                   | ʃt                 | sk                 |                    |                    |                    |                    |                    |

All of the clusters in (24) have in common that the individual members are simplex segments in the sense that they bear only one of the place features [labial], [coronal], [dorsal]. For example, /pl/ in (24a) consists of /p/, which is [labial], and /l/, which is [coronal], and /tsv/ in (24c) is made up of the affricate /ts/, which is [coronal], and the fricative /v/, which is [labial].

By contrast, there are no complex onsets containing a featurally complex consonant which bears more than one of the three features [labial], [coronal], [dorsal]. In the featural approach described in Chapter 2 the only complex segments

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in this sense of the word are palatals, which are both [dorsal] and [coronal]. The following condition holds for the dialect in (23) on the type of complex onset allowed:

(25) CONDITION ON COMPLEX ONSETS:

Segments with more than one of the features [labial], [coronal], [dorsal] are not allowed in a complex onset.

Speakers of the dialect in (23) have adopted the Condition on Complex Onsets in (25) on the basis of the occurring onset clusters in (24). Given that condition, there cannot be clusters which contain a palatal because palatals are both [coronal] and [dorsal]. This means that speakers who incorporated (25) into their grammar could not have applied velar fronting to the initial velar (=WGmc <sup>+</sup>[y]) in (24c), otherwise a cluster would be created like [jl jr jn çr çl çn], which violates (25).<sup>4</sup>

Given that the change in (22d) is attested, I assign it a unique Trigger Type (=E') and a unique historical Stage (=2d'), which I list in Table 14.3 together with four other stages for word-initial position.

Table 14.3: Trigger Types and the corresponding historical stages for word-initial position

Type	Trigger	Stage
A''''	HUFV (unstressed [i])	2a''''
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d
E'	HFV, MFV, LFV, BV	2d'
F	HFV, MFV, LFV, CC, BV	2e

<sup>4</sup>The historical rule of velar fronting referred to here is shown in Chapter 16 to have applied in OHG/OSax. The basic generalizations concerning the onset clusters of MoStGm in (24) also held for earlier stages of German. See in particular Moulton (1972: 167), who lists obstruent plus liquid/nasal clusters for PGmc which were similar to the ones in (24a,b) in the sense that each member was either [labial], [coronal], or [dorsal]. At that early stage in the language there were also clusters containing <sup>+</sup>/w/, which was presumably [labial] and [dorsal]. However, the <sup>+</sup>/w/ in <sup>+</sup>/wr wl/ onset clusters of PGmc was deleted in the earliest stages of OHG (Braune 2004: 108). OHG also possessed onset clusters consisting of an obstruent plus <sup>+</sup>/w/ which were the historical precursors of the clusters in (24c), e.g. <sup>+</sup>/tw dw/. It is possible that at this early stage the <sup>+</sup>/w/ in such clusters was [-consonantal], which would then escape (25) if that condition only held for onset clusters that were [+consonantal].

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Stage 2d' is coterminous with Stage 2d. Thus, there are two possible developments: (i) Stage 2c' > Stage 2d by the addition of coronal sonorant consonants (CC) to the set of triggers, or (ii) Stage 2c' > Stage 2d' by incorporating back vowels (BV) among the segments inducing the change.

Map 14.2 depicts the three places mentioned above in South Brandenburg (Marxdorf, Rothstein, Deutsch Sorno) which illustrate Stage 2d'. The same map also includes those places listed in Kieser (1963) characterized by Stage 2a'''' (recall §12.6.3 and Map 12.5), Stage 2c', and Stage 2e.<sup>5</sup>

I mention here two other places in Germany where (22d) occurred. The first can be observed in a number of the phonetically-transcribed texts in Cornelissen et al. (1989). In their discussion of the dialect features of that broad area of West Central Germany those authors note that some places in Westerwald are characterized by the following pattern (p. 39):

- |      |            |          |                        |
|------|------------|----------|------------------------|
| (26) | a. Jędicht | Gedicht  | 'poem'                 |
|      | jęsoot     | gesagt   | 'said-PART'            |
|      | b. joof    | gab      | 'gave-PRET'            |
|      | c. klöövən | glaubten | 'believed-1/3 PL PART' |
|      | kruęs      | groß     | 'large'                |

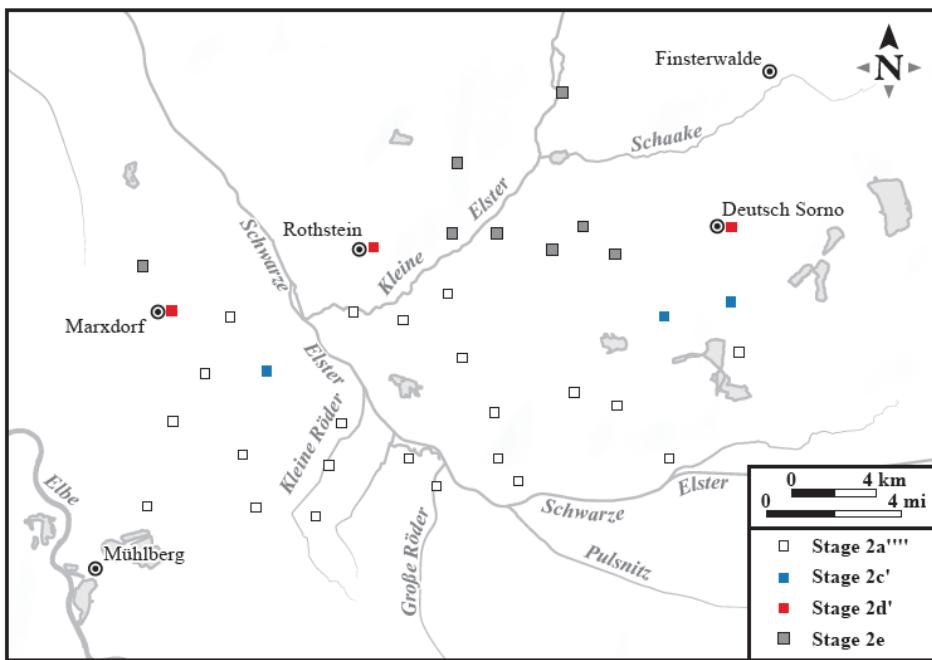
Recall that Map 12.5 depicts places in Westerwald which represent three of the historical stages posited in this book with special reference to word-initial position. The data in (26) suggest that there are other places in that same area not depicted on Map 12.5 which represent Trigger Type E' (=Stage 2d').

A second example of (22d) is a small area to the west of the Elbe River (in the Eph/Brb dialect area), which is indicated on a map in the dialect dictionary for that region (MiElWb: 1087–1090). In particular, that map depicts the places where the reflex of word-initial +[y] is palatal ([j]) before front and back vowels but is retained as velar before a consonant.

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<sup>5</sup>Kieser (1963) discusses six areas (Grenzonen), four of which (I–IV) match up with the historical stages on Map 14.2: I (=Stage 2e), II (=Stage 2d'), III (=Stage 2c'), and IV (=Stage 2a'''). I do not include on Map 14.2 those places further to the south (Grenzzone V), where WGmc \* [y] surfaces as a palatal fricative ([j] or [χ]) in word-initial position before schwa (<[i]), but only if the consonant following schwa is velar ([g]). If the post-schwa consonant is anything other than a velar then WGmc \* [y] is realized in those places as velar ([g]), e.g. [gə-moxd'] 'done-PART' vs. [χə-ǵōfd'] 'bought-PART'. I also do not include on Map 14.2 those areas even further to the south (in Saxony) illustrating the retention of the original velar place of articulation (WGmc \* [y]) as velar ([g]), i.e. Stage 1 (=Grenzzone VI).

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Map 14.2: South Brandenburg. Velar fronting of WGmc <sup>+</sup>[y] in word-initial position illustrates four historical stages: Stage 2e (before any type of segment), Stage 2c' (before all front vowels), Stage 2d' (before front vowels and back vowels), and Stage 2<sup>'''</sup> (before [ə] < unstressed <sup>+</sup>[i]). Data have been drawn from Kieser (1963).

## 14.3 Velar fronting after a subset of back vowels

### 14.3.1 Introduction

The nonassimilatory fronting of historical velars also occurred in the context after a sonorant. In contrast to word-initial position, the development depicted in (27) are attested in the context of high back vowels (HBV), mid back vowels (MBV), and low back vowels (LBV). The velar undergoing (27) could be WGmc <sup>+</sup>[k], <sup>+</sup>[x] or <sup>+</sup>[y], depending on dialect.

- (27) Nonassimilatory velar fronting:
- a. velar > palatal / HBV \_\_\_\_\_
  - b. velar > palatal / HBV, MBV \_\_\_\_\_
  - c. velar > palatal / HBV, MBV, LBV \_\_\_\_\_

### 14.3 Velar fronting after a subset of back vowels

The changes depicted in (27) represent the final phases in the rule generalization scenario described in Chapter 12 for postsonorant position. The upper box in Table 14.4 lists Trigger Types A-E and the corresponding historical stages. In the lower box, Trigger Type F/Stage 2e from Table 14.1 is decomposed into three separate stages defined according to vowel height. Those three stages applied in the chronological order given below.

Table 14.4: Trigger Types for front and back segments and the corresponding historical stages

Type	Trigger	Stage
A	HFV	2a
B	HFV, MFV	2b
C	HFV, MFV, CC	2c
D	HFV, MFV, LFV	2c'
E	HFV, MFV, LFV, CC	2d
F'	HBV	2e'
F''	HBV, MBV	2e''
F'''	HBV, MBV, LBV	2e'''

In the remainder of this section I focus on Swb, Eph, and CHes varieties which document the changes in (27a,b). In §14.4 I discuss dialects that support the general development in (27c).<sup>6</sup>

#### 14.3.2 Data and discussion

Strohmaier (1930) describes the Swb dialect spoken in and around Blaubeuren (Map 3.1). The author is clear that the dialect possesses [ç] and [x], which he transcribes with the same symbol ([x]). Of interest is Strohmaier's (1930: 94–95) description of the distribution of those two dorsal sounds, which I cite below. The important part of this passage is the final sentence, which I have italicized.

<sup>6</sup>The reflex of WGmc \*[y] in a word-internal onset is a palatal glide ([j]) in many varieties, especially UGm. In the present section I restrict my discussion to sources in which that etymological velar is a fricative. An example of a source I do not consider (LAlmc) is Ottenheim (Heimburger 1887; Map 3.1). Heimburger states that [x] occurs after front vowels and [ç] after back vowels and that the palatal glide [j] (< WGmc \*[y]) surfaces in a word-internal onset in the context after front vowels, liquids, and back vowels. The essential facts are the same in the RFr dialect of Spessart (Lauinger 1929; Map 5.3), which I likewise do not consider below.

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Die Unterscheidung zwischen gutturaler und palataler Spirans erfolgt nach denselben Gesichtspunkten wie sie schon bei Bopp (S. 16) und bei Keinath (S. 86) aufgeführt worden sind. Nach den dunklen Vokalen *a* und *o* und den unechten Diphthongen *üə* und *iə* ist die Spirans guttural ... Gutturales *x* tritt auch auf in *miləx*, *dswiləx* Zwilch, soweit es nicht geschwunden ist. Nach *i*, *u*, *e*, *əi*, *əu* erscheint MHD ch dagegen als palatale Spirans.

The difference between guttural and palatal fricative is a consequence of the same factors already discussed by Bopp (p. 16) and Keinath (p. 86). After the back vowels *a* and *o* and the pseudo-diphthongs *üə* and *iə* the fricative is guttural. Guttural *x* also occurs in *miləx*, *dswiləx* Zwilch, unless it was elided. *By contrast, after i, u, e, əi, əu MHD ch occurs as a palatal fricative*.

What is surprising is that [ç] surfaces after both the back vowel [u] and the diphthong [əu]. Aside from that one quirk, the distribution of [x] and [ç] is precisely what one would expect: The velar occurs after a back vowel – or a diphthong whose second element is back – and the palatal after a front vowel.

One way of coming to grips with Strohmaier's surprising description of dorsal fricatives in Blaubeuren is to either deny the facts or question the reliability of the source. As simple and tempting as that strategy might be, it is weak because – as I make clear below – several other varieties of German are described in which [ç] patterns with front vowels and high back vowels like [u].

Müller (1911) is a historical description of the sounds in the Swb dialect spoken in Mühlingen (Map 3.1). In contrast to Strohmaier (1930), Müller (1911) does not provide a clear statement concerning the distribution of [ç] and [x], the only two dorsal fricatives in the dialect. However, the correct generalizations concerning the distribution of those sounds can be inferred from Müller's data because he has two distinct symbols distinguishing velar [x] (his **[x]**) and palatal [ç] (his bold **[x]**). The dialect has four front monophthongs (/i ɪ e ε/), seven back monophthongs (/u ʊ o ɔ a ɑ: ə/), diphthongs ending in a front vowel (/ie εɪ/), several diphthongs ending in schwa (/iə uə ɔə εə/), and the diphthong /au/.

The data in (28a) reveal that [x] occurs after the four back monophthongs [o ɔ a ɑ:] and after all of the diphthongs ending in schwa, and the items in (28c) show that [x] occurs after a coronal consonant ([l]). The examples in (28b) exemplify the distribution of [ç], which surfaces after all of the front monophthongs and diphthongs ending in a front vowel. The [x] and [ç] in all examples derive from WGmc <sup>+</sup>[k] or <sup>+</sup>[x].

(28) Dorsal fricatives in Mühlingen:

## 14.3 Velar fronting after a subset of back vowels

a.	lox	[lox]	Loch	'hole'	25
	dōxt	[do:xt]	Docht	'wick'	56
	maxt	[maxt]	Macht	'power'	56
	šnāxlə	[ʃna:xlə]	schnarchen	'snore.INF'	56
	āəx	[a:əx]	Arche	'ark'	58
	līəxə	[li:əxə]	Heu aus dem Heustock rupfen		
			'pick.INF hay from hayrick'	55	
	būəx	[bu:əx]	Buch	'book'	50
	wōəx	[vɔ:əx]	weich	'soft'	45
	wēəxə	[ve:əxə]	angestrengt arbeiten		
			'work.INF intensely'	58	
b.	fixt	[fiçt]	feucht	'damp'	56
	wixtrk	[viçtrk]	wichtig	'important'	56
	šexl̩	[ʃeçl̩]	kleiner Heuhaufen		
			'small haystack'	55	
	fexdə	[feçdə]	fechten	'fence.INF'	56
	bl̩'ex	[blieç]	Blech	'tin'	14
	reix	[reiç]	reich	'rich'	37
c.	k'ålx	[kʰalx]	Kalk	'lime'	54
	dmılx	[dmılx]	die Milch	'the milk'	63

Mühlingen differs from all dialects discussed up to this point – with the exception of Strohmaier's variety of Blaubeuren – in the sense that palatal [ç] surfaces after a high back vowel, namely [ʊ] (in 29a), [u] (in 29b) and [au] (in 29c). As in (28), the [x] and [ç] in (29) derive from WGmc +[k] or +[x].

## (29) Dorsal fricatives in Mühlingen:

a.	fʊxdlə	[fʊçdlə]	fuchteln	'wave about.INF'	56
	sʊxt	[sʊçt]	Art von Krankheit		
			'type of sickness'	27	
	grɔx	[grɔç]	Geruch	'smell'	62
	k'uxɪ	[kʰuçɪ]	Küche	'kitchen'	55
	fʊxdsə	[fʊçdsə:ə]	fünfzehn	'fifteen'	59
	fʊxdsk	[fʊçdsk]	fünfzig	'fifty'	59
b.	fruxbar	[fruçbar]	fruchtbar	'fertile'	66
c.	baux	[bauç]	Bauch	'stomach'	41
	bauxwe	[bauçve]	Bauchweh	'stomach ache'	41
	brauxə	[brauçə]	brauchen	'need.INF'	41

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hauxə	[hauçə]	hauchen	'aspirate.INF'	41
šlaux	[ʃlauç]	Schlauch	'hose'	41
raux	[rauç]	Rauch	'smoke'	47

In sum, [x] and [ç] in Mühlingen stand in complementary distribution: [ç] after front vowels or coronal consonants and high back vowels and [x] after all other back vowels. From the historical perspective, the nonassimilatory change in (27a) was active.

Dreher (1919) describes the Swb variety spoken in and around Liggersdorf (Map 3.1). The dialect possesses four front monophthongs (/i: i ε: ε/), seven back monophthongs (/u: o o: a a: ə/), two diphthongs ending in a front vowel (/ei εi/), several diphthongs ending in schwa (e.g. /ɔ:ə εə/), and the diphthong /əu/. The only two dorsal fricatives are [x] and [ç].

The data presented in the original source reveal the following generalizations:  
 (a) Palatal [ç] (= [χ]) occurs after the front monophthongs or diphthongs ending in a front vowel (in 30a), a coronal sonorant consonant (in 30b), or a high back monophthong, i.e. either [u:] (in 30c) or [ɔ:] (in 30d).

## (30) Dorsal fricatives in Liggersdorf:

a.	bīχdə	[bi:çdə]	Beichte	'confession'	38
	kwiχd	[kviçd]	Gewicht	'weight'	23
	sēχə	[se:çə]	verstohlen schauen		
			'look.INF sneakily'		35
	hēχl	[heçl]	Hechel	'hatchel'	20
	leiχt	[leiçt]	leicht	'easy'	37
	rēχ	[reiç]	reich	'rich'	37
b.	khiərχə	[kʰiərçə]	Kirche	'church'	25
	milχ	[milç]	Milch	'milk'	52
c.	bfūχə	[bfu:çə]	fauchen	'hiss.INF'	75
	būχ	[bu:ç]	Bauch	'stomach'	39
	khūχə	[kʰu:çə]	hauchen	'aspirate.INF'	39
d.	tsūχd	[tsuçd]	Zucht	'breeding'	74
	sūχd	[suçd]	Sucht	'addiction'	28
	trūχə	[truçə]	Truhe	'chest'	28
	khūχi	[kʰuçi]	Küche	'kitchen'	30

The author is consistent in transcribing her symbol for [ç] in each of the four contexts in (30), even after high back vowels (in 30c,d). Dreher (1919: 74) herself realizes that there is a significant generalization concerning the context for [ç],

## 14.3 Velar fronting after a subset of back vowels

which she describes as after front ('hell') vowels. Apparently Dreher considers [ü û] to be front.<sup>7</sup>

In (31) I provide data with dorsal fricatives in the remaining contexts listed above, namely after the one diphthong ending in a high back vowel ([øu]) in (31a), diphthongs ending in schwa in (31b,c), mid back vowels [ɔ: ɔ] in (31d), and the low back vowel [ɑ] in (31e). Note that for each of the first five categories some words are attested with [x] (= [x]) and others with [ç]. One token was found with [ç] after a low back vowel, i.e. [laçə] 'laugh.INF' (= [laχə]). I assume that [x] is the unmarked pronunciation for the dorsal fricative after [ɑ] and comment on that one exceptional item below.

## (31) Dorsal fricatives in Liggersdorf:

a.	šləux rəuχ	[ʃləux] [rəuç]	Schlauch Rauch	'hose' 'smoke'	39 41
b.	blōəx qəəx̩ tsqəəxə sqəəχ glqəəχ	[blɔ:əx] [ç:əəx̩] [tsɔ:əəxə] [sɔ:əç] [glɔ:əç]	bleich Eichhorn Zeichen Harn Gelenk	'pale' 'squirrel' 'sign' 'urine' 'joint'	75 44 45 45 44
c.	šd̥əəxə b̥əəx f̥əəχdə s̥əəχts̥ə	[ʃd̥eəəxə] [b̥eəəx] [f̥eəəχdə] [s̥eəəχts̥ə]	stechen Pech betteln sechzehn	'sting.INF' 'misfortune' 'beg.INF' 'sixteen'	96 75 21 21
d.	šq̥xə f̥elq̥ərə	[ʃɔ:əx] [f̥elçərə]	Heuhaufen in die Erde vergraben	'haystack' 'bury.INF in the ground'	75 26
	brq̥χət f̥adq̥χt	[brɔ:çət] [f̥adɔ:çt]	Brachmonat Verdacht	'fallow month' 'suspicion'	33 33
e.	bax	[bax]	Bach	'stream'	16

I hypothesize that the [x] pronunciation in (31a-d) represents one group of speakers (Variety A) and that the [ç] realization characterizes a separate set of

<sup>7</sup>The type of vowel described here appears to have been recognized in the literature on German dialectology. See in particular the chart for vowels in Wiesinger (1970a: 1), which is based on the one proposed by Schmitt & Wiesinger (1964). In that system there are two categories of sounds I call "back", namely velar rounded ("velar gerundet") and palato-velar ("palato-velar"); significantly, vowels in the latter category are considered to be centralized ("zentralisiert"). In the system proposed by Wiesinger, there are two distinct sets of symbols, e.g. [u] is velar rounded and [ü] is palato-velar. Several of the case studies in Wiesinger (1970a) dealing with LAlmc have the centralized back vowel.

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speakers (Variety B). The generalizations are the following: For Variety A, [ç] only surfaces after a coronal sonorant (=30a-b) or a high back monophthong (=30c,d) and [x] after any other back vowel (= [x] realization in 31). For Variety B, [ç] surfaces after a coronal sonorant (=30a,b) or any nonlow back vowel, including diphthongs ending in a nonlow vowel (=30c,d and the [ç] realization in 31a-d), while [x] occurs after a low back vowel (=31e). This suggests that (27a) was the version of velar fronting that was active for Variety A – with the added provision that the high back vowel be a monophthong – and that the more general context in (27b) was the one that held for Variety B. It is difficult to interpret the item [laçə] ‘laugh.INF’ referred to above. That token might be a mistranscription, or it could indicate that for some speakers the more general change in (27c) has transpired (or was in the process of transpiring in 1919).<sup>8</sup>

Jarfe (1929) describes the Eph dialect once spoken in Ramlingen (Map 4.3), which has front vowels (/i i: y y: e e: ø ø:/), back vowels (/u u: o o: a a: æ æ:/) and three diphthongs (/ai au oi/), as well as the two dorsal fricatives [x] and [ç].

The following data indicate that [ç] (=[[χ]]) surfaces after front vowels (in 32a-g) or coronal sonorant consonants (in 32h). There are copious examples of words like these, which are consistently transcribed with Jarfe’s symbol for [ç] and never with the symbol for [x] (=[[x]]).

### (32) Dorsal fricatives in Ramlingen:

a.	twīχ	[tvī:ç]	Zweig	‘branch’	25
b.	liχtə	[liçtə]	leicht	‘light’	26
	tjiχt	[tjiçt]	Gicht	‘gout’	18
	liχt	[liçt]	liegt	‘lies-3SG’	19
c.	tŷχ	[ty:ç]	Zeug	‘stuff’	30
d.	dyxdiχ	[dyçdiç]	tüchtig	‘capable’	22
e.	wex	[vec]	Weg	‘path’	17
	slext	[sleçt]	schlecht	‘bad’	17

<sup>8</sup> An alternative interpretation is that Variety A and Variety B are present in the grammar of a single individual. It is not possible to know for sure whether or not this is true for Liggersdorf, but this is clearly the correct interpretation for the Swb speakers of Beuren investigated by Bausinger & Ruoff (1959); see Map 3.3. Bausinger & Ruoff provide phonetically transcribed texts for four speakers of Beuren. All four have palatal [ç] after front segments and [x] after back vowels, but the first three speakers also have several instances of [ç] in the context after back vowels (e.g. [brœuçə] ‘need-INF’, [nɔçər] ‘afterward’). These speakers have internalized both assimilatory velar fronting, whereby /x/ surfaces as palatal after any coronal sonorant, as well as some version of nonassimilatory velar fronting from (27). Since the assimilatory pattern corresponds to the one for MoStGm (Chapter 17), the Beuren speakers appear to be diglossic.

## 14.3 Velar fronting after a subset of back vowels

f.	høχtə	[høçtə]	Höhe	'height'	30
	krøχeln	[krøçeln]	husten	'cough.INF'	21
g.	nøχtə	[nø:çtə]	Nähe	'vicinity'	24
h.	dolχ	[dolç]	Dolch	'dagger'	11

The data in (32) are consistent with Jarfe's (1929: 11) assertion that the palatal occurs after front vowels and consonants ('nach hellen Vokalen und Konsonanten'). However, the data in Jarfe (1929) containing back monophthongs or diphthongs ending in a back vowel indicate that [ç] is not limited to the coronal sonorant environment. In fact, in the overwhelming number of items with non-low back vowels followed by a dorsal fricative, that fricative is represented in with Jarfe's symbol for [ç]. That being said, some items can be found in which nonlow back vowels are followed by [x]. In (33a-e) I provide representative examples for words with five nonlow back vowels (including the diphthong [au]) followed by a dorsal fricative. Data like the ones in (33f) indicate that [x] surfaces after low back vowels, although I found one token with [ç] in that context, i.e. [dinzədaç] 'Tuesday' (= [dinzədaχ]).

## (33) Dorsal fricatives in Ramlingen:

a.	tjūχən	[tju:çən]	kreischen	'screech.INF'	27
b.	plauχ	[plauç]	Pflug	'plow'	26
	gənaʊχ, gənaux	[gənauc], [gənaux]	genug	'enough'	26
c.	slōχ	[slo:ç]	schlug	'struck-PRET'	26
	lōχ	[lo:ç]	log	'lied-PRET'	29
	tōχ, tōx	[to:ç] [to:x]	zog	'pulled-PRET'	11
d.	nox	[nox]	noch	'still'	19
	trox	[trox]	Trog	'trough'	20
	soχt	[soçt]	sucht	'search-3SG'	26
	hoχtit	[hoçti:t]	Hochzeit	'wedding'	29
e.	tōx	[tɔ:x]	zähe	'tough'	23
	waidōχ	[vaidɔ:ç]	Schmerzen	'pains'	28
f.	axt	[axt]	acht	'eight'	14
	daxt	[daxt]	Docht	'wick'	23
	slax	[slax]	Schlag	'blow'	14
	bāx	[ba:x]	Berg	'mountain'	17

I posit that there are two groups of speakers: Variety A and Variety B. For Variety A, [ç] only occurs after coronal sonorants (=32) and [x] only after back

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vowels (= [x] realization in 33), but for Variety B, [ç] surfaces after coronal sonorants (= 32) or nonlow back vowels (= [ç] realization in 33a-e), and [x] after low back vowels (= 33f). Thus, nonassimilatory fronting has not yet affected Variety A, but for Variety B, (27b) obtains. Since the [dinzədaç] ‘Tuesday’ example mentioned above appears to be an isolated example it is difficult to know whether or not this item was simply mistranscribed or if there is a third group of speakers for which (27c) occurred or was in the process of occurring in 1929.<sup>9</sup>

Recall from §9.2 the CHes variety spoken in Wissenbach (Kroh 1915; Map 7.1), which has the phonemic front oral vowels /i e ε/ and back oral vowels /u o ɔ a ə/; most of those vowels can surface as short or long. As described earlier, in that dialect WGmc + [k] and + [x] regularly neutralized to [ç] after a coronal sonorant, although Monophthongization (/ei/ > /a:/) later led to the development of the palatal phoneme /ç/. Wissenbach is significant in the context of this chapter because of the development of WGmc + [y]. That sound regularly shifted to [j] after a coronal sonorant (in 34b,c) and was retained as [y] after a low back vowel (in 34a). However, in the context after a nonlow back vowel, WGmc + [y] shifted to [j] by (27b); see (34d). Examples like the one in (34e) illustrate that WGmc + [y] failed to undergo (27b) after [ɔ:] which derived historically from a low back vowel (cf. MHG [a]). Note the contrast between [y] and [j] after [ɔ:] and before schwa.

### (34) Dorsal fricatives in Wissenbach:

a.	aγ	[a:y]	Auge	‘eye’	120
	aγə	[a:yə]	Augen	‘eyes’	120
b.	blējə	[plε:jə]	pflegen	‘care for.INF’	76
	rējəl	[re:jəl]	Regel	‘rule’	77
	ēj	[e:j]	Egge	‘harrow’	120
c.	foljə	[fol:jə]	folgen	‘follow.INF’	81
	bōjə	[bɔ:jə]	Bogen	‘bow’	82
	gəflōjə	[gəflɔ:jə]	geflogen	‘flown-PART’	120
d.	mōγə	[mɔ:yə]	Magen	‘stomach’	71

There are no examples listed in Kroh (1915) in which [y] surfaces after a high back vowel like [u] or after mid back vowels other than [ɔ:]. The reason for those gaps is that the original MHG vowels neutralized to other sounds or deleted.

<sup>9</sup>It is also conceivable that both Variety A and Variety B are present in the grammar of a single individual. Since Variety A corresponds to the MoStGm pattern, this alternative interpretation points to diglossia: Variety A is the MoStGm rule of velar fronting, and Variety B is a nonassimilatory version, which is the local dialect.

14.4 *Velar fronting after all sonorants***14.4 Velar fronting after all sonorants****14.4.1 Introduction**

The nonassimilatory change examined below involves the fronting of a WGmc velar sound in postsonorant position after any type of vowel (=27c). The velar under discussion can be WGmc <sup>+</sup>[y], <sup>+</sup>[k], and/or <sup>+</sup>[x], depending on the dialect.

The reflexes attested in the material cited below for WGmc <sup>+</sup>[y] and <sup>+</sup>[x]/<sup>+</sup>[k] in postsonorant position are summarized in (35). I comment on those stages in greater detail below. The dorsal fricative in the three sequences given in phonetic representation in each row correspond to the attested realization of that original velar. The symbols “[i]”, “[l]” and “[a]” represent the natural classes of front vowels, coronal sonorant consonants and back vowels respectively. As noted earlier, the coronal sonorant consonants referred to here are [l] and/or [r] depending on dialect. [n] is also attested, although the number of those examples is relatively small, and many of the sources do not include those examples. As indicated below, the four categories in (35a) and (35b) are argued to correspond to four distinct historical stages.

- |  |   |
|--|---|
| (35) a. Postsonorant <sup>+</sup> [y]: | b. Postsonorant <sup>+</sup> [x], <sup>+</sup> [k]: |
| i. [iyə lyə ayə]                       | i. [ixə lxə axə] (=Stage 1)                         |
| ii. [ijə lyə ayə]                      | ii. [içə lxə axə] (=Stage 2c')                      |
| iii. [ijə ljə ayə]                     | iii. [içə lcə axə] (=Stage 2c/2d)                   |
| iv. [ijə ljə ajə]                      | iv. [içə lcə açə] (=Stage 2e'")                     |

At Stage 1 (=35ai and 35bi) historical velars are retained as velar. When velar fronting is phonologized it does so first in the context after high vowels (Stage 2a) and then after high vowels and mid vowels (Stage 2b), two changes not depicted above. The next incremental change is Stage 2c' (=35aii and 35bii), whereby historical velars are realized as palatal after a front vowel but not after a coronal sonorant consonant, and elsewhere as velar. At Stage 2c/2d (=35aiii and 35biii) the velar changes to palatal after a front vowel (or a nonlow front vowel) or coronal consonant but is retained as velar after a back vowel. Those assimilatory changes were examined from the point of view of rule generalization in Chapter 12. Stage 2e'" (=35aiv and 35biv) reflects the most advanced fronting stage – the nonassimilatory one – because original velars are realized as palatal after front vowels, sonorant consonants and (crucially) back vowels. As indicated earlier in Table 14.4, Stage 2e'" is the third and final nonassimilatory change after Stage 2e' and 2e'', which are not depicted in (35).

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There are solid descriptions for a number of varieties exhibiting Stage 2e” (=35aiv and 35biv) to varying degrees. In several of those varieties, the lenis velar fricative regularly shows nonassimilatory velar fronting (=35aiv), while the fortis fricative only shows that change to a limited extent (=35biv). The neighboring MFr varieties in Luxembourg, Belgium, and Germany discussed in §14.5 display the nonassimilatory shift from any velar fricative to palatal, regardless of the historical source (=35aiv and 35biv).

Most of the dialects discussed below exhibit the historical merger of various back vowels as well as the deletion of etymological [y] in intervocalic position. A consequence of those developments is that there are gaps involving [j], which is attested only after a subset of the phonemic back vowels. For example, [j] surfaces in some dialects only after long nonhigh back vowels like [o: a:], but there are no examples with [j] after the corresponding short vowels ([ɔ a]) or high back vowels like [u u:]. In the type of dialect described here I assume that WGmc<sup>+</sup>[y] underwent fronting after all back vowels (=27c), although a weaker position is that the change only occurred after a subset of the back vowels (=27a,b).

### 14.4.2 Data and discussion

The data in (36a-c) from the Wph variety once spoken in Soest (§4.3) illustrate Stage 1 for WGmc<sup>+</sup>[y] (=35ai) and the data in (36d-e) the assimilatory change (Stage 2c/2c'/2d) for WGmc<sup>+</sup>[x] (=35bii or 35biii).

(36) Dorsal fricatives in Soest:

a.	liʒə	[lɪyə]	liege	‘lie-1SG’	44
	lèʒə	[lɛyə]	lege	‘place-1SG’	44
b.	balʒə	[balyə]	Balge	‘brat-DAT SG’	44
c.	vəʒn	[va:yŋ]	Wagen	‘car’	45
	ròʒə	[rɔ:yə]	Roggen	‘rye’	44
d.	trècta	[trɛçtə]	Trichter	‘funnel’	14
e.	daxtə	[daxtə]	dachte	‘thought-PRET’	44

By contrast, the Eph dialect of Eilsdorf (§8.3) in (37) represents Stage 2c/2d for WGmc<sup>+</sup>[y] (=35aiii) and Stage 2c/2d for WGmc<sup>+</sup>[x] (=35biii). The examples in (36) and (37) were discussed earlier and therefore require no comment.

(37) Dorsal fricatives in Eilsdorf:

a.	lijən	[lɪjən]	liegen	‘lie.INF’	342
	fējən	[fɛ:jən]	fegen	‘sweep.INF’	342

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b.	mɔrjən	[mɔrjən]	morgen	'tomorrow'	342
	feljə	[feljə]	Radfelge	'wheel rim'	342
c.	fɔʒəl	[fɔʒəl]	Vogel	'bird'	342
	swāåzər	[swa:ɔ:yər]	Schwager	'brother-in-law'	342
d.	bıct	[bıçt]	Beichte	'confession'	341
e.	frıuxt	[frıuxt]	Frucht	'fruit'	341

The remaining datasets display the nonassimilatory developments in (27). Consider first material from the two (NHes) places in (38)-(39). The words listed in (38) from Loshausen-Zella (Schoof 1913a, Schoof 1913b, Schoof 1913c; Map 7.1) exhibit the change from WGmc <sup>+</sup>[ɣ] to [j] after a front vowel (=38a), coronal sonorant consonant (=38b), or back vowel (=38c). The items provided in (38d-f) show the modern reflexes of WGmc <sup>+</sup>[k x] in postsonorant position: [ç] surfaces after a front vowel (=38d) or a coronal sonorant consonant (=38e) and [x] after a back vowel (=38f). In the context after [u] the original source (Schoof 1913c: 209) provides several examples like the ones in (38g), which show that [u] can be followed by either the velar or (surprisingly) the palatal. The phonemic front vowels in this variety are /i ɪ e ɛ ø æ/ and the phonemic full back vowels /u o ɔ a/; most of those vowels can surface as short or long.<sup>10</sup>

## (38) Dorsal fricatives in Loshausen-Zella:

a.	laijə	[laijə]	liegen	'lie.INF'	207
	ööjə	[ø:jə]	Augen	'eyes'	207
	sääjə	[sæ:jə]	Segen	'blessing'	207
b.	šwäljə	[ʃvæljə]	schwelgen	'wallow.INF'	207
	mɔrjə	[mɔrjə]	morgen	'tomorrow'	207
c.	gəfloojə	[gəflo:jə]	geflogen	'flown-PART'	207
	frååj	[fra:j]	fragen	'ask.INF'	207
d.	ricə	[riçə]	riechen	'smell.INF'	209
	rööcərn	[rø:cərn]	rauchen	'smoke.INF'	209
	šläact	[ʃlæ:çt]	schlecht	'bad'	209
e.	ſilcə	[ſilçə]	schielen	'squint.INF'	210
f.	hoox	[ho:x]	hoch	'high'	209
	ſbrååx	[ʃprå:x]	Sprache	'language'	209

<sup>10</sup>I do not include /ø/ among the back vowels of Loshausen-Zella or in any of the dialects listed below because that vowel fails to occur in the context before dorsal fricatives. I likewise do not include diphthongs among the phonemic vocalic sounds.

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g.	bux, buc	[bux], [buç]	Bauch	‘stomach’	209
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Schoof does not say much about the items in (38g), other than the fact that this optionality sometimes ('zuweilen') exists. Three points are in need of clarification: First, Schoof's examples all involve words with [u], but he does not state explicitly that the optionality only holds after that one vowel. Second, it is not clear whether or not the same optionality holds for [x]/[ç] after [u] in all words with that vowel. Third, we cannot know for sure how to interpret the optionality itself. Recall that I accounted for examples in Liggersdorf in (31a-d) and Ramlingen in (33b-e) where the velar and palatal occur after the same back vowel by postulating that the two pronunciations reflect two different sets of speakers (varieties). I hypothesize that the two realizations in (38g) are likewise speaker-dependent; hence, some speakers have [bux], while others have [buç].

The data in (38) point to two different stages depending on the target velar fricative: Stage 2e''' (=27c) for [y] (<MHG <sup>+</sup>[y]) and Stage 2e' (=27a) for [x] (<MHG <sup>+</sup>[x k]), but only for those speakers with the pronunciation [buç] ‘stomach’.

In the NHes dialect of Blankenheim (Dittmar 1891; Map 7.1) WGmc <sup>+</sup>[y] is realized as palatal [j] after a front vowel (=39a), coronal sonorant consonant (=39b), or back vowel (=39c). By contrast, [x] (<WGmc <sup>+</sup>[k x]) undergoes assimilatory velar fronting in the context after a coronal sonorant (=35biii), as in (39d-e), and otherwise surfaces as velar after a back vowel, as in (39f). The dialect possesses the phonemic front vowels /i ɪ y e ɛ/ and the phonemic back vowels /u o ɔ a/. Most of those sounds can surface as short or long. Due to historical neutralizations of various vowels referred to above no examples involve [j] in the context after high and low back vowels like [u a].

## (39) Dorsal fricatives in Blankenheim:

a.	ijəl sê:jəl	[i:jəl] [se:jəl]	Igel Segel	‘hedgehog’ ‘sail’	42
b.	galjən mórgjən	[galjən] [mɔrgjə]	Galgen morgen	‘gallows’ ‘tomorrow’	42
c.	fôjəl frô:j	[fo:jəl] [fro:j]	Vogel fragen	‘bird’ ‘ask.INF’	42
d.	sîçəl slêç.d	[sîçəl] [sle:çt]	Sichel schlecht	‘sickle’ ‘bad’	44
e.	ke:rç	[kerç]	Kirche	‘church’	44

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f.	bûc	[bu:x]	Buch	'book'	29
	no.cd	[nɔxt]	Nacht	'night'	44
	šacdəl	[ʃaxtəl]	Schachtel	'box'	44

The data in (39) exemplify Stage 2e''' (=27c) for [y] (<MHG <sup>+</sup>[y]) and Stage 2c/2d (=35biii) for [x] (<MHG <sup>+</sup>[x k]).

Kirchspiel Courl (Beisenherz 1907; Map 4.2) illustrates the nonassimilatory velar fronting of WGmc <sup>+</sup>[y]. Recall from (11) that WGmc <sup>+</sup>[y] underwent fronting to [j] in word-initial position before a front vowel or coronal sonorant consonant. In postsonorant position, WGmc <sup>+</sup>[y] shifted to [j] after a front vowel or a sequence of front vowel plus schwa (=40a), coronal sonorant consonant (=40b), or back vowel (=40c). The examples in (40d-f) illustrate the assimilatory fronting of WGmc <sup>+</sup>[x] in postsonorant position. The phonemic front vowels are /i y e ε ø æ/, and the phonemic back vowels are /u o ɔ a/. Due to dialect-specific processes of diphthongization there do not appear to be examples of back monophthongs in the context before [j].

## (40) Dorsal fricatives in Kirchspiel Courl:

a.	íʒl	[iŋl]	Igel	'hedgehog'	39
	nīəʒn	[ni:əŋn]	neun	'nine'	39
b.	mīərʒl	[mīərjl]	Mergel	'marl'	34
c.	būvʒn	[bu:vŋn]	Bogen	'bow'	65
	dīəʒn	[dī:əŋn]	taugen	'be good for sth.INF'	70
d.	bictə	[biçtə]	Beichte	'confession'	56
	ræct	[ræçt]	Recht	'justice'	2
e.	būvrx	[buərx]	geschnittenes Schwein 'sliced pig'		62
f.	fuxt	[fuxt]	(no gloss)		61
	doxt	[doxt]	Docht	'wick'	23
	dax	[dax]	dachte	'thought-PRET'	23

The data in (40) show that Stage 2e''' (=35aiv) holds for [y] (<MHG <sup>+</sup>[y]) and Stage 2c' (=35bii) for [x] (<MHG <sup>+</sup>[x]).

Aachen (Welter 1938: 13; Map 5.1) appears to be a dialect in transition from Stage 2c/2d to Stage 2e''' for WGmc <sup>+</sup>[y]. Recall from Table 14.2 that WGmc <sup>+</sup>[y] undergoes the nonassimilatory change to palatal in word-initial position. The dialect possesses phonemic front vowels (/i y e ε ø æ/) and phonemic full back vowels (/u o ɔ a/), which Welter transcribes with tone as well as more than one degree of length.

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In postsonorant position the reflex of WGmc <sup>+</sup>[y] is palatal [j] after a front vowel (or a front vowel plus schwa) and before a vowel (=41a) or after an original coronal consonant and before a vowel (=41b). (The pre-rhotic schwa in 41b is epenthetic; recall §5.4). As in Schlebusch (§10.3.1), WGmc <sup>+</sup>[k x] assimilate to a sibilant fricative (alveolopalatal [ç]) after a front vowel (=41e) and otherwise surface as [x] (=41f). Welter writes that WGmc <sup>+</sup>[y] is normally ('normalerweise') realized as [y] after a back vowel and before a vowel but that after [ɑ:] it is occasionally ('gelegentlich') replaced with the palatal (in 41c). The example in (41d) reveals that WGmc <sup>+</sup>[y] after other back vowels and before a vowel is optionally replaced with the glide [u]. Significantly, there do not appear to be words listed in the original source containing back vowels other than [ɑ:] or [oə] after which [y] could potentially occur. This suggests that [y] only occurs in the context after [ɑ:] or [oə] and before another vowel and that [y] is replaced with [j] after any back vowel and before another vowel because it deletes after the only other back vowel. Thus, Stage 2c/2d is replaced with Stage 2e''' for WGmc <sup>+</sup>[y]. By contrast, WGmc <sup>+</sup>[k x] exhibit Stage 2c/2d (=35biii).

## (41) Dorsal fricatives in Aachen:

a.	lý:j.ə	[lyjə]	lügen	'lie.INF'	13
	vé:ə.jə	[veəjə]	fegen	'sweep.INF'	13
b.	é:r.əjər	[erəjər]	Ärger	'anger'	13
c.	drā:yə, drā:jə	[dra:yə], [dra:jə]	tragen	'carry.INF'	13
	zā:yə, zā:jə	[za:yə], [za:jə]	sagen	'say.INF'	13
d.	vró:ə.yə, vrō:uə	[vroəyə], [vrɔ:uə]	fragen	'ask.INF'	13
e.	rí:š	[ri:c]	reich	'rich'	13
	vø:š(t)	[vøct]	feucht	'damp'	15
f.	štrū:x	[ʃtru:x]	Strauch	'shrub'	13
	la:xt.ə	[flaxtə]	schlachten		
				'slaughter.INF'	15

Braun (1906) discusses a number of places (EFr) in the general vicinity of Heilbronn (Map 3.4). The author observes that the distinction between [x] and [ç] is not nearly as well-defined as in the standard language ('nicht stark ausgeprägt') and consequently transcribes the fortis dorsal fricatives in his material with [ç]. Some representative examples illustrating the occurrence of palatal [ç] can be observed in (42). What these examples suggest is that [ç] can have any historical source, i.e. WGmc <sup>+</sup>[k x] in (42a,b) or WGmc <sup>+</sup>[y] in (42c-g).

## (42) Dorsal fricatives in Heilbronn:

14.4 *Velar fronting after all sonorants*

a.	gsiçd reçd	[gsiçt] [reçt]	Gesicht recht	'face' 'right'	12
b.	buuç doç	[bu:ç] [doç]	Buch doch	'book' 'however'	12
c.	fliiçə, fliiçə	[fli:yə], [fli:çə]	Fliege	'fly'	13
d.	fooçəl, flooçəl maaçər, maaçər	[fo:yəl], [fo:çəl] [ma:yər], [ma:çər]	Vogel mager	'bird' 'lean'	13
e.	seçd	[seçt]	sagt	'says-3SG'	13
f.	taaç	[ta:ç]	Tag	'day'	13
g.	berç	[berç]	Berg	'mountain'	14

I interpret the optionality in (42c,d) as speaker-dependent; hence, some speakers have the pronunciation with [y] and others with [ç]. Significantly, the change from WGmc <sup>+</sup>[y k x] to [ç] occurred after any type of sound. Note in particular the occurrence of [ç] after back vowels (=42b,d,f). The phonemic front vowels in this dialect are /i e ε/ and the phonemic full back vowels /u o ɑ/, which surface as short or long as well as nasalized or oral.

One could take the data in (42) at face value and conclude that the dialect has fronted WGmc <sup>+</sup>[y k x] to [ç] after any type of sound (=Stage 2e’’’). Alternatively, one might interpret Braun’s comments concerning the distinction between [x] and [ç] not as a complete merger to [ç], but instead as a near-merger. If correct, that would mean that the two fricatives are still phonetically distinct, even though Braun decided to transcribe them with the same phonetic symbols. If the latter interpretation is on the right track then Heilbronn represents a transitional dialect on its way to becoming fully-fledged Stage 2e’’’.

#### 14.4.3 Areal distribution of nonassimilatory velar fronting after a sonorant

Table 14.5 provides a list of all dialects discussed in this chapter involving some version of nonassimilatory velar fronting in (27) for the postsonorant context. All of those varieties are indicated in Map 14.2. I also include the places discussed in §14.5 below. In Table 14.5 I do not indicate the velar fronting targets for the stages indicated in the final column.

In Chapter 15 I discuss data from linguistic atlases for various places in Vorarlberg and Tyrol which have palatal [ç] but no velar [x] (=Stage 2e’’’). I do not list those places in Table 14.5, nor do I include them on Map 14.2. Discussion of those

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Table 14.5: Nonassimilatory velar fronting of WGmc velars in postsonorant position (=22a-c)

Place	Dialect	Source	Stage
Mühlingen	Swb	Müller (1911)	2e'
Blaubeuren	Swb	Strohmaier (1930)	2e'
Liggendorf	Swb	Dreher (1919)	2e'/2e''
Ramlingen	Eph	Jarfe (1929)	2d/2e''
Wissenbach	CHes	Kroh (1915)	2e''
Nordösling	MFr	Bruch (1952)	2e'''
Burg-Reuland	MFr	Hecker (1972)	2e'''
Lützkampen, Dahnen	MFr	MRhSA	2e'''
Aachen	Rpn	Welter (1938)	2e'''
Loshausen-Zella	NHes	Schoof (1913a,b,c)	2e'''
Blankenheim	NHes	Dittmar (1891)	2e'''
Kirchspiel Courl	Wph	Beisenherz (1907)	2e'''
Heilbronn	EFr	Braun (1906)	2e'''

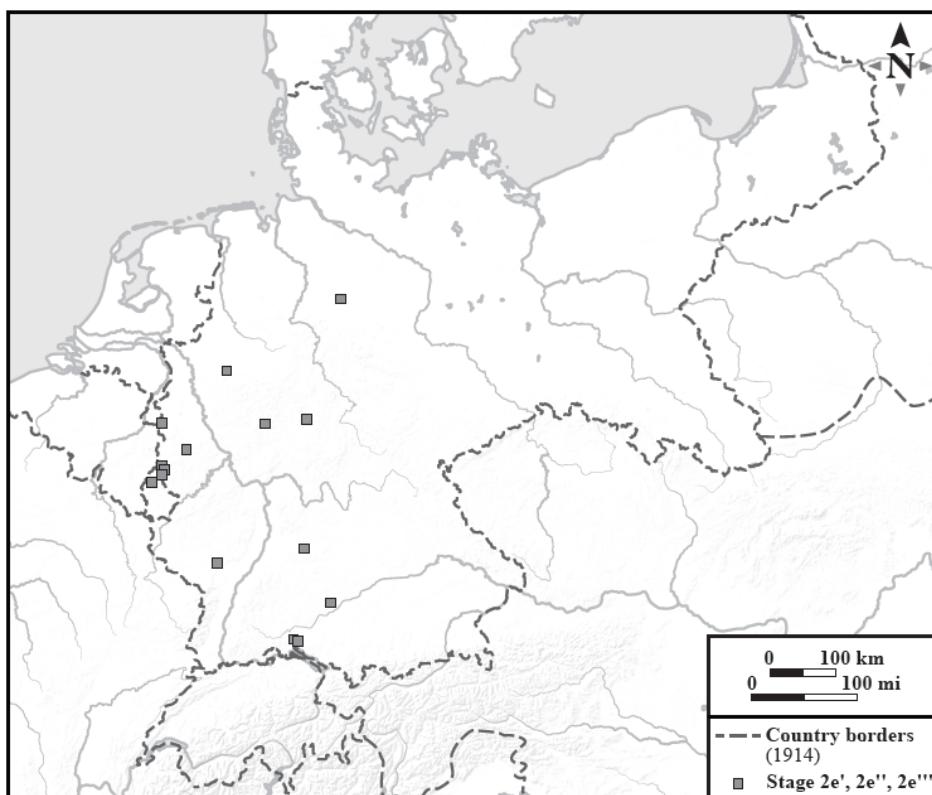
areas is delayed until Chapter 15, which considers their status as velar fronting islands.

All of the places indicated on Map 14.2 are situated in the western part of Germany (and Luxembourg/Belgium). Those varieties occupy various points along a broad vertical column extending from the area just north of Switzerland to a point to the northwest of Hannover in Lower Saxony. Although the twelve varieties are found in the same broad region, there is considerable space separating most of them.

### 14.5 Nonassimilatory velar fronting in Nordösling

The case studies discussed in §14.4 have in common that some velar fricatives undergo fronting to palatals, but other velar fricatives remain and therefore surface as such. In the present section I discuss a set of dialects in the northwest corner of the MFr region (Map 5.3) which have in common that they do not possess velar fricatives because those sounds underwent nonassimilatory velar fronting (or underwent g-Formation-1 to [g]). I discuss first the variety of North Lxm spoken in Nordösling (Bruch 1952) followed by the MFr variety of Burg-Reuland in the

## 14.5 Nonassimilatory velar fronting in Nordösling



Map 14.3: Areal distribution of nonassimilatory velar fronting in postsonorant position. Varieties of High German and Low German in which postsonorant velar fronting is a nonassimilatory change (Stage 2e', 2e'', 2e''') are indicated with squares.

southeastern tip of Belgium (Hecker 1972). I conclude by showing that the same pattern is attested in data from MRhSA for two German villages in the same area.

The data in (43) from North Lxm (Nordösling) can be contrasted with the material analyzed earlier in §10.3.2 from Central, South, and East Lxm discussed by Gilles (1999). Nordösling is a region in North Luxembourg in the canton of Clerf. The words listed in (43) reveal that WGmc <sup>+</sup>[y] shifted to palatal [j] after between vowels if the first vowel is front (=43a) or back (=43b). No examples were found in Bruch (1952) illustrating the environment after a consonant. WGmc <sup>+</sup>[y] in coda position shifted to palatal ([ç]) after a front vowel (=43c) or back vowel (=43d). WGmc <sup>+</sup>[k x] are similarly realized as [ç] (/ç/) after a front vowel (=43e) or back vowel (=43f). The change to palatal can even be observed for historical sources

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other than the ones mentioned above, e.g. an original glide (=43g).<sup>11</sup> In sum, the words listed below illustrate that Nordösling exhibits Stage 2e” for WGmc +[y x k]. No velar fricatives occur word-initially because WGmc +[y] underwent g-Formation-1 and therefore surfaces as [g]. There were no independent sound changes introducing velar fricatives in word-initial position.

## (43) Palatal fricatives in Nordösling:

a.	le:jən fleijən	legen fliegen	‘place.INF’ ‘fly.INF’	35
b.	tujənt fujəl mɔ:jər	Tugend Vogel mager	‘virtue’ ‘bird’ ‘lean’	35 24 35
c.	fleiç lɛ:ç vɛ:ç	Fliege Lage Weg	‘fly’ ‘situation’ ‘path’	35 35 35
d.	tsuç vɔ:ç ta:ç fouç	Zug Waage Tag Fuge	‘train’ ‘scale’ ‘day’ ‘seam’	35 35 35 35
e.	zeçər ʃpe:çt	sicher Specht	‘certainly’ ‘woodpecker’	23 22
f.	ko:çən lɔ:ç ʃwa:ç a:çt ba:çən kouç ha:uçən	kochen Loch schwach acht backen Kuchen hauchen	‘cook.INF’ ‘hole’ ‘weak’ ‘eight’ ‘bake.INF’ ‘cake’ ‘aspirate.INF’	12 23 21 21 36 36 28
g.	blɔ:ç grɔ:ç	blau grau	‘blue’ ‘gray’	32 32

That velars changed to palatals even after back vowels is stated clearly in the original source (Bruch 1952: 35, 36: ‘nach velaren wie nach palatalen Vokalen’).

<sup>11</sup>The phonemic front vowels in this dialect are /i e ε/ and the phonemic back vowels /u o ɔ a/; most of those vowels surface as short or long. Since there is no significant difference between the phonetic symbols in the original source and the ones I employ in the present book, I simply give the former in the first column of (43). Two minor differences are that Bruch’s [ʃ] depicts the palatal fricative [j] and that [a:] is the low back vowel [a].

## 14.5 Nonassimilatory velar fronting in Nordösling

The pattern depicted in dataset (43) is confirmed by independent sources. First, according to LSA, palatal fricatives are attested after front and back vowels throughout North Luxembourg. Some examples of words containing [ç] after a back vowel from that source are [nu:çt] ‘night’ (Map 25), [voçən] ‘weeks’ (Map 61), [kaçən] ‘cook.INF’ (Map 64), and [lu:çt] ‘air’ (Map 82). Second, [Gilles \(1999\)](#) collected data throughout Luxembourg, including the area in and around Nordösling. He concludes that the palatal fricative [ç] now surfaces for his informants as alveolopalatal [ç] after front and back vowels alike. Examples of words in his survey from Nordösling include [nu:çt] ‘night’ and [bra:çt] ‘brought-PART’.<sup>12</sup>

As in Nordösling, etymological velar fricatives (WGmc +[y x]) in the region in and around Burg-Reuland in East Belgium in the province of Liège (Lüttich) have been consistently replaced with their fronted counterparts.

The data in (44) from [Hecker \(1972\)](#) are representative for the area around Burg-Reuland; see also [Cajot & Beckers \(1979: 197\)](#). As shown in (44a), historical +[y] underwent nonassimilatory velar fronting to [j] (=[[j]]) in word-initial position (Stage 2e). In the context between sonorants, original +[y] likewise shifted to [j] after a front vowel (in 44b), but – more significantly – the same change took place after any back vowel (in 44c). The same generalization holds for historical +[x], which now surfaces as the corresponding alveolopalatal fricative [ç] (=[[š]]). The change from +[x] to [ç] occurred in the context after a front vowel (in 44d), but also after any back vowel (in 44e). The data in (44f) show that an original +[y] in the context after a back vowel and before another vowel is alveolopalatal [ç] and not [j], and the items in (44g) indicate that an original fortis velar stop is now [ç] even though a back vowel precedes that sound. The words in (44h) contain a historical +[ʃ], which merged together with historical [y x] to alveolopalatal [ç].<sup>13</sup>

(44) Alveolopalatal/palatal fricatives in Burg-Reuland:

a.	ju:t	[ju:t]	gut	‘good’	65
	je:l	[je:l]	gelb	‘yellow’	97

<sup>12</sup>In fact, some of the maps in LSA suggest that nonassimilatory velar fronting is attested outside of Nordösling. For example, Map 25 for *Nacht* ‘night’ indicates that the realization as [nuəçt] is attested throughout Central Lxm.

<sup>13</sup>The data in [Hecker \(1972\)](#) reveal that many instances of historical velar fricatives deleted, but I do not consider those examples here. The diacritic [[ ]] in some of the items listed in the first column of (44) represents a distinct tonal contour which I ignore in my transcriptions in the second column. The phonemic front vowels of Burg-Reuland are /i e ε æ/ and the phonemic back vowels /u o ɔ a/. Those eight vowels surface as short or long. There are a few gaps (e.g. no example was found with [j] after a nonhigh front vowel and another vowel), but they are not deemed significant.

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jra:s	[jra:s]	Gras	‘grass’	65
b. fli:je	[fli:jə]	fliegen	‘fly.INF’	65
c. plɔ:je	[plɔ:jə]	plagen	‘afflict.INF’	65
kla:je	[kla:jə]	klagen	‘complain-INN’	106
d. brä:še	[bræ:cə]	brechen	‘break.INF’	62
reš	[rec]	reich	‘rich’	62
e. flu:še	[flu:cə]	fluchen	‘curse.INF’	60
kɔ:še	[kɔ:cə]	kochen	‘cook.INF’	62
štɔ:še	[ʃtɔ:cə]	streichen	‘paint.INF’	118
oš	[oč]	auch	‘also’	62
ba:š	[ba:c]	Bach	‘stream’	62
f. do:še	[do:cə]	taugen	‘be good for sth.INF’	132
g. dreše	[dre:cə]	trocken	‘dry’	117
ba:še	[ba:cə]	backen	‘bake-INN’	104
h. šlanj	[clanj]	Schlange	‘snake’	39
fläš	[flæč]	Flasche	‘bottle’	62
bi:št	[bi:ct]	Bürste	‘brush’	82
touše	[tou:cə]	tauschen	‘exchange-INN’	115

Unlike the alveolopalatalizing dialects discussed in Chapter 10 there are no alternations between [x] and [ç] in Burg-Reuland which would motivate a synchronic rule neutralizing the contrast between /x/ and /ç/. The reason for this gap is that Burg-Reuland has no /x/.

The pattern for the MFr variety of Burg-Reuland depicted in (44) stands in contrast with the system of velars and (alveolo)palatals in neighboring Rpn varieties of East Belgium discussed in Hecker (1972), e.g. Elsenborn, Wallerode, Recht, St. Vith, Manderfeld (=Hecker 1972 on Map 5.1). Consider the data in (45) from Elsenborn, ca. 20 km north of Burg-Reuland:

## (45) Alveolopalatal/palatal and velar fricatives in Elsenborn:

a. brä:še	[bræ:cə]	brechen	‘break.INF’	62
riš	[rič]	reich	‘rich’	62
b. fluxe	[fluxə]	fluchen	‘curse.INF’	60
kɔ:xe	[kɔxə]	kochen	‘cook.INF’	62
ba:x	[ba:x]	Bach	‘stream’	62
c. maxen	[maxə]	machen	‘do-INN’	61
mešt	[mečt]	macht	‘does-3SG’	61

## 14.5 Nonassimilatory velar fronting in Nordösling

These data reveal that Elsenborn retains historical velars after back vowels. Hecker (1972) points out that the areas of East Belgium north of Burg-Reuland now have alternations involving [x] and [ç] as in (45c) which motivate a synchronic process of velar fronting (as in Schlebusch; §10.3.1).

An examination of the maps in the fourth volume of MRhSA indicates that the two German villages Lützkampen and Dahnen exhibit a pattern that is essentially the same as the one in (44) for Burg-Reuland. Both of those villages fall into the broad alveolopalatalizing region; hence, historical [ç] is now [ç]. That change occurred after coronal sonorants – evident in the maps for *ich* ‘I’ and *Kirche* ‘church’ – but most significantly after historically back vowels. Etymological +[y] likewise underwent velar fronting to palatal [j] after a sonorant and before a vowel or to alveolopalatal [ç] in the coda even after back vowels. The data in (46) have been drawn from MRhSA. They have in common that the change from +[y] to [j]/[ç] occurred after back vowels.<sup>14</sup> As in Nordösling, the modern reflex of WGmc +[y] in Lützkampen and Dahnen is [g].

(46) Alveolopalatal/palatal fricatives in Lützkampen (in a) and Dahnen (in b):

- |    |          |       |         |         |
|----|----------|-------|---------|---------|
| a. | [βɔʃ]    | Waage | ‘scale’ | Map 384 |
|    | [kvɔjəl] | Kugel | ‘ball’  | Map 387 |
| b. | [blvʃ]   | Pflug | ‘plow’  | Map 392 |
|    | [na:ʃd]  | Nacht | ‘night’ | Map 338 |
|    | [lv:ʃd]  | Luft  | ‘air’   | Map 399 |

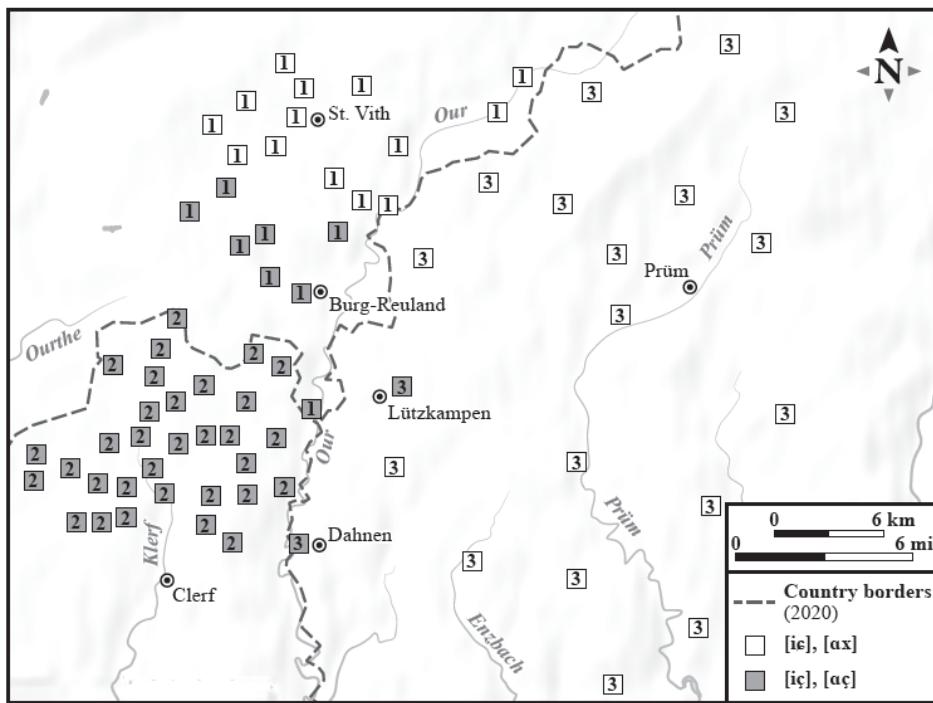
The risk of drawing conclusions solely on the basis of a sparse set of examples drawn from a linguistic atlas is that the maps might not reflect deeper generalizations concerning the dialect as a whole. Nevertheless, on the basis of the data in MRhSA and the close proximity of Lützkampen and Dahnen to Nordösling and Burg-Reuland, I assume – unless evidence can be adduced to the contrary – that the two German villages in question have no velar fricatives.

Map 14.4 contrasts assimilatory vs. nonassimilatory velar fronting in the places discussed in the present section. The markers in Belgium correspond to the towns and villages indicated on the map in Hecker (1972: 146) showing the realization of /x/ as /x/ or /ç/ (= [š]) in *machen* ‘do-INF’, and the ones in Luxembourg are the locations of the informants for LSA (Belegorte) which are in the Nordösling region described by Bruch (1952). The markers in Germany are the ones indicated in MRhSA (Belegorte).

---

<sup>14</sup>I have simplified the phonetic representations in (46) from the original source by ignoring diacritics capturing low-level phonetic detail (half-length in vowels, slight aspiration in fortis stops) and tone contours. The sound [ʃ] is the alveolopalatal sibilant I transcribe as [ç].

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Map 14.4: Luxembourg (Nordösling), East Belgium, and West Central Germany (Rhineland-Palatinate). Shaded squares indicate nonassimilatory velar fronting and white squares assimilatory velar fronting (alveolo-palatalization). 1=Hecker (1972), 2=LSA, 3=MRhSA.

The detailed descriptions cited above for Nordösling and Burg-Reuland are the only ones uncovered in the present survey possessing (alveolo)palatal fricatives but no corresponding velars. The data from MRhSA for Lützkampen/Dahnen suggests that the same generalization is also true for those places. What is more, since closely related varieties of German spoken in the same area display the unmarked assimilatory pattern of (alveolo)palatals after front vowels and velars after back vowels (=Stage 2c/2d), the inescapable conclusion is that Nordösling, Burg-Reuland, and Lützkampen/Dahnen – indicated on Map 14.4 with lightly shaded squares – exhibited the loss of velar fronting (§14.6.3).

## 14.6 Discussion

I turn to several unresolved issues. First, I consider and reject a possible alternative treatment to the one presupposed in the present chapter (§14.6.1). Second, I

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discuss the status of the nonassimilatory changes in (4) and (22) as synchronic rules (§14.6.2). Third, I discuss the topic of rule loss in light of the Nordösling/Burg-Reuland/Lützkampen/Dahnen data presented above (§14.6.3). Finally, I provide further remarks on accounting for unattested Trigger Types (§14.6.4).

### 14.6.1 Alternative approach

This chapter asserts that the fronting of velars in the neighborhood of one or more back vowel by (4) and (27) is nonassimilatory because back vowels do not bear the frontness feature ([coronal]). One could alternatively argue that the basic premise is incorrect and that the back vowels inducing fronting are marked phonologically for the frontness feature, in which case velars would be expected to surface as palatals in the neighborhood of those vowels. It is demonstrated below that an alternative analysis along these lines is flawed.

I apply the alternative analysis to Schlebusch (=13), which is exemplifies the change from an original velar to palatal in word-initial position before any kind of sound (=4). I focus on Schlebusch, although the same argument can be extended to any of the other dialects listed in Table 14.2.

The alternative analysis for Schlebusch is depicted in (47) and (48). To the right of the wedge in (47) I give the phonetic representation for three words from (13). To the left of the wedge I give the reconstructed example with [y] or [j] at the point before WGmc <sup>+</sup>[y] shifted to palatal [j] before a back vowel (=Stage 2d). Front vowels like /ɛ/ and liquids like /l/ are simplex [coronal] sounds, as indicated below. Since a velar fronts to palatal before any back vowel, all back vowels must be analyzed as phonologically coronal. This treatment might be plausible if back vowels are phonetically (and phonologically) central, which might translate into a treatment whereby vowels like /a/ are complex (=[coronal, dorsal]), as in (47c). Given the features in (47), rule (48) is triggered by all coronal sonorants; hence, that rule is assimilatory and (4) never occurred at all.

- (47) a.  ${}^+[\text{j}ɛl] > [\text{j}ɛl]$       /ɛ/      = [coronal]      ‘yellow’  
       b.  ${}^+[\text{jlat}] > [\text{jlat}]$       /l/      = [coronal]      ‘smooth’  
       c.  ${}^+[\text{yas}] > [\text{jas}]$       /a/      = [coronal, dorsal]      ‘guest’

- (48) velar > palatal / <sub>wd</sub> [ \_\_\_\_ [coronal, +sonorant]

The problem with analyzing all back vowels (/u u: o o: ɔ ɔ: a a:/) phonologically as coronal is that those same back vowels do not trigger the fronting of a following velar. For example, as noted earlier in §10.3.1, Schlebusch /x y/ both undergo assimilatory fronting after front vowels (Velar Fronting-1), thereby accounting

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for alternating forms like [ruxə]~[ryç] ‘smell-INF~smell-3SG’. Velar Fronting-1 affects /x/ after any coronal sonorant; hence, the /x/ in the word [ruxə] (/ruxə/) fails to undergo it because the vowel /u/ is back and hence not [coronal]. If the vowels /u u: o o: ɔ ɔ: a a:/ are phonologically [coronal] to account for the fronting of a velar preceding that sound, then one would incorrectly expect a velar after that sound to be fronted as well.

The upshot is that the alternative analysis described above cannot work for the dialects in Table 14.2. I do not discuss any of the dialects illustrating the changes depicted in (27) for postsonorant position, but potential problems arise in those varieties where <sup>+</sup>[y] and <sup>+</sup>[x]/ <sup>+</sup>[k] do not behave in a consistent manner in the context after back vowels.

### 14.6.2 Status of nonassimilatory velar fronting in the synchronic phonology

Stress in this chapter has been placed on the historical nonassimilatory process of fronting, both word-initially and after a sonorant. One question not discussed earlier is the status of the nonassimilatory fronting of velars in the synchronic grammar. Two positions suggest themselves here, which I refer to below as Analysis A and Analysis B. For Analysis A, the nonassimilatory fronting of velars restructured underlying representations and hence that change is no longer present in the synchronic grammar. By contrast, for Analysis B the nonassimilatory change in question did not alter underlying representations but instead remains active in the grammar as a synchronic process.

As I point out below, Analysis B in its strongest form cannot be correct for the change from an assimilatory process fronting velars to one of the nonassimilatory changes in (4) or (27). However, there is good reason for believing that a variant of Analysis B holds for the initial (assimilatory) stages of velar fronting. To illustrate that point I consider as a representative example data in (49) for velar fronting in word-initial position in the Wph variety of Elspe described by Arens (1908); recall §7.2. The example discussed here concerns a change in the set of triggers, but the same point holds for a change in the set of target segments.

- |      |   |         |
|------|---|---------|
| (49) | a. [çelt] /xelt/ < <sup>+</sup> [çəlt] /xəlt/     | ‘money’ |
|      | b. [çreat] /xreat/ < <sup>+</sup> [xreat] /xreət/ | ‘large’ |
|      | c. [xɔlt] /xɔlt/ < <sup>+</sup> [xɔlt] /xɔlt/     | ‘gold’  |

The phonetic representations in the first column of (49) are the ones representing Elspe in 1908. Since there was no contrast between [ç] in [x] in word-initial

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position at that stage, those two sounds derive from /x/. The set of triggers for velar fronting (word-initial) in 1908 subsumed high, mid and low front vowels as well as coronal sonorant consonants (=Stage 2d). The immediately preceding stage could be either Stage 2c (high front vowels, mid front vowels or coronal consonants) or Stage 2c' (high, mid or low front vowels). I assume the latter, although the choice between the two is not crucial. The phonetic representations for the three examples are reconstructed for Stage 2c'. The crucial example is the one in (49b): At Stage 2c' the set of triggers for word-initial velar fronting consisted of all front vowels, but not the consonants. The important point is that the change from Stage 2c' to Stage 2d did not involve a change in underlying representations. In (49a), (49c) – and crucially (49c) – /x/ is simply inherited without change. Rule generalization therefore describes the relationship between a synchronic process at one stage with the same synchronic process at the next stage.

A treatment like the one in (49) for nonassimilatory velar fronting fails in those places where velars and palatals contrast, e.g. in the CHes variety spoken in Wissenbach (Kroh 1915) from (34). In that dataset it was demonstrated that WGmc <sup>+</sup>[y] shifted to [j] after nonlow back vowels deriving historically from nonlow back vowels (=27b), e.g. [bɔ:jə] ‘bow’ (< pre-CHes <sup>+</sup>[bɔ:yə]; cf. MHG *boge*). According to Analysis B, (27b) did not alter underlying representations; hence, a pre-CHes underlying representation like /bɔ:yə/ was also present in the dialect as it was described in 1915 as /bɔ:yə/, in which case (27b) applied as a synchronic process. Analysis B fails for the Wissenbach variety because (27b) incorrectly applies to the /y/ after [ɔ:] (< [a]), e.g. [mɔ:yə] (/mɔ:yə/) ‘stomach’ (=34d).

In some of those varieties where velars and palatals never contrast, Analysis B can be shown to be highly questionable at best. Consider as a representative example the Stage 2e''' variety of Nordösling (from 43). In that dataset it was shown that WGmc velars (<sup>+[x y k]</sup>) are realized as palatal in postsonorant position (=27c). The phonetic representation in the first column of (50a) is the pronunciation described in the original source (Bruch 1952). Given the rule generalization approach described above, the nonassimilatory stages (Stage 2e''' < Stage 2e'' < Stage 2e') were preceded by a stage in which velars front in an assimilatory manner after coronal sonorants (=Stage 2d). The examples in the first column of (50a) are reconstructed to the right of the wedge as a Stage 2d dialect. Since the set of triggers subsume front sounds, the synchronic rule referred to here is an assimilation spreading the frontness feature [coronal] (Velar Fronting-1). According to Analysis A, Velar Fronting-1 was active until (27c) altered /x y/ in postsonorant position to /ç j/. Significantly, Alternative A implies that the restructuring of underlying representations to palatals led to the loss of the earlier rule of Velar Fronting-1. Consider now Alternative B, which is sketched in

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(50b). According to that treatment, (22c) did not alter underlying representations; hence, /x y/ are inherited into the dialect as it was described in 1952 with /x y/. Alternative B does not necessitate rule loss; instead, it involves the reanalysis of a rule of assimilation triggered by coronal sonorants (Velar Fronting-1) to a nonassimilatory change which applies synchronically after any type of segment (=27c).

- (50) a. Analysis A for Nordösling:

[a:çt] /a:çt/ <	<sup>+</sup> [a:xt] /a:xt/	'eight'
[ʃpe:çt] /ʃpe:çt/ <	<sup>+</sup> [ʃpe:çt] /ʃpe:xt/	'woodpecker'
[fujəl] /fujəl/ <	<sup>+</sup> [fuyəl] /fuyəl/	'bird'
[lɛ:jən] /lɛ:jən/ <	<sup>+</sup> [lɛ:jən] /lɛ:yən/	'place-INF'

- b. Analysis B for Nordösling:

[a:çt] /a:xt/ <	<sup>+</sup> [a:xt] /a:xt/	'eight'
[ʃpe:çt] /ʃpe:xt/ <	<sup>+</sup> [ʃpe:çt] /ʃpe:xt/	'woodpecker'
[fuyəl] /fuyəl/ <	<sup>+</sup> [fuyəl] /fuyəl/	'bird'
[lɛ:yən] /lɛ:yən/ <	<sup>+</sup> [lɛ:yən] /lɛ:yən/	'place-INF'

It is important to stress that Nordösling possesses neither [x] nor [y]. If Analysis B were adopted then the question is why speakers would continue to analyze the palatal in words like [a:çt] 'eight' as a sound they do not have, i.e. /x/. Put differently: How are language learners not knowledgeable about the history of the Nordösling variety able to deduce that an underlying representation for words like [a:çt] is /a:xt/ (as per Analysis B) and not /a:çt/?

The weakness described above for Analysis B holds for those dialects which no longer possess the surface velars in question, but it is not clear what the status is of the nonassimilatory changes in (4) and (27) in those varieties which do possess the corresponding velars. Consider as a representative example the Wph variety Kreis Lippe (=14). One could make a case that word-initial [ç] in the items like [çaus] 'goose' is underlyingly /x/ – as per Analysis B – and that (4) is active synchronically, thereby deriving [ç]. That type of treatment is not subject to the criticisms described in the preceding paragraph for Nordösling because Kreis Lippe does possess the velar in question (i.e. [x] /x/) in postsonorant position, e.g. [daxt] 'wick' (§7.2).

The assumption made in the present book is that the nonassimilatory changes in (4) and (27) altered underlying representations, as in Analysis A. I contend that this is the correct treatment even for dialects like Kreis Lippe, although I concede that an Analysis B-type treatment for that type of dialect may work technically.

## 14.6 Discussion

### 14.6.3 Rule loss

As indicated in (50a), the present-day Nordösling system in (43) possesses two phonemic palatals (/ç j/) and since the corresponding velars – underlying /x y/ and surface [x y] – are absent, the dialect cannot have a synchronic process of velar fronting. However, related varieties of Lxm (Gilles 1999) possess an assimilatory version of that rule (Velar Fronting-1; §10.3.2). The implication is that Nordösling once had the same system as Lxm, as illustrated to the right of the wedge in (50a). The nonassimilatory change in (27c) affected underlying representations in Nordösling, in which case the originally synchronic rule of fronting which continues to be active in Lxm (Velar Fronting-1) was lost. I consider briefly the way in which the Nordösling variety bears the issue of rule loss in historical phonology. Recall that the facts of Nordösling are mirrored in the closely related MFr variety of Burg-Reuland spoken in the southeastern tip of Belgium and Lützkampen/Dahnen in West Central Germany.

The change in (50a) involves the replacement of every /y/ with /j/ and every /x/ with /ç/ – changes accomplished by (27c), which restructured underlying representations. I interpret this change as a generational one: The earlier generation of speakers had underlying representations like /lɛ:yən/ ‘place-INF’ and /fuyəl/ ‘bird’, which were then restructured by a later generation as /lɛ:jən/ and /fujəl/. That new generation of innovative speakers represents the informants in Bruch (1952).

Rule loss has been discussed for a number of years in the framework of generative grammar (e.g. King 1969, Hock 1986, Ringe & Eska 2013). One topic discussed in that earlier literature concerns itself with the location of rule loss as a stage in the life cycle of a rule (§2.5). A number of linguists cited in that section argued that rule loss is the endpoint in a long series of stages, whereby loss only occurs after a rule has become morphologized and then lexicalized. In a synthesis of much of the previous work on the life cycle of a rule, Hyman (2013) gives the following stages:<sup>15</sup>

- (51) phonetic > phonologized > phonemicized > morphologized > lexicalized  
      > loss

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<sup>15</sup>Hyman defines “morphologization” as the loss of a phonological condition on an alternation, while “lexicalization” means that specific morphemes have to be marked as undergoing or not undergoing an alternation. It is not clear how morphologization translates into the present model, and hence I eschew that term below. To the best of my knowledge there is no variety of German in which velar fronting has been lexicalized.

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However, there is no evidence from Nordösling – or Burg-Reuland/Lützkampen/Dahnen – for a phonemicized stage (i.e. one with phonemic palatals) or a lexicalized version of velar fronting. Instead, the facts point to a situation in which an allophonic rule (Velar Fronting-1) – presumably Hyman’s phonologized stage in (51) – is simply lost without any intermediate stage. What is more, the nonassimilatory change in (27c) appears to have been abrupt in the sense that every velar was replaced with the corresponding palatal at the same time. No evidence can be found in the original source for lexical diffusion. The interpretation of rule loss as an abrupt change is similar to the treatment of the loss of schwa apocope in Yiddish proposed by Ringe & Eska (2013) but is inconsistent with the analysis of the loss of final devoicing in Yiddish as lexically gradual endorsed by Hock (1986: 268–269).

### 14.6.4 Accounting for unattested trigger types

The approach to rule generalization adopted here presupposes that the nonassimilatory changes in (4) and (27) can only become active after velars have been fronted assimilatorily by the stages in Table 14.1. That assumption – a nonassimilatory change follows an assimilation – accounts for the two unattested Trigger Types listed in Table 14.6.

Table 14.6: Unattested Trigger Types for the fronting of velars

Type	Trigger	Present in context for fronting
G	BV	FV, CC
H	BV, CC	FV

The reason Trigger Type G represents an unattested system is that fronting cannot begin as a nonassimilatory change by being conditioned solely by back vowels. Instead, the change begins as an assimilation in a specific context conducive to fronting (FV). The change from velar to palatal could therefore not have begun applying before back vowels because that context does not involve an assimilation. A similar explanation holds for the absence of Trigger Type H, in which the context most conducive to velar fronting (FV) is absent, while the one least conducive to fronting (BV) is.

No dialect of German has been discovered in the present survey in which either (4) or (27) have any of the Trigger Types listed in Table 14.7:

In a hypothetical dialect with Trigger Type R', a velar fronts to palatal in the context of a mid back vowel, but not before a high back vowel. Trigger Type S'

## 14.6 Discussion

Table 14.7: Unattested Trigger Types involving vocalic triggers

Type	Trigger	Present in context for fronting
R'	MBV	HBV
S'	LBV	HBV, MBV
T'	HBV, LBV	MBV
U'	MBV, LBV	HBV

represents a system involving the shift from velar to palatal in the context of a low back vowel, but fronting is not induced by mid or high back vowels. Trigger Type T' and U' only include a subset of back vowels as triggers.<sup>16</sup>

Significantly, the nonoccurring Trigger Types listed in Table 14.7 are parallel to the ones discussed in Table 12.31. For example, no dialect is attested in which mid front vowels but not high front vowels trigger fronting, nor are dialects attested in which only low front vowels but not high or mid front vowels condition the rule. Those earlier gaps were accounted for by appealing to the Implicational Universal for Palatalization Triggers, which is repeated in (52). If (52) is rephrased as in (53), the gaps in Table 14.8 can be accounted for.

- (52) IMPLICATIONAL UNIVERSAL FOR PALATALIZATION TRIGGERS:  
If lower front vowels trigger palatalization, then so will higher front vowels.
- (53) IMPLICATIONAL UNIVERSAL FOR PALATALIZATION TRIGGERS (revised):  
If lower vowels trigger palatalization, then so will higher vowels.

The status of (53) for non-Gmc languages is unclear because the typological studies cited earlier (Chen 1973, Bhat 1978, Bateman 2007, 2011, Kochetov

<sup>16</sup>There are dialects known to me which apparently represent Trigger Type R' and Trigger Type S'. One source (Weber 1959; Map 7.1) for an EHe variety provides a large selection of data pointing to Trigger Type R'. Krafft (1969) and Post (1985: 29) make the same observation for the related EHe varieties of Schlitzerland and Bad Salzschlirf. The facts (from Weber 1959) are drawn from a number of cities and towns in a broad region (Werra-Fuldaraum): [ç] surfaces after all front vowels, coronal consonants, and the diphthong [œ] and [x] after all back sounds with the exception of [ɔ], e.g. [lɪçt] 'light', [tsɔɪçt] 'breeding', [nɔqçt] 'night' vs. [ho:x] 'high', [kɔxə] 'cake', [gɔru:x]/[gərɔx]/[grɔx] 'smell'. The diphthong in examples like [nɔqçt] derives from etymological [ɑ]. In §5.2 I discussed similar examples from Weidenhausen (CFr) and argued that the original back vowel underwent a change to a diphthong ending in a front vowel, which then triggered the change from velar to palatal. I hold that the same explanation holds for the data in Weber (1959), and probably Krafft (1969) and Post (1985) as well.

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2011) do not discuss nonassimilatory velar palatalization (velar fronting).<sup>17</sup>

### 14.7 Connection between word-initial and postsonorant velar fronting

In many dialects investigated above velar fronting is active after a sonorant and word-initially. However, it is important to stress that the two rules are not always mirror-images of one another because they can differ in terms of the factors identified earlier (targets, triggers, opacity). That the triggers and targets for word-initial velar fronting and postsonorant velar fronting for any one dialect are not always the same can be ascertained by comparing those targets and triggers in some of the tables presented in Chapter 12. Likewise the presence vs. absence of opacity need not be identical in word-initial and postsonorant position. To cite one example, in Dorste (§4.4) the palatal quasi-phoneme /j/ occurs word-initially before schwa, but [j] in postsonorant position (from /y/) is an allophone which only surfaces after a coronal sonorant. Finally, there is the case of Neuendorf (§8.5), in which an underlying palatal undergoes retraction to velar in the context of back vowels in word-initial position, while an underlying velar surfaces as a palatal after coronal sonorants. What all of these examples suggest is that the rules relating velars and palatals word-initially and after a sonorant in any given dialect are independent from one another and can therefore have a life of their own.

A question not discussed above is whether or not a correlation holds between the presence or absence of velar fronting word-initially and after a sonorant. Given the two variables “word-initially” and “after a sonorant” four logical types of dialect obtain (Table 14.8). As indicated there, Type AAA are those varieties with some version of velar fronting in word-initial position but not in postsonorant position, while Type BBB indicates the mirror-image. Type CCC represents dialects alluded to in the preceding paragraph with some version of velar fronting in both contexts, and Type DDD are those dialects with no version of velar fronting.

The present survey shows that Types BBB and CCC are robustly attested. The same can be said for Type DDD, although I have only made sporadic reference

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<sup>17</sup>Bateman (2007: 64) recognizes the existence of palatalizations triggered by high back vowels (/u/), but languages with that change raise an alveolar (e.g. /s/) to a postalveolar ([ʃ]) in the context of high vowels only (i.e. /i/ and /u/). That type of change therefore entails the assimilation of a height feature, which is very different from velar fronting as discussed in the present chapter. Bateman (2007) has no examples involving the fronting of velar in the context of all back vowels.

#### 14.7 Connection between word-initial and postsonorant velar fronting

Table 14.8: Four types of dialect

Type	Description	Dialects attested
AAA	Word-initially only	0
BBB	After a sonorant only	many
CCC	Word-initially and after a sonorant	many
DDD	-----	many

to those non-velar fronting varieties without attempting to compile a more exhaustive list. The most significant finding in the present study is that Type AAA is not attested.<sup>18</sup>

Two interpretations for the absence of Type AAA suggest themselves: First, one could argue that Type AAA represents a systematic gap, in which case such dialects would be considered impossible. Second, the gap could be accidental, meaning that Type AAA – although clearly dispreferred in German – could in principle occur. I adopt the second interpretation.

The analysis adopted here is consistent with the fact that there is no phonetic and/or phonological reason why a dialect could not have velar fronting in word-initial position but lack that process in postsonorant position. In languages other than German that type of example should be attested, and in fact this is precisely the case in Afrikaans (Appendix 1). I see unattested Type AAA German dialects as a consequence of the history of velar fronting in German: I argue in Chapter 16 that velar fronting was first phonologized in the postsonorant context and was later extended to the word-initial environment in some dialects (Type CCC) but not others (Type BBB). Phonologization of velar fronting in the postsonorant consonant occurred throughout a very large area (virtually all of Germany and most of Austria), while word-initial velar fronting occurred in that broad region only in North and Central Germany. Significantly, those areas of North and Central Germany that developed word-initial velar fronting already had velar fronting in postsonorant position. Given that historical progression the absence of Type AAA dialects can be thought of as a historical accident. However, the present book has uncovered a number of dialects that exhibit highly marked patterns,

<sup>18</sup>The careful reader may have observed that two varieties were referred to in §12.3 with word-initial velar fronting, but those same varieties were not discussed in the postsonorant context, namely Kirchspiel Courl (Wph) and Reinhause (Eph). However, the sources for those dialects (Beisenherz 1907 and Jungandreas 1926, 1927 respectively) are clear that velar fronting is also active in postsonorant position.

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e.g. nonheight features as triggers (§12.7); hence, it would not be inconceivable that there is a marked variety yet undiscovered in which velar fronting is not active at all for many speakers (Type DDD), although some innovative speakers in that same area phonologized velar fronting in word-initial position only (Type AAA).<sup>19</sup>

### 14.8 Conclusion

In the present chapter I investigated processes of velar fronting in word-initial position and in postsonorant position which are not assimilatory. The claim defended above is that the nonassimilatory fronting of velars can only occur from the historical perspective after the assimilatory fronting of velars. Support for my hypothesis can be found not only in the patterning of dorsal fricatives one finds in German dialects, but also in the unattested patterns.

The survey of velar fronting in German dialects is nearly complete. In the following chapter I consider velar fronting in MoStGm and address some of the controversial issues that have been discussed in the published literature. It will be seen that the facts involving velar fronting in German dialects can shed light on some of these controversial questions.

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<sup>19</sup>The same typology in Table 14.8 can be observed for velar fronting islands. In particular, Type AAA is not attested in that region in the sources I have consulted. Given my interpretation of Type AAA as an accidental gap one might expect a SwGm/Tyrolean variety to display that pattern.

# 15 Velar fronting islands

## 15.1 Introduction

By definition, a velar fronting island is a velar fronting place surrounded by areas in which velar fronting is absent. Two types can be distinguished. First, a velar fronting dialect of German might be attested in a German-language island. German-language islands are communities of German speakers encircled by communities speaking a different language (Wiesinger 1983a, Putnam 2011). Second, a (German) velar fronting island may be observable in a country where German is the dominant language. This is the case when the velar fronting variety of German is bounded by other varieties of German without velar fronting.

The purpose of this chapter is to document velar fronting islands known to me. For the first type I focus on some of those German-language islands in the areas to the east and south of modern-day German-speaking countries, namely the Czech Republic, Slovenia, and Northeast Italy. For the second type I consider specific places in Switzerland and Austria (Tyrol, Vorarlberg).

The velar fronting islands I discuss below can vary greatly in terms of size and robustness. On the one hand, certain islands are very small and might simply comprise a single village or town. On the other hand, some velar fronting islands are embedded in a large area with multiple villages and towns. Some of the dialects discussed below are either extinct or on the verge of extinction, while others are spoken by large numbers of speakers and show no signs at all of endangerment.

Velar fronting islands are important to document for more than one reason. First, they illustrate variation among some of the parameters discussed in previous chapters. Of those parameters, the one involving velar fronting triggers plays the most significant role below. A closer examination of those triggers reveals that they can consist of either all coronal sonorants – referred to earlier as the default pattern – or of some subset of the coronal sonorants. Since the enclaves discussed below phonologized velar fronting independently, it is precisely this type of variation that lends support to the historical stages proposed in Chapter 12. A surprising finding is that velar fronting is nonassimilatory (=Trigger Type F from Chapter 14) in several geographically distinct areas. Recall that that type

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of system, i.e. one with only palatals but no velars, is otherwise most robustly attested in Nordösling (Luxembourg) and in neighboring places in Germany and East Belgium (§14.5). A second reason for documenting velar fronting islands is to demonstrate that certain places possess patterns that are either rare or otherwise unattested. In the course of this chapter, I show that those patterns are compatible with the models adopted in this book.

It is important to clarify the nature of the data and sources I cite below. Some of those works give a large selection of data involving the distribution of velars and palatals that make it possible to precisely pinpoint the set of sounds that do and do not trigger the process. By contrast, other sources might give a prose statement indicating that velar fronting is present in a particular context and might (or might not) include only a small selection of data. Other sources – in particular, linguistic atlases – may give detailed maps indicating the geographic distribution of words with velars and palatals without giving any concrete examples.

It is not uncommon for two or more sources to describe the state of velar fronting in conflicting ways for the same place. For example, one source might state that a place (Town A) has no velar fronting at all, while another source might assert – either directly in a prose statement or indirectly with data – that (assimilatory) velar fronting is active for Town A, but another source might be clear that Town A has nonassimilatory velar fronting. These conflicting claims should not be surprising because it is not the case that any one place always has a single version of velar fronting for all speakers. A more realistic view is that the inconsistency among speakers indicates that in any given place – Town A in the hypothetical example given above – there are non-velar fronting speakers and two types of velar fronting speakers (assimilatory and nonassimilatory).<sup>1</sup>

The case studies investigated below are organized geographically. The first four sections concern themselves with velar fronting islands within German-language islands, namely Iglau and Libinsdorf in the Czech Republic (§15.2), Schön-hengst in the Czech Republic (§15.3), Giazza/Dreizehn Gemeinden in Northeast Italy (§15.4), and Gottschee in Slovenia (§15.5). §15.6 concerns itself with two velar fronting islands spoken in the Swiss canton of Grisons, namely Obersaxen and Vals. Since this chapter draws on data from the linguistic atlas of Switzerland (SDS) I devote §15.7 to a discussion and interpretation of the symbols for dorsal fricatives in that source. §15.8 evaluates the state of velar fronting in the

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<sup>1</sup>The situation I am describing is also documented in linguistic atlases. To cite one example, the informants for SSA for the town of Wangen im Allgäu had (assimilatory) velar fronting but the informants for that same place for VALTS did not (see Map 3.3).

## 15.2 Iglau and Libinsdorf

German-speaking region of the Swiss canton of Valais (Upper Valais) as well as in the neighboring German-language enclaves in Northwest Italy and the Swiss canton of Tessin. §15.9 documents velar fronting in the Southwest Bernese Oberland, §15.10 investigates the velar fronting islands in the isolated mountain valleys of Tyrol, and §15.11 concerns itself with velar fronting varieties in a large region consisting of East Switzerland, Liechtenstein, and Vorarlberg (Austria). In §15.12 I provide a summary of velar fronting islands and discuss the way in which they differ in terms of segments inducing the change.

### 15.2 Iglau and Libinsdorf

Libinsdorf (Czech: Karlov) is a small village in the Czech Republic situated about 116km southeast of Prague. The town was once a German-language island which was settled in 1789 by families from four North Bohemian villages. The German dialect of Libinsdorf is classified as USax-North Bohemian (Wiesinger 1983a: 915). According to the census of 1 December 1930, 20–50% of the populace of Libinsdorf was an ethnic German (SDA: Blatt 4).

The sound structure of the Libinsdorf dialect is described by Weinelt (1940). The data in that source indicate that palatal [ç] (=⟨χ⟩) occurs after any front vowel (=1a) or coronal sonorant consonant (=1c-e) and velar [x] (=⟨χ⟩) after any back vowel (=1b).<sup>2</sup>

(1) Dorsal fricatives in Libinsdorf:

a.	fiχtə	[fiçtə]	Fichte	‘spruce’	40
	lēχt	[le:çt]	liegt	‘lies-3SG’	38
	kēχin	[kεçin]	Köchin	‘cook-FEM’	41
	trēχtə	[trεçtə]	Trichter	‘funnel’	44
	laiχt	[laiçt]	leicht	‘easy’	39
	tswaiχ	[tswaiç]	Zweig	‘branch’	43
b.	pūχə	[pu:xə]	Buche	‘beech tree’	40
	tōx	[to:x]	Dach	‘roof’	37
	haxt	[haxt]	Hecht	‘pike’	41
	knāxt	[kna:xt]	Knecht	‘vassal’	37

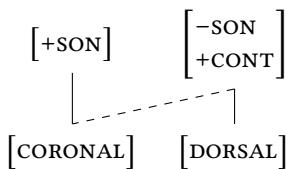
<sup>2</sup>Some of the examples in (1) indicate that the surface dorsal fricative corresponds to an orthographic g, e.g. [tswaiç] in (1a). No examples were found in Weinelt (1940) in which those examples are followed by a vowel-initial suffix (cf. MoStGm [tsvaik] ‘branch’ vs. [tsvaigə] ‘branches’); hence, it cannot be known whether or not the underlying representations of such words contain /χ/ or a lenis sound (e.g. /g/). The same comment holds for several other dialects posited in this chapter.

## 15 Velar fronting islands

pauxwī	[pauxwi:]	Bauchweh	'stomach ache'	39
c. khirχə	[kʰirçə]	Kirche	'church'	38
mırχl	[mɔrçl]	Morchsel	'morel'	38
štarχ	[ʃtarç]	Storch	'stork'	38
harχn	[harçŋ]	horchen	'hark-INF'	38
d. šelχ	[ʃelç]	schuldig	'guilty'	44
e. tsaumkhēnχ	[tsaumkʰe:nç]	Zaunkönig	'wren'	44

The patterning of velars and palatals in (1) is the default one described in previous chapters. Thus, velar fronting applies to any /χ/ after a coronal sonorant:

### (2) Velar Fronting-1:



The orthographic forms in (1d,e) indicate that the final vowel was elided by the historical process of Syncope (Chapter 7). No examples were found in Weinelt (1940) in which a dorsal fricative occurs after [l] or [n] without a historically syncopated vowel, e.g. MoStGm [zɔlç] 'such', [mançma:l] 'sometimes'.

Iglau (Czech: Jihlava) is a medium-sized Czech city about 114km southeast of Prague and 36km southwest of Libinsdorf; see Map 3.3. The area in and around Iglau once formed a sizable German-language island (Iglauer Sprachinsel), the largest city of which was Iglau. According to the census of 1 December 1930, 80–90% of the population of a large portion of the Iglauer Sprachinsel consisted of ethnic Germans (SDA: Blatt 4). The area was settled many centuries ago (between 1240 and 1260) by NBav speakers from the Upper Palatinate (Oberpfalz) and from ECGm speakers from the Erzgebirge region (Wiesinger 1983a: 909).

To the best of my knowledge, the most comprehensive source for the sound structure of the dialects once spoken in the towns of the Iglauer Sprachinsel is Stolle (1969). That work is a description of the historical changes affecting vowels in 39 villages and towns in the Iglauer Sprachinsel. Although the author does not explicitly discuss the distribution of the ich-Laut and the ach-Laut, it is clear from Stolle's phonetic transcriptions that those two sounds occur in all of the 39 places in his study (Belegorte). The basic generalization for the entire area is that [ç] (= [χ]) occurs after any front vowel (= 3a) and [x] (= [χ]) after any back vowel (= 3b). A number of words can be found in Stolle (1969) with dorsal fricatives

## 15.2 Iglau and Libinsdorf

in the context after liquids (=3c,d), which I discuss in greater detail below. The generalizations concerning the distribution of [ç] and [x] do not differ from place to place within the Iglauer Sprachinsel; hence, the data in (3) do not represent any one particular town. In the following discussion I therefore refer to all of the places in Stolle's study collectively as Iglau.<sup>3</sup>

## (3) Dorsal fricatives in Iglau:

a.	iχ	[iç]	ich	'I'	92
	giχt	[giçt]	Gicht	'gout'	46
	hēχt	[he:çt]	Hecht	'pike'	77
	štēχ	[ʃteç]	stechen	'sting-INF'	45
	štēχ	[ʃte:ç]	Steg	'footbridge'	45
	tāeχ	[ta:eç]	Teich	'pond'	133
b.	nōxt	[nɔxt]	Nacht	'night'	46
	pōx	[pɔ:x]	Bach	'stream'	45
	woxpn	[woxpn]	Wochen	'weeks'	46
	nōx	[no:x]	noch	'still'	79
	wāx	[wa:x]	weich	'soft'	153
	pāqx	[pa:çx]	Bauch	'stomach'	136
c.	pēprx	[pɛprx]	Berg	'mountain'	48
	dūprx	[dʊprx]	durch	'through'	48
	tswēprx	[tswɛprx]	Zwerg	'dwarf'	71
	lēprxj	[lɛprxj]	Lärche	'larch'	63
	kīprxj	[kīprxj]	Kirche	'church'	97
	fīprxt	[fīprxt]	fürchte	'fear-1SG'	105
d.	pīχ	[pi:l̥iç]	Bild	'picture'	96

I consider now the realization of /x/ after the rhotic (=3c) and the lateral (=3d) in that order.

The data in (3c) indicate that [x] consistently occurs after [r]. That realization is made explicit in his description of vocalic changes before /r/. For example, on p. 101 Stolle states that MHG /u/ surfaces throughout the entire dialect area as [uɔrx]. That realization [rx] is significant because of its rarity among German dialects. Although a large part of Lower Bavaria is attested with [rx] sequences

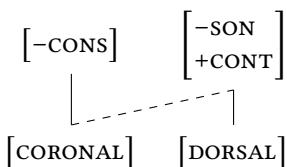
<sup>3</sup>Iglau is also worthy of note because the etymological diphthong [ei] underwent monophthongization to [a:], as in [wa:x] 'soft' in (3b), (cf. MHG *weich*). Iglau therefore illustrates the completely transparent distribution of [ç] and [x], in contrast to the CGm varieties discussed in Chapter 9, in which opaque [ç] surfaces in the same environment, e.g. Wissenbach [va:ç] 'soft'; recall §9.2.

## 15 Velar fronting islands

(Map 13.3), the unmarked realization of /x/ after [r] in velar fronting areas is undoubtedly [ç]; see Map 12.2, which shows the rarity of [rx]/[lx] sequences.

Words with a dorsal fricative preceded by the consonant [l] are rare in Iglau because that sound typically merges together with the preceding vowel by Liquid Vocalization (§3.5, §13.5.2), e.g. the item in (3d) surfaces elsewhere in Iglau as [py:ç]. The realization given in (3d) with the secondarily palatalized lateral (= [l̪]) represents two of the places in the north, namely Sehrenz and Langendorf. The occurrence of [x] after the rhotic and [ç] after the lateral suggests that the triggers for velar fronting must only include the latter but not the former. If so, the patterning of the ich-Laut and the ach-Laut in Iglau would be without precedent. I argue alternatively that the set of triggers for velar fronting throughout Iglau consists solely of front vocoids ([–consonantal, coronal]), as in (4):

### (4) Velar Fronting-13



Given the context expressed in (4), /x/ surfaces as palatal after /l/ in (3d) because the lateral is palatalized to [l̪] in coda position (l-Palatalization). As suggested by the phonetic transcription, [l̪] consists of a lateral component ([l]) and a vocalic component ([̪]). Since the latter is featurally [–consonantal, coronal], any /x/ following that sound must therefore undergo velar fronting. Put differently, l-Palatalization feeds velar fronting.

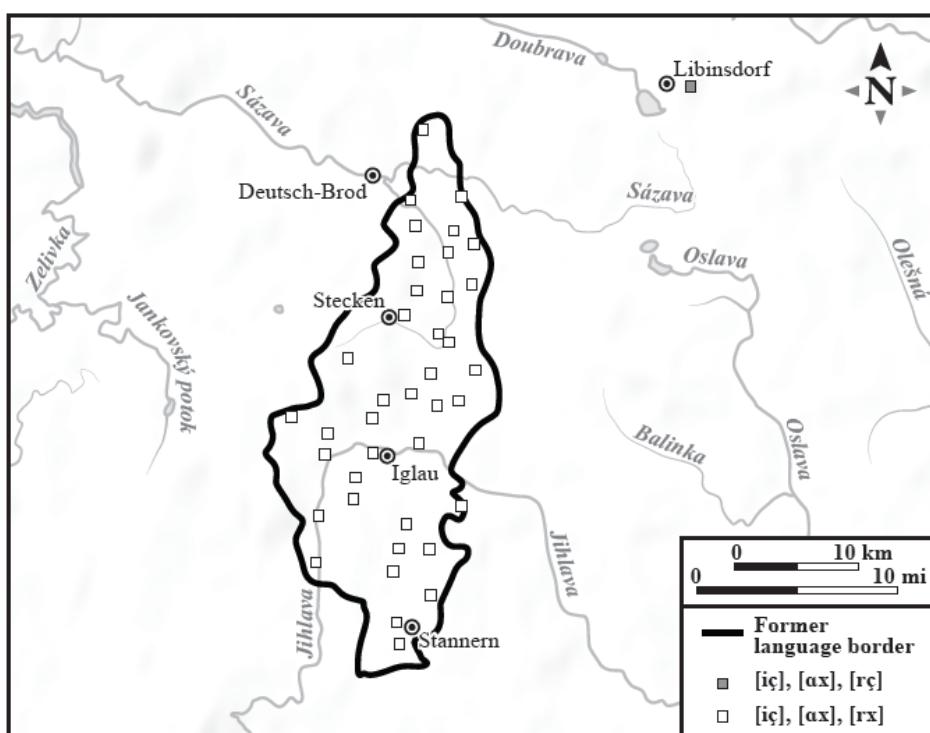
The realization of /x/ in the context after [r] in Libinsdorf and Iglau are depicted on Map 15.1:

Map 15.1 indicates the contrast between the unmarked pattern (represented by Libinsdorf) and the marked pattern (represented by 39 small places in Iglau). Those two contrastive patterns are expressed directly in Velar Fronting-1 (in 3) and Velar Fronting-13 (in 4).

## 15.3 Schönhengst

Up until 1945 the largest German-language island in the Czech Republic was the Schönhengster Sprachinsel in the Schönhengstgau (Czech *Hřebečsko*), a historical region in Bohemia and Moravia. I refer to the Schönhengster Sprachinsel henceforth simply as Schönhengst. As indicated on Map 5.2, Schönhengst was

## 15.3 Schönhengst

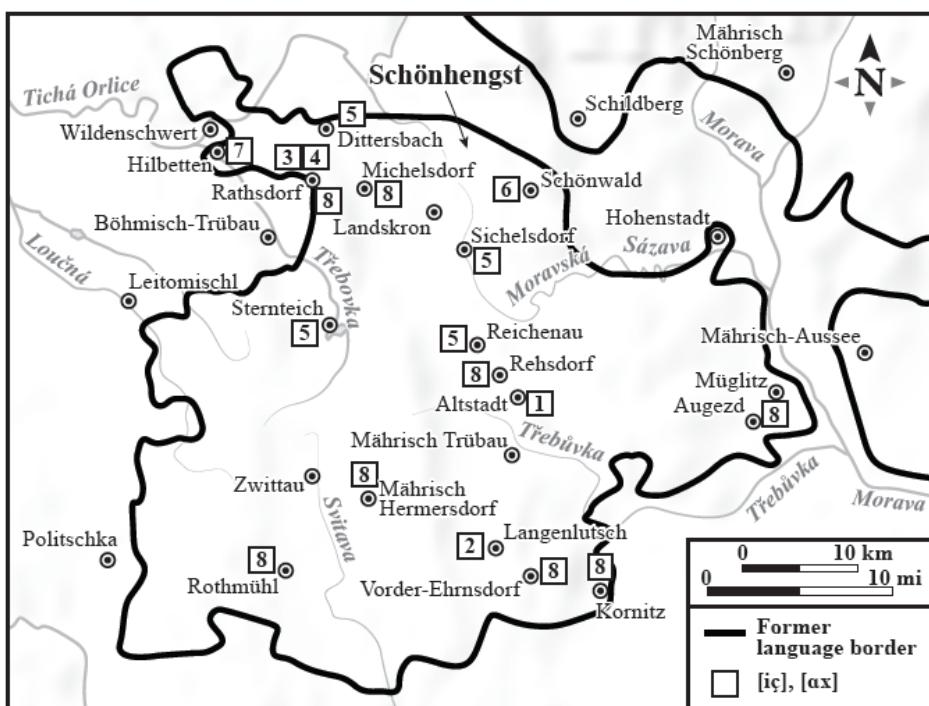


Map 15.1: Iglau and Libinsdorf. Squares indicate postsonorant velar fronting. The dark square (Weinelt 1940) indicates that velar fronting produces a palatal after [r], and the white squares (Stolle 1969) depict places where velar fronting fails to apply after [r]

situated in the modern-day Czech Republic, about 150km to the east of Prague. A close-up view of Schönhengst is depicted on Map 15.2, which shows that it was separated from the German-speaking areas in the former province of Silesia (Grafschaft Glatz) by a small strip of land populated by Czech-speaking people. The largest cities of Schönhengst were Zwittau (Svitavy), Mährisch Trübau (Moravská Třebová), and Landskron (Lanškroun). According to the census of 1 December 1930, 80–100% of the population of Schönhengst was an ethnic German (SDA: Blatt 4). Most of those people were forced to leave Schönhengst after 1945.

### Schönhengst

According to Wiesinger (1983a: 909) Schönhengst was settled over 800 years ago (between 1240 and 1290) by people coming primarily from the Upper East Franconia region (oberostfränkischer Raum), but also from Central Bavaria and

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Map 15.2: Schönhengst. Squares indicate some version of postsonorant velar fronting. 1=Seemüller (1908b), 2=Janiczek (1911), 3=Graebisch (1915), 4=Matzke (1918), 5=Sandbach (1922), 6=Weiser (1937), 7=Appel (1963), 8=Benesch (1979)

Silesia/North Moravia. The various German dialects represented in Schönhengst are depicted on Blatt 5 in SDA.

Several descriptions for the Schönhengst dialect(s) point to an area in which velar fronting was active. As I demonstrate below, those works also indicate that the towns and villages of Schönhengst differed from one another in terms of the segments that induced velar fronting; hence, Schönhengst contrasted with Igla, which was had a uniform rule of velar fronting (=4). In the remainder of this section I discuss the status of velar fronting in Schönhengst according to Janiczek (1911), Graebisch (1915), Seemüller (1908b), and Benesch (1979), all of which are indicated on Map 15.2.<sup>4</sup>

<sup>4</sup>That map also includes markers representing the following four works which only make passing reference to velar fronting: (a) Matzke (1918) provides a phonetically-transcribed text for the town of Rathsdorf. Although he does not transcribe dorsal fricatives with separate symbols,

## 15.3 Schönhengst

Janiczek (1911) investigates the vocalism in Langenlutsch, conveniently providing transcriptions with separate symbols for velar and palatal fricatives, namely [ç] (= [χ]) and [x] (= [x]). The data in (5a) show that the palatal surfaces after any front vowel, while the examples in (5b) demonstrate the occurrence of the velar after any back vowel.

## (5) Dorsal fricatives in Langenlutsch (Schönhengst):

a.	liχt	[liχt]	Licht	'light'	33
	knęχt	[knęχt]	Knecht	'vassal'	8
	aiχ	[aiχ]	ich	'I'	27
b.	kūx	[ku:x]	Koch	'cook'	28
	nōxt	[nōxt]	Nacht	'night'	29
	dōx	[do:x]	Dach	'roof'	28
	toxt	[tox]	Docht	'wick'	33
	braux	[braux]	Bruch	'fracture'	28
c.	štarx	[ʃtarəx]	stark	'strong'	41
	furx	[fʊrəx]	Furche	'furrow'	41
	khirx	[kʰɪrəx]	Kirche	'church'	41

Janiczek is clear that velar [x] also surfaces after [r], which is realized as the tongue-tip trill (p. 6); see (5c). In his discussion of vowels in the context after /r/ plus labial or velar consonants (p. 41) Janiczek notes that there is a 'weak epenthetic vowel' ["schwacher Sprossvokal"] between the rhotic and velar. He transcribes that vowel in some (but not in all) examples as [ɛ], which is his symbol for a short schwa ([ə]). Janiczek writes (p. 41) that the epenthetic vowel is present in the context between [r] and [x] even though he does not always include it in his phonetic transcriptions.

The data in (5) point to the common pattern whereby /x/ surfaces as palatal after any front vowel. The significance of Langenlutsch is that the epenthetic vowel

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he states that velars (gutturals) and palatals surface after back vowels and front vowels respectively (p. 44). (b) Appel (1963: 21) is clear that the ich-Laut and the ach-Laut are allophones of the same phoneme in Hilbetten, but he does not transcribe the difference between those two sounds with separate symbols. (c) In his study of the study of consonants and vowels in the Slavic dialects of North Moravia and the Adlergebirge, Weiser (1937) indicates on his Map 2 and Map 8 that the palatal fricative occurs after [ɛ] in Schönwald/Lichtenstein. (d) Sandbach (1922) is a study of place names in Schönhengst. That work provides phonetic transcriptions with separate symbols for velars and palatals and offers a short description of the phonetics of consonants and vowels. Map 15.2 indicates four of the place names in Sandbach (1922) with a palatal fricative after a front vowel ([i] and [e]), namely Sichelendorf (p. 8), Dittersbach (p. 16), Reichenau (p. 18), and Sternstein (p. 21).

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in (5c) is followed by velar [x] and not palatal [ç]. Recall from §5.4 that Schwa Epenthesis is very common among German dialects but that the overwhelming pattern is for the epenthetic vowel to be followed by the palatal fricative [ç]; see also §12.8.1. The palatal realization is a consequence of Schwa Fronting-2: /Vlx/ → |Vləx| → |Vləχ| → |Vləç|. The data in (5c) can be accounted for straightforwardly if Schwa Epenthesis but not Schwa Fronting-2 is active: /Vlx/ → [Vləx]. Langenlutsch is the only German dialect discovered in the present survey with an epenthetic vowel but without Schwa Fronting-2.

From the formal perspective, Velar Fronting-13 (=4) is active in Langenlutsch. Given that the set of triggers consists solely of front vowels, there is no interaction between that process and Schwa Fronting-2.

Graebisch (1915) gives a phonetically-transcribed text in the Rathsdorf dialect. Velars occur after back vowels (=6a), the vocalized-r (=6b), and palatals after front vowel (=6c).

### (6) Dorsal fricatives in Rathsdorf (Schönhengst):

a.	nochpr̥	[noxpr̥]	Nachbar	'neighbor'
	kɔchl	[kɔχl̩]	Küche	'kitchen'
	rachen	[raxən]	rechnen	'calculate-INF'
b.	kīəch	[ki:əç]	Kirche	'church'
c.	ích	[iç]	ich	'I'
	mécht	[meçt̩]	möchte	'would like-1 SG'

The interesting example is (6b), which indicates that r-Vocalization has applied (indicated as [əχ]) but not epenthesis (recall [kʰɪrəχ] from 5c). The occurrence of the palatal fricative after the vocalized-r is common throughout many of the areas discussed in previous chapters (including MoStGm). However, the realization of /x/ as [ç] after the vocalized-r is an anomaly in this particular region because other places in Schönhengst discussed below have [x] in that context. There are two options regarding the analysis of [ç] in (6b): (a) It is synchronically derived from /x/ on the basis of the /i/ preceding the vocalized-r (as in Lower Bavarian; §13.5.2), e.g. /ki:rəχ/ → |ki:əχ| → |ki:əç|; or (b) it is an underlying palatal /ç/, as in some of the dialects discussed in Chapter 7, as well as MoStGm (Chapter 17). Option (a) can be shown to be correct if [x] but not [ç] were to surface after the vocalized-r when preceded by a back vowel. No such examples were found in Graebisch (1915). From the formal perspective both Velar Fronting-1 (=2) and Velar Fronting-13 (=4) are compatible with either (a) or (b).

Seemüller (1908b) presents phonetically-transcribed texts for speakers from Altstadt. Some data from that work are listed in (7).

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## (7) Dorsal fricatives in Altstadt (Schönhengst):

a.	glaix	[glaiç]	gleich	'soon'
	gəšixt	[gəʃiçt]	Geschichte	'story'
	flęxtɒ	[fleçtɛ]	schlechter	'bad-INFL'
b.	khūχlęfl	[kʰu:xlɛfl]	Kochlöffel	'wooden spoon'
	nux	[nux]	nach	'after'
	toχtɒ	[toxtɛ]	Tochter	'daughter'
	mɔχŋj	[mɔχŋj]	machen	'do-INF'
c.	dudχs	[duəxs]	durchs	'through the'

The items listed above show that the palatal ([x]) surfaces after a front vowel and the velar ([χ]) after a back vowel. Altstadt differs from Langenlutsch in that /r/ is vocalized in the former (=7c), after which [x] surfaces (cf. 6b from Rathsdorf). The occurrence of [x] after the vocalized-r has been discussed earlier (e.g. §3.5, §4.3, §13.5.2). In short, the data in (7) are consistent with either Velar Fronting-1 (=2), which is bled by r-Vocalization in (7c), or Velar Fronting-13 (=4), which does not interact with r-Vocalization.

Benesch (1979) is without a doubt the most valuable source for velar fronting in Schönhengst. The book is devoted to the historical phonology of vowels and consonants (with separate symbols for velars and palatals). What is more, Benesch compares the sound structure of multiple places within Schönhengst, thereby providing a valuable source for how a rule type (velar fronting) can differ from place to place in a small area.

It is clear from the data provided by Benesch that all of the places within Schönhengst he discusses have some version of velar fronting (Benesch 1979: 144–145). The basic generalization is unsurprising: [ç] (= [χ]) occurs after front vowels and [x] (= [x]) after back vowels. In the context after a consonant the predominant pattern is for [x] to surface after the coronal rhotic [r] throughout the area with the exception of Mährisch Hermersdorf, which has [ç]. Benesch (p. 144) writes “Nach r erscheint gewöhnlich x, nur H. (Z.G.) neigt in diesem Falle zur χ-Lautung”. ['After r usually only x occurs, but in [Mährisch] Hermersdorf (the Zwittauer region) it ([x]) tends to be pronounced in this context as χ']. In (8) I give a representative selection of data in Benesch's transcription system with dorsal fricatives in the context after front vowels (=8a), back vowels (=8b), and [r] (=8c). The abbreviations in the six columns correspond to the six towns of Micheldorf (Mi), Mährisch Hermersdorf (H.), Vorder-Ehrnsdorf (E.), Augezd (A.), Kornitz (K.), and Rehsdorf (Re.). Micheldorf and Rehsdorf do not have dorsal fricatives after [r] because the latter sound is vocalized in coda position. As in Altstadt (=7c), /x/ surfaces as [x] after the vocalized-r in those two places, e.g. [khīəx] 'church'.

## 15 Velar fronting islands

- (8) Dorsal fricatives in six places in Schönhengst:

	Mi.	H.	E.	A.	Ko.	Re.
a. ‘sting’	štīχ	štēiχ	štaiχ	štōiχ	štīχ	štaiχ
‘cattle’	fīχ	fēiχ	faiχ	fōiχ	fīχ	
‘oak’	aiχ	oiχ	oviχ	qiχ		taiχ
‘pond’	taiχ		taiχ	taiχ		taiχ
‘bad’			šlēχt			šlēχt
‘easy’	laeχt	laeχt	lēχt		lēχt	lēχt
‘painted.PRET’	štrīχ	štrēiχ	štraiχ	štrīχ		štraiχ
b. ‘weak’	šwōx	šwōx	šwōx	šwōx	šwōx	
‘wick’	tōxt	toxt	toxt	tōxt	toxt	toxt
‘shoe’	šūx	ši <sup>o</sup> x	šaux	š <sup>o</sup> ux	šūx	šaux
‘hose’	šlaux				šlaux	šlax
c. ‘church’		khiərx	khiərx	khiərx	khiərx	
‘through’		duvrx	duvrx	duvrx		
‘lark’		larx	larx			

Benesch also provides a number of maps. The most important ones for present purposes are Maps 11 and 14. The former depicts the realizations of /rx/ in Schönhengst for the word ‘church’. Map 14 for *Köchin* ‘cook-FEM’ show that the palatal occurs after a front vowel ([i] or [e]) throughout Schönhengst.

The distribution of dorsal fricatives in the town of Rothmühl (Benesch 1979) differs from the distribution of those sounds in the other six places listed in (8). As indicated in (9), palatal [ç] is restricted to the context after a front unrounded vowel (=9b), while velar [χ] occurs after a back vowel (=9a), [r] (=9d), or a front rounded vowel (=9c).

- (9) Dorsal fricatives in Rothmühl (Schönhengst):

a. hūx	[hu:x]	hoch	‘high’	75
wüox	[wyox]	Woche	‘week’	145
rōx	[ro:x]	Rauch	‘smoke’	145
tōxt	[tōxt]	Docht	‘wick’	150
braux	[braux]	Brauch	‘custom’	50
lipxt	[lipxt]	Licht	‘light’	58
raxt	[raxt]	recht	‘right’	16
b. štīχ	[ʃti:ç]	Stich	‘sting’	25
fīχ	[fi:ç]	Vieh	‘cattle’	103

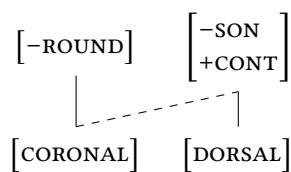
## 15.4 Giazza/Dreizehn Gemeinden

štrīχ	[ʃtriç]	strich	‘painted-PRET’	104
raiχ	[raiç]	reich	‘rich’	106
laeχt	[laeçt]	leicht	‘easy’	47
rex̩tn̩	[reçtn̩]	richten	‘judge-INF’	144
c. tūx	[ty:x]	Tuch	‘towel’	62
šūx	[fy:x]	Schuh	‘shoe’	145
gərūx	[gəry:x]	Geruch	‘smell’	36
zūx̩j	[zy:x̩j]	suchen	‘seach-INF’	139
d. khīerx	[kʰi:ərx]	Kirche	‘church’	145
düørx	[dyørx]	durch	‘through’	38, 89
khwarz	[kʰwarz]	quer	‘across’	113

Front rounded vowels occur (as phonemes) throughout Schönhengst, but they are rare in the context before dorsal fricatives. [ü] (= [y:]) – historically [uo] – is the only front rounded vowel found before dorsal fricatives. Benesch describes that sound as equivalent to the long front rounded vowel [y:] in MoStGm *früh* ‘early’ (p. 5). The change from [uo] to [y:] occurred throughout the Rothmühler Gebiet (Benesch 1979: 61); hence, the data in (9d) may hold for other towns in that area as well.

The data in (9) mean that Rothmühl has a rule of velar fronting which applies to /x/ in the context after front unrounded vowels (=Trigger Type A” from Table 12.29). The restricted context is expressed below:

(10) Velar Fronting-12:



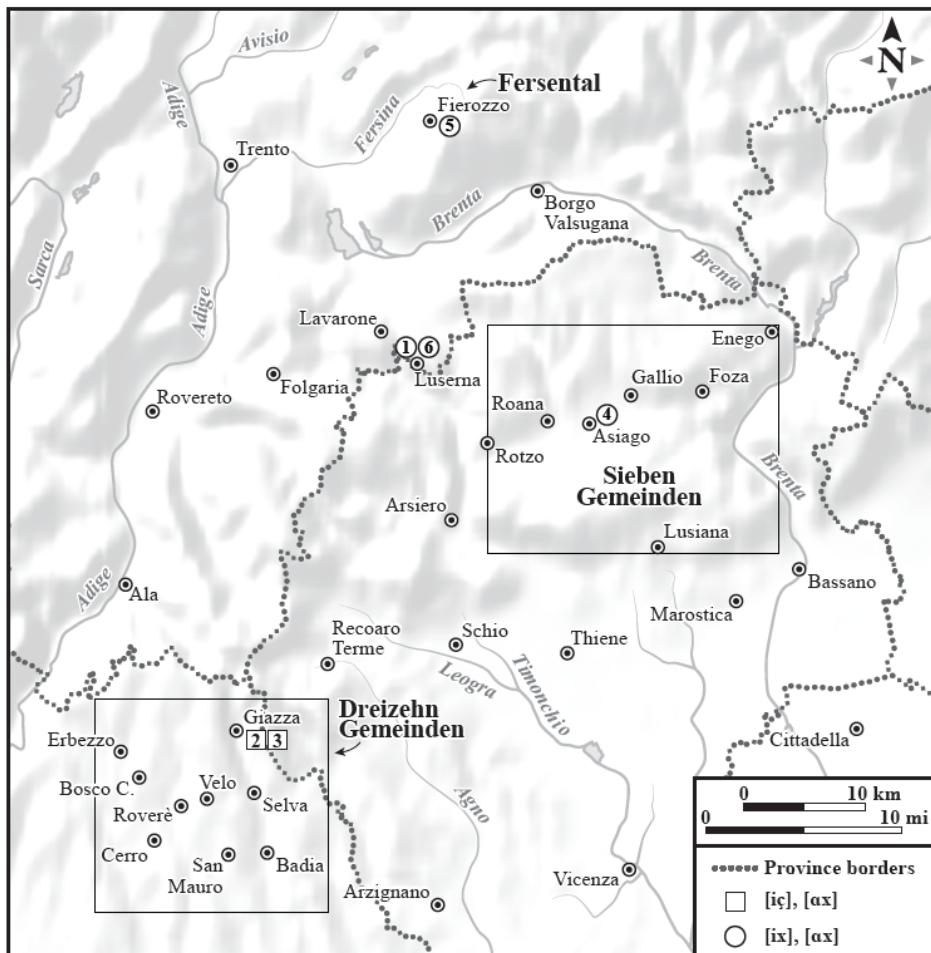
Recall from §12.6.1 that the restriction of velar fronting triggers to front unrounded vowels is a very rare pattern which is otherwise only attested in two LGm dialects. The only other example of Trigger Type A” uncovered in the present survey is South Mecklenburg (Jacobs 1925a,b, 1926).

## 15.4 Giazza/Dreizehn Gemeinden

Several German-language islands are located in Northeast Italy (Map 15.3). Wiesinger (1983a: 906) identifies three Bav (Cimbrian) islands in that area: (a) Dreizehn

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Gemeinden (Thirteen Communities) in the province of Verona, (b) Sieben Gemeinden (Seven Communities) in the province of Vicenza, and (c) the communities of Folgoria, Lavarone, and Lucerna in the province of Trentino. According to Wiesinger (1983a), (a)-(c) were settled by speakers of Bav dialects (Cimbrian) beginning in the 12<sup>th</sup> century.



Map 15.3: Northeast Italy. Rectangles indicate the presence of some version of velar fronting (postsonorant and/or word-initial), and the circles show the absence of velar fronting. 1=Bacher (1905), 2=Schweizer (1939), 3=Mayer (1971), 4=Kranzmayer (1981), 5=Rowley (1986), 6=Tyroller (2003).

The sources for (b)-(c) indicate that there is no velar fronting, e.g. Luserna

## 15.4 Giazza/Dreizehn Gemeinden

(Bacher 1905, Tyroller 2003), Sieben Gemeinden (Kranzmayer 1981). The UGm dialect of Fersentalerich (Mòcheno) spoken in Fersental (Rowley 1986) is likewise characterized by the absence of velar fronting. Recall that §12.9.1 contained some remarks on coarticulatory fronting as described in Kranzmayer (1981) and Rowley (1986).

Two sources for the Giazza (including Dreizehn Gemeinden) in (a) above indicate that velar fronting is active. The first of those sources source is Mayer (1971), whose speakers have both [x] and [ç]. Mayer proposes a treatment of those sounds cast in traditional phonemic theory, according to which [x] and [ç] derive from /x/. [h] is also included as an allophone of /x/ since it is restricted in its distribution to word-initial position before vowels, while [x] and [ç] only occur after a sonorant. As indicated below, [h] surfaces word-initially before vowels (=11a), while [x] occurs after a back vowel (=11b) and [ç] after a front vowel (=11c) or coronal sonorant consonant (=11d). The phonetic transcriptions in (11) are taken directly from Mayer (1971). The author is clear that [ç] surfaces after front vowels ('Vorder-Zungen-Vokale'), although [i] is the only example Mayer gives for a front vowel preceding [ç].

## (11) Dorsal fricatives in Giazza/Dreizehn Gemeinden:

a.	[hurrt]	Hürde	'hurdle'	49
b.	[høax]	hoch	'high'	49
	[maxan]	machen	'do-INF'	49
	[foxlox]	Fuchsloch	'foxhole'	49
	[pruax]	Hose	'pants'	49
	[gəmaxt]	gemacht	'done-PART'	52
c.	[niçt]	nicht	'not'	52
	[siçela]	Sichel	'sickle'	49
d.	[khalç]	Kalk	'lime'	49
	[starç]	stark	'strong'	49

The data in (11) display the default pattern whereby velar fronting occurs after a coronal sonorant. That pattern is expressed formally with Velar Fronting-1 (=2).

A second source for velar fronting in Giazza (including Dreizehn Gemeinden) is one predating Mayer (1971) by over thirty years, namely Schweizer (1939). The latter work consists of a series of phonetically-transcribed texts of varying length dealing with a wide variety of topics. The significance of those texts is that they can shed some light on the state of velar fronting in a German-language island in the early part of the 20<sup>th</sup> century because they distinguish [ç] (= [x])

## 15 Velar fronting islands

and [x] (=⟨χ⟩). Brief remarks on the phonetics of those two sounds are made in the section on phonetic symbols on p. 11. In the list of consonants on that page, Schweizer also includes the affricate ⟨kχ⟩. Although he says nothing on p. 11 about its place of articulation it is clear from the texts that both velar (⟨kχ⟩) and palatal (⟨kx⟩) affricates occur.

A comparison of the texts presented in Schweizer's work indicates that they were based on the speech of many different informants. It is possible to draw this conclusion because the distribution of the dorsal fricatives in any one text can be shown to be slightly different the distribution of the same sounds in another text. Unfortunately, Schweizer does not indicate where his informants are from; hence, it is not possible to make a statement on the precise geography of velar fronting in the Cimbrian language islands of Northeast Italy (in the area in and around Giazza).<sup>5</sup>

I give a brief synopsis of the state of velar fronting in [Schweizer \(1939\)](#) by comparing the distribution of velars (⟨χ⟩=[x], ⟨kχ⟩=[kx]) and palatals (⟨x⟩=[ç], ⟨kx⟩=[kç]) in three of his texts. Many of those texts are only a few sentences long, while others consist of between one and two pages. I have selected below three longer texts in order to ensure that enough tokens are present to draw generalizations on the occurrence of the dorsal sounds in question. The velars and palatals in the statistics summarized in Table 15.1 include both fricatives and affricates. I consider the distribution of those sounds both word-initially and in postsonorant position. In both of those contexts I take into consideration the nature of the adjacent sound, where FV=front vowel, BV=back vowel, and CC=coronal sonorant consonant. There is no evidence that finer-grained distinctions are necessary, e.g. high front vowels vs. mid front vowels. The slash (/) indicates context, e.g. 'Palatal/BV' for Table 15.1(a) means that the palatal is in word-initial position followed by a back vowel and for Table 15.1(b) that the palatal is situated after a back vowel. The number in each row in bold is the one that I interpret as an irregularity.

Consider first the word-initial context. Since palatals occur in a number of tokens even before a back vowel in Text 31 it is fairly clear that this pattern reflects nonassimilatory velar fronting. Examples in that context include ⟨kxōfft⟩ (=⟨kçōfft⟩) 'bought-INF', ⟨kxuejer⟩ (=⟨kçuejer⟩) 'shepherds (for cows)'. In Chap-

<sup>5</sup>The linguistic atlas for this region (ZFSA) – also authored by Bruno Schweizer – provides a number of maps for the German-language islands of Northeast Italy, including Sieben Gemeinden and Fersental. As noted by Stefan Rabanus in the recent (2012) commentary (ZFSA: 25), Schweizer's (1939) distinction between [x] and [ç] is not indicated on those maps. Rabanus opines in the commentary for Map 114 for *Furche* 'furrow' (p. 284) that Schweizer's [x] can be interpreted as [ç].

## 15.4 Giazza/Dreizehn Gemeinden

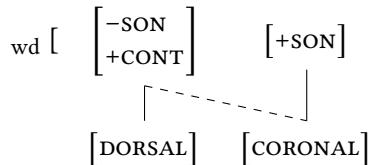
Table 15.1: Distribution of velars and palatals in three texts from [Schweizer \(1939\)](#). Wi.: Word-initial; Ps.: Postsonorant; P.: Palatal; V.: Velar.

	Text no.	P./BV	P./FV	P./CC	V./FV	V./BV	V./CC
a. Wi.	31	33	0	0	1	0	0
b. Ps.	31	4	5	5	0	3	0
c. Wi.	36	3	3	3	0	0	0
d. Ps.	36	1	11	0	0	5	0
e. Wi.	38	2	5	1	2	36	0
f. Ps.	38	0	24	2	12	20	1

ter 14 I showed that that type of pattern involved the restructuring of historical velars as underlying palatals and that there is therefore no synchronic rule, e.g. [kçuejer] is /kçuejer/. Word-initial velar fronting in Text 36 is assimilatory because palatals are surfacing only in the context before coronal sonorants. Text 38 likewise appears to illustrate assimilatory velar fronting in word-initial position, although there are four irregularities.

In postsonorant position velar fronting is nonassimilatory in Text 31 (with three irregularities) but assimilatory in Text 36 (with one irregularity). Two examples from Text 36 are [[kxnêxt]] (= [kçneçt]) ‘vassal’ and [[maxen]] (= [maxən]) ‘do-INF’. Text 38 may also reflect the assimilatory pattern, although it is interesting that the speaker(s) on which the data are based have a larger number of irregularities (12). The assimilatory pattern described above is captured formally with Velar Fronting-1 (=2) or the mirror-image process for word-initial position, stated in (12):

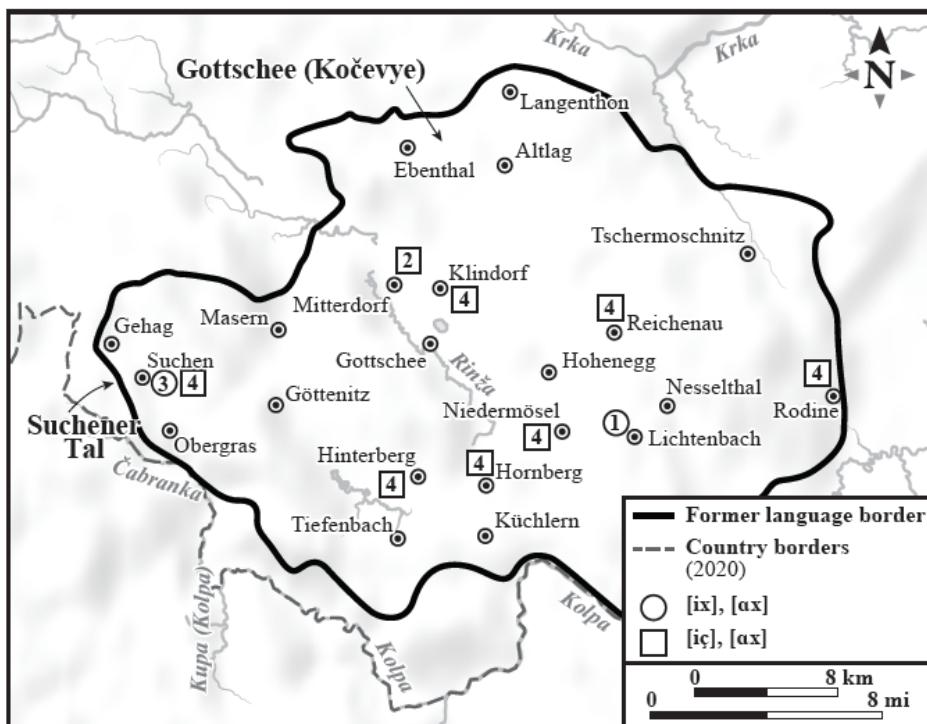
- (12) Wd-Initial Velar Fronting-8:



## 15 Velar fronting islands

### 15.5 Gottschee

Gottschee was a German-language island in South Slovenia which corresponds roughly to the modern-day municipality of Kočevje (Map 15.4). The area was settled between 1325 and 1360 by speakers of SBav from Upper Carinthia (Oberkärnten) and East Tyrol (Osttirol; Wiesinger 1983a: 907–908).



Map 15.4: Gottschee. Places with velar fronting (postsonorant and/or word-initial) are indicated with squares and places without velar fronting with circles. 1=Tschenkel (1908), 2=Seemüller (1909b), 3=Wolf (1982), 4=Lipold (1984)

Several studies have investigated the sound structure of the German dialects of Gottschee. One of the earliest is Tschenkel (1908), who detected no velar fronting in the town of Lichtenbach (recall §12.9.1). A more recent work is Wolf (1982: 37), who is clear that there is no velar fronting in the area of Suchener Tal. Those works contrast with Seemüller (1909b) for Mitterdorf and Lipold (1984) for the entire Gottschee area because both of those studies indicate that velar fronting

## 15.5 Gottschee

was active. In the remainder of this section I discuss the data from the latter two works.<sup>6</sup>

Lipold (1984) is an extremely valuable work on the sound structure of the dialects of Gottschee. That comprehensive study offers an in-depth synchronic treatment of the phonology of the entire area, concentrating specifically on the seven villages of Suchen, Hinterberg, Klindorf, Niedermösel, Reichenau, Rodine, and Hornberg. The book is accompanied with a tape recording of native speakers from those places – recordings presented in written form on pp. 449–529 in phonemic transcriptions (/.../) and narrow phonetic ones ([...]). Lipold (1984) contains copious data from all seven of the villages referred to above – data indicating that those places had a version of velar fronting to be discussed below. The data in the seven places do not appear to differ from one another in any significant way with respect to the patterning of velars and palatals. I therefore concentrate on one particular place (Hinterberg) as a representative of all of Gottschee.

The material discussed below shows that the velar fricative ([χ]), the velar stop ([k]), and the velar affricate ([kx]) all have palatal allophones. The rule accounting for surface palatals (velar fronting) is triggered by all and only front vowels (Lipold 1984: 211–212). Gottschee differs from other German dialects because it possesses central vowels (distinct from schwa) which contrast with front vowels and back vowels. For example, there are the two phonemic short front vowels /i e/, two phonemic short back vowels /u o/, and two phonemic short central vowels [ü ö], which I retain in Lipold's transcription system.<sup>7</sup> In contrast to MoStGm, there are no phonetically front rounded vowels like [y ø] (Lipold 1984: 123). The contrast between front vs. central vs. back is captured in Lipold's feature system with the two binary features [±front] and [±back]. In the present framework I express the contrast with the two features [coronal] and [dorsal]. That system is given in Table 15.2 for the six short vowels mentioned above, together with the short low back vowel /a/.

In the inventory of vowels depicted in Table 15.2 there are front (coronal) vowels, which contrast with back (dorsal) vowels and central vowels, which are unmarked for [coronal] and [dorsal].<sup>8</sup>

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<sup>6</sup>Velar fronting is absent in the other former German-language island of Slovenia, namely Zarz (Lessiak 1959; Map 3.3).

<sup>7</sup>The datasets presented below indicate that the reflexes of the central vowels of Gottschee are often equivalent to front rounded vowels in MoStGm (e.g. [y ø]) but that in other cases they correspond to MoStGm back vowels (e.g. [u o]).

<sup>8</sup>An alternative to Table 15.2 is to analyze the central vowels as phonologically [coronal] and to adopt the feature [±round] to distinguish those sounds from front unrounded vowels. If that alternative approach, phonetic implementation could capture the fact that [ü ö] are not the

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Table 15.2: Distinctive features for vowels (Gottschee)

	i	e	ü	ö	u	o	a
[coronal]	✓	✓					
[dorsal]					✓	✓	✓
[low]							+
[high]	+	-	+	-	+	+	-

Dorsal fricatives in Hinterberg do not occur word-initially, but dorsal affricates and stops do surface in that context: Palatal [ç] surfaces before front vowels (=13a) and the velar before central vowels (=13b), back vowels (=13c), or [r] (=13d). The transcriptions in (13) are in Lipold's system, which employs symbols very similar to the ones I have adopted in this book.

(13) Word-initial dorsal affricates in Hinterberg

- |                         |        |           |     |
|-------------------------|--------|-----------|-----|
| a. cçe:rts <sup>ε</sup> | Kerze  | 'candle'  | 333 |
| cçe:rb <sup>ε</sup>     | Körbe  | 'baskets' | 333 |
| cçepf <sup>ε</sup>      | Köpfe  | 'heads'   | 328 |
| b. kxüxl                | Küche  | 'kitchen' | 327 |
| kxü:ts                  | kurz   | 'short'   | 331 |
| c. kxa:fñ               | kaufen | 'buy-INF' | 334 |
| d. kxrüøkx              | Krug   | 'jug'     | 335 |

The two stops [k] and [ç] pattern like the affricates; hence, [ç] surfaces before front vowels (=14a), and [k] before central vowels (=14b), back vowels (=14c), or liquids (=14d).<sup>9</sup>

(14) Word-initial dorsal stops in Hinterberg

- |                      |             |            |     |
|----------------------|-------------|------------|-----|
| a. cçs: <sup>ε</sup> | Schultasche | 'book bag' | 315 |
| cçjkx                | Fußtritt    | 'kick'     | 315 |

---

same vowels as [y ø] in other German dialects. The analysis of [ü ö] in Table 15.2 can be tested by determining whether or not they pattern phonologically as front for processes other than velar fronting.

<sup>9</sup> According to Lipold (1984) the phonemic vowels of Gottschee have allophones, some of which are present in (14), e.g. [ɛ] for /e/. The palatal segments in Gottschee occur in the context of all surface front vowels, including front vowels that are allophones

## 15.5 Gottschee

b.	kük <sup>ε</sup> kürtə:t 'köl:ər	Kuckuck nackt Wamme	'cuckoo' 'naked' 'dewlap'	315 315 315
c.	ka:ł f 'kɔkaitsn̩ kɔʃ:	Taschenmesser gackern Wagenkorb	'pocket knife' 'cluck-INF' 'basket'	315 315 315
d.	krɔmp <sup>ε</sup> klas <sup>ε</sup>	Krampen Klasse	'pick' 'class'	315 315

Lipold likewise analyzes palatal [ʃ] and velar [g] as allophones word-initially (p. 370). I do not discuss those two stops because of the sparseness of the data containing them.

The data in (15) illustrate the distribution of velar and palatal fricatives in the context after a sonorant: [ç] surfaces after front vowels (=15a) and [x] after central vowels (=15b), back vowels (=15c), or [r] (=15d).

## (15) Postsonorant dorsal fricatives in Hinterberg

a.	'rıçtɔr 'esarıç gə'bıçt gla:ıç 'zleçtɔr uɔ:ęç <sup>ε</sup> buɔ:ęç zlepçt	Richter Essig Gewicht gleich schlechter Eiche weich schlecht	'judge' 'vinegar' 'weight' 'soon' 'worse' 'oak' 'soft' 'bad'	301 309 312 313 301 310 312 322
b.	vrüxt 'ütrüxŋ gə'vlöxtn gə'vlö:xiŋ rɔxŋ bɔxŋ bɔx <sup>ε</sup> löx	Frucht wiederkäuen geflochten geflogen Roggen Wochen Woche Loch	'fruit' 'chew cud-INF' 'braided-PART' 'flow-PART' 'rye' 'weeks' 'week' 'hole'	319 309 320 320 303 302 301 316
c.	pru:xtl dɔx bɔx <sup>ε</sup> rɛ:ʌx raxt ɬa:x	gebracht Dach Wache Reh recht Lauch	'brought-PART' 'roof' 'sentinel' 'deer' 'right' 'leek'	313 304 301 316 316 316

## 15 Velar fronting islands

d.	dür̥x	durch	'through'	312
	pi:r̥x <sup>ε</sup>	Birke	'birch tree'	313
	ʃtu:r̥x	stark	'strong'	332
	mrx <sup>ε</sup>	Mähre	'old mare'	316
	vür̥x <sup>ε</sup>	Furche	'furrow'	332
	znoq:ərx̥ŋj	schnarchen	'snort-INF'	321

The dataset in (16) illustrates the distribution of velar and palatal affricates in the context after a sonorant: [çç] occurs after front vowels (=16a), and [kx] after central vowels (=16b), back vowels (=16c), or [r] (=16d).

### (16) Postsonorant dorsal affricates in Hinterberg

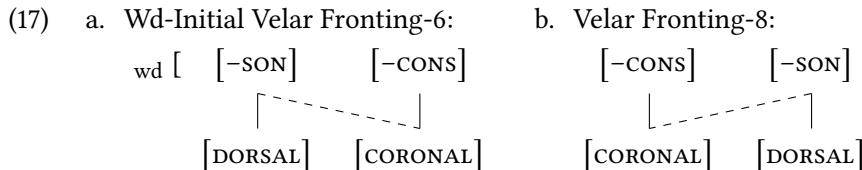
a.	dicç <sup>ε</sup>	dick	'fat'	312
	ɛ:ləbicç	ewig	'eternal'	310
	tuçecç	Teig	'dough'	300
	zmecçŋj	schmecken	'taste-INF'	321
	ʃtęcçŋj	stecken	'stick-INF'	323
b.	rükx <sup>ε</sup>	Rücken	'back'	300
	tükx	Tücke	'peril'	314
	zmükxŋj	schmiegen	'nuzzle-INF'	321
	lükx <sup>ε</sup>	Lücke	'gap'	301
	bökx	Bock	'buck'	302
	ʃtökx	Stock	'stick'	323
	gə'srökxŋj	erschrocken	'scared-PART'	323
c.	vlakx	Fleck	'spot'	320
	'akxər	Äcker	'fields'	309
	łökx <sup>ε</sup>	Lacke	'village pond'	301
d.	pařkx	Berg	'mountain'	334

Lipold (1984: 370) considers the palatal stops [ç ʃ] to be allophones of /k g/ in postsonorant position, although the only example found for Hinterberg is the word ['gličliç] 'fortunate' for [ç] (p. 313).

The formal rules for Hinterberg are stated below for word-initial position (=17a) and postsonorant position (=17b). The triggers for both rules include all and only front vowels but not central vowels, back vowels, or coronal consonants. The target segments for (17b) must minimally include the fricative /x/ and the affricate /kx/. I opt for a broader set of targets, which also includes the stops /k/ and /g/. Although only one example was found for /k/ and no examples for

## 15.5 Gottschee

/g/, I posit the broad set of targets on the basis of Lipold's characterization of palatal stops as allophones in postsonorant position. For word-initial position (=17a) the targets must consist of all dorsal obstruents.



A second description for a Gottschee dialect is Seemüller (1909b), which is a very brief work consisting of phonetic transcriptions of the Wenkerbogen and other short texts for the Mitterdorf dialect. The transcriptions contain enough words with [ç] (=⟨x⟩) and [χ] (=⟨χ⟩) to conclude that the village of Mitterdorf once had a synchronic rule of velar fronting. Consider the examples presented in (18).<sup>10</sup> I retain the transcriptions in the original.

## (18) Dorsal fricatives in Mitterdorf:

a.	ix	ich	'I'	25
	m̥iliχ	Milch	'milk'	25
	gəšixtə	Geschichte	'story'	26
	entlix	endlich	'finally'	28
	tsēxnai	zehn	'ten'	25
	ʃlextə	schlechte	'bad-INFL'	26
	dəroixɪŋ	erreichen	'reach-INF'	28
	laixtə	leichter	'easier'	28
b.	böχɪŋ	Wochen	'weeks'	25
	nöχ	noch	'still'	25
	khöχlefl	Kochlöffel	'wooden spoon'	26
c.	khūχɪŋ	Kuchen	'cake'	25
	gəprūχt	gebracht	'brought-PART'	27
	toχtər	Tochter	'daughter'	25
	moχɪŋ	machen	'do-INF'	26

<sup>10</sup> Mitterdorf also possesses the corresponding lenis fricatives [j] (=⟨y⟩) and [χ] (=⟨g⟩), which I do not discuss because the texts in Seemüller (1909b) contain only a few items with those segments. (The two words found with ⟨y⟩ occurred after the front vowels [i] and [e:]). The texts in Seemüller (1909b) also contain many words with velar stops ([k kʰ g]), which surface without change after front segments. None of the data presented in that source indicate that velar fronting is active in word-initial position.

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raχt	recht	‘right’	27
hōvχ	hoch	‘high’	27
hēvχtər	höher	‘higher’	27
gəwīəχtət	gefürchtet	‘feared-INF’	28
d. düvχs	durch	‘through’	25
e. trökχnən	trockenen	‘dry-INFL’	25

I posit that the features for vowels in Table 15.2 also hold for Mitterwald. Thus, [ç] surfaces after front vowels (=18a) and [x] after central vowels (=18b), back vowels (=18c), or [r] (=18d). One example was found with the velar affricate in the context after a front rounded vowel (=18e), which is consistent with an analysis in which /k/ and /kx/ pattern the same way. The formal rule of velar fronting in (19) for Mitterdorf is Velar Fronting-13 (=4).

## 15.6 Grisons

In §6.3 the dialect of Obersaxen was identified as a Walser variety of HstAlmc spoken in West Grisons (Graubünden); Map 15.5. As indicated on that map, Obersaxen is a German-language island because it is encircled by areas populated with speakers of Romansh. There is no question that Obersaxen represents a velar fronting island because Obersaxen itself is a German-language island.

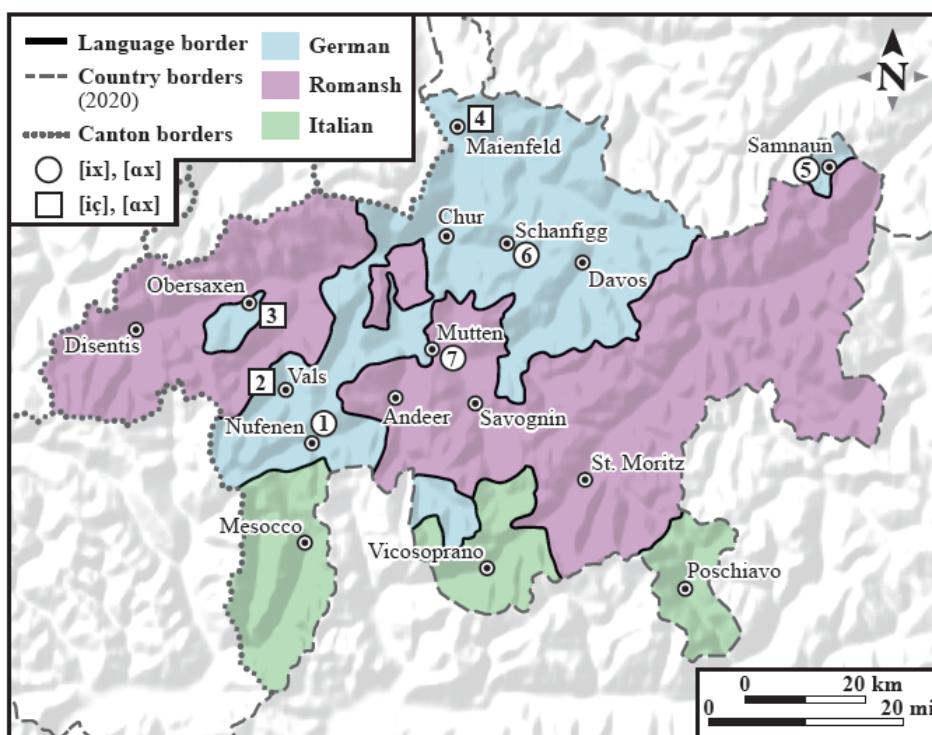
Recall the generalizations concerning velar fronting in Obersaxen: Velars (/x/ and /kx/) surface as palatal in word-initial position before a nonlow front vowel (Wd-Initial Velar Fronting-5) and in postsonorant position after a nonlow front vowel (Velar Fronting-7).

Wiesinger (1983a: 904–906) identifies a number of other places in Grisons which are populated with speakers of Walser German, but an examination of the sources for those varieties reveals that those places do not have velar fronting. Three examples indicated on Map 15.5 are Nufenen (Gröger 1914c), Mutten (Hotzenköcherle 1934), and Schanfigg (Kessler 1931). A more remote (SBav) variety of German in Grisons without velar fronting is Samnaun (Gröger 1924). (I discuss the status of velar fronting in the data from SDS in §15.7).

The closest place to Obersaxen with velar fronting is Walser German variety of Vals (Gröger 1914e). Like Obersaxen, Vals is a German-language island situated in a German-speaking area without velar fronting.<sup>11</sup>

<sup>11</sup>Map 15.5 also indicates that there is a geographically more distant velar fronting place in North Grisons (Maienfeld; Meinherz 1920) which was discussed in §3.3; see also §15.11.

## 15.6 Grisons



Map 15.5: Grisons. Velar fronting (postsonorant and/or word-initial) is depicted with a square and the absence of velar fronting with a circle. 1=Gröger (1914c), 2= Gröger (1914e), 3=Brun (1918), 4=Meinherz (1920), 5=Gröger (1924), 6=Kessler (1931), 7=Hotzenköcherle (1934). [Source for language borders: ‘Kanton Graubünden’ in Wikipedia.de]

Gröger (1914e) is a phonetically transcribed text from a native speaker of the Vals variety of HstAlmc which reveals that velar fronting is active word-initially (in 19) and in postsonorant position (in 20). For both contexts the sound undergoing velar fronting is either the fricative /χ/ or the affricate /kχ/. The items listed in (19) indicate that velar fronting is triggered by front vowels (including low front vowels) but not consonants. In postsonorant position the sounds inducing velar fronting are restricted to nonlow front vowels (20a vs. 20b) or liquids (in 20d). Recall that these generalizations for triggers are not the same as the ones for Obersaxen.

(19) Word-initial dorsal fricatives and affricates in Vals:

- |         |        |       |              |    |
|---------|--------|-------|--------------|----|
| a. xunt | [xunt] | kommt | ‘comes-3 sg’ | 45 |
|---------|--------|-------|--------------|----|

15 *Velar fronting islands*

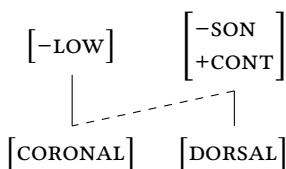
xo	[xo]	gekommen	'came-PART'	41
xoštə	[xoʃtə]	kosten	'cost-INF'	45
xan	[xan]	kann	'can-3 SG'	46
b. xlepf	[xlepf]	Schläge	'blows'	42
xlīs	[xli:s]	kleiner	'small-INFL'	43
c. xrummə	[xrʊmmə]	krumm	'bent-INFL'	41
kxrʊšt	[kxrʊʃt]	gekommen	'come-PART'	46
kxrat	[kra:t]	gerade	'just'	43
d. kχent	[kçent]	gekannt	'known-PART'	42
χönə	[çönə]	können	'be able-INF'	43
χætsər	[çætsər]	Ketzer	'heretic'	43

- (20) Postsonorant dorsal fricatives and affricates in Vals:

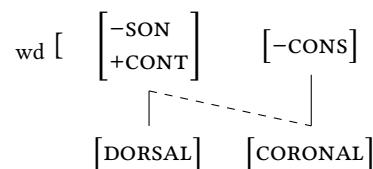
a.	brūxə	[bru:xə]	brauchen	'need-INF'	43
	būx	[bu:x]	Bauch	'stomach'	42
	lōx	[lo:x]	Loch	'hole'	43
	dokxtər	[dokxtər]	Doktor	'doctor'	45
	bax	[bax]	Bank	'bench'	42
	kmäxt	[kmäxt]	gemacht	'done-PART'	42
b.	tsräxt	[tsräxt]	zurecht	'justifiably'	45
	mæxtigə	[mæxtigə]	mächtige	'powerful-INFL'	44
	ræxt	[ræxt]	recht	'right'	46
	ksæxi	[ksæ:xi]	sähe	'see- 3 SG SUBJ'	43
c.	dīx	[iç]	you	'you-ACC SG'	44
	rükχte	[rykχte]	rückte	'moved over-PRET'	45
	førstekχt	[førstekχt]	versteckt	'hidden-PART'	42
d.	kwürkχt	[kwyrkχt]	gewirkt	'seemed-PART'	44

Note that the set of triggers is not the same in word-initial and postsonorant position. Although that finding is rare among German dialects, it is not unattested (§14.7).

- (21) a. Velar Fronting-2:



- b. Wd-Initial Velar Fronting-3:



## 15.6 Grisons

As pointed out elsewhere in this book, one must take care in drawing conclusions on velar fronting based on a short text. Although Gröger (1914e) leaves little doubt that velar fronting was active in Vals over a century ago, it is also possible that longer Vals texts from that time frame or from a later time period may reveal that the conclusions drawn here concerning triggers are in need of modification.<sup>12</sup>

It is interesting to consider the description of two of the non-velar fronting varieties of Walser German referred to above. The first is Kessler (1931), who describes a dialect spoken in Schanfigg. Velar /x/ is realized throughout the region as [x] (= [χ]), although the author notes that there are some isolated pockets where [ç] (= [χ]) occurs. Kessler (1931: 105) writes:

Das reibegeräusch von kx und x klingt, bes. in der nachbarschaft palataler vocale, bedeutend weniger velar und leiser als in den meisten der nördlichen Schweizermaa. Am stärksten fällt dies in Ar. auf. – Palatalen reibelaut höre ich ausnahmsweise in Lw. und von einer alten Frau in Cf.: χind, halmixts ('halmiges') gras, iχχonna 'hinein gekonnt', i χenna-nə níd 'ich kenne ihn nicht', betteχχi 'bettdecke' usw. ....

The frication noise in kx und x sounds, especially in the neighborhood of palatal vowels, considerably less velar and quieter than in most of the more northern Swiss dialects. The most prominent [of these dialects] is Ar. [Arosa] – I hear the palatal fricative exceptionally in Lw. [Langwies] and from an old woman in Cf. [Calfreisen]: χind 'child', halmixts ('pertaining to a blade') of grass, iχχonna 'able to go in', i χenna-nə níd 'I don't know him', betteχχi 'blanket' etc. ....

Hotzenköcherle (1934: 316–317) makes the same type of observation as Kessler for the speech of a single individual – a woman approximately 50 years old –

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<sup>12</sup>Two inconsistencies in Gröger (1914e) are: (i) One example indicates that [x] surfaces after a consonant ([l]), i.e. [kwalxət] 'churned-PART' (cf. 20d); (ii) One item has word-initial velar [kx] before [æ], i.e. ([kxærli] (= [kxærli]) 'fellows' (cf. the third example in 19d). I assume that the inconsistencies here – liquids sometimes do and sometimes do not trigger postsonorant fronting, low front vowels sometimes do and sometimes do not trigger word-initial fronting – fall into the domain of irregularities documented for LGm dialects (§12.8.3). Another set of examples in the text only appears to be irregular: If word-initial /x/ or /kx/ occur before a liquid then those obstruents surface as the corresponding palatals if the vowel following the liquid is nonlow and front, e.g. [kχrüm̩mi] 'state of being bent'. Several other examples were found in Gröger (1914e) suggesting that nonlow front vowels but not liquids trigger word-initial fronting. The mirror-image generalization is true for postsonorant velar fronting in Obersaxen (§6.3.2).

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in the non-velar fronting region of Mutten. Hotzenköcherle notes that his informant has the palatal ([χ]) realization in the context before and after high front vowels ([i ɪ] and the long counterparts) and occasionally before mid front vowels ([e ē̄]).

The two passages are significant because they suggest that very small-scale velar fronting islands are attested at the level of the individual.

### 15.7 Interlude: The interpretation of symbols for dorsal fricatives in SDS

In the remainder of this chapter I draw on data from the linguistic atlas for Switzerland (SDS). Since that source adopts an unconventional set of symbols and categories for dorsal fricatives it is essential that an interpretation for the transcription system in that source be put forth. As indicated above, this is the goal of the present section.

The SDS terms and symbols for dorsal fricatives as well as my interpretation thereof are summarized in Table 15.3 and commented on below. The SDS maps referred to in the remainder of this chapter for dorsal fricatives are listed in Table 15.4.

Table 15.3: SDS symbols for dorsal fricatives

SDS term and symbol	Phonological Features	Probable phonetic realization
prepalatal [χ']/[χ'']	[coronal, dorsal]	palatal ([ç]) or alveolopalatal ([ç̄])
palatal [χ]	[dorsal] or ([coronal, dorsal])	prevelar ([χ]) or palatal ([ç])
velar [x]	[dorsal]	velar ([x]) or uvular ([χ])

Like SNiB (Table 13.4), SDS adopts a three-way system for classifying dorsal fricatives. That approach is summarized in Table 15.3 with the three categories velar ([x]), palatal ([χ]), and prepalatal ([χ']/[χ'']).

The difficulty with the SDS “palatal” category in the first column of Table 15.3 can be clearly seen in Map II 94 for *Kind* ‘child’. This map shows the realization of the first sound in that word is “palatal” throughout many if not most parts of Switzerland. In fact, on the basis of this map one would have to conclude that the “palatal” fricative ([χ]) is far more prevalent than the velar fricative ([x]). If [χ] and [x] are truly equivalent to [ç] and [x̄] then the maps in SDS would

### 15.7 Interlude: The interpretation of symbols for dorsal fricatives in SDS

Table 15.4: Maps from SDS with dorsal fricatives or affricates in word-initial or postsonorant position

Examples	Map no.
Kind ‘child’	II 94
drücken ‘press-INF’	II 95/96
trinken ‘drink-INF’	II 97/98
getrunken ‘drunk-PART’	II 99/100
tränen ‘soak-INF’	II 101/102
Gestank ‘stench’	II 103
Anke (Butter) ‘butter’	II 104
Bank ‘bench’	II 105/106
Bänke ‘benches’	II 105/106
Bänklein ‘bench-DIM’	II 105/106
melken ‘milk-INF’	II 109
Chilche (Kirche) ‘church’	II 110
Zeichen ‘sign’	II 111
Speicher ‘attic’	II 112
bache (backen) ‘bake-INF’	II 183
Rechen ‘rake’	II 183
rauchen ‘smoke-INF’	II 201

therefore blatantly contradict the claims made in the descriptive grammars of SwGm dialects cited in §12.3.1 and indicated on Map 3.2 with circles.

In order to understand the discrepancy between the traditional view of SwGm /x/ as velar ([x]) or uvular ([χ]) and the one portrayed in SDS it is important to consider the following statement made in the introduction to that linguistic atlas (Hotzenköcherle 1962) in the passage on phonetic symbols (pp. 88–89, Footnote 7): “Die Grenze zwischen palatalem χ und velarem x ist praktisch in vielen Fällen schwer zu ziehen; χ deckt in unseren Materialien einen sehr weiten und insofern sehr fragwürdigen Bereich, während x ausgesprochene Extremwerte fixiert und in diesem Sinn ... zuverlässiger sein dürfte”. [‘The boundary between palatal χ and velar x is in practice difficult to draw; in our material χ covers a very broad and in this respect questionable area, while x depicts highly extreme values and ... may be more reliable’.]

The preceding quote as well as the similar remarks on the transcriptions for the sounds representing *ch* made on Map II 183 reveal that the authors of SDS consider “palatal” to be a dubious and unreliable realm that cannot be easily assigned

## 15 Velar fronting islands

a traditional phonetic category. In order to express a place of articulation that is unquestionably more front than [χ], SDS adopts a different category with a unique symbol, namely the “präpalatal” [‘prepalatal’] place of articulation, which is transcribed as [χ’]. Prepalatal also includes articulations even more front than [χ’], which are consequently transcribed as [χ’’].

As indicated in Table 15.3, I see SDS’s prepalatal [χ’]/[χ’’] as a phonologically front dorsal fricative, which translates into [coronal, dorsal] given the featural system adopted in this book. Thus, prepalatal [χ’]/[χ’’] can be thought of as the (fortis) sound produced by velar fronting represented in previous chapters with the phonetic symbol [ç]. By contrast, SDS’s [χ] is phonologically a back dorsal fricative, which is analyzed in my featural system as a simplex [dorsal] sound.

It is not clear how [χ’]/[χ’’]) and [χ] are actually pronounced. I have provided traditional IPA symbols and diacritics in the final column of Table 15.3, which I comment on here.

Since the sounds traditionally transcribed as [ç] and [χ] for varieties of German spoken in Germany can have more than one realization depending on the area and/or the speaker (recall §1.5, §12.9), it would not be unreasonable to assume that the same holds true for the SDS front dorsal [χ’]/[χ’’] and back dorsal [χ]; recall Table 12.37. For example, [χ] might be pronounced by some speakers by raising the tongue dorsum to the soft palate (=velar [x]) and by others by raising the tongue dorsum to the uvula (=uvular [χ]). Likewise, some speakers might articulate [χ’]/[χ’’] by raising the front part of the dorsum to the hard palate (=palatal [ç]) and others by advancing the tongue body so that a sibilant is produced (= [ç]), as in the CGm dialects investigated in Chapter 10.

The phonetics of the two extremes (i.e. [χ’]/[χ’’] vs. [χ]) aside, the important point is that the former is a phonologically front dorsal and the latter a phonologically back dorsal. It is clear from the quote from SDS that the authors do not want to commit themselves as to the status of “palatal” [χ]. The interpretation I adopt is that – at least in the unmarked case – [χ], like [χ], is phonologically a back dorsal, which translates into a representation with a simplex [dorsal] feature. In order to express the fact that [χ] is more front than [χ] from the point of view of phonetics, I hold that the unmarked realization of [χ] is a prevelar (= [χ] in a narrow transcription); recall §12.9.1 and Table 12.37.

A second (marked) option for the realization of [χ] is that the articulation is interpreted phonologically as the same as [χ’]/[χ’’], namely a phonologically front dorsal (= [coronal, dorsal]).

Consider now the evidence in favor of my interpretation of the SDS symbols as described above: First, the symbols for prepalatal fricatives ([χ’]/[χ’’]) are

## 15.8 Upper Valais, Northwest Italy, and Tessin

present on SDS Map II 94 and II 183 for parts of Upper Valais (§15.8) and the Southwest Bernese Oberland (§15.9). Significantly, those prepalatals can be shown to be phonologically front dorsal fricatives on the basis of independent sources. Second, the analysis of [χ] in the unmarked case as phonologically on par with the phonologically back dorsal [x] is consistent with the prevalence of [χ] markers on SDS Map II 94 alluded to above (as well as the other maps in Table 15.4). Third, my interpretation of [χ] in the marked case as a phonologically front dorsal fricative ([coronal, dorsal]) makes sense because markers for [χ] can also be found in areas like the ones alluded to above in which velar fronting is active, i.e. Upper Valais, Southwest Bernese Oberland, as well as parts of East Switzerland (§15.11).

In §15.6 I discussed two velar fronting varieties of HstAlmc Grisons, namely Obersaxen and Vals. The maps in SDS do not unambiguously (dis)confirm the presence of velar fronting in those two places. For Obersaxen the palatal fricative marker [χ] is present on Map II 94, and the palatal affricate marker [kχ] is indicated on Map II 95/96 (for [driχ<sup>ꝝ</sup>] ‘press-INF’). By contrast, the prepalatal [χ'] is given in the list of data for Map II 97/98 for *trinkt* ‘drinks-3SG’ ([trīχ’t]). For Vals the SDS maps show either [χ]/[kχ] or [x]/[kx].

The SDS data might confirm postsonorant velar fronting of /x/ and /kx/ for Obersaxen if the one prepalatal marker is considered representative and if the two palatal markers are interpreted as a front dorsal. The conclusion for Vals is not as obvious because there are no prepalatal markers indicated given for that place. I conclude that those palatal markers indicated front dorsals.

## 15.8 Upper Valais, Northwest Italy, and Tessin

The canton of Valais (Wallis) in Southwest Switzerland is traditionally divided into three regions: Lower Valais (Unterwallis), Central Valais (Mittelwallis), and Upper Valais (Oberwallis). The former two are primarily French-speaking, while Upper Valais is predominantly German-speaking. Most settlements in Upper Valais are located in the Rhône Valley between Siders and Oberwald – including the side valleys –, although Upper Valais also extends as far south as Zermatt (Map 15.6). It is important to stress that Upper Valais is a secluded area of Switzerland because the Rhône Valley is an Alpine valley, which is shut off from the German-speaking areas to the north of the Bernese Alps (Berner Alpen).

The German dialect spoken throughout Upper Valais is HstAlmc, a specific variety of which (Visperterminen) was discussed in §6.2. Wipf (1910) is an invaluable source because it provides a detailed descriptive grammar of a velar fronting variety in a specific village in that region. Several additional sources

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for dorsal fricatives/affricates in Upper Valais are also known to me. Although those works do not compare with Wipf (1910) in terms of quantity and depth of velar fronting data, they all provide valuable information concerning the extent to which velar fronting is active in other parts of Upper Valais. Map 15.6 indicates the places in that area referred to in the sources I discuss below. The map also includes a number of German-language (HstAlmc) islands in Northwest Italy, as well as one HstAlmc variety in the Italian-speaking canton of Tessin.<sup>13</sup>

In the remainder of this section I discuss data from additional sources for HstAlmc varieties in Upper Valais. I consider first those studies that focus on specific places and then turn to works that investigate the status of velar fronting in the region as a whole (including Northwest Italy and Tessin). The two major issues I address are: (a) The extent to which velar fronting is attested throughout the entire region and (b) the different requirements concerning the set of velar fronting triggers for those places with that rule.

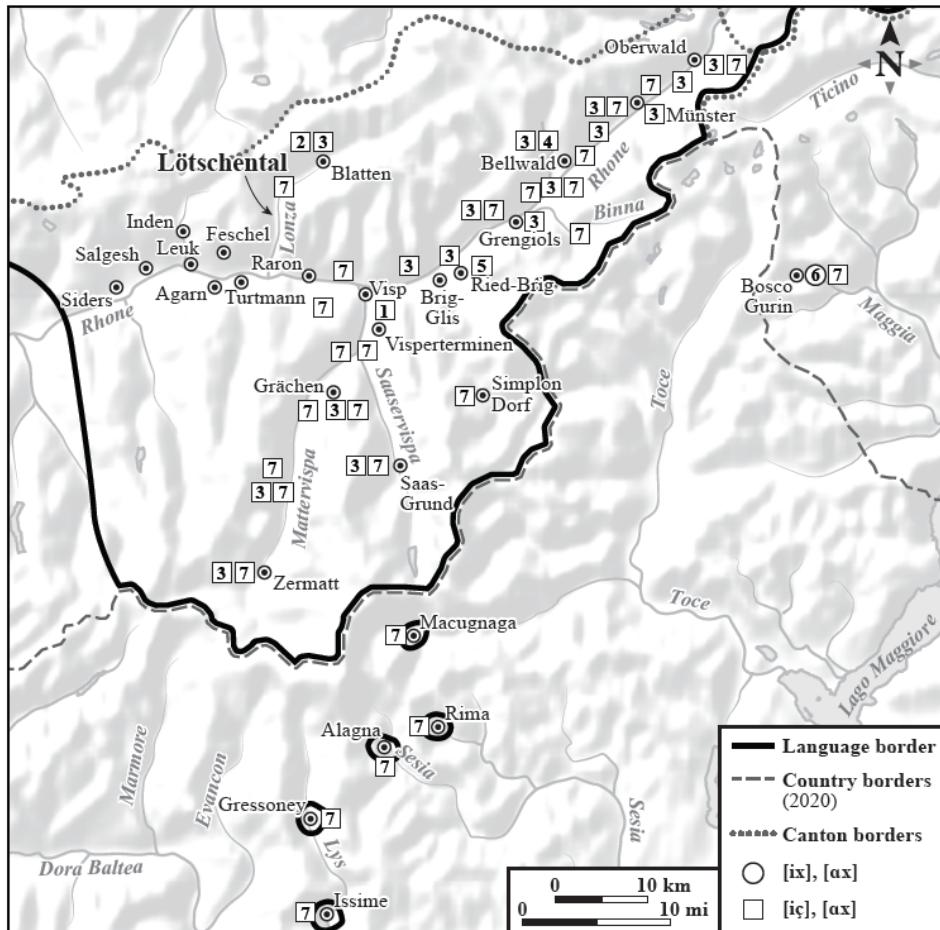
Henzen (1928/1929) concerns himself with vowel reduction in posttonic syllables and Henzen (1932) with the morphology of the genitive. Both articles deal specifically with the dialect spoken in one of the side valleys of the Rhône Valley, namely the area in and around Blatten in the Lonza River Valley (Lötschental), about 20 km to the northwest of Visperterminen. Henzen adopts the same phonetic transcriptions as in Wipf (1910), whereby [x]=[x] and [χ]=[ç]. The data in (22) and (23) have been drawn from the two articles referred to above. The pages in the final column refer to Henzen (1928/1929) and Henzen (1932), which are abbreviated as A and B respectively.

(22) Word-initial dorsal fricatives in Lötschental:

a.	xunt	[xunt]	kommt	'comes-3SG'	B: 98
	xuæ	[xuæ]	Kuh	'cow'	B: 105
	xabus	[xabus]	Kohl	'cabbage'	A: 116

<sup>13</sup>Those (HstAlmc) German-language islands (Issime, Gressoney, Alagna, Rima, and Macugnaga in Italy and Bosco Gurin in Tessin) were settled during the Walser migrations beginning in the 13th century (Wiesinger 1983a: 903). Bohnenberger (1913), Jutz (1931), and Moulton (1941) all observe that velar fronting – phrased in their terms as the occurrence of [ç] and [x] as positional variants – is common throughout Upper Valais. Bohnenberger in particular writes that the occurrence of the palatal fricative in the neighborhood of front vowels is typical for the entire region. Bohnenberger represents both sounds with the symbol [χ] and does not provide data from any particular place. Jutz (1931: 208) refers only to Visperterminen as evidence that some South Almc dialects have [x] and [ç]. Moulton (1941: 40) also observes that “Wallis dialects” have [x] and [ç] as positional variants, but his only example is Visperterminen (in addition to the Walser variety of Obersaxen discussed in §15.6).

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Map 15.6: Upper Valais, Northwest Italy, and Tessin. Squares indicate some version of velar fronting (postsonorant and/or word-initial), and the circle represents the absence of velar fronting. 1=Wipf (1910), 2=Henzen (1928/1929), Henzen (1932), 3=Rübel (1950), 4=Schmid (1969), 5=Werlen (1977), 6=Russ (2002), 7=SDS.

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b.	χind χiššini χeštn χend χes	[çind] [çiʃʃini] [çeʃtn] [çend] [çε:s]	Kind Kissen Kosten Kinder Käse	'child' 'pillow' 'costs' 'children' 'cheese'	B: 95 A: 111 B: 100 B: 110 A: 139
c.	χiæ	[çiæ]	Kühe	'cows'	B: 95
d.	xæxlæ	[xæxlæ]	Bergdohlen	'type of bird-PL'	A: 111
e.	χlupf	[çlupf]	Furcht	'fear'	A: 115

## (23) Postsonorant dorsal fricatives in Lötschental:

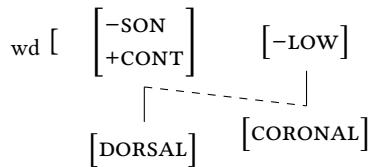
a.	nox lōx bax saxx	[nox] [lo:x] [bax] [saxx]	noch Loch Bach Sache	'still' 'hole' 'stream' 'thing'	B: 105 A: 133 A: 128 B: 106
b.	iχ riχr līχ teχtr oiχ	[iç] [riçr] [li:ç] [teçtr] [oiç]	ich reicher Leiche Tochter auch	'I' 'richer' 'body' 'daughter' 'also'	B: 95 B: 98 B: 105 B: 102 A: 132
c.	liæχpmæs	[liæçpmas]	Lichtmess	'Candlemass'	B: 100
d.	næxti(n) suæxid xæxlæ dæxxri(n)	[næxti(n)] [suæxid] [xæxlæ] [dæxxxri(n)]	gestern abend sucht Bergdohlen Dächern	'yesterday evening' 'searches-3 SG' 'type of bird-PL' 'rooves-DAT PL'	A: 112 A: 112 A: 111 A: 135
e.	milχ lērχ	[milç] [le:rç]	Milch Lärchbaum	'milk' 'kind of tree'	B: 104 B: 103

The generalizations concerning triggers for word-initial and postsonorant position in Lötschental are not the same as in Visperterminen, where high front vowels are the sole triggers (=Wd-initial Velar Fronting 4 and Velar Fronting-6). In Lötschental the triggers for word-initial and postsonorant position comprise the set of nonlow front vowels or liquids (=24 and 25). Note that /æ/ fails to induce fronting if it is a monophthong or the second component of the /uæ/ diphthong (=23d) but that /iæ/ does induce fronting (=23c). That /iæ/ is a velar fronting triggers is precisely the case in Visperterminen; recall the representations for vowels and diphthongs posited in §6.2.1.

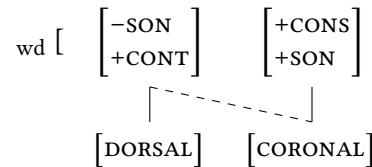
## (24)

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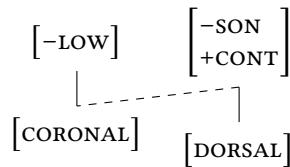
## a. Wd-Initial Velar Fronting-1:



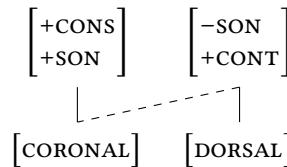
## b. Wd-Initial Velar Fronting-2:



## (25) a. Velar Fronting-2:



## b. Velar Fronting-3:



(24a) and (24b) together account for the fact that word-initial palatals occur either before a nonlow front vowel or before a sonorant consonant. (25a) and (25b) likewise express the mirror-image generalization for postsonorant position.

Schmid (1969) investigates the dialect spoken in the village of Bellwald. Although the author does not provide extensive datasets it is clear from the remarks on phonetic symbols and the phonetics of consonants that Bellwald has some version of velar fronting. Schmid (1969: XVI) posits a consonant chart with the three places of articulation for dorsal (“guttural”) fricatives and affricates from SDS (recall §15.7): Prepalatal (=⟨χ⟩/⟨kχ⟩), palatal-velar (=⟨χ’⟩/⟨kχ’⟩), and velar (=⟨χ⟩/⟨kχ⟩). Schmid (1969: XVII) even gives a clear statement on the pronunciation of the velar fricative:

In Bellwald wird von den zwei älteren Gewährsgruppen der velare Reibelaut χ unmittelbar vor oder nach i oder e (und deren qualitativen und quantitativen Varianten) als dentaler Reibelaut š gesprochen, vor oder nach einem Liquiden als palataler Reibelaut χ’ χ''. Bei der jüngsten Gruppe ist in den gleichen Stellungen meist palatales χ’, χ'', selten dentales š zu hören.

The velar fricative χ is pronounced in Bellwald in the two groups of informants as a dental fricative š immediately before or after i or e (and their qualitative and quantitative variants) and as palatal fricative χ’ χ'' before or after liquids. In the youngest group of informants palatal χ’ χ'', but seldom dental š, can usually be heard in the same contexts. In general there is a tendency today for the soft palatal pronunciation χ'' ...’.

I interpret velar fronting in Bellwald as follows: For older informants, the target segment is /χ/, which shifts to a front dental ([coronal, dental]) fricative in the

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context of a coronal sonorant by Velar Fronting-1 (=2).<sup>14</sup> If the coronal sonorant is a front vowel then the derived [coronal, dorsal] fricative surfaces as a sibilant ([ç]), but if /x/ is adjacent to a liquid then it is realized as a nonsibilant ([ç̪]). In the speech of younger informants, /x/ is fronted to [coronal, dorsal] in the context of coronal sonorants and usually surfaces as a nonsibilant ([ç̪]), rarely as a sibilant ([ç]).

It is interesting that the older generation of speakers has a sibilant as the output (in the front vowel context) and that the younger generation has replaced the sibilant with the nonsibilant [ç̪]. This is significant because the historical process of alveolopalatalization described in Chapter 10 documents precisely the reverse development: The nonsibilant [ç̪] is realized by the younger generation as a sibilant ([ç]). To the best of my knowledge Bellwald is the only variety of German which illustrates the historical change from sibilant to nonsibilant. Bellwald is also unique in the sense that the output of velar fronting differs according to context: A sibilant is created in the context of front vowels and a nonsibilant in the context of liquids.

Werlen (1977) offers a detailed study of the sound structure of the HstAlmc variety spoken in and around Brig (now Brig-Gris) couched in early generative phonology. In his discussion of dorsal fricatives (pp. 187–191) Werlen adopts the SDS transcription system with separate symbols representing three categories of dorsal fricatives (and affricates). Throughout his book Werlen refers to [χ̪] as a “palatalized” [χ] and observes (p. 190) that palatalization is a regional distinctive feature (“ein regional distinktives Merkmal”). An example of a place with velar fronting (palatalization) is Ried-Brig (Werlen 1977: 328). Werlen writes that all of his informants from that place have a strong palatal articulation (i.e. [χ̪]) for [χ]. His examples are given in (26). The five categories in (28a-e) correspond to five different speakers. I give Werlen’s transcriptions in the first column, but I ignore a few of his diacritics for clarity.

### (26) Prepalatal [χ̪] in Ried-Brig:

- |    |                           |              |                 |
|----|---------------------------|--------------|-----------------|
| a. | kχ̪’ey bu <sup>u</sup> te | keine Bauten | ‘no structures’ |
|    | gl̪χ̪’                    | gleich       | ‘same’          |
| b. | kχ̪”ērt                   | gehört       | ‘heard-PART’    |
| c. | gl̪χ̪” <sup>α</sup>       | das Gleiche  | ‘the same’      |
|    | fel̪χ̪”t                  | vielleicht   | ‘maybe’         |
|    | iχ̪’                      | ich          | ‘I’             |

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<sup>14</sup>Bellwald has low front vowels, but it is not clear from the source whether or not they induce velar fronting.

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- |    |          |            |              |
|----|----------|------------|--------------|
| d. | brüχ'ya  | braucht ja | 'needs-3 SG' |
| e. | χ'       | ich        | 'I'          |
|    | kχ'ērīχ' | hörē ich   | 'hear-1 SG'  |

Werlen posits a rule of palatalization (velar fronting) with distinctive features (p. 328) which captures the occurrence of [χ̪] in (26). According to that rule a target dorsal fricative is fronted when adjacent to a front ([–back]) vowel. The output of his rule is an “alveolar” fricative which appears to be identical featurally with the sibilant [š] (p. 230). In the present system the data in (26) are consistent with either Velar Fronting-1 (=2) or Velar Fronting-13 (=4).

Ried-Brig contrasts with neighboring places which apparently only have [χ]. Consider the discussion of Glis (Werlen 1977: 338): Werlen observes that only one of his informants from that place palatalizes [χ] to [χ̪]. Although he does not state this point explicitly, the implication – supported with his phonetic transcriptions – is that the default case for Glis (and for the town of Brig) is that [χ] is realized as [χ̪] regardless of context. An examination of Werlen’s system of distinctive features (p. 23) reveals that his /χ/ phoneme is [+high] and [+back], which are precisely those features necessary to define the velar place of articulation (p. 226). My conclusion is that Werlen’s [χ] is not palatal, but velar ([x]); hence, Werlen’s speakers from the town of Brig do not have velar fronting. I return to the status of non-velar fronting varieties in Upper Valais below.

Rübel (1950) concerns himself with the various HstAlmc terms relating to cattle breeding in Upper Valais (‘Viezucht im Oberwallis’) from the perspective of dialectology and lexicography. As peripheral as the topic might sound for a book on the phonology of dorsal consonants, Rübel’s work is extremely valuable because the author presents cattle breeding terminology in phonetic transcription which clearly distinguishes places of articulation for dorsal fricatives. What is more, Rübel (1950) does not draw his data from one specific locality, in contrast to Wipf (1910), Henzen (1928/1929), Henzen (1932), Schmid (1969), and Werlen (1977). Instead, Rübel lists copious examples from over 50 settlements interspersed along the Rhône Valley from Siders to Oberwald (including the side valleys) as well as towns and villages as far south as Saas-Grund and Zermatt. As such, the book sheds light on how velar fronting differs from place to place within a large region.

Rübel adopts a transcription system (p. XXX) similar to the one employed by SDS with the difference being that Rübel has four categories for dorsal fricatives: [x] for uvular (=χ), [χ] for velar (=x), [χ̪] for palatal (=ç), and [χ̪̪] for prepalatal.<sup>15</sup> Impressionistically the uvular fricative is rare in the data provided. By contrast, the symbols for velar, palatal, and the prepalatal are common.

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<sup>15</sup>According to Rübel [χ] corresponds to the (MoStGm) ach-Laut and [χ̪] to the ich-Laut (p.

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In a surprising (but welcome) departure from his discussion of cattle breeding terminology, Rübel provides a short subsection on the realization of dorsal fricatives (pp. 12–13). In that passage he gives a statement similar to the one from Schmid (1969) cited above, according to which the velar fricative is fronted to either  $\llbracket \chi' \rrbracket$  or  $\llbracket \chi'' \rrbracket$  in the context before or after i or e (including their qualitative and quantitative variants) or liquids. Like Werlen, Rübel writes of palatalization (“Palatalisierung”), which is equivalent to velar fronting in the present framework. Rübel (1950: 13) observes that the fronting (palatalization) of velar to  $\llbracket \chi'' \rrbracket$  is particularly prevalent in the uppermost regions of Goms (the area around Oberwald), in the outer Visp Valley (the area between Visp and Visperterminen) and in Lötschental. The specific places in those three areas which are all indicated on Map 15.6. A selection of data drawn from Rübel (1950: 9) is presented in (27), where my interpretation of his symbols is given in the second column.

- (27) a.  $\chi' r̥omə$  [çr̥omə]  
        $\chi' remə$  [çremə]
- b.  $\chi' romo$  [çromo]  
        $\chi' reme$  [çreme]
- c.  $\chi r̥omu$  [xr̥omu]  
        $\chi reme$  [xreme]

The data illustrate singular vs. plural realizations for the noun *Krommen* (unclear gloss), and the three different phonetic realizations in (27a-c) correspond to the different villages in Upper Valais.

Rübel’s observation concerning the places in Upper Valais where velar fronting (palatalization) is most prevalent is important because it establishes that velar fronting is not limited to Visperterminen, Lötschental, Bellwald, and Ried-Brig, but instead that it is a rule that has diffused itself throughout most areas of Upper Valais.

The prevalence of velar fronting in this corner of Switzerland is confirmed by the presence of the many prepalatal markers ( $\llbracket \chi' \rrbracket$ ) in that region on the SDS maps. Map II 94 for the word-initial dorsal fricative in *Kind* ‘child’ was already commented on in §15.7, but several other maps in Table 15.4 yield a similar picture. As I discuss below, the underlined sound(s) in the words listed in the first column of Table 15.4 are realized as  $\llbracket \chi' \rrbracket$  or  $\llbracket \chi'' \rrbracket$  either word-initially or after a coronal sonorant in many places in Upper Valais. The vowels adjacent to the prepalatal

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XXX, Footnote 2). In the same footnote he describes  $\llbracket \chi'' \rrbracket$  as a palatal colored h-sound (palatal gefärbter Hauchlaut).

### 15.8 Upper Valais, Northwest Italy, and Tessin

markers on those maps are almost always front, although the back vowel context is clear from Map II 183 for *bache* (*backen*) ‘bake-INF’ and Map II 201 for *rauchen* ‘smoke-INF’.

The authors of SDS note in several places that (Upper) Valais is one of the few places in Switzerland where the prepalatal realization of dorsal fricatives and affricates is common. For example, in the commentary to Map II 201 they write that the prepalatal articulation is attested in numerous places throughout the western part of the Bernese Oberland (see §15.9), Valais, and (Northwest) Italy. (‘... mit präpalataler Artikulation [zeichnen sich] zahlreiche Orte im westlichen Berner Oberland, im Wallis und im IT ...’).

On my Map 15.6 I indicate all of the places in Upper Valais where prepalatal markers occur in word-initial position on Map II 94. The data presented from that region on the other maps listed in Table 15.4 reveal that all of the places with prepalatal markers for Map II 94 – as well as many of the other villages and towns in Upper Valais – also have some degree of velar fronting in postsonorant position. The extent to which velar fronting is present in any one place is determined by the number of prepalatal markers for the maps listed in Table 15.4. It is not the case that every village and town in Upper Valais consistently applies velar fronting, although it is interesting that few of the villages and towns present in Upper Valais in SDS has no prepalatal markers at all. However, the SDS maps in Table 15.4 reveal that some places have significantly more prepalatal markers than palatal markers, while other places have many more palatal markers than prepalatal ones. In general it can be said that velar fronting is more consistent in the following areas: (a) Between Grächen and Zermatt, (b) Simplon Dorf, (c) between Oberwald and Grengiols, (d) in the German-speaking islands in Northwest Italy, and (e) Bosco Gurin (in Tessin). My conclusion concerning the prevalence of velar fronting in those five areas is especially clear on Map II 183 for *bache* (*backen*) ‘bake-INF’. On that map the authors of SDS note in the commentary that the fricative in *Rechen* ‘rake’ for Zermatt, Oberwald, Simplon Dorf, Alagna, and Rima is a ‘very palatal ch..’ (“sehr palatales *ch* ...”, where underlining is present in the original).

In (28) I list a representative selection of data from SDS from four places in Upper Valais and in (29) from three places in Northwest Italy and Bosco Gurin. It can be observed that [χ̥] or [χ̥̄] occur predominantly in the context of high front vowels and after /l/, although a few examples listed below indicate the presence of prepalatals in the neighborhood of back vowels or back consonants like [ŋ].<sup>16</sup>

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<sup>16</sup>The data listed in SDS often include multiple tokens for any one place, but only one example

## 15 Velar fronting islands

- (28) Prepalatal fricatives and affricates in Upper Valais (SDS):

	Zermatt	Grächen	Oberwald	Simplon Dorf
a. drücken	tr̥kχ'e	trikχ'u	tr̥k'χ"ə	trikχ'u
b. trinken	tr̥χ"e	tr̥χ'u	t̥r̥χ"ə	tr̥χ'u
c. getrunken	gitr̥üχ"e	gitr̥üχ'u	tr̥üχ"ə	gitr̥üχ"u
d. tränken	tr̥iχ"e	tr̥iχ'u	t̥r̥eyχ"ə	tr̥iχ'u
e. Gestank	gšt̥öüχ"	kšt̥öuχ"	kšt̥âyχ	kšt̥aiχ"
f. Anke	öüχ"e	öüχ'o	ayχ'ə	âyχ'u
g. Bank	böüχ"	böüχ'	beyχ'	băχ"
h. Speicher	iχ"	iχ"	—	iχ'
i. backen	χ'	χ'	χ'	—
Rechen	χ"	—	χ"	χ"
j. rauchen	—	—	kχ'	kχ"

- (29) Prepalatal fricatives and affricates in four German-language islands (SDS):

	Alagna	Rima	Macugnaga	Bosco Gurin
a. trinken	tr̥iχ"e	treŋχ'a	tr̥iŋχ"e	tr̥iŋχ'æ
b. getrunken	druŋχ"e	gtr̥anŋχ'd	gitruŋχ'es	tr̥uŋχ'æ
c. tränken	dreŋχ"e	tranŋχ'an	—	tr̥eŋχ'æ
d. Anke	aŋgχ'u	aŋχ'a	ãŋχ'e	ōχ'æ
e. Bank	baŋχ"	bāŋχ'	bāŋχ"	băχ'
f. melken	lχ"	lχ"	lχ'	lχ'
g. Chilche	χ"il'χ'a	χ"il"χ'o	χ'ilχ"u	χ'elχ'u
h. backen	χ'	—	χ'χ'	χ'
Rechen	χ"	χ"	—	—
i. rauchen	raikχ'-e	raukχ"-a	—	—

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is included for each word in (28) and (29). A horizontal line means either that there are no data for that particular example in that particular place or that the data given in SDS for that place contain [h] instead of a dorsal fricative or affricate. The transcriptions given in (28) and (29) are the ones in SDS, although I omit some of the more exotic diacritics for clarity. SDS does not provide complete transcriptions for (28h-j) and (29h,i).

### 15.8 Upper Valais, Northwest Italy, and Tessin

Since SDS does not offer a complete set of data for dorsal fricatives for any given place – that is, a set of words in which /x/ and/or /kx/ occurs before or after all phonemic vowels as well as /l r n/ – no definitive conclusions can be drawn concerning targets and triggers for velar fronting for any of the places listed in (28) or (29). Based on the occurrence of prepalatals even in the neighborhood of back segments for some of the places listed above suggest that velar fronting is nonassimilatory (Trigger Type F; Chapter 14).

The data from SDS are important because they confirm the findings of Rübel (1950) concerning the prevalence of velar fronting throughout the south and northeast of Upper Valais. Note the occurrence of the velar fronting markers from SDS on Map 15.6 coincide for the most part with the velar fronting markers from Rübel (1950).<sup>17</sup>

The data discussed up to this point have focused almost exclusively on the areas of Upper Valais to the northeast and south of Visp, but nothing has been said about the towns and villages along the Rhône River to the west of Visp, in particular between Raron and Siders (with the exception of Lötschental, which is a side valley). The maps in SDS indicate that velar fronting is active in this area, but only to a limited extent. Consider the case of Salgesch, which is the westernmost place in Upper Valais on the SDS maps. According to SDS Maps II 96, II 98, II 100, II 104, II 105 the palatal marker [χ] occurs for Salgesch, while the prepalatal [χ'] is present for that village on Maps II 103, II 109. The village of Agarn has even fewer prepalatal markers for those maps (2), while Inden and Turtmann both have 4 and Feschel 3. Map II 183 yields a similar picture: In the west (between Agarn and Raron) and in the general area around Ried-Brig, there is a predominance of velar markers [x], although that would not be surprising even in a velar fronting area because the velar occurs after a back vowel.

The data from Rübel (1950) are similar to the ones from SDS: The places in Upper Valais with a word-initial velar [x] in (28c) extend roughly from Siders to Raron (but excluding the side valley of Lötschental).

My conclusion is that the sources available do not allow one to reach any kind of meaningful conclusion concerning the extent to which velar fronting is active in the western part of Upper Valais.

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<sup>17</sup>Sources for one place (Bosco Gurin) do not agree on the status of velar fronting. According to the SDS maps that place is characterized by nonassimilatory velar fronting. However, in a more recent study devoted specifically to the sounds of Bosco Gurin, Russ (2002: 77) is quite clear that there is no velar fronting. This example suggests that there are (and were) speakers with and without velar fronting in that particular place. I assume that SDS based its maps on those innovative speakers with velar fronting, while Russ based his treatment on conservative speakers without that rule.

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One striking feature of Map 15.6 is the absence of non-velar fronting places in Upper Valais. One of the reasons for this is that it is not clear how to interpret the palatal [χ] from SDS, which is adopted by some of the works cited above. It was noted above that Werlen's (1977) treatment of the variety spoken in and around Brig-Gris is a non-velar fronting variety, at least for certain speakers. In contrast to Ried-Brig, which has velar fronting (palatalization), there is no equivalent rule for Werlen's other speakers (e.g. from the town of Brig). What is more, as noted earlier, his featural system treats [χ] as a velar. I tentatively conclude that there are non-velar fronting varieties in Upper Valais, but those places cannot be reliably identified based on the sources available at this time. Since it is difficult to know for sure whether or not the velar [x] is present at all in some of the places listed on my Map 15.6 I do not attempt to indicate on that map those places with only front dorsals (=nonassimilatory velar fronting) in contrast to Map 15.8 and Map 15.9 below.

Upper Valais can be thought of as a sizeable velar fronting island because it is almost completely surrounded by high mountains or areas where a Romance language (Italian or French) is spoken. There is a small corridor in the northeastern part of Upper Valais (around Oberwald) which connects Upper Valais with the rest of German-speaking Switzerland, but the closest dialect – Urserental in the canton of Uri ca. 23 km to the northeast – is one without velar fronting (Abegg 1910). The distinction between Northeast Valais (velar fronting) with Southwest Uri (no velar fronting) is depicted well on SDS Map II 183, where the former is covered with markers for prepalatals and the latter with markers for velars.

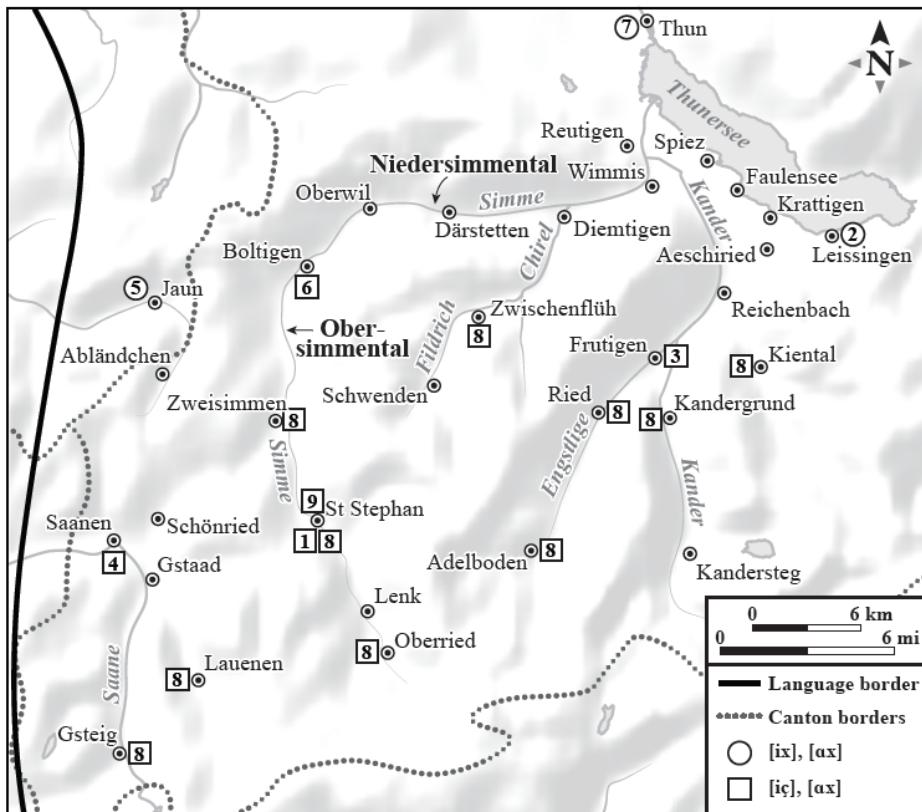
## 15.9 Southwest Bernese Oberland

The Bernese Oberland (Berner Oberland) is a large area in the southern part of the canton of Bern which corresponds to one of that canton's five administrative divisions (Oberland). The places I discuss below with velar fronting (of /x/ and /kx/) are located in an area I refer to as Southwest Bernese Oberland, which is the region to the south(west) of Thun, as depicted on Map 15.7. The German dialects in this region are classified as HstAlmc.<sup>18</sup>

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<sup>18</sup>The earliest work identifying this area as one with [x] and [ç] is Moulton (1941: 63). I discuss the below the three places Moulton mentions as well as several others from sources not available to him. Moulton also considers Grindelwald (ca. 15 km south of Brienz) to be a place with [x] and [ç]. I do not discuss Grindelwald because Moulton's assessment is based solely on two words in word-initial position. Moulton does not discuss the extent to which the triggers for velar fronting can differ from place to place within the Southwest Bernese Oberland.

## 15.9 Southwest Bernese Oberland



Map 15.7: Southwest Bernese Oberland. Squares indicate some version of velar fronting (postsonorant and/or word-initial), and circles indicate the absence of velar fronting. 1=Zahler (1901) 2=Gröger (1914b), 3=Gröger (1914a), 4=Gröger (1914d) 5=Stucki (1917), 6=Henzen (1927), 7=Marti (1985), 8=SDS, 9=SiWS.

## 15 Velar fronting islands

I discuss first the sources for velar fronting in specific towns and villages in the Southeast Bernese Oberland, and then I turn to data from SDS.

Gröger (1914d) provides a phonetically transcribed text from a native speaker from Saanen which indicates the realization of /x/ and /kx/ as the corresponding palatals in word-initial position (=30). The dataset in (31) indicates that the fronting of /x/ and the corresponding geminate /xx/ are also active after a coronal sonorant.

- (30) Word-initial dorsal fricatives and affricates in Saanen:

a.	xunšt	[xunʃt]	kommst	'comes-2 SG'	60
	kxobi	[kxobi]	Jakob	'name'	57
	xalbər	[xalbər]	Kälber	'cattle-PL'	58
b.	χ̥untsfūšt	[ç̥intsfy;ʃt]	Kindsfäuste	'child's fists'	58
	χ̥üə	[ç̥və]	Kühe	'cows'	57
	χ̥ænə	[ç̥ænə]	können	'be able-INF'	58
c.	χ̥næχ̥tə	[ç̥næχ̥tə]	Knechte	'vassals'	58

- (31) Postsonorant dorsal fricatives in Saanen:

a.	kf̥əx	[kf̥rəx]	Galtvieh	'young stock'	57
	maxxə	[maxxə]	machen	'do-INF'	58
b.	iχ̥	[iç̥]	ich	'I'	57
	kš̥iχ̥t	[kʃ̥iç̥t]	Geschichte	'story'	60
	græχ̥ə	[græç̥ə]	unclear gloss		58
c.	mælχ̥ə	[mælç̥ə]	melken	'milk-INF'	58

The data provided in (30) and (31) indicate that the set of triggers for velar fronting in both word-initial and postsonorant position is the class of coronal sonorants. The formal rules that account for these generalizations are Wd-Initial Velar Fronting-8 (=12) and Velar Fronting-1 (=2).

Gröger (1914a) provides a phonetically transcribed text from a native speaker from Frutigen indicating the presence of velar fronting in word-initial (=32) and postsonorant position (=33).

- (32) Word-initial dorsal fricatives in Frutigen:

a.	xūm	[xu:m]	kaum	'hardly'	57
b.	χ̥eli	[ç̥eli]	unclear gloss		56
	χ̥önə	[ç̥onə]	können	'be able-INF'	55
	χ̥ömu	[ç̥omı]	käme	'come-3 SG SUBJ'	55
	pχ̥ent	[pç̥ent]	gekannt	'known-PART'	57

## 15.9 Southwest Bernese Oberland

c.	χnöwwə	[cnøwwə]	niederknien	'kneel down-INF'	57
(33) Postsonorant dorsal fricatives and affricates in Frutigen:					
a.	wuxxə	[wuxxə]	Woche	'week'	55
	tōxt	[to:xt]	gedünkt	'thought-PART'	55
	maxxə	[maxxə]	machen	'do-INF'	56
b.	sıχ	[sıç]	sich	'reflexive pronoun'	56
	šlæχt	[ʃlæçt]	schlecht	'bad'	56
	ræχt	[ræçt]	recht	'right'	55
	kštekχt	[kʃtekçt]	gesteckt	'stuck-PART'	57

As in Saanen, the data in (32) and (33) from Frutigen indicate that velar fronting is induced by all coronal sonorants (=Wd-Initial Velar Fronting-8 and Velar Fronting-1).

Zahler (1901) provides a list of verb conjugations in the HstAlmc dialect of St. Stephan. It is clear from Zahler's data that [x] (=|[x]|) and [ç] (=|[ç]|) are positional variants whose distribution is a function of an adjacent vowel. This can be seen in the three partial paradigms in (34) from Zahler (1901: 229, 231), which illustrate that [ç] surfaces in the context of a front vowel and [x] in the context of a back vowel.<sup>19</sup>

## (34) Dorsal fricatives in St. Stephan:

a.	xoə	[xoə]	kommen	'come-INF'
	xumə	[xumə]	komme	'come-1 SG'
	xumſt	[xumſt]	kommst	'come-2 SG'
	xumt'	[xumt]	kommt	'come-3 SG'
	cemə	[çemə]	kommen	'come-1/3 PL'
	cemət'	[çemət]	kommt	'come-2 PL'
	ceəmɪ	[ceəmɪ]	kam	'came-PRET'
	xoə	[xoə]	gekommen	'come-PART'
	xum	[xum]	komm	'come-IMP SG'
	cemət'	[çemət]	kommt	'come-IMP PL'
b.	präcə	[præçə]	brechen	'break-INF'
	prīcə	[priçə]	breche	'break-1 SG'
	prīcſt	[priçſt]	brichst	'break-2 SG'

<sup>19</sup>Zahler notes that some speakers have alternant pronunciations. For example, [ç] surfaces in the context of low front vowels for some informants, while others have [x] in that context, e.g. [präcə] 'break-INF' in (34b) vs. [präxa]. Variation involving the status of low front vowels as velar fronting triggers has been made repeatedly in this book.

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pr̥ict'	[priçt]	bricht	'break-3 SG'
pr̥ux̥ɪ	[pr̥ʊxi]	brach	'broke-PRET'
proxə	[proxə]	gebrochen	'broken-PART'
c. šühə	[ʃyhə]	scheuchen	'shoo-INF'
šüuc̥st̥	[ʃy:c̥st̥]	scheuchst̥	'shoo-2 SG'
šüuct̥'	[ʃy:c̥t̥]	streicht̥	'shoo-3 SG'
šüuct̥i	[ʃy:c̥tri]	scheuchte	'shooed-PRET'
kšüuct̥'	[kʃy:c̥t̥]	gescheucht̥	'shooed-PRET'

The data in Zahler (1901) include a number of verbs like the one in (34c) with alternations between [h] and [ç]; recall similar data and discussion from Maienfeld (Meinherz 1920) in §3.3. As in Maienfeld, the alternations involving [h] and [ç] require an underlying /x/ which shifts to [h] in onset position (between vowels) by Debuccalization. If the vowel preceding that /x/ is front and if /x/ is parsed into the coda, then it surfaces as [ç], as in the final four examples in (34c). Seen in this light, Debuccalization in examples like [ʃyhə] (from /ʃyxə/) bleeds feeds velar fronting; hence, [ç] and [x] have a transparent distribution.

Additional data from Zahler (1901: 231-233) reveal that the set of triggers for velar fronting in St. Stephan does not include nasalized vowels (=35a) or coronal sonorant consonants (=35b).

## (35) Postsonorant dorsal fricatives in St. Stephan:

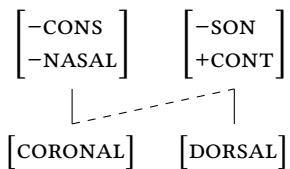
a. hēhə	[hēhə]	hängen	'hang-INF'
hēx̥t̥	[hēx̥t̥]	hängst̥	'hangs-2 SG'
hēxt̥'	[hēxt̥]	hängt̥	'hangs-3 SG'
hēxt̥i	[hēxt̥i]	hing	'hangs-PRET'
b. melhə	[melhə]	melken	'milk-INF'
mīlxə	[mīlxə]	melke	'milk-1 SG'
mīlx̥t̥	[mīlx̥t̥]	melkst̥	'milk-2 SG'
mīlx̥t̥'	[mīlx̥t̥]	melkt̥	'milk-3 SG'

The items listed in (35a) are particularly significant because they require that the set of triggers for postsonorant velar fronting in St. Stephan be restricted to front [-nasal] vowels. This restriction is without precedent in German dialects and even from the cross-linguistic perspective it is rare, although it is attested in the West African language Fanti (recall §2.3.3).<sup>20</sup> INF' in (35a). I do not consider this fact to be of significance.

<sup>20</sup>Zahler provides a number of other verbs confirming the same generalization, namely that [x] consistently fails to undergo velar fronting after a nasalized vowel. In all of his examples the [x] that fails to front alternates with [h], cf. [hēhə] 'hang-

## 15.9 Southwest Bernese Oberland

- (36) Velar Fronting-14:



For word-initial position (=34a) there are no data with nasalized vowels following [x]/[ç]; hence, one cannot know whether or not that context requires a set of triggers consisting solely of front oral vowels. The data in (34a) are consistent with Wd-Initial Velar Fronting-8 (=12) or Wd-Initial Velar Fronting-3 (=21b).

A more recent source for St. Stephan is the dictionary for the Simmental (SiWS), which focuses in particular on the dialect of Simmental spoken in that particular town (p. 5). In the pronunciation guide (p. 9) there is a brief statement concerning the pronunciation of dorsal fricatives:

*ch* sprechen manche Leute durchwegs als ach-Laut (hinten), andere fast ausschliesslich (selbst in Wörtern wie *chlage*, *chriege*) als ich-Laut (vorn), wieder andere als mittleres, am Gaumenbogen gebildetes *ch*, während weitere je nach dem folgenden Konsonanten variieren: rauhes *ch* bei *Sach*, *Chüchi* (Küche), weiches bei *Chüe* (Kühe), *richtig*.

‘Some people pronounce *ch* consistently as an ach-Laut (back), others almost exclusively (even in words like fast *chlage*, *chriege*) as an ich-Laut (front), and others as a middle *ch* formed on the palatal arch, while others vary according to the following consonant: rough *ch* in *Sach*, *Chüchi* (Küche), soft in *Chüe* (Kühe), *richtig*’.

Since SiWS does not provide phonetic transcriptions it is not possible to compare the data in that source with the ones from Zahler (1901). However, the quote is revealing since it suggests that the dialect of St. Stephan is characterized by considerable variation. On the one hand there are people with without velar fronting, but on the other hand there are individuals with that rule. Among the latter speakers, some apply velar fronting to produce palatal [ç] in the context of any sound (=nonassimilatory velar fronting), while others restrict the occurrence of palatals to the context of front vowels (assimilatory velar fronting). Reference to the “middle *ch*” suggests that for those speakers velars undergo coarticulatory velar fronting, which produces prevelars. As noted below, nonassimilatory velar fronting is also attested in the data from SDS for the Bernese Oberland.

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Henzen (1927: 245) provides some brief remarks on the realization of [χ] in the Upper Simmental (Obersimmental), which is broadly defined as the region between Lenk and Boltigen. Henzen's sparse set of examples in (37) shows that the palatal occurs in the context of front vowels and [χ] in the context of back vowels.

(37) Dorsal fricatives in Obersimmental:

a.	χeəs	[çeəs]	Käse	'cheese'	245
b.	iχ	[iç]	ich	'I'	245
	iχ	[diç]	dich	'you-ACC SG'	245
c.	nɔχ	[nɔχ]	noch	still	245

Another (very terse) source for Simmental is Panizzolo (1982: 26), who remarks in passing that /χ/ surfaces as palatal [ç]. One item is provided in that source for [ç] in word-initial position, namely orthographic *ch* in *Chäse* 'cheese' and two words for [ç] in postsonorant position, namely [auç] 'also' and [dɔç] 'however'. It is interesting to observe that the final two examples contain the palatal fricative in the context after a back vowel. If these data are representative (and if postsonorant velar fronting also applies after coronal sonorants) then Panizzolo's variety of Simmental has nonassimilatory velar fronting; recall the quote from SiWS given above.

The maps in SDS confirm that the Southwest Bernese Oberland is a velar fronting area; recall the quote from the commentary to Map II 201 given in the preceding section. That the region depicted on my Map 14.2 is a velar fronting area can be determined on the basis of the many prepalatal markers ([χ']) for some of the places listed above as well as for other places in the same general vicinity. One such map is II 94 for *Kind* 'child' with prepalatal markers for eight places in the Southwest Bernese Oberland. All of those villages and towns are depicted on my Map 15.7 with markers indicating velar fronting. I have also included on my map velar fronting markers for Gsteig and Adelboden, which are indicated with the [χ'] symbol in the commentary for Map II 94 for the similar word *Korn* 'grain'. I also include Kiental on my Map 15.7 as a velar fronting place because it is indicated on SDS Map II 183 with the prepalatal marker for *backen* (*bache*) 'bake-INF'.

In (38) I list four places from SDS in the Southwest Bernese Oberland along with the realization in those places of the five words in the first column. Those five words correspond to five of the maps in Table 15.4. The transcriptions are taken directly from SDS, although I have omitted a few of the diacritics for consonants and vowels for greater transparency. For the words listed below I only list

## 15.9 Southwest Bernese Oberland

one of the tokens for each of the places listed in the top row. SDS does not provide full phonetic transcriptions for (38d,e), but that source does indicate that the prepalatal [χ̪] occurs in those places. (The marker in SDS for Gsteig for 38d does not indicate whether or not the dorsal fricative is palatal, prepalatal, or velar).

- (38) Dorsal fricatives and affricates in the Southwest Bernese Oberland (SDS):

	Lauenen	Gsteig	Zwischenflüh	Adelboden
a. drücken	drükχ̪ə	drükχ̪ə	trükχ̪ə	trükχ̪'
b. Anke	ãŋχ̪ə	aŋχ̪ə	aŋkχ̪ə	aŋkχ̪ə
c. Bänklein	bẽkχ̪'l̩	bẽŋkχ̪'l̩	bẽχ̪'l̩	bẽχ̪'l̩
d. bache	χ̪'	—	χ̪'	χ̪'
e. rauchen	kχ̪'	kχ̪	kχ̪	kχ̪

Note that there is some variation in the context of back sounds (in 38d,e), where both prepalatal and palatal markers occur. Example (38b) likewise illustrates that both prepalatal and palatal occur in the context after a (back) sound, namely the velar nasal preceded by a back vowel.

The sources cited above indicate that velar fronting is well-attested to various degrees in towns and villages confined to an area of about 35km from west to east and 25km from north to south. None of the works mentioned in this section give any indication that velar fronting is active outside of that small region, e.g. to the north of the Lower Simmental (Niedersimmental). The maps in SDS show only palatal markers (but no prepalatal markers) to the (north)west of Saanen (in Abländchen), to the north of Zwischenflüh (in Boltigen, Diemtigen, Reutigen, Faulensee, Aeschiried, and Reichenbach), and in the southwest (in Kandersteg).

The towns and villages in the small area I refer to as the Southwest Bernese Oberland can be thought of collectively as a velar fronting island. That region is bounded to the west by a different language (French), and to the south by the Bernese Alps. The German-speaking area to the west in the neighboring canton of Freiburg (Jaun) has no velar fronting (Stucki 1917), and the part of Freiburg to the north of Jaun – the Sensebezirk – likewise has no velar fronting (Henzen 1927: 20). Marti (1985) offers a description of the Bernese dialect between Thun and the parts of the canton of Bern to the north, but that source is clear that there is no velar fronting (Marti 1985: 21). The absence of velar fronting is also attested in the town of Leissingen (Gröger 1914b) on the southeast shore of Lake Thun (Thunersee). No source is available for the places in the small passage of about 17 km separating Leissingen from the Bernese Alps.

## 15 Velar fronting islands

### 15.10 Tyrol

Tyrol is sometimes described as a region without velar fronting. For example, the dialect dictionary for that region (TiWb) classifies [χ] (=⟨ch⟩) as a velar (i.e. guttural) fricative (I: p. xix). More recently, Gabriel (1985: 73) writes that the velar fricative is the usual pronunciation in West Tyrol (“In Westtirol, wo der velare Reibelaut die Regel ist ...”.)

While the absence of velar fronting is probably the norm for most of Tyrol, according to various remarks made in Schatz (1903), there are velar fronting islands in that region. Consider the following passage (Schatz 1903: 21):

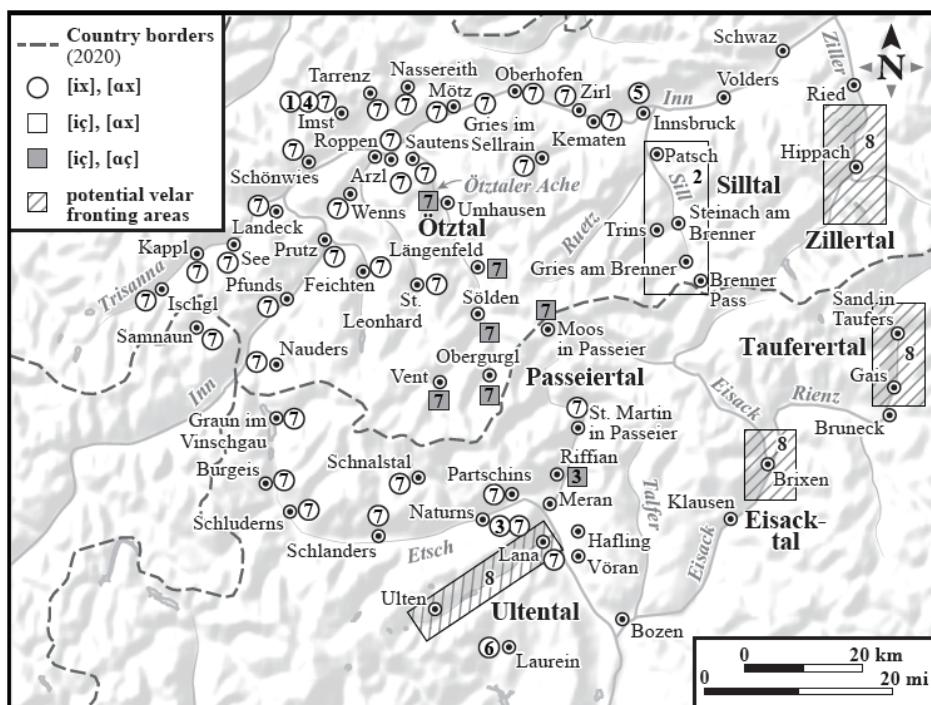
Der Reibelaut  $\chi$  ist wie alle Gaumenlaute nicht an eine bestimmte Artikulationsstelle gebunden, wie etwa der Lippenreibelaut *f*. Nach Lauten, welche am harten Gaumen gebildet werden, wird auch  $\chi$  etwas weiter vorn gebildet, doch kennt das Inntal und Etschtal ... nur mehr einen einzigen Gaumenreibelaut, der am weichen Gaumen gebildet wird. Dagegen hat in Nordtirol das Ötztal, Sill- und Zillertal, in Südtirol das Passeier, das obere Eisack- und Pustertal, das Iseltal ... den ach-Laut und den ich-Laut, diesen nach palatalen Vokalen ....

‘Like all other dorsal sounds, the fricative  $\chi$  is not bound to a particular place of articulation, as for example the labial fricative *f*. After sounds produced on the hard palate,  $\chi$  has a slightly more advanced pronunciation, but Inntal and the Etcthal only have a single dorsal fricative, which is produced on the soft palate. By contrast, Ötztal, Silltal, Zillertal in North Tyrol, and Passeier(tal), Upper Eisacktal and Pustertal, Iseltal in South Tyrol ... have the ach-Laut and the ich-Laut, the latter occurring after front vowels ...’.

According to the sources cited below, Schatz’s observation that velar fronting is active in various enclaves in Tyrol can be confirmed, although the data in those sources do not always agree that the triggers are restricted to front vowels. Map 15.8 indicates areas with and without velar fronting in Tyrol which are commented on below.<sup>21</sup>

I discuss first data from two Ortsgrammatiken and then I turn to the linguistic atlases for this region, namely VALTS and TSA. All of the sources and places described below are depicted on Map 15.8.

<sup>21</sup>I only consider here the status of velar fronting in secluded parts of Tyrol and therefore do not discuss urban areas. Innsbruck is indicated on Map 3.3 and Map 15.8 as a non-velar fronting variety on the basis of the phonetic transcriptions from one of Moosmüller’s (1991) speakers. On the other hand, her second speaker from Innsbruck clearly has (postsonorant) velar fronting.



Map 15.8: Tyrol. The white rectangle indicates assimilatory postsonorant velar fronting, shaded squares nonassimilatory postsonorant velar fronting and circles the absence of postsonorant velar fronting. Lined rectangles are potential velar fronting regions. 1=Schatz (1897), 2=Egger (1909), 3=Insam (1936), 4=Hathaway (1979), 5=Moosmüller (1991), 6=Kollmann (2007), 7=VALTS, 8=TSA.

Insam (1936) discusses the broad area in and around Meran. In his discussion of phonetics (p. 12) Insam observes that the fortis dorsal fricative (his [χ]) – as well as the corresponding affricate (his [kχ]) – can be realized as palatal (articulated on the hard palate) or velar (articulated on the soft palate) depending on both the phonological context and the place within the greater Meran region. Insam writes that the realization is palatal in the neighborhood of *i*, *e* “in den Tälern” [‘in the valleys’], but that it is consistently realized as [x] in Naturns, and usually realized as [x] in Meran. It is clear from the discussion on p. 12 that one of the valleys he is referring to is Passeiertal. His data for Naturns (without velar fronting) and Passeiertal (with velar fronting) are presented in (39) and (40) respectively. Although Insam’s description implies that palatals only occur after front vowels, he provides several words with those segments in the context after back vowels, e.g. (40b). If these data are representative then Passeiertal illustrates Trigger

## 15 Velar fronting islands

Type F (Chapter 14). Other places with postsonorant velar fronting mentioned by Insam (1936: 49) are Ulten and Hafling, although that source only provides a sparse set of data ([siççər] ‘certainly’, [ʃiøç] ‘unattractive’).

(39) Velar fricatives and affricates in Naturns:

a.	šrekχ	[ʃrækx]	Schreck	‘scare’	12
	glikχ	[glíkx]	Glück	‘fortune’	12
	šiχχər	[sixxər]	sicher	‘certainly’	49
b.	liøkχ	[liøkx]	Licht	‘light’	12
	šiøχ	[ʃiøx]	unschön	‘unattractive’	49
	miøχ	[miøx]	würde machen	‘would_do.1/3 SG’	12
	rokχ	[rokx]	Rock	‘skirt’	12
	lukχ	[lukx]	Lücke	‘gap’	12

(40) Palatal fricatives and affricates in Passeiertal:

a.	šrekç	[ʃrækç]	Schreck	‘scare’	12
	glikç	[glíkç]	Glück	‘fortune’	12
	šiχχər	[siççər]	sicher	‘certainly’	49
b.	liøkç	[liøkç]	Licht	‘light’	12
	šiøç	[ʃiøç]	unschön	‘unattractive’	49
	miøç	[miøç]	würde machen	‘would_do.1/3 SG’	12
	rokç	[rokç]	Rock	‘skirt’	12
	lukç	[lukç]	Lücke	‘gap’	12

Since velar affricates and fricatives are lacking in Passeiertal (in postsonorant position) I treat the palatals in that context as underlying palatals (/ç/, /kç/); recall Chapter 14.

A second velar fronting valley indicated on Map 15.8 is Silltal. Egger (1909) describes the phonetics of consonants and vowels in that area. Egger (1909: 15) stresses that dorsal (‘guttural’) fricatives, affricates, and stops can be articulated either on the hard palate in the context after front vowels or on the soft palate in the context of back segments. Since his data for the velar vs. palatal distinction are primarily fricatives ([x]=[ç]; [χ]=[ç]), I ignore stops and affricates below. The data in (41) illustrate the pattern for postsonorant position:

(41) Dorsal fricatives in Silltal:

a.	pøxxn	[pøxxn]	backen	‘bake-INF’	16
	døx	[dø:x]	Dach	‘roof’	16
	axl	[a:xl]	kränklich	‘sickly’	16

## 15.10 Tyrol

b.	pāx	[pæ:x]	Pech	'misfortune'	16
c.	fix	[fi:c]	Vieh	'cattle'	16
	mixx̥l	[miççl]	Michael	'(name)'	16
	šprūx	[ʃpry:c]	Spruch	'saying'	8
	wöxxə	[wøççə]	unclear gloss		8
d.	melx̥n	[melçn]	melken	'milk-INF'	16
	wirx̥n	[wirçn]	wirken	'seem-INF'	16

The words listed above show that velars occur after back vowels (=41a) or the low front vowel (=41b), while palatals surface after nonlow front vowels (=41c) or coronal sonorant consonants (41d). Silltal therefore illustrates the relatively uncommon Velar Fronting-2 (=21a).

The maps from VALTS with words containing dorsal fricatives are listed in Table 15.5. The underlined sound(s) surface as dorsal affricates for Map III 5 and as dorsal fricatives in all other maps. The dorsal fricatives can be either in the context after a sonorant or in word-initial position.

Like SDS (Table 15.3), VALTS recognizes three places of articulation for dorsal fricatives/affricates (Gabriel 1985: 74):  $\llbracket \chi \rrbracket$  (=palatal),  $\llbracket x \rrbracket$  (=velar), and  $\llbracket \chi' \rrbracket / \llbracket x' \rrbracket$  ('=prepalatal or extreme prepupalatal fricative' ['präpalataler bzw. extrem präpalataler Reibelaut']). I summarize the three categories in VALTS and my interpretation thereof in Table 15.6.

Given the maps from VALTS, the first area to consider is the one comprising the five velar fronting villages aligned along the Ötztaler Ache (in Ötztal): Umhausen, Längenfeld, Sölden, Obergurgl, and Vent. It is important to stress that those communities are isolated from all of surrounding villages given the mountainous terrain. For example, the closest place to Längenfeld in the west is St. Leonhard (Pitztal), but neither streets nor railways connect that place directly with Längenfeld or with any of the other velar fronting villages in Ötztal. The five velar fronting varieties of Ötztal are similarly cut off from the places to the south, e.g. Schnalstal in Italy (South Tyrol).

The velar fronting markers (lightly shaded squares) in Ötztal on Map 15.8 are indicated on the VALTS maps in Table 15.5 with markers representing prepalatals ( $\llbracket \chi' \rrbracket / \llbracket x' \rrbracket$ ). There can be little doubt that the five velar fronting places in Ötztal collectively comprise a velar fronting island because they are in a secluded valley surrounded by places in which /x/ and /kx/ are consistently realized as velar.<sup>22</sup>

<sup>22</sup>Kranzmayer (1956: 71) perceived of the prepupalatal fricatives and affricates in Ötztal as sibilants.

As indicated in Table 15.6, I see the sibilant realization of  $\llbracket \chi' \rrbracket / \llbracket x' \rrbracket$  as the alveolopalatal fricative ([ç]).

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Table 15.5: Maps from VALTS with dorsal fricatives/affricates in post-sonorant position and word-initial position

Examples	Map no.
Acker ‘field’	III 41b
bücken ‘stoop-INF’	III 41b
Decke ‘blanket’	III 41b
bachen (=backen) ‘bake-INF’	III 45a
Küche ‘kitchen’	III 45a
Rechen ‘rake’	III 45a
trocken ‘dry’	III 45b
Mark ‘borderland’	III 46
stark ‘strong’	III 47
stärker ‘stronger’	III 47
Birke ‘birch tree’	III 48
Kalk ‘lime’	III 49
melken ‘milk-INF’	III 50
Molken ‘wheys’	III 51
Wolke ‘cloud’	III 52
Milch ‘milk’	III 53
Floh ‘flea’	III 59
Flöhe ‘fleas’	III 59
Schuh ‘shoe’	III 59
Schuhe ‘shoes’	III 59
Berg ‘mountain’	III 5
Kind ‘child’	III 40a
Kuh ‘cow’	III 40a
Kasten ‘box’	III 40a
klein ‘small’	III 40b
Knie ‘knee’	III 40b
Kraut ‘herb’	III 40b
Kitz ‘young goat’	III 60a
kitzen ‘give birth to young goat-INF’	III 60b
	III 60b

Table 15.6: VALTS symbols for dorsal fricatives and their probable interpretation

VALTS term and symbol	Phonological Features	Phonetic realization
prepalatal [χ']/[χ'']	[coronal, dorsal]	[ç], [ç̥], [ç̥̥]
palatal [χ]	[dorsal] or ([coronal, dorsal])	[χ] or ([ç̥])
velar [x]	[dorsal]	[x], [χ]

Since the velar fronting island of Ötztal has prepalatal markers in postsonorant position after front vowels, liquids, and back vowels and in word-initial position before any sound, the data from VALTS suggest that this area is characterized by nonassimilatory velar fronting (Trigger Type F; Chapter 14). No indication is given in VALTS that the five velar fronting places in Ötztal have velar [x] or [kx]. If this is the correct interpretation of the maps from VALTS then historical /x/ and /kx/ have restructured to /ç̥/ and /kç̥/.<sup>23</sup>

Another valley to consider is Passeiertal, in South Tyrol (Italy); recall (40). The VALTS maps in Table 15.5 provide evidence that one particular place in Passeiertal (Moos in Passeier) is a velar fronting village because of the prevalence of prepalatal markers. This generalization holds for /ç̥/ (< /x/) in postsonorant and word-initial position, but not for the affricate /kx/, which surfaces as [kx] in the example listed on Map III 5.

TSA includes a number of maps for words containing dorsal fricatives and affricates in postsonorant position. The words represented by those maps and the corresponding map number are listed in Table 15.7. The scope of that atlas subsumes both North Tyrol (Austria) and South Tyrol (Italy). The transcription system for TSA includes symbols for two velar fricatives/affricates: [x]/[kx] for voiceless lenis and [χ]/[kχ] for voiceless fortis (TSA I: 12). The corresponding lenis and fortis palatal sounds are expressed with the addition of the inverted breve diacritic (˘) over the fricative symbol. In terms of place of articulation, TSA therefore differs from SDS and VALTS in the sense that it only has two place categories for dorsal fricatives and affricates, namely velar and palatal.

<sup>23</sup>The conclusion drawn here is also consistent with the maps in VALTS for vowels not listed in Table 15.5. Since those maps are concerned with the modern reflexes of etymological vowels it is not always clear from the markers what the sounds preceding or following those vowels are for any given place. However, in the maps for vowels followed by a dorsal fricative – Map II 190a for *Bach* ‘stream’ being a typical example – the five velar fronting places in Ötztal (together with Moos in Passeier discussed below) are the only ones with markers for prepalatal fricatives.

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Table 15.7: Maps from TSA with dorsal fricatives in postsonorant position

Examples	Map no.
sehen ‘see-INF’	27
leihen ‘lend-INF’	28
aufhin ‘upwards’	29
Föhre ‘pine’	35
Truhe ‘chest’	36
Schuhe ‘shoes’	37
Schmelhe ‘something small’	38
Floh ‘flea’	39
hoch ‘high’	39
Kirche ‘church’	40
Lache ‘puddle’	41
Birke ‘birch tree’	46
wirken ‘seem-INF’	46
Milch ‘milk’	64

An examination of the TSA maps listed above reveals that the typical dorsal place of articulation for the region as a whole is velar. However, several maps depict what appear to be velar fronting islands (recall the quote from Schatz 1903 at the beginning of this section). The difficulty with TSA is that it is not clear how to evaluate the palatal symbols. My interpretation thereof is summarized in Table 15.8.

Table 15.8: TSA symbols for dorsal fricatives and their probable interpretation

TSA term and symbol	Phonological Features	Phonetic realization
palatal [χ]	[dorsal] or [coronal, dorsal]	[χ] or [ç]
velar [x]	[dorsal]	[x], [χ]

On the one hand it could be that [χ] corresponds to my palatal, e.g. [ç] for the fortis [coronal, dorsal] fricative. One area in Tyrol for which this interpretation is correct is Ötztal. Like the maps from VALTS, the ones from TSA – in particular TSA Map 15.9 – indicate the palatal affricate ([kχ]) in the area surrounding the

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five velar fronting places in Ötztal on my Map 15.8. On the other hand, it is possible that the palatal symbols depicted on the maps in TSA do not represent my palatals, but instead prevelars, which are phonologically simplex [dorsal] sounds; recall Table 12.37. A case in point is Laurein (Map 15.8). Several of the maps in TSA suggest that Laurein has velar fronting because of the prevalence of palatal markers (TSA Maps 27, 35, 38, 40). However, as noted in §12.9.1, Kollmann (2007: 175) shows that Laurein /x/ and /kx/ surface as prevelar, which is not identical to the palatal articulation (ich-Laut) of MoStGm. In terms of phonology, Laurein /x/ and /kx/ are simplex [dorsal] sounds that exhibit the effects of phonetic implementation (gradient fronting), not phonological (categorical) fronting. Recall from §15.7 and earlier in the present section that there was a similar difficulty involving the interpretation of “palatal” sounds in SDS and VALTS. In those two sources the problem was resolved by interpreting only the “prepalatal” symbols as phonologically front dorsals and by assigning the “palatal” markers two different interpretations. It can be seen in Table 15.8 that the same strategy is adopted for TSA.

The conclusion is that the regions indicated on the maps in TSA with palatal fricatives and/or affricates can only be interpreted as potential velar fronting islands. I list below four of those valleys, all of which are indicated on Map 15.8.

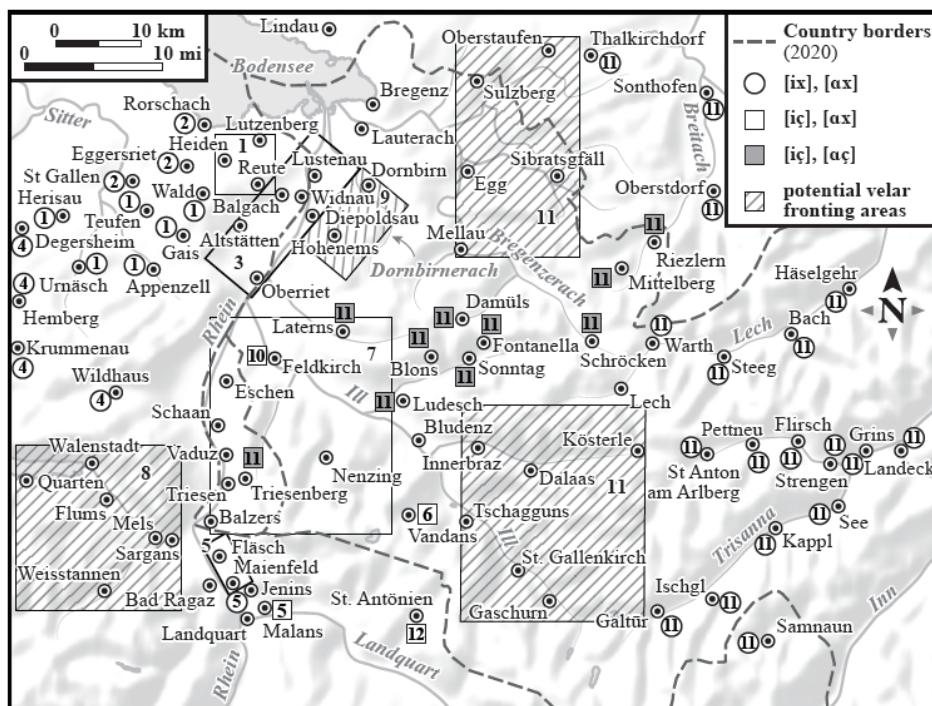
Table 15.9: Potential velar fronting areas in Tyrol on the basis of the maps in TSA

Place	TSA maps
Zillertal	39, 40, 41, 46
Tauferer Tal	27, 28, 29, 36, 39, 40, 46
Ultental	27, 28, 35, 36, 38, 40, 46
Eisacktal	36, 39

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The region investigated below is depicted on Map 15.9. It measures approximately 100km from east to west and 80km from north to south and consists of East Switzerland, parts of Southwest Germany (Swabia), the Austrian state of Vorarlberg, and the small nation of Liechtenstein. The area depicted on the map is bounded by Switzerland and Italy to the south, Germany to the north, Switzerland to the west, and Austria (Tyrol) to the east.

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Map 15.9: East Switzerland, Liechtenstein, Vorarlberg, and West Tyrol. Circles indicate no postsonorant velar fronting, white squares (assimilatory) velar fronting, and diagonal squares (potential) velar fronting. 1=Vetsch (1910), 2=Hausknecht (1911), 3=Berger (1913), 4=Wiget (1916), 5=Meinhertz (1920), 6=Jutz (1922), 7=Jutz (1925), 8=Trüb (1951), 9=Gabriel (1963), 10=Bethge & Bonnin (1969), 11=VALTS, 12=SDS.

The region under discussion is intriguing because it consists of areas with velar fronting embedded within a larger more conservative one which does not have that process. I discuss below the extent to which velar fronting places situated in this region can be thought of as one or more velar fronting island.

The places depicted on Map 15.9 can be classified into one of three groups: (a) areas with no velar fronting, (b) areas with velar fronting, and (c) potential velar fronting areas. I consider examples of (a)-(c) in order.<sup>24</sup>

<sup>24</sup>Several sources discussed below document velar fronting in East Switzerland. Unfortunately, the maps from SDS (Table 15.4) shed little light on this issue because most of the sounds in question are represented with palatal markers ([χ]) which, as discussed in §15.7, are difficult to interpret. The only place on the SDS maps in East Switzerland which has a significant number of prepalatal markers in St. Antönien, which I comment on below.

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### 15.11.1 Areas with no velar fronting

In the eastern parts of Map 15.9 velars like /x/ surface as [x] regardless of context. Those places extend from the town of Samnaun (Switzerland) in the south to Oberstdorf, Sonthofen, and Thalkirchdorf (in Allgäu, Germany) in the north, as well as the numerous villages of Austria (West Tyrol) in between. The western part of Map 15.9 (Switzerland) is also characterized by an absence of velar fronting. This is clearly the case in the northwest from Lake Constance (Bodensee) extending south to the areas around St. Gallen and Appenzell and further south to Toggenburg (e.g. Krummenau, Wildhaus). Not depicted on Map 15.9 is the non-velar fronting area in the canton of Glarus described by [Streiff \(1915\)](#) to the west of Walenstadt and Quarten.

The conclusion is that there is a relatively narrow central region between those two broad non-velar fronting areas on the periphery. The narrow region referred to here is characterized by velar fronting (or potential velar fronting) and forms – roughly speaking – a column of about 65km from east to west and 70km from north to south.<sup>25</sup>

### 15.11.2 Velar fronting areas

Two velar fronting varieties are attested in Northeast Switzerland. The first is the Rheintal dialect in the canton of St. Gallen ([Berger 1913](#)), which was discussed in §3.4. The second is the dialect spoken in Appenzell described by [Vetsch \(1910\)](#). This region subsumes the two cantons of Appenzell Innerrhoden and Appenzell Ausserrhoden, which are both completely surrounded by the canton of St. Gallen.

According to [Vetsch \(1910: 16\)](#), the velar obstruents [k g x kx] can show some degree of coarticulatory fronting in the context before and after front vowels throughout the Appenzell region. However, in part of that area the velar fricative [x] – including the corresponding geminate [xx] – and the velar affricate [kx] surface as palatal (= [χ xx kχ]) in the neighborhood of front sounds. [Vetsch \(1910: 6\)](#) calls the area with these palatal sounds Kurzenberg, which subsumes five municipalities (Gemeinden) of Appenzell Ausserrhoden (Heiden, Lutzenberg, Wolfhalden, Walzenhausen, Reute), as well as one municipality of Appenzell Innerrhoden (Oberegg). In the parts of Appenzell not belonging to Kurzenberg, dorsal fricatives and affricates surface as velar even in the context of front sounds. The velar

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<sup>25</sup>I am aware of three studies for places in Vorarlberg documenting the absence of velar fronting within that column. Those three places are Hohenems ([Seemüller 1909a](#)), Nenzing ([Schneider & Marte 1910](#)), and Lauterach ([Schneider & Marte 1910](#)). It is possible that the non-velar fronting areas depicted on Map 15.9 were once more extensive than they are in the present day.

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fronting areas Vetsch calls Kurzenberg are situated roughly in the rectangle indicated on Map 15.9.

The Kurzenberg examples in (42) show the distribution of the velar affricate and its palatal counterpart. In word-initial position, [kx] surfaces a back vowel (=42a) and the palatal [kç] before a front vowel (=42b) or coronal sonorant consonant (=42c).

(42) Dorsal affricates in Appenzell (Kurzenberg):

a.	kxoštə	[kxɔʃtə]	kosten	'cost-INF'	160
	kxats	[kxats]	Katze	'cat'	160
b.	kχištə	[kçiʃtə]	Kiste	'box'	160
	kχellə	[kçellə]	Kelle	'trowel'	160
c.	kχröt	[kçröt]	Kröte	'toad'	160
	kχlebə	[kçlebə]	kleben	'stick-INF'	160
	kχnū	[kçny:]	Knie	'knee'	160

The data in (42) are accounted for formally with Wd-Initial Velar Fronting-8 (=12).

The data in (43) illustrate that the occurrence of postsonorant velars and palatals in Kurzenberg is a function of the preceding vowel. It can be seen here that velars occur after back vowels (=43a) or after a diphthong ending in schwa (=43b) and that palatals surface after front vowels (=43c). Note that the vowel preceding schwa in (43b) is front. The only examples provided by Vetsch for category (43c) have high front vowels. The optionality involving tonic vowels ([y] vs. [yø]) illustrated in the final example in (43b) and (43c) shows the regularity of velar fronting: If the vowel is front ([y]) then /xx/ surfaces as palatal, but if it surfaces as a diphthong ending in a back vowel (schwa), then /xx/ is realized as velar.

(43) Dorsal fricatives in Appenzell (Kurzenberg):

a.	løxx	[løxx]	Loch	'hole'	161
	maxxə	[maxxə]	machen	'do-INF'	161
b.	štiøxx	[ſtiøxx]	Stich	'sting'	102
	ksiøxt	[ksiøxt]	Gesicht	'face'	102
	truøxxnə	[tryøxxnə]	trocknen	'dry-INF'	102
c.	liχt	[li:çt]	leicht	'easy'	102
	siχχər	[siçχər]	sicher	'certainly'	102
	truχχnə	[tryçχnə]	trocknen	'dry-INF'	161

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Recall from §3.4 that the set of velar fronting triggers for Rheintal is restricted to nonlow front vowels because phonologically [+low] sounds like /ɛ/ fail to induce fronting (=Velar Fronting-2 in 22a). Since Vetsch does not provide the crucial data for /x/ in the context of vowels like /ɛ/ it is not possible to say whether or not Appenzell and Rheintal are the same or different in terms of triggers. In any case, the data in (43) can be captured with either Velar Fronting-1 (=2) or Velar Fronting-13 (=4).

One difference between the two neighboring dialects is the patterning of dorsal fricatives in the context after a diphthong consisting of a front vowel plus schwa. As indicated in (43b) the velar fricative in Appenzell surfaces in that context. By contrast, in Rheintal the palatal surfaces in this environment (e.g. [li:əçt] ‘light’). The occurrence of the palatal was accounted for with Schwa Fronting-1 (§3.4), which is present in Rheintal, but absent in Appenzell.

The third velar fronting variety in East Switzerland is the one described by Meinherz (1920). Recall from §3.3 that Meinherz’s dialect (Maienfeld) subsumes three velar fronting municipalities, namely Maienfeld, Fläsch and Malans. By contrast, the neighboring community of Jenins has no velar fronting. All of those places are indicated on Map 15.9.

The fourth velar fronting area depicted on Map 15.9 is the one described by Jutz (1925), which comprises all of Liechtenstein and South Vorarlberg. It is clear from Jutz (1925) that Liechtenstein-South Vorarlberg has both velar and palatal fricatives. Jutz (1925: 26) writes: “Der Reibelaut χ wird im ganzen Gebiete zwischen den aχ- und iχ-Laut unterschieden, von denen hier der velare mit χ, der palatale mit x bezeichnet wird”. [‘The fricative χ is differentiated in the entire area between the aχ- and iχ-Laut, of which the velar is transcribed here with χ and the palatal with x.’] At a later point (p. 207), Jutz makes it clear that the dialect also distinguishes palatal and velar affricates.

In word-initial position the velar affricate occurs before a back vowel (=44a) and the corresponding palatal before a front vowel (=44b) or a coronal sonorant consonant (=44c).<sup>26</sup>

(44) Dorsal affricates in Liechtenstein-South Vorarlberg:

- |    |        |          |        |              |     |
|----|--------|----------|--------|--------------|-----|
| a. | kχunt  | [kxunt]  | kommt  | ‘comes-3 SG’ | 215 |
|    | kχoštə | [kxoʃtə] | kosten | ‘cost-INF’   | 207 |
|    | kχats  | [kxats]  | Katze  | ‘cat’        | 207 |

<sup>26</sup> Affricates are also attested in some parts of Liechtenstein-South Vorarlberg in postsonorant position, but I do not consider these data because of the irregularities referred to in Jutz (1925: 207).

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b.	kxīmmə	[kç̥i:mmə]	Keim	'germ'	207
	kxifl	[kç̥ifl]	Kiefer	'pine tree'	229
	kxār	[kç̥æ:r]	Keller	'cellar'	223
	kxiərhə	[kç̥iərhə]	Kirche	'church'	224
c.	kxrēijə	[kç̥re:i:jə]	krähen	'crow-INF'	207
	kxli	[kç̥li:]	klein	'small'	207
	kxnəxt	[kç̥nə:t]	Knecht	'vassal'	207

The distribution of velars and palatals in (44) can be captured formally with Wd-Initial Velar Fronting-8 (=12).

The data in (45) illustrate the distribution of velar and palatal fricatives in postsonorant position. The velar surfaces after a back vowel (=45a) and the palatal after a front vowel (=45b), or a liquid (=45c). If the first part of a schwa-final diphthong is a front vowel then the dorsal fricative following that diphthong is palatal (=45d), but if the first component of a schwa-final diphthong is a back vowel then a dorsal fricative after that diphthong is velar (=45e). This is the default pattern which can be captured with Velar Fronting-1 (=2).

## (45) Dorsal fricatives in Liechtenstein-South Vorarlberg:

a.	rūχ	[rʊ:x]	Rauch	'smoke'	209
	taχ	[dax]	Dach	'roof'	209
b.	glīx	[gli:ç]	gleich	'same'	210
	ix	[iç]	ich	'I'	210
	štjx	[ʃtiç]	Stich	'sting'	209
	flüxt	[flyçt]	flicht	'braids-3 SG'	212
	ręxnə	[rɛçnə]	rechnen	'calculate-INF'	207
	āxərle	[æ:çrlı]	Eichhörnchen	'squirrel'	213
c.	melx	[melç]	Milch	'milk'	209
	štarx	[ʃtarç]	stark	'strong'	208
d.	tsiəxl	[tsi:əçli]	Zieche, dim	'cover-DIM'	207
	nüəxtr	[nyəçtr]	nüchtern	'sober'	214
e.	būəχ	[bu:əx]	Buch	'book'	209

To summarize: In postsonorant position and in word-initial position, velar fronting applies in the context of any coronal sonorant. The contrast between palatal and velar in (45d-e)(47d-e) requires Schwa Fronting-1 to feed postsonorant velar fronting, as in Rheintal.<sup>27</sup>

<sup>27</sup>Jutz transcribes the palatal fricative occasionally after back vowels, e.g. [prūxt] 'used-PART',

## 15.11 East Switzerland, Liechtenstein, and Vorarlberg

The fifth velar fronting place in the region depicted on Map 15.9 is the town of Vandans in Vorarlberg (Jutz 1922). Jutz observes that Vandans possesses both velar and palatal fricatives and affricates. He writes (p. 276): “Von den Reibelauten bezeichnen χ und x das schriftdeutsche ch, doch mit dem Unterschiede, daß eine Zweiteilung in den sogenannten ωχ- und ix-Laut vorgenommen wurde...Diese beiden Laute werden in der Mundart von Vandans und Umgebung deutlich auseinandergehalten.” [‘Among the fricatives χ and x depict written German ch with the difference that a distinction between the so-called ωχ- and ix-sound was made...These two sounds are clearly distinguished in the dialect of Vandans and in the vicinity thereof.]

In word-initial position the velar affricate occurs before back vowels (=46a), while the palatal affricate surfaces before front vowels (=46b) or coronal sonorant consonants (=46c).

## (46) Dorsal affricates in Vandans:

a.	kχūə	[kxu:ə]	Kuh	‘cow’	290
	kχurts	[kxvorts]	kurz	‘short’	290
	kχats	[kxats]	Katze	‘cat’	292
b.	kxind	[kçind]	Kind	‘child’	289
	kxīrə	[kçr:rə]	kehren	‘sweep-INF’	289
	kxünig	[kçynig]	König	‘king’	290
	kxürpsə	[kçyrpsə]	Kürbis	‘pumpkin’	290
	kxessı	[kçessı]	Kessel	‘kettle’	292
c.	kxrumm	[kçrumm]	krumm	‘bent’	292
	kxlębə	[kçlębə]	kleben	‘stick-INF’	292
	kxli	[kçli:]	klein	‘small’	296

The patterning of velars and palatals in (46) is expressed formally with Wd-Initial Velar Fronting-8 (=12).

The items listed in (47) reveal that velar fricatives (singleton and geminate) occur after any back vowel (=47a) and that palatals surface after any front vowel (=47b). The occurrence of palatal in (47c) and velar in (47d) can be accounted for with Schwa Fronting-1, as in Rheintal (§3.4) and Liechtenstein-Vorarlberg.<sup>28</sup> The formal rule for (47) is Velar Fronting-1 (=2).

[fɔxt] ‘catches-3 SG’, [ænədaxtsk] ‘eighty-one’. These could be transcriptional errors. Alternatively, they might indicate that certain speakers have nonassimilatory velar fronting (Trigger Type F; Chapter 14).

<sup>28</sup>It is not clear whether or not [χ] or [ç] surfaces after a consonant because Jutz has words illustrating both patterns, e.g. [wærχχə] ‘work-INF’ vs. [fürxiktür] ‘terribly expensive’. The occurrence of the palatal affricate before liquids in (46c) suggests that [ç] should be the ex-

## 15 Velar fronting islands

(47) Dorsal fricatives in Vandans:

a.	rūχ	[rʊ:x]	Rauch	'smoke'	292
	lōχχ	[lōxx]	Loch	'hole'	292
	bāχχ	[baxx]	Bach	'stream'	292
b.	glīx	[gli:c]	gleich	'same'	292
	ix	[iç]	ich	'I'	292
	ksıxt	[ksıçt]	Gesicht	'face'	292
	krı̄xt	[krr:çt]	gerichtet	'judged-PART'	289
	fēx	[fe:c]	Vieh	'cattle'	292
	knęxt	[knęçt]	Knecht	'vassal'	291
c.	līəxt	[li:əçt]	Licht	'light'	292
d.	pūəχ	[pu:əx]	Buch	'book'	296

In sum, word-initial velar fronting is triggered by all coronal sonorants and postsonorant velar fronting by front vowels.<sup>29</sup>

Bethge & Bonnin (1969) provide a phonetically transcribed text from a native speaker of the Feldkirch dialect (Vorarlberg). The text distinguishes velar fricatives ([χ]) from palatal fricatives ([ç]). Although the number of words with those sounds is small, the generalization can be made that [χ] surfaces after a back vowel ([a a: ɔ]) and [ç] after a front vowel ([i ɛ]). The text contains no examples of dorsal fricatives after sonorant consonants.

The one place in East Switzerland which is indicated in the SDS maps in Table 15.4 with prepalatal symbols is the Walser settlement of St. Antönien in North Grisons. In (48) I give the SDS transcriptions for some of the words in that variety of German:

(48) Prepalatal fricatives and affricates in St. Antönien (SDS):

a.	Kind	χ''
b.	drücken	trükχ'ə
c.	Gestank	stāχ'
d.	Bank	bęχ'
e.	stinkt	štiχ't
f.	Speicher	īχ'

pected dorsal fricative in the mirror image context (i.e. after liquids). A few of the examples in Jutz (1922) have [χ] after a back vowel, e.g. [nuxt] 'night'.

<sup>29</sup>In Vandans, the low front vowels [æ ɛ:] are apparently restricted in their distribution to the context before liquids (Jutz 1922: 289); hence, dorsal fricatives do not occur after those sounds. (No example was found with a word-initial dorsal affricate before a low front vowel).

### 15.11 East Switzerland, Liechtenstein, and Vorarlberg

On the basis of (48) I conclude that St. Antönien is a velar fronting variety of SwGm, although not enough data are available to draw conclusions concerning the set of triggers.

Finally, I consider the status of velar fronting as indicated on the maps listed in Table 15.5 from VALTS. Recall from Table 15.6 that VALTS recognizes three places of articulation for dorsal sounds, namely velar ([x]), palatal ([χ]), and prepalatal ([χ']/[χ'']). Since it is not clear whether or not the palatal markers indicate phonologically [coronal, dorsal] sounds as opposed to phonologically simplex [dorsal] sounds that surfaces as phonetically fronted velars (prevelars), I focus on those places with the prepalatal markers. An inspection of the maps from Table 15.5 reveals the six velar fronting areas listed in Table 15.10. In the first column I list the area and in the second column villages and towns within that area. The first five of those areas are listed under the names for the respective valleys, while the sixth area is a specific town in Liechtenstein. In the third column I give the maps from VALTS which have prepalatal markers for the towns listed in the second column. Note that the final place listed in Table 15.10 (Triesenberg) is part of a larger area (Liechtenstein) in which velar fronting is attested (recall 45 and 46). The places listed in Table 15.10 also have in common that they were settled by people from Upper Valais during the Walser Migrations (§6.3; Bohnenberger 1913, Wiesinger 1983a: 902).

Table 15.10: Velar fronting areas in Vorarlberg/Liechtenstein on the basis of the maps in VALTS

Area	Town/village	VALTS maps (volume III)
Kleinwalsertal	Mittelberg, Riezlern	40a-b, 45a-b, 46, 47, 49–53
Damülser Tal	Damüls	40a-b, 45a-b, 46, 47, 49–53
Tal der Bregenzer Ache	Schröcken	40a-b, 45a-b, 53
Großes Walsertal	Sonntag, Blons, Fontanella, Raggal	40a-b, 45a, 53
Laternsertal	Laterns	45a-b, 53
Liechtenstein (Oberland)	Triesenberg	45a-b, 46, 47, 49, 53

Since the velar fronting places listed above have prepalatals in postsonorant position after front vowels, liquids, and back vowels and in word-initial position before any sound, they are characterized by nonassimilatory velar fronting (Trigger Type F; Chapter 14). No indication is given in VALTS the velar fronting places in Table 15.10 have velar [x]; thus, historical /x/ has restructured to /ç/.

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### 15.11.3 Potential velar fronting areas

Trüb (1951) investigates the historical development of vowels in the SwGm dialect spoken in the area of Walensee-Seeztal (to the west of Liechtenstein). In his charts for consonants (pp. XIX-XX), Trüb classifies all dorsal stops and fricatives (fortis/lenis/long/short) – his [k g χ] – as “palatal”, although he lists the equivalent nasal ([ŋ]) as “velar”. In Footnote 1 (p. XX) he writes: “Das *ch* unserer Landschaft wird im allgemeinen palatal gebildet, also weder präpalatal noch velar”. [‘The *ch* in our region is generally pronounced palatal, that is neither prepalatal nor velar.’] Given this statement and the proximity of Walensee-Seeztal to the velar fronting areas to the immediate east, I consider it possible that velar fronting may be active in the region. However, given the brevity of the statement in Footnote 1 it is also possible that Trüb’s “palatals” may in fact be prevelars; recall Kollmann’s (2007) conclusion concerning the realization of sounds like /x/ in Laurein.

Gabriel (1963) investigates historical changes affecting vowels and the inflectional morphology in Vorarlberger Rheintal, a large region in Northwest Vorarlberg which subsumes Dornbirn, Lustenau, and Hohenems. In the section on the phonetics of consonants, Gabriel (1963: 79) provides a one-page description of fricatives. In his transcription system (p. 45), [x] and [χ] represent voiceless lenis and voiceless fortis respectively. Gabriel provides a concise statement concerning the place of articulation of [x] and [χ] on p. 79: “x, χ bezeichnet immer den ich-Laut.” [‘x, always denote the ich-Laut.’] On the basis of that terse statement, it could be the case that (nonassimilatory) velar fronting was active historically in the region; however, it could also be the case that we are dealing with prevelars. (In contrast to VALTS and SDS, Gabriel presupposes only two places of articulation for dorsal fricatives).

VALTS provides a wealth of data from most of the places listed on Map 15.9. Recall that the velar fronting areas listed in Table 15.10 all have prepalatal markers ([χ’]/[χ’']) for the maps listed in Table 15.5. Those maps also indicate a number of places in Vorarlberg with palatal markers ([χ]). Two of those broad areas are indicated on my Map 15.9. First, there is the region south of Lech and east of Vandans. Second, there is the area around Oberstaufen (Allgäu, Germany) extending south to the area around Mellau (Vorarlberg, Austria). Since /x/ is realized in these two regions as “palatal” it is possible that they are characterized by velar fronting, but it is also conceivable that the “palatals” represent phonetically fronted velars (prevelars).

It is not easy to determine the status of the narrow – but sizeable – velar fronting column depicted on Map 15.9. On the one hand, it is possible that that column

## 15.12 Summary

represents several different velar fronting enclaves (islands) that happen to be in the same general vicinity. On the other hand, it could be that the region as a whole is one large velar fronting area. Since the northernmost potential velar fronting region on Map 15.9 extends into an area in Southwest Germany with velar fronting (Swabia), the second interpretation suggests that the column is not a velar fronting island at all, but instead a velar fronting peninsula.

### 15.12 Summary

Table 15.11 lists the places with postsonorant velar fronting discussed in this chapter. I include not only those places that are uncontroversially velar fronting islands but also some of the places discussed in §15.11 that are probably parts of a large velar fronting peninsula. The modern-day countries are listed in the second column (AT=Austria, CH=Switzerland, CZ=Czech Republic, LI=Liechtenstein, IT=Italy, SL=Slovenia). I do not include any of the areas referred to as potential velar fronting areas, nor do I give those sources with a dataset that is too sparse to determine velar fronting triggers. For greater transparency I summarize the triggers for postsonorant velar fronting in the final column of Table 15.11 in lieu of the formal rules posited above. If velar fronting is induced by one or more consonant, then this information is stated in the final column. If not enough data are presented in the source to determine whether or not consonants serve as velar fronting triggers then no reference to consonants is made in the final column. Most of the case studies summarized here only mention data involving liquids (/r l/) as triggers and omit /n/; hence, one can only speculate that the latter sound will always be a velar fronting triggers if one or more of the liquids do.<sup>30</sup>

The significance of Table 15.11 is that it lists a number of geographically disperse places with a wide variety of velar fronting triggers. In certain cases, the triggers represent common patterns, while in other cases they are either rare or otherwise unattested in German dialects. In the following summary I relate how those findings match up with the historical stages posited in Chapter 12 and Chapter 14.

The narrowest set of triggers is attested in Visperterminen (high front vowels but not coronal sonorant consonants), while a slightly broader one (nonlow front vowels but not coronal sonorant consonants) can be observed in Obersaxen.

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<sup>30</sup>Table 15.11 categorizes places only according to the triggers because the places discussed in this chapter do not display variation concerning the target segments. One exception is Gottschee, where according to Lipold (1984) the targets for postsonorant and word-initial velar fronting consist of all velar obstruents.

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Table 15.11: Velar fronting triggers (postsonorant) in velar fronting islands

Place	Source	Velar fronting triggers
Libinsdorf	CZ Weinelt (1940)	FV or /l r n/
Iglau	CZ Stolle (1969)	FV but not /r/
Altstadt	CZ Seemüller (1908b)	FV
Langenlutsch	CZ Janiczek (1911)	FV but not /r/
Rathsdorf	CZ Graebisch (1915)	FV
Micheldorf, Rehsdorf	CZ Benesch (1979)	FV
Mährisch Hermersdorf	CZ Benesch (1979)	FV or /r/
Vorder-Ehrnsdorf, Augezd, Kornitz	CZ Benesch (1979)	FV but not /r/
Rothmühl	CZ Benesch (1979)	Front unrounded V but not /r/
Giazza/Dreizehn Gemeinden	IT Schweizer (1939)	FV or liquids (and back V for some speakers)
Giazza/Dreizehn Gemeinden	IT Mayer (1971)	FV or liquids
Hinterberg (and other places)	SL Lipold (1984)	FV but not /r/
Mitterdorf	SL Seemüller (1909b)	FV but not /r/
Vals	CH Gröger (1914e)	Nonlow FV or liquids
Obersaxen	CH Brun (1918)	Nonlow FV but not liquids
Visperterminen	CH Wipf (1910)	High FV but not liquids
Lötschental	CH Henzen (1928/1929)	Nonlow FV or liquids
Upper Valais	CH Rübel (1950)	FV or liquids
Bellwald	CH Schmid (1969)	FV or liquids
Ried-Brig	CH Werlen (1977)	FV
St. Stephan	CH Zahler (1901)	Front nonnasalized V
Frutigen	CH Gröger (1914a)	FV
Saanen	CH Gröger (1914d)	FV or /l/
Silltal	AT Egger (1909)	Nonlow FV or liquids
Passeiertal	IT Insam (1936)	FV, liquids, or back V
Ötztal, Passeiertal	AT; IT VALTS	FV, liquids, or back V
636 Appenzell	CH Vetsch (1910)	FV
Rheintal	CH Berger (1913)	Nonlow FV or liquids

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Chapter 13 demonstrates that the pattern for Visperterminen (Stage 2a) is the norm in Lower Bavaria; the restricted set of triggers for Obersaxen (Stage 2b) is attested outside of Switzerland and depicted on Map 12.1. Rothmühl represents a restricted case of triggers that is otherwise only occurring in South Mecklenburg (front unrounded vowels; Stage 2a’’). According to one description of St. Stephan, the velar fronting triggers consist solely of front nonnasalized vowels. The latter pattern is the only one of its kind in German dialects and that it is also extremely rare outside of Germanic. The set of nonlow front vowels or liquids (Stage 2c) is attested as a trigger in Vals, Lötschental, Silltal, and Rheintal. The default pattern for German dialects (front vowels or liquids as postsonorant velar fronting triggers) is well-attested in the material investigated in the present chapter (Stage 2d). Finally, the nonassimilatory velar fronting (Stage 2e) is well-documented for several places (e.g. Ötztal).

Table 15.12 presents the velar fronting triggers for word-initial position for the places discussed in this chapter

Table 15.12 shows that there is considerable variation concerning velar fronting triggers in word-initial position. For example, there is a narrow set of triggers in Visperterminen (Stage 2a), Obersaxen (Stage 2b), Lötschental and Rheintal (Stage 2c), South Vorarlberg-Liechtenstein (Stage 2d), and Ötztal (Stage 2e).

With the exception of St. Stephan, all of the historical stages described in Tables 15.11 and 15.12 are attested in the varieties of velar fronting discussed in Chapters 3–13. The importance of velar fronting triggers for velar fronting islands is that – as islands – velar fronting must have phonologized in each place independently (polygenesis). It is therefore remarkable that the places listed in Tables 15.11 and 15.12 confirm to the typologically attested generalizations discussed in Chapter 12 and Chapter 13. For example, the segments inducing (assimilatory) velar fronting consist of a natural class drawn from the set of sounds referred to throughout this book as coronal sonorants. The attested natural classes for triggers listed in Tables 15.11 and 15.12 obey the Implicational Universal for Palatalization Triggers without exception; hence, none of the unattested Trigger Types discussed in §12.8.1 can be found among velar fronting islands.

The one unique case mentioned above (St. Stephan) is consistent with the rule generalization approach adopted in this book. The set of velar fronting triggers in that place (front oral vowels) suggests that that natural class be assigned a unique Trigger Type with its own historical stage. All other velar fronting varieties of German discussed in this book fall into two groups: (a) those with only oral vowels and (b) those with oral vowels and nasalized vowels but where dorsal fricatives are absent after the latter sounds (e.g. Visperterminen). Since St. Stephan is the only velar fronting variety discovered in which dorsal fricatives

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Table 15.12: Velar fronting triggers (word-initial) in velar fronting islands

Place		Source	Velar fronting triggers
Giazza/Dreizehn Gemeinden	IT	Schweizer (1939)	FV or liquids (and back V for some speakers)
Hinterberg (and other places)	SL	Lipold (1984)	FV but not /r/
Vals	CH	Gröger (1914e)	FV but not liquids
Obersaxen	CH	Brun (1918)	Nonlow FV but not liquids
Visperterminen	CH	Wipf (1910)	High FV but not liquids
Lötschental	CH	Henzen (1928/1929, 1932)	Nonlow FV or liquids
Upper Valais	CH	Rübel (1950)	FV or liquids
Bellwald	CH	Schmid (1969)	FV or liquids
Ried-Brig	CH	Werlen (1977)	FV
St. Stephan	CH	Zahler (1901)	FV
Frutigen	CH	Gröger (1914a)	FV or /n/
Saanen	CH	Gröger (1914d)	FV or /n/
Ötztal, Passeiertal	AT; IT	VALTS	FV, liquids, or back V
Appenzell	CH	Vetsch (1910)	FV or /r, l, n/
Rheintal	CH	Berger (1913)	Nonlow FV or liquids
Vandans	AT	Jutz (1922)	FV or liquids
Liechtenstein-South Vorarlberg	LI; AT	Jutz (1925)	FV

### *15.12 Summary*

occur in the context after front nasalized vowels it is not possible to know how rare or common that pattern is.



# 16 When and where was velar fronting phonologized?

## 16.1 Introduction

Although the preceding chapters have offered a diachronic treatment of velar fronting in a broad spectrum of German dialects, nothing at all has been said about how that change fits into the well-established stages in the history of German (Appendix E). In the present chapter I demonstrate how the linguistic evidence discussed in this book can shed light on when velar fronting was phonologized. That linguistic evidence is shown to be corroborated by philological evidence discussed in the earlier literature. I also discuss the extent to which the material from German dialects discussed in previous chapters can shed light on where velar fronting was phonologized.

Establishing an accurate time frame for the phonologization of velar fronting requires that I consider first word-initial position (§16.2) and then postsonorant position (§16.3). The question of where velar fronting might have been phonologized can be found in §16.4. Next, I address the issue of directionality as it relates to the earliest phonologized rule of velar fronting (§16.5). In §16.6 I take a closer look at the historical model proposed in §2.5 and show how it accounts for the general patterns discussed in Chapters 3–13. Finally, in §16.7 I discuss the extent to which it is possible to make meaningful statements concerning why velar fronting was phonologized in a certain place and time but not in another place or time.

## 16.2 Word-initial position

Insight into the dating of the fronting of word-initial WGmc <sup>+</sup>[y] can be adduced from those dialects in which that original velar is now an opaque palatal (Chapter 7–Chapter 8). Recall that opaque palatals are underlying segments like /ç/ or /j/ occurring in the context of a nonfront sound that was historically front ([coronal]). It was argued at length that opaque palatals were once palatal allophones

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of velars at the point before the original front trigger ([coronal]) was removed. Significantly, velar fronting must have been active before the elimination of the original [coronal] trigger. If the chronology of the latter change can be ascertained then it stands to reason that the dating of the originally allophonic rule of velar fronting can be inferred as well.<sup>1</sup>

A plethora of dialects was discussed earlier in which the reflex of WGmc <sup>+</sup>[y] is palatal in word-initial position before front vowels or before schwa in the *ge*-prefix (e.g. [çə]/[jə]; cf. MoStGm [gə]) but velar before full back vowels. Examples include Eph (Dorste, §4.4; Eilsdorf, §8.3; Dingelstedt am Huy, §8.4), Wph (Elspe and Schieder-Schwaleberg, §7.2), as well as several LGm and CGm varieties spoken in the northeast of pre-1945 Germany in Chapter 11. In that type of dialect the realization of an etymological velar as palatal before schwa follows if that palatal was created by velar fronting when schwa was still [i]. The chronology of the sound change producing schwa from full vowels like [i] (Vowel Reduction) can be ascertained to a fair degree of accuracy on the basis of orthographic evidence.<sup>2</sup> The assimilatory fronting of WGmc <sup>+</sup>[y] before an etymological [i] in word-initial position is most prevalent in LGm. However, since much more is known on the time frame for Vowel Reduction in HGm, I discuss first that evidence before I consider parallel data from LGm.

The earliest attested stages of HGm were OHG (750–1050) and MHG (1050–1350). In OHG the prefix referred to above was attested orthographically as *ga-*, *gi-*, and *ge-*, whose vowels I interpret as [a], [i], and [ə] respectively (Braune 2004: 73–74). In general it can be said that *ga-* was significantly more common in early OHG, but that *gi-* and then later *ge-* established themselves. By the end of the 9<sup>th</sup> century, *gi-* was the most common realization in all OHG dialects, and in late OHG *ge-* had become more and more prevalent. By early MHG *ge-* was the sole realization (Paul 2007: 108). The frequency of the three realizations of *ga-*, *gi-*, and *ge-* depended on the dialect of OHG. For example, *gi-* was first attested

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<sup>1</sup>The other etymological velar in word-initial position is WGmc <sup>+</sup>[k] (including the <sup>+</sup>[k] after a sibilant in WGmc <sup>+</sup>[sk]). The evidence discussed below concerns the dating of the fronting of word-initial <sup>+</sup>[y], but that evidence cannot be extended to the fronting of the fortis velar. The only dialects discovered in which the modern reflex of WGmc <sup>+</sup>[k] is an opaque palatal at the left edge of a word are EPo (Kreis Konitz; §11.5) and HPr (Reimerswalde; §11.6). Since the sound changes responsible for creating the underlying palatal in those places were specific to those particular dialects no evidence is available to my knowledge to determine the chronology of velar fronting.

<sup>2</sup>I do not discuss other (dialect-specific) sound changes that led to the development of opaque palatals in word-initial position because the dating of those changes is not as well-established, e.g. r-Deletion in Reinhhausen (§7.2).

## 16.2 Word-initial position

in CGm (Franconian) dialects of OHG at the beginning of the 9<sup>th</sup> century.<sup>3</sup>

A similar development from [i] to [ə] in the *ge-* prefix can be observed in the earliest stages of LGm, namely OSax (800–1150) and MLG (1150–1600). Given the paucity of textual evidence from OSax, not as much is known concerning the progression from *gi-* to *ge-* in specific OSax dialects as in OHG varieties (see King 1965 for some discussion on OSax). The most significant generalization is that in OSax the two most common realizations of the prefix in question were *gi-* and *ge-*, where the former was far more predominant than the latter (Holthausen 1900: 42). The transition from *gi-* to *ge-* appears to have been completed by the onset of MLG (Lasch 1914: 125).

In light of the developments discussed above it can be concluded that the fronting of word-initial WGmc <sup>+</sup>[y] began when the vowel of the *ge-* prefix was still [i], meaning that velar fronting must have been phonologized before that [i] was restructured to schwa. The conclusion is that the phonologization of velar fronting in word-initial position began no later than late-OHG/OSax and that the opaque in word-initial position was in place by early MHG/MLG. It is difficult to establish a precise century during OHG/OSax when velar fronting was phonologized, although it can be said that with a fair degree of certainty that velar fronting in word-initial position – or after a sonorant (§16.3) – was not inherited from WGmc because one other WGmc language (Dutch) fails to have it.<sup>4</sup>

Table 16.1 summarizes the status of the word-initial palatal deriving historically from WGmc <sup>+</sup>[y] in HGm (CGm) and LGm respectively. I assume here that the initial palatal in the prefix in the first column is a lenis fricative, although other palatal realizations are possible depending on the dialect, e.g. fortis fricative ([ç]) or stop ([c] or [j] in West Mecklenburg, Sebnitz and Seifhennersdorf; recall Chapter 11).<sup>5</sup>

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<sup>3</sup>The scholarly literature on the realization of the *ge-* prefix in early Gmc is vast; some of those studies are cited in the standard reference grammar of OHG (Braune 2004: 73–74). I do not attempt to summarize those works here. It needs to be stressed that my treatment concerns itself only with the OHG progenitor of modern-day *ge-* in dialects referred to above where the original velar is now a palatal and the vowel is schwa. The important point is that the realizations like [jə] really only make sense if the vowel of the prefix was once a trigger for velar fronting, e.g. [yi].

<sup>4</sup>Sound changes resembling velar fronting occurred independently in other branches of Gmc (NGmc and WGmc). As I point out in Appendix I there are significant differences between those changes (velar palatalization) and velar fronting in HGm/LGm; hence, it could not have been the case that velar fronting was inherited from WGmc.

<sup>5</sup>On occasion one encounters statements in some of the literature which maintain that velar fronting in MoStGm arose during or shortly after MHG. An examination of those sources reveals that the claims are based solely on speculation. For example, Penzl (1975: 107) claims

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Table 16.1: Chronology of word-initial velar fronting of WGmc <sup>+</sup>[y] in CGm (a) and LGm (b)

	Realization of <i>ge-</i>	Time frame	Status of palatal from WGmc <sup>+</sup> [y]:
a.	[jɪ] (from /yɪ/)	ca. 750–1000	Allophone
	[jə] (from /jə/)	after ca. 1000	Palatal quasi-phoneme
b.	[jɪ] (from /yɪ/)	ca. 800–1150	Allophone
	[jə] (from /jə/)	after ca. 1200	Palatal quasi-phoneme

By definition, the allophone referred to in Table 16.1 means that the palatal ([j]) and corresponding velar ([y]) were in complementary distribution. This implies that the etymological glide (WGmc <sup>+</sup>[j]) was still realized as a glide and that Glide Hardening (§4.2) had not yet been phonologized; recall the case studies discussed in Chapter 8. Hall (2014b) discusses the chronology of Glide Hardening in LGm at length, since that change was an important component of the development from glide ([j]) to lenis velar fricative ([y]) after short vowels traditionally referred to as Schärfung. Hall’s conclusion is that Glide Hardening must have been active in OSax because the change from [j] to [y] was completed by the end of the OSax era.

The chronology of the fronting of word-initial WGmc <sup>+</sup>[y] as summarized in Table 16.1 only holds for those dialects listed above in which the modern reflex of that historical velar is palatal before front vowels or before schwa but velar before full back vowels. In some dialects WGmc <sup>+</sup>[y] is realized in word-initial position as palatal before front vowels and velar before all back vowels, including schwa (e.g. Soest, §4.3). In a very common pattern exemplified primarily by CGm dialects, WGmc <sup>+</sup>[y] is realized as palatal in word-initial position before any sound (recall Stage 2e dialects discussed in Chapter 14). The Soest pattern was argued in §7.4 to involve the same chronology as the one depicted in Table 16.1. On the basis of the rule generalization model the extension of velar fronting triggers to the broadest context (word-initially before all sounds) must have postdated the change from velar to palatal before all and only front vowels in Table 16.1.

A number of commentators have noted that there is strong orthographic evidence from earlier stages of German that WGmc <sup>+</sup>[y] had a palatal variant before

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that [x] developed a palatal allophone after front vowels and sonorant consonants in Late MHG, but he gives no evidence for his assertion. Cercignani (1979: 63) uncritically accepts Penzl’s claim, which is also adopted in textbooks (Schmidt 2007: 288). Russ (1982: 85) opines that velar fronting “... is probably not very old, since it does not exist in all German dialects ...”.

### 16.3 Postsonorant position

front vowels. That evidence is significant because it lends independent support to the chronology proposed above. I only present a brief overview the philological facts here since they are discussed in much greater detail in Van der Hoek (2010) and references cited therein. The philological evidence is strongest in OSax: In that language the letter used to represent WGmc <sup>+</sup>[j] was the same as the letter used for WGmc <sup>+</sup>[y], e.g. *giung* (<WGmc <sup>+</sup>[jung] ‘young’). Likewise when WGmc <sup>+</sup>[y] appeared before *i* or *e*, it is not unusual to find a spelling *i* or *hi* (or zero), e.g. *ieldan* (cf. *geldan* ‘pay-INF’). Philological evidence for the fronting of word-initial WGmc <sup>+</sup>[y] in OHG is scanty, although those facts hold for northern (Franconian) dialects which were presumably the progenitor of the CGm dialects referred to in the upper box in Table 16.1. In those OHG dialects the letter representing WGmc <sup>+</sup>[y] is *j* before front vowels, e.g. Rpn *iechose*, which is apparently a proper name.

## 16.3 Postsonorant position

The dating of velar fronting in word-initial position was established on the basis of the chronology of a sound change creating opaque palatals (Vowel Reduction). A number of changes were discussed earlier (Chapter 7 and Chapter 9) that produced opaque palatals in postsonorant position, but unlike Vowel Reduction, most of those changes were dialect-specific and not pan-German developments. Since no historical evidence is known to me on the dating of those sound changes (r-Retraction, Vowel Retraction, Syncope), I do not discuss them and leave this issue open for further research provided data becomes available. One might hope that Vowel Reduction could provide clues on the dating of postsonorant velar fronting, but only a very small number of dialects discussed earlier have opaque palatals created by that change. One example (Wermelskirchen in §7.3) is the word [i:vəç] (/i:vəç/) ‘eternal’ (cf. OHG *ēwīg* and MoStGm [e:vɪç] with the unreduced front vowel [i]). That item from Wermelskirchen suggests that velar fronting was phonologized before Vowel Reduction, but Vowel Reduction could have postdated OHG in that type of word because it was specific to a particular CGm dialect.

Two reliable linguistic arguments can be adduced for the dating of velar fronting in postsonorant position. The first of those arguments comes from the findings from §14.7: If velar fronting is attested in word-initial position then the same process is also present in postsonorant position in the same dialect for the same target segment. That implication is exceptionless in the present survey of German dialects. The reason for the absence of dialects with velar fronting in word-initial position but no fronting in postsonorant position was attributed to history:

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Velar fronting began in postsonorant position and then spread geographically to such a degree that an extension of velar fronting to word-initial position was only possible if that dialect already had postsonorant velar fronting.

The consequence of the findings from §14.7 is that the fronting of WGmc <sup>+</sup>[y] in postsonorant position must have already been phonologized in the dialects discussed in §16.2 (summarized in Table 16.1) prior to the phonologization of the fronting of WGmc <sup>+</sup>[y] in word-initial position. Recall that the type of dialect referred to here was particularly prevalent in LGm, i.e. Eph (Dorste, §4.4; Eilsdorf, §8.3; Dingelstedt am Huy, §8.4), Wph (Elspe and Schieder-Schwalenberg, §7.2). The generous time frame for HGm and LGm in Table 16.1 leaves plenty of breathing room for velar fronting in both contexts: Postsonorant fronting of WGmc <sup>+</sup>[y] may have been phonologized at the beginning of the 9<sup>th</sup> century and then spread geographically over the next hundred years at which point the change was extended to word-initial position.

The second linguistic argument for establishing a time frame for the phonologization of postsonorant velar fronting pertains to the fortis fricative [x]. Recall that postsonorant [x] has two main progenitors, namely WGmc <sup>+</sup>[x] (for HGm and LGm) and WGmc <sup>+</sup>[k] (for HGm). The challenge in this case is clear: The velar and palatal reflexes of [x] are both spelled the same way in the earliest attested HGm and LGm branches (cf. MoStGm *ch* for [x] and [ç]). Hence, there is no philological evidence telling us when *ch* first started being realized as palatal after front vowels. However, linguistic evidence can prove beneficial. Recall from §2.3 and §12.8.2 the following exceptionless implication:

- (1) IMPLICATIONAL UNIVERSAL FOR VELAR FRONTING TARGETS-2:  
If a lenis sound undergoes velar fronting then the corresponding fortis sound does as well.

That implication accounts for the synchronic fact that there are dialects in which the targets for velar fronting are fortis (/x/) and lenis (/y/) sounds (Target Type M/Stage 2bb), or fortis (/x/) but not lenis (Target Type L/Stage 2aa). Significantly there is no dialect where a lenis velar (/y/) undergoes fronting but the corresponding fortis sound (/x/) does not.

(1) can tell us something about when the fronting of postsonorant [x] was phonologized, although that evidence only holds for certain dialects. Consider the many Target Type M dialects referred to in Chapter 12 with no velar fronting in word-initial position. In that type of system it can be concluded that postsonorant velar fronting was phonologized first with the /x/ target and that the change only later extended to /y/. However, no conclusions can be drawn concerning when the postsonorant fronting of /x/ was phonologized. More revealing

## 16.4 Remarks on geography

are Stage 2bb dialects with velar fronting in word-initial position. Representative examples were mentioned above, namely LGm, i.e. Eph (Dorste, Eilsdorf, Dingelstedt am Huy) and Wph (Elspe, Schieder-Schwalenberg), as well as LGm and CGm varieties spoken in the northeast of pre-1945 Germany. In those places it can be deduced that word-initial WGmc <sup>+</sup>[y] was fronted allophonically during OHG/OSax and that the fronting of /y/ (from WGmc <sup>+</sup>[y]) in postsonorant position had been phonologized before then. Significantly, it can also be concluded on the basis of (1) that the fronting of postsonorant [x] (< WGmc <sup>+</sup>[x]/<sup>+</sup>[k]) had been phonologized even before the fronting of postsonorant [y] (< WGmc <sup>+</sup>[y]).

The conclusions concerning the general time frame for velar fronting are summarized in (2):

- (2) a. In many LGm (and some CGm) varieties, the fronting of WGmc <sup>+</sup>[y] must have been phonologized in word-initial position in OHG/OSax; see Table 16.1. In those same dialects, the allophonic palatal had become an underlying (opaque) palatal by early MHG/MLG;
- b. In the dialects referred to in (2a), the fronting of /y/ (< WGmc <sup>+</sup>[y]) must have been phonologized in postsonorant position even before it was phonologized in word-initial position;
- c. In the dialects referred to in (2b) the fronting of /x/ (< WGmc <sup>+</sup>[x]/<sup>+</sup>[k]) must have been phonologized in postsonorant position even before the fronting of /y/ (< WGmc <sup>+</sup>[y]) in postsonorant position.

## 16.4 Remarks on geography

It was noted in Chapter 12 and Chapter 14 that the areal distribution for the various velar fronting patterns appears somewhat haphazard and does not always give a clear indication of whether or not there are (or were) isoglosses separating the postulated historical stages. Nevertheless, the material on German dialects discussed in previous chapters does give some clues concerning the relative age of velar fronting in certain areas with respect to others.

One point needs to be stressed at the outset: The presence of velar fronting islands only makes sense if velar fronting had more than one place of origin. Few definitive conclusions can be reached on the focal area(s) for velar fronting in Germany and Austria. On the one hand one could adopt monogenesis and claim that there was only one original place where velar fronting was phonologized. On the other hand, since velar fronting islands are well-attested in Switzerland/Tyrol

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among other places (Chapter 15), there is no principled reason why polygenesis could not be correct for Germany.

That point aside, there is agreement in the literature that sound change begins in a focal area and then spreads both temporally and geographically from that point of origin (§2.4.1 and §16.6 below). Spreading can involve more than one factor, but the two that are most significant for velar fronting are the triggers and/or targets, which gradually expand in the focal area to include more and more segments. The original change in the focal area also spreads geographically in the sense that outlying areas adopt it. Significantly, the change is active the longest in the focal area, and it is there where it reaches its most general form in terms of the number of triggers/targets. However, in some of the outermost areas the change never progresses to the more general contexts in the focal area. The important point is that the focal area for velar fronting – the place where that process is phonologized – is that place which the set of triggers/targets is most general.

On the basis of the various velar fronting patterns discussed in previous chapters, one generalization is that velar fronting must be quite old in CGm varieties of OHG but much more recent in LGm (OSax). Map 16.1 indicates the major dialect areas of OHG and OSax referred to here. Consider the following four pieces of evidence.<sup>6</sup>

- (A) In postsonorant position those CGm/LGm varieties with a narrow set of triggers are not common. By contrast, WCGm (Rpn, MFr) has the broad set of triggers (coronal sonorants) without exception (Table 12.9). The narrow triggers in those LGm (Wph) places and the broad triggers in WCGm (Rpn, MFr) make sense if velar fronting in postsonorant position was present longer in WCGm (Rpn, MFr) than in LGm (Wph).
- (B) In postsonorant position, LGm (Wph) dialects have a strong preference for a narrow set of targets (/x/ but not /y/; Stage 2aa=Target Type L), but the more inclusive set of targets (/x/ and /y/; Stage 2bb=Target Type M) are more prevalent in WCGm (Rpn, MFr). In fact, no Stage 2aa dialect was found among Rpn/MFr dialects in the survey given in Chapter 12. Compare Table 12.15 for Wph with Table 12.9 for Rpn/MFr.
- (C) In word-initial position, LGm (Wph, Eph) dialects are well-attested with a narrow set of triggers (Table 12.16 for Wph and Table 12.18 for Eph). By

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<sup>6</sup>A fifth difference between the two dialects is alveolopalatalization, which is well-attested in CGm but not in LGm. I do not consider alveolopalatalization because that change began much later than OHG/OSax; recall the discussion in Chapter 10.

## 16.5 Directionality revisited

contrast, velar fronting in many WCGm varieties (e.g. Rpn) exhibits the broadest possible set of triggers (Stage 2e); see Table 14.2. Recall that Stage 2e is the change from velar to palatal as a nonassimilatory change. The dichotomy between broad vs. narrow triggers in word-initial position suggests that velar fronting has been present longer in WCGm (Rpn) and is of more recent origin in LGm (Wph, Eph).

- (D) Within the Wph dialect continuum certain communities can be identified in relatively close proximity which represent the incremental assimilatory stages for velar fronting triggers in word-initial and postsonorant position; recall the discussion of Wph in §12.5.2. The significance of those Wph varieties is that they point to a region where velar fronting was phonologized relatively late (in contrast to other areas). In particular, the focal area for the change was not in the Wph region. Instead, that change was phonologized elsewhere and then spread geographically from that focal area to the Wph region thereby leaving relics in the modern era.

On the basis of (A)-(C) it can be concluded that velar fronting has been active for a long time in many varieties of WCGm, but the status of velar fronting in UGm varieties of OHG is not as clear. The shift of WGmc <sup>+</sup>[y] to palatal in word-initial position did not occur in UGm because that original fricative was restructured to [g] (/g/), which was not a velar fronting target. And since the change from WGmc <sup>+</sup>[y] to [g] also occurred in postsonorant position in UGm, it is difficult to find UGm varieties in which the target for postsonorant velar fronting is anything other than /x/; hence, UGm is not one of the dialects referred to in (2). No conclusions at all can be drawn concerning when /x/ first developed a palatal allophone in UGm, although the data discussed for Lower Bavaria from SNiB points to a fairly recent date (§13.4).<sup>7</sup>

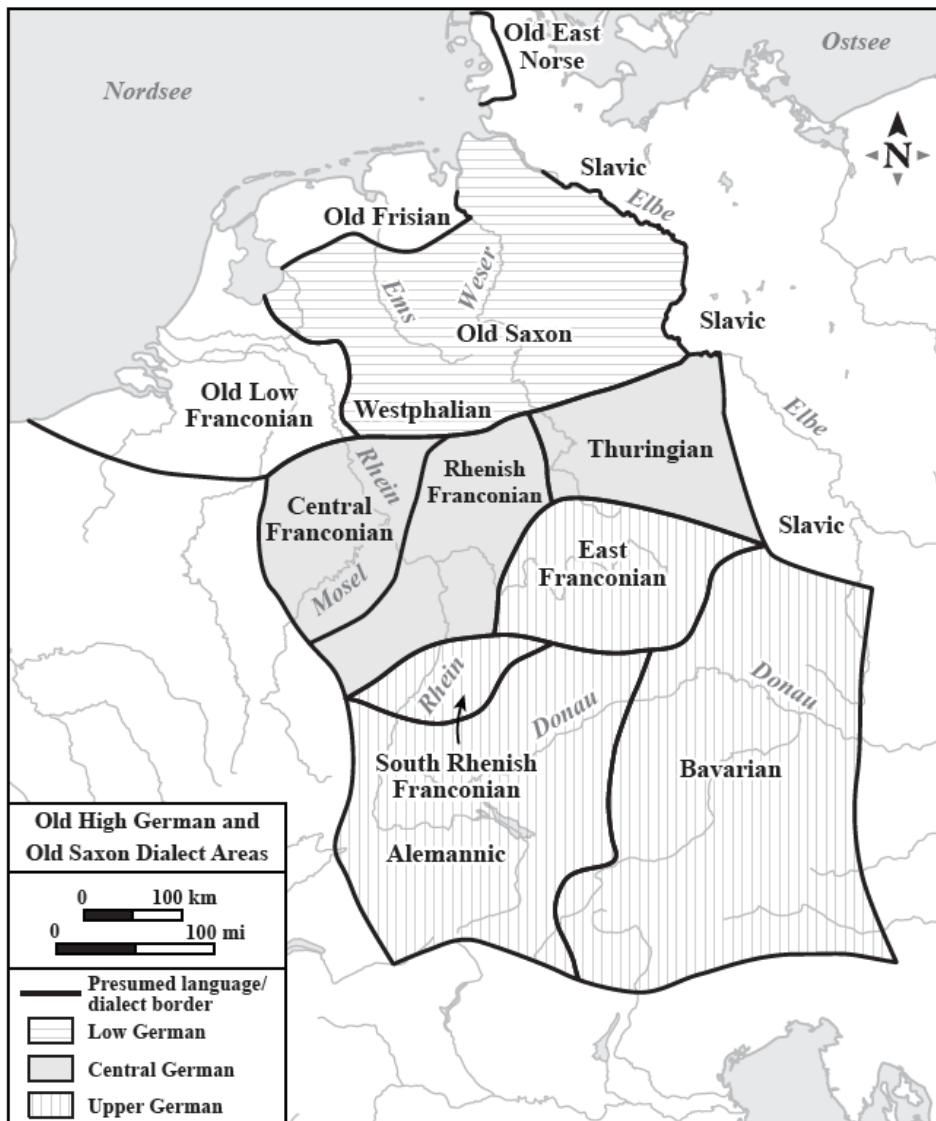
## 16.5 Directionality revisited

The typological literature on velar palatalization makes extensive reference to a directionality parameter (§2.3.5). Recall that directionality is not an issue for

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<sup>7</sup>Conclusions concerning the status of NLGm are also tentative. In contrast to Wph/Eph, NLGm exhibits the broadest possible set of triggers for assimilatory fronting in postsonorant position (Table 12.14). That table also reveals that the prevalent pattern for NLGm is that velar fronting has a broad set of targets (Stage 2bb=Target Type M). It is conceivable that there was also a focal area for velar fronting for NLGm varieties of OSax, but since this topic is purely speculative I do not pursue it further.

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Map 16.1: Continental West Germanic languages (ca 9<sup>th</sup> century).  
Adapted from Meineke & Schwerdt (2001: 209).

## 16.5 Directionality revisited

velar fronting in German dialects because postsonorant velar fronting always applies from left to right (progressively), cf. MoStGm [ku:xən] ‘cake’ vs. [kyçə] ‘kitchen’. Since the vowel to the right of the target is schwa, speakers do not have the option of applying velar fronting regressively. However, in the velar fronting island of Visperterminen (§6.2) the rule creating schwa (Vowel Reduction) never occurred; hence, there are many native words (or assimilated loanwords) in which a potential velar fronting trigger is to the right of a target (e.g. [xuxxi] ‘kitchen’). The conclusion is that when velar fronting was phonologized in Visperterminen speakers had a choice between two directions and that – for whatever reason – they opted for the one direction and not the other.

Visperterminen is not unique. Since Vowel Reduction affected any unstressed full vowel, there must have been many words in OHG/OSax with a velar fronting target (/x/) situated between a (stressed) back vowel and an (unstressed) front vowel, i.e. words containing sequences like [axi], [axe] etc. If so, could velar fronting have been phonologized as a regressive assimilation in some dialects of OHG/OSax? In the remainder of this section I argue that the answer must have been negative and that when velar fronting was phonologized it applied progressively in every variety.

To illustrate this point, consider the items from OHG in the first column of (3). These OHG examples consist of a partial paradigm for a verb (in 3a), a noun (in 3b), and an adjective (in 3c). The verb, noun, and adjective presented here have in common that the bare stem ends in [x] and that at least one of the inflectional suffixes begin with a front vowel.

(3)	OHG	Stage A	Stage B	
a.	suochu [suoxu]	[suoxu]	[zu:xə]	‘seek-1SG’
	suochis [suoxis]	[suoçis]	[zu:çst]	‘seek-2SG’
	suochit [suoxit]	[suoçit]	[zu:çt]	‘seeks-3SG’
b.	bah [bax]	[bax]	[bax]	‘stream’
	bahes [baxes]	[baçes]	[baçəs]	‘stream-GEN SG’
c.	hōh [ho:x]	[ho:x]	[ho:x]	‘high’
	hōhēr [ho:xe:r]	[ho:çe:r]	[ho:çə]	‘high-MASC SG’
	hōhiu [ho:xiu]	[ho:çiu]	[ho:çə]	‘high-FEM SG’

The interesting examples are the ones in the first column with front vowels in the suffix. If there had been OHG dialects in which velar fronting was phonologized as a rule spreading the frontness feature from right to left (regressively), then those early dialects must have been realized phonetically as in the Stage A column above. If the inflectional suffixes underwent the same changes as in

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MoStGm (Vowel Reduction, Syncope, r-Vocalization), then Stage A could have conceivably developed into Stage B.

No dialect in the present survey has anything resembling Stage B. Although that hypothetical dataset has a contrast between [x] and [ç] after a back vowel, Stage B is nothing at all like the dialects discussed in Chapter 9 with phonemic palatals. The focus of that chapter was on dialects with a contrast between [x] and [ç] after a back vowel, where the back vowel *before* [ç] was historically front, e.g. minimal pairs in Wissenbach (§9.2) like [dax] ‘roof’ (cf. MoStGm *Dach*) vs. [daç] ‘dike’ (cf. MoStGm *Deich*). Recall that velar fronting is still active in dialects like Wissenbach to account for regular [x]~[ç] alternations in morphological paradigms. But Stage B in (3) represents an entirely different type of system than the one discussed in Chapter 9 because it contains many stems with [x]~[ç] alternations after back vowels. From the synchronic perspective Stage B requires a rule fronting /x/ to palatal in morphologically-defined contexts, e.g. in the second and third person singular of verbs, in the genitive singular of nouns. In the typological literature on velar palatalization referred to throughout the present book, the observation has been made that palatalization rules can apply in some languages in such morphological contexts. Thus, from the cross-linguistic perspective, Stage B in (3) might be conceivable. However, no dialect investigated in the present book exhibits that pattern.

More than one explanation for the lack of Stage B dialects is possible. Here are two: (a) Stage B is no longer attested in modern dialects, although it was present at an earlier stage. The cells in the Stage B paradigms with [ç] underwent a later analogical change to [x], thereby producing the pattern found in MoStGm, e.g. [zu:çst], [zu:çt] > [zu:xst], [zu:xt]. (b) Stage B is not attested in modern dialects, nor was it ever attested at any earlier stage. The reason for that gap is that velar fronting was phonologized consistently as a progressive assimilation in all German dialects without exception.

Explanation (a) relies on the assumption that there was an analogical change of [ç] to [x], but it cannot account for the fact that every Stage B dialect changed into the familiar MoStGm-type pattern without exception and that there are no relics preserving that Stage B system. Although analogy has undeniably played an important role in the history of German, explanation (a) also cannot account for the fact that stem allomorphy is quite persistent among verbs and nouns in MoStGm as well as German dialects. Thus, explanation (a) begs the question of why [ç] would change the deviant [x] to eliminate stem allomorphy when stem allomorphy is elsewhere so robustly attested?

I contend that the only conceivable reason for the lack of Type B systems is (b). The generalization from §2.3.5 is repeated in (4):

## 16.6 The historical model

- (4) Directionality of Velar Fronting: If a target for velar fronting is situated after a sonorant and before a vowel then the trigger for velar fronting is always the sonorant to the immediate left of that velar sound.

(4) is admittedly little more than a statement of what is true, but it explains nothing. Put differently, why is it that German dialects described from 1860 to the present in Germany (including the pre-1945 borders) exhibit variation for targets and triggers as well as limited variation concerning outputs, but no variation at all with respect to directionality? One could argue that (4) makes sense if velar fronting were phonologized only once (monogenesis), in which case the progressive direction was simply inherited when than original rule spread outwards from that original focal area. However appealing that explanation might be, it cannot account for velar fronting islands, which phonologized velar fronting with slightly different triggers but with the same progressive direction. Regrettably, the proper explanation for (4) cannot be offered.<sup>8</sup>

## 16.6 The historical model

In §2.5 I posited a historical model (Figure 2.2), and in Chapter 3–Chapter 14 I demonstrated in a series of detailed case studies how those data fit into the various stages proposed in the model. The point of this section is to provide a brief summary of the most important patterns involving velar fronting and to demonstrate how they exemplify the model I have proposed.

On the basis of the patterning of velar fronting in HGm/LGm dialects much can be inferred about the nature of Stage 2 and Stage 3. As noted earlier, Stage 1 has not been taken into consideration because the original sources for velar fronting do not provide the necessary data (e.g. the degree to which [x] is gradually fronted based on the nature of the adjacent vocoid). I make first a few speculative remarks on the nature of Stage 1, especially in light of the claims I advanced in the earlier part of this chapter on the time frame for the phonologization of velar fronting. The bulk of this section to a discussion of Stage 2 and Stage 3.

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<sup>8</sup>One might attempt to argue that velar fronting was phonologized consistently in the left to right direction because other rules active in German dialects at that time also involved the progressive spreading of a feature. This is an appealing idea; however, it is counterexemplified by the most well-known rule of OHG/OSax, namely i-Umlaut, which spreads the features of frontness and height from /i/ to the left, e.g. OHG [gast] ‘guest’ vs. [gesti] ‘guests’. A brief glance at the sound changes for OHG in Braune (2004) does not reveal any clear candidates for regular progressive spreadings.

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### 16.6.1 Stage 1

This is the point at which the phonological rule of velar fronting is absent. Stage 1 is therefore represented by any language where velar sounds do not undergo a categorical fronting in the context of front sounds.

The nature of Stage 1 needs to be further refined in light of the findings presented in the preceding chapters. First, velar fronting involves left to right (progressive) spreading in every HGm/LGm variety that has that process (§16.5). Second, when velar fronting phonologizes at Stage 2, the target for that change is the fortis fricative /χ/, and the triggers are high front vowels like /i/. These three properties together mean that Stage 1 in the context of the present book can be defined specifically as any dialect/language which possesses sequences like /ix/ ([ix]), where the velar does not undergo categorical fronting. An example of a modern Gmc language that can be classified as Stage 1 is Dutch.

As noted earlier, it is common for a velars to be articulated in a slightly more forward position along the palate in the neighborhood of front vowels than in the neighborhood of back vowels. However, this is the coarticulatory (phonetic) fronting of velars and not the categorical change characterized by velar fronting. It has been stressed throughout this book that velar fronting is phonological and not phonetic; hence, the Stage 1 languages under discussion may have the coarticulatory fronting of /χ/ after /i/.<sup>9</sup>

In the preceding chapters I have documented a number of Stage 1 LGm/HGm varieties. Many of those lects are located along the Dutch border, but a surprising finding in the present book is that non-velar fronting islands are attested as well, e.g. Kreis Stolp (Map 11.2).

I claim that there was an earlier point in the history of Gmc (Stage 1) when the phonological rule of velar fronting was not present. Since velar fronting was phonologized at an early stage (OHG/OSax), I conjecture that Stage 1 was represented by the (Proto-) WGmc language.

### 16.6.2 Stage 2

I hypothesize that the earliest stages of OHG/OSax were characterized by Stage 1 coarticulatory fronting of /χ/ in the context after /i/. At Stage 2 (also OHG/OSax) that gradient phonetic process was phonologized. Put differently, at Stage 2 the difference between phonetically fronted /χ/ in the context after /i/ and back /χ/ in the context of vowels like /u/ at Stage 1 was exaggerated to the point where

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<sup>9</sup>Recall from §12.9.1 that several sources for UGm varieties suggest that there is coarticulatory fronting of velars like /χ/ in the context after /i/.

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speakers perceived of the two articulations as different sounds: Palatal [ç] and velar [x]. The phonologization of velar fronting occurred sometime during the time frame discussed earlier in this chapter for OHG/OSax.

Stage 2 was characterized by the reinterpretation by the younger generation of the gradient coarticulatory fronting from Stage 1 of the older generation as a categorical process relating two distinct articulations. Thus, the change from Stage 1 to Stage 2 was intergenerational.

Since velars and palatals did not contrast at Stage 2, those segments stood in an allophonic relationship: [ç] and [x] were associated with one phoneme (/x/), whose realization as palatal was expressed formally with a specific version of velar fronting. That rule spread the feature [coronal] from a high front vowel to a following /i/, thereby producing [ç]. Hence, phonologization (Stage 2) involved the addition of a phonological rule into the Phonology component depicted in Table 2.1. Once in the grammar that synchronic process remained active until it was modified in light of the various changes involving triggers and targets discussed below.

The change from Stage 1 to Stage 2 is depicted in Table 16.2. Stage 2 is given as Stage 2a because it was defined in terms of a narrow set of triggers, as described below. I give sample underlying and phonetic representations in the second column. Note that the underlying representations for Stage 1 are acquired without change by the following generations of speakers (Stage 2a).<sup>10</sup>

Table 16.2: Change from Stage 1 to Stage 2a

Stage	Underlying and phonetic representations	Triggers for velar fronting
1	/ix/ [ix], /ex/ [ex] /ax/ [ax]	No rule
2a	/ix/ [iç], /ex/ [ex] /ax/ [ax]	/i/

In the intergenerational, listener-based approach described in §2.5, Stage 1 and Stage 2a represent a speaker and a listener respectively. The former utters a word containing [ix] – where the fricative shows the effects of coarticulatory fronting ([x]), – but the listener acquiring the language misperceives that prepalatal as

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<sup>10</sup>In the case studies discussed above a total of fourteen versions for postsonorant velar fronting are posited (Appendix D). The set of narrow triggers at Stage 2a in Table 16.2 therefore suggests that the correct version of velar fronting is Vel-Fr-6 from §6.2.2. In the remainder of this section I continue to discuss the expansion of triggers in the rule generalization model in terms of segments (/i/, /e/ etc.), but these generalizations can easily be translated into one of the formal rules posited earlier.

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palatal. The change from Stage 1 (speaker) to Stage 2a (listener) involves not only the emergence of a new pronunciation ([ç]) because the listener treats that new sound as a phonological unit whose relationship to the other dorsal fricative ([x]) is expressed with the newly acquired rule of velar fronting.

As stressed throughout this book, velar fronting was phonologized in more than one place. A moment's reflection reveals that this scenario also implies a temporal dimension. Imagine the younger generation of speakers in a particular place ( $P_1$ ) acquiring the rule of velar fronting at Stage 2a at a particular point in time ( $T_1$ ). If phonologization happens in a different place ( $P_2$ ), and if there is no contact between speakers of  $P_1$  and  $P_2$  because they are separated by hundreds of kilometers then it is unlikely that velar fronting in  $P_2$  is also phonologized precisely at  $T_1$ . What this suggests is that the phonologization of velar fronting began in certain places during OHG/OSax but that the process of phonologization in other places ( $P_2, P_2 \dots$ ) must have continued on into the future as well (e.g. MHG/MLG).

I describe now how rule generalization occurred with the rule of velar fronting as it was originally phonologized (Table 16.2).

When velar fronting made the jump from Stage 1 to Stage 2a it affected only a single velar segment (/x/), it was triggered by a narrow set of triggers (/i/), and the output was palatal ([ç]). What is more, velar fronting was phonologized as a progressive assimilation meaning that the trigger was to the immediate left of the target.

The gradual expansion of targets and triggers is depicted abstractly for targets and triggers in Figure 2.1. In Figure 16.1 I modify Figure 2.1 in order to show how the set of triggers expanded in time and space for velar fronting. The three Trigger Types depicted here are defined in Table 14.1. Recall from that table that there are a number of other stages which correspond to expanded sets of triggers. I focus here only on three stages indicated below, although the same principles hold for the additional stages.

In Figure 16.1 I compare three contexts for velar fronting, namely after all high front vowels (represented by /i/), after all nonlow front vowels (represented by /i/, /e/), and after all front vowels (represented by /i/, /e/, /æ/). Low front vowels (/æ:/) were phonemicized by the onset of MHG/MLG (ca 1050). Recall that many modern LGm/HGm dialects possess one or more low front vowel.

Consider first column A, which illustrates how velar fronting (Vel Fr) spread temporally: Phonologization occurred in a particular place ( $P_1$ ) for the target (/x/) and the narrow trigger (/i/). Stage 2a is depicted with the white square. At some later point in time (Stage 2b), Vel Fr generalized in  $P_1$  to include all high front and mid front vowels (/i/, /e/), which is depicted with the lined square. Next, Vel

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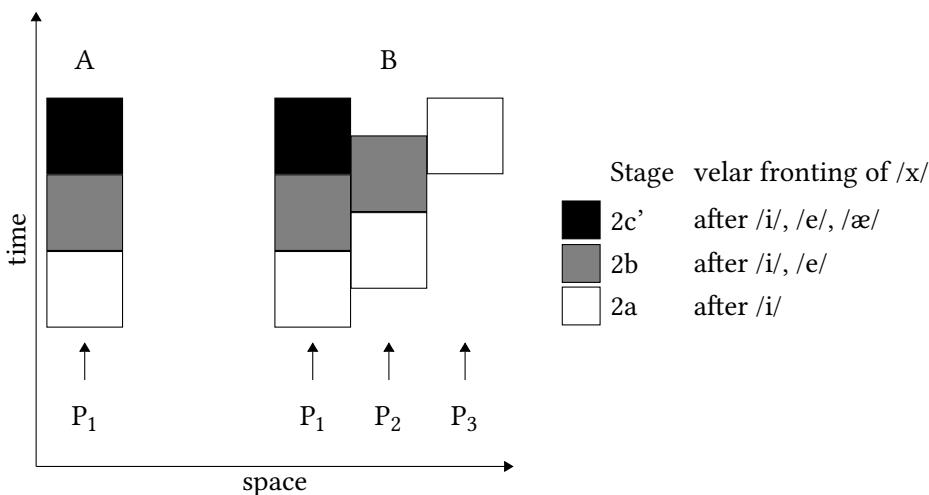


Figure 16.1: Rule generalization in time and space for velar fronting with three Trigger Types

Fr was generalized in  $P_1$  further at a later period in time (Stage 2c') by applying after all front vowels (/i/, /e/, /æ/). This point is illustrated with the black square.

The rule generalization model means that varieties of HGm/LGm where Vel Fr applies after all front vowels were preceded by a stage in which the triggers were nonlow front vowels, which was preceded by a stage when the triggers were the high front vowels. It is not possible to provide direct evidence for this type of temporal spread because it would require a description of a dialect spoken at a particular place (P) at a particular time (T) and another description of the same variety spoken in P at a time earlier or later than T. Although that type of direct evidence is lacking, there is indirect evidence for the progression of triggers as depicted in Figure 16.1. See in particular Chapter 13 and Map 13.3, which document places throughout Lower Bavaria which represent the three historical stages depicted in Figure 16.1.

According to the rule generalization model the addition of triggers and targets proceeds not only temporally (column A of Figure 16.1), but also in terms of space (column B). As shown under column B, Vel Fr was phonologized in  $P_1$  for the target /x/ and the trigger /i/, defined as Stage 2a and depicted with a white square, and at a later point in time Vel Fr generalized its triggers to attain Stage 2b in  $P_1$  (lined square). At some point when Vel Fr was active at Stage 2a in  $P_1$ , Vel Fr also spread geographically to  $P_2$ . When Vel Fr was phonologized in  $P_2$  its triggers were defined narrowly as Stage 2a (white square). At the top of column B it can be

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seen that Vel Fr was generalized further in P<sub>1</sub> to attain Stage 2c' (black square) and that Vel Fr also spread temporally to P<sub>2</sub> by attaining the targets and/or triggers representing Stage 2b (lined square). At some point Vel Fr was then phonologized with the narrow set of triggers (white square) in a third place (P<sub>3</sub>).

The gradual increase in the number of triggers meant that each stage resulted in a modification of the rule of velar fronting that was active for that synchronic stage. When a new stage was attained, the younger generation reanalyzed the earlier rule by generalizing the number of triggers. For example, speakers at Stage 2a had underlying and phonetic representations like the ones in Table 16.3 with a rule of velar fronting applying only after high front vowels. The younger generation (Stage 2b) inherited the same underlying generations, but then extended the rule so that it applied after all and only nonlow front vowels. The next generation (Stage 2c') consequently inherited the same underlying representations from Stage 2b, but then generalized the context of the rule (after all front vowels) and therefore the /x/ in sequences like /ix/, /ex/, /æx/ (but not the /x/ in /ax/) was realized as [ç].

Table 16.3: Change from Stage 2a to Stage 2b to Stage 2c'

Stage	Underlying and phonetic representations	Triggers for velar fronting
2a	/ix/ [iç], /ex/ [ex], /æx/ [æx], /ax/ [ax]	/i/
2b	/ix/ [iç], /ex/ [eç], /æx/ [æç], /ax/ [ax]	/i/, /e/
2c'	/ix/ [iç], /ex/ [eç], /æx/ [æç], /ax/ [a]	/i/, /e/, /æ/

Each of the three stages in Table 16.3 represents a slightly different synchronic system. That point is expressed in the final column, which lists the triggers that need to be expressed formally in the synchronic rule of velar fronting for that stage. For example, the Stage 2a rule spreads [coronal] from a [+high] segment to /x/, but the next generation of speakers who expand the set of targets to the one for Stage 2b have a rule spreading [coronal] from a [-low] sound to /x/. The next generation of speakers then acquires a rule spreading [coronal] from all front vowels to /x/.

Figure 16.1 depicts the expansion of triggers for postsonorant velar fronting with /x/ as the sole target segment. Velar fronting also involved a gradual expansion of target segments. Thus, the first velar to serve as target was /x/, the second was /y/, and the third was the set of noncontinuants (/k g ñ/). Table 16.4 lists underlying and phonetic representations for sequences consisting of a high front vowel (/i/) followed by the fortis velar fricative (/x/), the corresponding lenis (/y/) and the three velar noncontinuants (/k/, /g/, /ñ/). It can be seen in the

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second column below that velar fronting is phonologized at Stage 2aa because that is the stage in which /x/ is the sole target segment. At Stage 2bb the target consists of all and only velar fricatives, and at Stage 2cc of all velar consonants.

Table 16.4: Change from Stage 2aa to Stage 2bb to Stage 2cc

Stage	Underlying and phonetic representations	Targets for velar fronting
2aa	/ix/ [iç], /iy/ [iy], /ik/ [ik], /ig/ [ig], /in/ [in]	/x/
2bb	/ix/ [iç], /iy/ [ij], /ik/ [ik], /ig/ [ig], /in/ [in]	/x/, /y/
2cc	/ix/ [iç], /iy/ [ij], /ik/ [ic], /ig/ [ij], /in/ [in]	/x/, /y/, /k/, /g/, /ŋ/

The set of target segments for the individual stages is expressed formally with features in the various versions of velar fronting. For example, for speakers representing Stage 2aa velar fronting spreads [coronal] to [+consonantal, –sonorant, +continuant, +fortis, dorsal], but the next generation extends the targets at Stage 2bb to [+consonantal, –sonorant, +continuant, dorsal] and then the later generation at Stage 2cc to [+consonantal, –sonorant, dorsal].

The spread from /x/ to additional target sounds as depicted in Table 16.4 proceeded temporally as well as spatially. Evidence for these three stages comes from HGm/LGm dialects: Many varieties are attested in which /x/ is the sole trigger, but a number of varieties are attested in the same general areas where the targets are broader (Map 12.4). The broadest set of targets (Stage 2cc) is attested in a small number of dialects spoken in the eastern areas of pre-1945 Germany (Map 11.2).

I have described how the rule generalization model can be applied to the triggers and targets for (postsonorant) velar fronting, but it needs to be stressed that the spread from a narrow to broad set of triggers (Table 16.3) and the spread from a narrow to a broad set of targets (Table 16.4) did not always match up. Put differently, when phonologization occurs, Stage 2a for triggers goes hand in hand with Stage 2aa for targets, but some dialects extend the set of triggers at a faster rate than the set of targets. This point accounts for the fact that many varieties of HGm/LGm are attested with the narrowest set of targets (/x/) but with the broadest set of triggers (coronal sonorants); see Chapter 12 for examples.

Earlier on in this chapter I discussed the connection between postsonorant velar fronting and word-initial velar fronting. The conclusion (§16.3) is that the former must have preceded the latter. Thus, the phonologization of velar fronting with /x/ as the target and front vowels like /i/ as the triggers and the gradual

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increase in the number of triggers occurred before word-initial velars succumbed to phonologization.

The word-initial velar which served as the target for velar fronting went through the same stages for triggers and targets as depicted above for postsonorant position. Table 16.5 illustrates the most common pattern for word-initial velar fronting: At Stage 1, WGmc <sup>+</sup>/ɣ/ exhibited coarticulatory fronting in word-initial position before /i/. The younger generation of speakers interpreted that fronted velar (Stage 2aa) as a palatal ([j]) and therefore a specific version of word-initial velar fronting was acquired by those speakers. Underlying and phonetic representations are given below. Recall from Table 16.4 that the target for Stage 2aa in postsonorant position is /x/; however, dialects displaying the pattern in Table 16.5 have no /x/ in word-initial position; hence, /ɣ/ is the only dorsal fricative in that context. At Stage 2cc the younger generation of speakers extends the set of targets to include velar stops as well; in the dialects referred to here /k/ is the only noncontinuant in word-initial position.

Table 16.5: Change from Stage 2aa to Stage 2bb to Stage 2cc (word-initial)

Stage	Underlying and phonetic representations	Targets for Velar fronting
1	/ɣi/ [yi], /ki/ [ki]	No targets
2aa	/ɣi/ [ji], /ki/ [ki]	/ɣ/
2bb	/ɣi/ [ji], /ki/ [ci]	/ɣ/, /k/

At Stage 2aa and 2bb the synchronic rule of word-initial velar fronting differs slightly in order to express the target segments. Thus, [coronal] spreads to [+consonantal, –sonorant, –continuant, dorsal] at Stage 2aa and to [+consonantal, –sonorant, dorsal] at Stage 2bb.

At Stage 2 the synchronic rule of velar fronting interacts transparently with synchronic and diachronic rules changing those targets and triggers. This means that velar fronting could be fed or bled by another rule (synchronously or diachronically); recall Figure 2.5. This transparent relationship holds during the expansion of targets and triggers as described above; see (5). The underlying and phonetic representations here do not depict specific words, but instead entire classes of words. /i/ represents high front vowels, /e/ mid front vowels, and /ea/ a diphthong ending in a back vowel.

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(5)	a.	/iy/	/iy-ə/	/ix/	b.	/ix/	/ex/	>	/ix/	/eax/
	Fnl Fort	ix	-----	----		[iç]	[eç]		[iç]	[eax]
	Vel Fr	iç	-----	iç						
		[iç]	[iyə]	[iç]						

(5a) illustrates the most common synchronic feeding relationship. In that type of system (e.g. Soest, §4.3), there are two phonemic velar fricatives (/x/, /y/), but only the fortis fricative /x/ serves as a target for velar fronting; hence, the synchronic rule of velar fronting illustrates Stage 2aa for targets. As shown in (5a), Final Fortition (Fnl Fort) feeds velar fronting (Vel Fr). This example shows that the target for velar fronting could be either an underlying fortis velar fricative or a fortis velar fricative derived by Final Fortition. In this example regular morphophonemic alternations of the type [x]~[y] imply that Final Fortition is synchronically active.

(5b) depicts a bleeding relationship. The two examples to the left of the wedge show that velar fronting is active as a synchronic rule at Stage 2. At a later point (to the right of the wedge) a sound change replaces a front vowel with a diphthong ending in a back vowel. Since there are no alternations between [e] and [ea] that change is diachronic, meaning that it restructures underlying representations. Significantly, after the change from /e/ to /ea/ the /x/ in /eax/ surfaces as velar [x] and not as palatal [ç] because the second part of the diphthong /ea/ is not a trigger for velar fronting. In this example the change from /e/ to /ea/ bleeds velar fronting. The historical bleeding relationship discussed here is well attested in many varieties of HGm and LGm.

### 16.6.3 Stage 3

The transparent relationship between velar fronting and other processes described above for Stage 2 can change into an opaque relationship. Stage 3 is the cover term for velar fronting when velar fronting is opaque. Two types of opacity are attested: (a) some velars surface unexpectedly as velars in the context of velar fronting (underapplication); or (b) some palatals deriving historically from velars occur unexpectedly in the back vowel context (overapplication).

As discussed in Chapter 5–§11, underapplication and overapplication are each manifested in two ways. For underapplication, the two options are: (aa) velar fronting is counteracted synchronically by another process, or (ab) neutral vowels emerge. For overapplication the two historical paths are: (ba) the emergence of palatal quasi-phonemes, or (bb) the emergence of phonemic palatals that contrast

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with velars. In all four cases the change from Stage 2 to Stage 3 is intergenerational; hence, the older generation has velar fronting, which interacts transparently with other rules, and the younger generation acquires the opaque forms.

I consider the four scenarios described above in order:

- (aa): In this system there is a synchronic rule (Rule X) that creates new target segments which can potentially undergo velar fronting. Since those new velars fail to undergo that process, velar fronting is counterfed by Rule X. In the case studies exemplifying (aa) discussed in Chapter 5 both velar fronting and Rule X are active synchronically. In (6) I focus on a dialect in which Rule X is Final Fortition. Stage 3 is depicted to the right of the wedge in (6). That opaque system is the outgrowth of the transparent system in (5), repeated in (6) to the left of the wedge.

		Stage 2			>	Stage 3		
		/iy/	/iy-ə/	/ix/		/iy/	/iy-ə/	/ix/
Fnl Fort	ix	-----	----	Vel Fr	----	----	iç	
Vel Fr	iç	-----	iç	Fnl Fort	ix	----	---	
	[iç]	[iyə]	[iç]		[ix]	[iyə]	[iç]	

Sequences like [ix] at Stage 3 illustrate underapplication opacity because Final Fortition counterfeeds velar fronting.

- (ab): In this scenario a historical process (Rule Y) creates new front vowels which can potentially serve as triggers for velar fronting. Since those new front vowels fail to induce velar fronting, the latter process is counterfed historically by Rule Y. In the case studies discussed in Chapter 6 illustrating (ab), Rule Y is no longer active synchronically. Instead, it restructures underlying representations for a younger generation of speakers. The emergence of the neutral vowel /øix/ at Stage 3 is illustrated in (7). The non-neutral vowel /eɪ/ is included for comparison.

		Stage 1		Stage 2		Stage 3			
		/oux/	/eɪx/	>	/oux/	/eɪx/	>	/øix/	/eɪx/
		[oux]	[eɪx]		[oux]	[eɪç]		[øix]	[eɪç]

The important point is that surface sequences like [øix] illustrate underapplication opacity. From the synchronic perspective, velar fronting at Stage 2 is inherited by Stage 3 speakers, but those speakers also acquire the unique representation for neutral vowels whereby the /i/ in /øi/ is no longer [coronal].

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(ba): In this type of dialect a historical process (Rule Z) eliminates triggers for velar fronting, but that change fails to bleed velar fronting. An example of Rule Z is the change from a front vowel to schwa (/ə/) in an unstressed syllable (Vowel Reduction). In (8) I illustrate a system that is common (Chapter 7). At Stage 2 velar fronting is active in word-initial position. When Vowel Reduction changes unstressed vowels – including crucially unstressed front vowels like /i/ – to /ə/ the palatal remains even though schwa would be expected to be preceded by [x]. Ellipsis in the first example at Stage 2 and Stage 3 means that there is a part of the word containing a stressed vowel.

(8)	Stage 2:	Stage 3:
	/xi.../ /xe/ /xa/ > [çɪ...] [çe] [xa]	/çə.../ /xe/ /xa/ [çə...] [çe] [xa]

In this type of example Vowel Reduction counterbleeds velar fronting. From the synchronic perspective speakers at Stage 3 acquire underlying representations like the ones to the right of the wedge. The phonetic palatal [ç] at Stage 3 is clearly an underlying palatal synchronically (/ç/) because its original trigger has been eliminated. That underlying palatal is a quasi-phoneme because [ç] and [x] never contrast in the context before schwa.

(bb): In this type of dialect there is a historical process (Rule Z) which eliminates triggers for velar fronting, but that change does not bleed velar fronting. An example of Rule Z attested in the dialects discussed in Chapter 9 is the replacement of a diphthong ending in a front vowel with a back monophthong (/ai/ > /a/).

(9)	Stage 2:	Stage 3:
	/ax/ /ix/ /aix/ > [ax] [iç] [aiç]	/ax/ /ix/ /aç/ [ax] [iç] [aç]

Synchronously the younger generation of speakers acquires underlying representations like the ones to the right of the wedge. The palatal must be treated as an underlying sound (/ç/) because the earlier trigger is no longer present.

The two overapplication outcomes (ba and bb) do not imply that velar fronting is lost at Stage 3. First, in a dialect in which [x] and [ç] (< [x]) only contrast in the

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context of one or more back vowel, [ç] can be synchronically derived from /x/ in the context of front vowels. Second, there are still regular morphophonemic alternations triggered by Umlaut represented by MoStGm [bax] ‘stream’ vs. [beçə] ‘streams’. Even though Umlaut alternations like [a]-[e] are irregular, if a stem has a front vowel alternant and if that front vowel is followed by a dorsal fricative which is a trigger for velar fronting then the dorsal fricative surfaces as palatal. This generalization is true for all dialects without exception. The transition from Stage 2 to Stage 3 in (9) therefore entails two changes. First, the original palatal allophone for the older generation is now a phonemic palatal for the younger generation. And second, velar fronting undergoes the change from an allophonic process (Stage 2) to a neutralization (Stage 3). Likewise in varieties with the palatal quasi-phoneme /ç/ the change from Stage 2 to Stage 3 involves a reinterpretation of velar fronting from an allophonic rule to a quasi-neutralization.

One of the parameters mentioned earlier (output of velar fronting) is not indicated in Figure 2.2. Recall from Chapter 10 that there are two different outcomes for a /x/ target: nonsibilant palatal [ç] and sibilant alveolopalatal [ç̪]. Alveolopalatalization involves two modifications to the Stage 2 system with the allophones [x] and [ç]. First, [ç] is realized for innovative speakers as the new allophone [ç̪] which is phonetically and phonologically distinct from postalveolar [ʃ] (/ʃ/). Second, [ç] and [ʃ] merge for the next generation to [ç̪], which is phonemic (/ç̪/) because it contrasts with [x] (/x/) in the context after a back vowel. That merger does not exhibit opacity because the new phoneme /ç̪/ in the context after a back vowel does not derive historically from a velar (but instead from the coronal [ʃ]). The three stages for alveolopalatalization are depicted in Table 16.6. Stage 2 is the same as Stage A.

Table 16.6: Alveolopalatalization

Stage	Underlying and phonetic representations
2 (=A)	/ix/ [iç], /ax/ [ax], /iʃ/ [iʃ], /aʃ/ [aʃ]
B	/ix/ [iç̪], /ax/ [ax], /iʃ/ [iʃ], /aʃ/ [aʃ]
C	/ix/ [ic̪], /ax/ [ax], /ic̪/ [ic̪], /ac̪/ [ac̪]

It is argued that alveolopalatalization ([ç̪ʃ] > [ç̪]) is not expressed in terms of phonological rules; hence the realization of /x/ as [ç̪] at Stage 2/Stage A is captured formally with the same rule of velar fronting (=6a) as the realization of /x/ as [ç̪] at Stage B. That the output of velar fronting is realized first as a

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nonsibilant and then only later as a sibilant is expressed not in the phonology, but instead with rules of phonetic implementation.

### 16.7 Velar fronting and the actuation problem

One question not addressed above is why velar fronting failed to phonologize in other languages/dialects with /x/. Put differently: Why was velar fronting phonologized at one particular time (ca. 1200 years ago) and in one particular place (modern-day Germany) but not at another time or in another place? The question posed here is a very general one that not only pertains to velar fronting but to any type of change. Weinreich & Herzog (1968) call it the ACTUATION PROBLEM, which they phrase as follows (p. 102): “What features can account for the actuation of changes? Why do changes in a structural feature take place in a particular language at a particular time, but not in other languages with the same feature, or in the same language at other times?”<sup>11</sup>

Nine years before Weinrich, Labov & Herzog published their article, Lüdtke (1959) pondered the actuation problem with respect to velar fronting. In particular, he made a proposal for why velar fronting was phonologized in Germany and not in the Netherlands: Lüdtke observed that German (=LGM/CGM) has a phonemic lenis /j/, – in present terms, the etymological palatal – which served as a catalyst for the creation of fortis [ç] by velar fronting. The reason the fronting of velars after front vowels was not phonologized in the Netherlands is that Dutch has a palatal glide /j/ (< WGmc <sup>+</sup>/j/), but no /j/. Since there is no palatal fricative in the Dutch system there was no precondition for the phonologization of velar fronting.

Lüdtke’s proposal is an attractive one, but it is not consistent with my claim that WGmc <sup>+</sup>/y/ underwent velar fronting to the palatal fricative allophone [j] in word-initial position before Glide Hardening created the phoneme /j/ from WGmc <sup>+</sup>/j/ (§4.2). One might respond that my claim concerning the time frame for Glide Hardening is not correct. This may be the case; however, there is a deeper reason for why it is difficult to successfully account for the geography of velar fronting given the type of approach advocated by Lüdtke. In particular, the truly difficult question is why that change failed to phonologize in the H(st)Almc and SBav regions of Switzerland and Austria (Tyrol). Those dialects are similar to Dutch in the sense that they possess the palatal glide /j/ (<WGmc <sup>+</sup>/j/) and

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<sup>11</sup>For recent discussion of the actuation problem the reader is referred to Walkden (2017). See also Janda (2005: 401), who discusses briefly the actuation problem with respect to the fronting of velars before front vowel, i.e. velar palatalization as described in Appendix I.

## *16 When and where was velar fronting phonologized?*

not the corresponding fricative. Assuming for the sake of argument that there is an independent reason for why velar fronting failed to phonologize in Switzerland and Austria (Tyrol), there remain two unresolved questions: (a) Why was velar fronting phonologized throughout UGm (LAlmc, Swb, EFr, NBa, MBav) in South Germany and Austria?, and (b) why was velar fronting phonologized in a number of places (Chapter 15) independently from one another? The reason why these two questions are difficult to answer is that whatever structural feature one proposes for the non-velar fronting varieties of H(st)Almc and SBav, that same structural feature is most likely present in all of the places in (b) and in many of the places in (a).

# 17 Velar Fronting in Modern Standard German

## 17.1 Introduction

Previous chapters have scrutinized the status of velar fronting in a broad selection of regional varieties of German. The goal of the present chapter is to discuss the patterning of dorsal fricatives ([x]/[ç]) in MoStGm and to demonstrate that the distribution of those sounds reflects patterns encountered in previous chapters. §17.2 presents a representative selection of data and an analysis thereof, and §17.3 concludes by considering three of the research questions from §1.4.4 in light of the treatment of MoStGm.

## 17.2 Data and analysis

MoStGm (Mangold 2005 and the theoretical literature cited in §1.2) has the phonemic front vowels /i: ɪ y: ʏ e: ɛ ə: ø: œ/, the phonemic back vowels /u: ʊ o: ɔ a: ɑ ə:/, and the three phonemic diphthongs /ai ɔy au/.

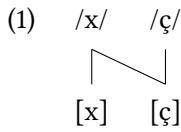
The two dorsal fricatives are [x] and [ç]. Lenis [y] is not a surface sound, although there is a synchronically derived |y| (from /g/), as in LRGm (§5.3.1). There is no lenis palatal fricative ([j]).<sup>1</sup>

The patterning of [x] and [ç] is expressed for postsonorant position in (1).<sup>2</sup>

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<sup>1</sup>A long-standing debate in the literature is whether or not the initial sound in words like *ja* ‘yes’ is a fricative ([j]) or a glide ([j̥]). In contrast to many of the LGm and CGm varieties discussed in the present book, MoStGm does not have alternations between [y] and [j] indicating that the latter sound patterns phonologically like a fricative. I treat the MoStGm sound represented by *j* henceforth as the glide ([j̥]). See Wiese (1996b) and Hall (2007) for discussion and formal treatments.

<sup>2</sup>Neither of those sounds occur in word-initial position in the native lexicon. The basic generalizations concerning the patterning of word-initial [x] and [ç] in loanwords is unclear and is therefore not discussed in the present chapter. See Appendix G and Robinson (2001) for elaboration.

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The patterning of [ç] and [x] can be summarized as follows: (A) [ç] – but not [x] – surfaces after a front vowel but not after a phonemic back vowel, and [x] – but never [ç] – occurs after a phonemic back vowel but not after a front vowel, (B) [ç] surfaces after the two coronal sonorant consonants [n l], but [x] never does, (C) [ç] – but never [x] – occurs after the back vowel [ɐ] or after the dorsal consonant [r], both of which derive from /r/, and (D) [ç] – but never [x] – is the realization of *ch* in the diminutive suffix *-chen* regardless of the nature of the preceding sound. I demonstrate below that [ç] and [x] in (A)-(B) derive from /x/ by velar fronting, while the [ç] in (C)-(D) is an underlying palatal (/ç/). As discussed below, the contexts described in (C) and (D) involve (historical) overapplication opacity because [ç] (from an earlier velar) was historically preceded by a front ([coronal]) sound.

The items listed below exemplify generalization (A): [x] surfaces after phonemic back vowels (in 2a and 3a) and [ç] after front vowels (in 2b and 3b). The dorsal fricatives in (2) are in coda position, but the same sounds are in intervocalic position in (3). The data in (2) and (3) together therefore show that the syllable cannot be a factor in the distribution of [x] and [ç]. [x ç] in examples like the ones in (2) and (3) are the modern realizations of historical fortis velars (WGmc \*[k x]).<sup>3</sup>

## (2) Postvocalic dorsal fricatives (from /x/) in the coda:

a. [tu:x]	Tuch	‘towel’
[bɔxt]	Bucht	‘bay’
[ho:x]	hoch	‘high’
[kɔx]	Koch	‘cook’
[na:x]	nach	‘after’
[bax]	Bach	‘stream’
[baux]	Bauch	‘stomach’

<sup>3</sup>There are several accidental gaps. For example, no native words are attested in which a dorsal fricative occurs after [e], although [ç] surfaces after short [e] in the nonnative word *Mechanik* ‘mechanics’. After [o:] and before a vowel, [x] is apparently only attested in the toponym *Bochum*. The only word to my knowledge with a dorsal fricative ([ç]) following [ø:] is the realization of the morpheme *hoch* ‘high’ with an umlauted stem vowel (i.e. [hø:ç] in [hø:çst] ‘extreme’). Finally, no dorsal fricatives occur after [ə].

## 17.2 Data and analysis

b.	[zi:ç]	siech	'ailing'
	[lɪçt]	Licht	'light'
	[gəryçt]	Gerücht	'rumor'
	[gəsprɛçt]	Gespräch	'conversation'
	[Rɛçt]	recht	'right'
	[hø:çst]	höchst	'extreme'
	[vœç.nə.rim]	Wöchnerin	'woman in childbed'
	[raiç]	Reich	'empire'
	[çyç]	euch	'you-DAT/ACC PL'

## (3) Postvocalic dorsal fricatives (from /x/) before a vowel:

a.	[ku:xən]	Kuchen	'cake'
	[bəanʃprʊxən]	beanspruchen	'claim-INF'
	[knɔxən]	Knochen	'bone'
	[ʃprra:xə]	Sprache	'language'
	[maxən]	machen	'do-INF'
	[tauxən]	tauchen	'dive-INF'
b.	[ri:çən]	riechen	'smell-INF'
	[mø:kliçə]	mögliche	'possible-INFL'
	[fly:çə]	Flüche	'curses'
	[kyçə]	Küche	'kitchen'
	[gəme:çə]	Gemächer	'chambers'
	[lœçə]	Löcher	'holes'
	[aiçə]	Eiche	'oak tree'
	[kɔyçən]	keuchen	'gasp-INF'

The distribution of [x] and [ç] as in (2) and (3) is also reflected in many morphophonemic alternations like the one in (4): [x] surfaces after a back vowel in the morphologically underived word (e.g. singular noun) and [ç] after the corresponding front vowel (via Umlaut) in the morphologically derived word (e.g. plural noun). As in (2) and (3), [x ç] in examples like these derived historically from WGmc \*[k] or \*[x].

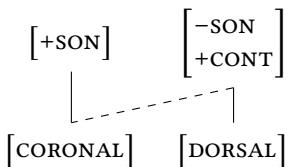
## (4) [x]~[ç] alternations (from /x/):

a.	[bu:x]	Buch	'book'
	[by:çə]	Bücher	'books'
b.	[løx]	Loch	'hole'
	[lœçə]	Löcher	'holes'
c.	[bax]	Bach	'stream'
	[bɛçə]	Bäche	'streams'

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The data in (2–4) are captured by analyzing the dorsal fricatives as /x/, which surfaces as palatal after a front vowel by Velar Fronting-1:

- (5) Velar Fronting-1:



A second source for the surface (coda) palatal fricative [ç] can be seen in (6a,b). These words illustrate an alternation between [g] and [ç] after the vowel [i]: The alternant with [ç] occurs in coda position and the one with [g] before a vowel. The [g]~[k] alternations in (6c) show that coda /g/ – like all other voiced obstruents – undergoes Final Fortition to [k] after any vowel other than [i]. The [g]~[ç] alternations in (6a,b) are analyzed in the literature cited earlier with an underlying /g/ that spirantizes to [y] in the coda after the vowel [i] by g-Spirantization-2 (in 7); cf. g-Spirantization-1, which applies in the context after all vowels (§4.2). Alternating [g] and [ç] in examples like the ones in (6) derived historically from WGmc \*[y].<sup>4</sup>

- (6) [g]~[ç] alternations (from /g/):

a.	[kø:nɪç]	König	'king'
	[kø:nɪgə]	Könige	'kings'
b.	[le:dɪç]	ledig	'single'
	[le:dgə]	ledige	'single-INFL'
c.	[tak]	Tag	'day'
	[taɪgə]	Tags	'days'

- (7) g-Spirantization-2:

$$\left[ \begin{array}{c} -SON \\ -CONT \\ -FORTIS \\ \text{DORSAL} \end{array} \right] \rightarrow [+cont] / i \_ C_0 ]_\sigma$$

In examples like *König* and *ledig* in (6a,b) g-Spirantization-2 produces a derived coda |y| which shifts to |x| via Final Fortition and then surfaces as [ç] by Velar

<sup>4</sup> According to Mangold (2005), the stem-final sound in words like the ones in (6a,b) is realized as [k] – and not as the expected [ç] – in the context after [i] and before a morpheme containing [ç], e.g. *königlich* [kø:nik.lɪç] 'royal'. I do not discuss this type of example because it is not directly related to the topic of velar fronting.

## 17.2 Data and analysis

Fronting-1. Hence, surface [ç] in MoStGm can derive from /x/ in (2)-(4) or from /g/ in (6a,b). See Hall (1992: 228), Wiese (1996b: 207; 211–212), Robinson (2001), Ito & Mester (2002) and Glover (2011, 2014) for formal treatments of g-Spirantization-2 in MoStGm.<sup>5</sup>

A potential drawback with g-Spirantization-2 involves [g]~[ç] alternations after the diphthong /ai/, e.g. [taik] ‘dough’ vs. [taigɪç] ‘doughy’. If the second part of /ai/ is analyzed as /i/ (e.g. Hall 1992, Wiese 1996b), then the incorrect prediction is made that the /g/ should surface as [ç] in coda position in words like [taik] (from /taig/). I argue that the /i/ which serves as the vocalic trigger for g-Spirantization-2 is phonologically [–tense] because it contrasts with the [+tense] vowel /i:/. The second part of the diphthong /ai/ is not marked for tenseness because there is no contrast between a diphthong ending in [i] and one ending in [ɪ]. Given this treatment, the /g/ in a word like /taig/ is correctly predicted not to spirantize. The reader is referred to Noelliste (2017), who applies that type of treatment to the diphthongs of Ramsau am Dachstein, and to §13.5.1 for a discussion of the diphthongs in CBav varieties of Lower Bavaria.

The words in (8) exemplify the occurrence of [ç] after the two sonorant coronal consonants [l n]; recall generalization (B). The [ç] in examples like these is the modern realization of a historical fortis velar (WGmc \*[k x]).

(8) Postconsonantal dorsal fricatives (from /x/):

- |           |       |         |
|-----------|-------|---------|
| a. [mœnç] | Mönch | ‘monk’  |
| b. [elç]  | Elch  | ‘moose’ |

Palatal [ç] in items like the ones in (8) is precisely what one would expect given that the set of triggers for Velar Fronting-1 consists of all coronal sonorants and that /l n/ are both [coronal] and [+sonorant]. Hence, surface [ç] after /l n/ derives from /x/.

Palatal [ç] – but not velar [x] – surfaces after dorsal /r/, which is realized optionally in the phonetic representation the consonant [r] or as the vowel [ɛ]; recall generalization (C). Representative examples are presented in (9a). The same [r]/[ɛ] variants occur after any short vowel and before an optional coda consonant; see (9b). After any long vowel, /r/ surfaces as [ɛ]; see (9c). The literature in which data like these are discussed include Moulton (1962: 36), Hall (1993), Mangold (2005: 54), Wiese (1996b: 253ff.), and Glover (2014). The [ç] in words like

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<sup>5</sup>Final Fortition counterbleeds g-Spirantization-2, otherwise the final segment a word like /kɔ:nɪg/ would shift to |k| and bleed g-Spirantization-2. As in Altengamme (§4.2), the type of counterbleeding relationship between Final Fortition and spirantization described here does not involve opacity.

## 17 Velar Fronting in Modern Standard German

the ones in (9a) derived historically from a fortis velar fricative (WGmc \*[x] or \*[xx]). The significance of the examples in (9a) is that they involve (historical) overapplication opacity because the palatal (from an earlier velar) surfaces after a back sound.

- (9) [r] and [e] (from /r/):

a.	[dʊrc̩], [dʊəc̩]	durch	'through'
	[kɪrc̩ə], [kɪrəc̩ə]	Kirche	'church'
b.	[ɪrt], [ɪt̩]	irrt	'is mistaken-3 SG'
	[ɪ.rən]	irren	'be mistaken-INF'
c.	[ty:e]	Tür	'door'
	[ty:.rən]	Türen	'doors'

I analyze the sound underlying [r]/[e] in (9) as /r/, which surfaces as [e] by (10). I do not attempt to capture the optionality of that process after short vowels – a condition that accounts for the variant pronunciations in (9a,b). The target (/r/) is [+consonantal, +sonorant, -nasal, dorsal], and the output ([e]) is [-consonantal, +sonorant, -nasal, dorsal]; hence, r-Vocalization only changes [ $\pm$ consonantal]; see Hall (1992: 57, 1993), Wiese (1996b: 256), and Glover (2014).

- (10) r-Vocalization:

$$\begin{bmatrix} +\text{CONS} \\ +\text{SON} \\ -\text{NASAL} \\ \text{DORSAL} \end{bmatrix} \rightarrow [-\text{cons}] / \_ C_0 ]_\sigma$$

Since the trigger Velar Fronting-1 in (5) bears the frontness feature ([coronal]), that process cannot apply after /r/, which is [dorsal]. It is precisely for that reason that I analyze [ç] in the context after a rhotic as an underlying palatal (quasi-phoneme), e.g. /dʊrc̩/ and /kɪrc̩ə/ for (9a). One might attempt to argue that /x/ can produce [ç] after /r/ if the latter sound is analyzed phonologically as [coronal], but that treatment was considered and rejected for various regional dialects in §7.4.2. For further discussion see §17.3.1.

Recall from Chapter 7 that several varieties of German are attested in which the palatal quasi-phoneme occurs in the context of various back sounds, including the vocalized-r. It was demonstrated in that chapter that there was an earlier historical stage in which dorsal /r/ was coronal (/r/), and that the earlier /r/ triggered the shift from /x/ to [ç] by velar fronting, which at that point was an allophonic rule. All surface palatals at that earlier stage were derived from /x/;

### 17.3 Discussion

but when the old front segment /r/ became back (/R/) by r-Retraction (§3.4), the surface palatal was quasi-phonemicized in that one context. Given that development it is not surprising that MoStGm has [ç] after a back (dorsal) sound because that back sound used to be front.

The MoStGm words with the diminutive suffix *-chen* presented in (11) indicate that that the initial sound in that suffix consistently surfaces as [ç], regardless of whether or not it occurs after a stem ending in a back vowel (in 11a), a front vowel (in 11b), or a consonant (in 11c). The initial fricative in that suffix is a historical velar (WGmc \*[x]). The most significant example is the one (11a), since palatal [ç] otherwise never occurs after a front vowel; hence, example (11a) exemplifies (historical) overapplication opacity. The examples in (11) illustrate generalization (D) stated earlier.

(11) MoStGm *-chen* (/çən/):

- a. [tauçən]      Tauchen      ‘rope-DIM’ (cf. [tau] Tau ‘rope’)
- b. [aiçən]      Eichen      ‘egg-DIM’ (cf. [ai] Ei ‘egg’)
- c. [hyntçən]      Hündchen      ‘dog-DIM’ (cf. [hʊnt] Hund ‘dog’)

Note that there are examples of minimal pairs, e.g. [tauxən] ‘dive-INF’ (from 3b) vs. [tauçən] ‘rope-DIM’ (from 11a).

I follow Robinson (2001) in analyzing the initial segment of *-chen* as an underlying palatal (/ç/). Hence, a word like [tauçən] ‘rope-DIM’ is underlyingly /tau-çən/. The underlying palatal drives support on the basis of the history of the *-chen* suffix, as discussed below in §17.3.2.

## 17.3 Discussion

I consider three of the research questions posed earlier (§1.4.4) that have been discussed intensively in the literature on the synchronic phonology of German. The literature referred to here concerns itself primarily with MoStGm, although the same questions are also relevant for many of the dialects investigated in preceding chapters. In §17.3.1, I consider and reject the proposal that the rhotic ([R]/[v]) is an articulation conducive to velar fronting. In §17.3.2 I defend the treatment proposed above with an underlying palatal in *-chen*. Finally, in §17.3.3 I discuss the question of whether or not the rule relating [ç] and [x] derives the palatal from the velar or the velar from the palatal and argue in favor of the former treatment.

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### 17.3.1 /R/ is not a phonetically natural environment for [ç]

In his discussion of the distribution of German [x] and [ç], Robinson (1992: 78–81) cites some of the phonetics literature – in particular Ulbrich (1972) – suggesting that surface vocalized-r ([ə]) is phonetically a front vowel. According to the material collected by Ulbrich, the [ə] in the context after a short vowel and before a palatal fricative (e.g. in a word like [dœç] ‘through’ from 9a) is further forward than the [ə] in other contexts. Robinson’s conclusion is that [ə] is a “phonetically natural environment for [ç]”.

Since his (pan-dialectal) equivalent of Velar Fronting-1 spreads [coronal] from a sonorant sound to a following /x/, Robinson concludes that [ə] should therefore be analyzed phonologically as [coronal].<sup>6</sup> Robinson emphasizes that the occurrence of a palatal after [ə] is the expected realization of /x/. One could rephrase Robinson’s position in the present framework by asserting that the occurrence of [ç] after [ə] is transparent, although Robinson eschews the latter term. In any case I reject his interpretation and argue instead that palatal [ç] after [ə] exemplifies opacity and not transparency. I therefore analyze the palatal in words like [dœç] ‘through’ as an underlying palatal (quasi-phoneme) and not as a palatal derived from /x/. Two arguments can be levelled against Robinson’s treatment, which I consider in turn.

First, there are German dialects with some version of velar fronting after front vowels, but /x/ surfaces in those dialects without change as [x] after [ə]. Data from two of those dialects (from §3.5 and §4.3 respectively) are repeated in (12). As discussed earlier, the realization of /x/ as [x] in examples like these is the expected (i.e. transparent) realization because the sound preceding /x/ is [dorsal] and not [coronal]. Recall from §3.5 that [x] surfaces after the vocalized-r in StAGm as well (Sylvia Moosmüller et al. 2015).

- (12) Velar [x] (from /x/) after [ə] (from /R/) in Soest (a) and Ramsau am Dachstein (b):

a.	[bə:ex]	Berg	‘mountain’
	[tve:ex]	Zwerg	‘dwarf’
b.	[ʃtəex]	Storch	‘stork’
	[kiex]	Kirche	‘church’

Robinson does not discuss dialects like the ones in (12). If [ə] were a front (i.e. [coronal]) vowel in MoStGm (as per Robinson), then it is not clear how he would

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<sup>6</sup>In fact, it is not entirely clear from the passage in Ulbrich that [ə] can be considered a front vowel from the point of view of phonetics. Robinson’s translation of the passage in question is ‘[ə] tends...a great deal toward [ə] or [ɪ]’, but [ə] is central and not front.

### 17.3 Discussion

analyze the dialects in (12). One could speculate that the [e] in that type of dialect is phonetically further back than the [e] in MoStGm (and perhaps phonologically [dorsal] as well), but this strategy stands in clear contrast to the implicit claim in Robinson (2001) that his treatment holds for all German dialects. In any case, I hold that the burden of proof lies on the shoulders of linguists who claim that there are dialects with a coronal [e] and those with a dorsal [e].

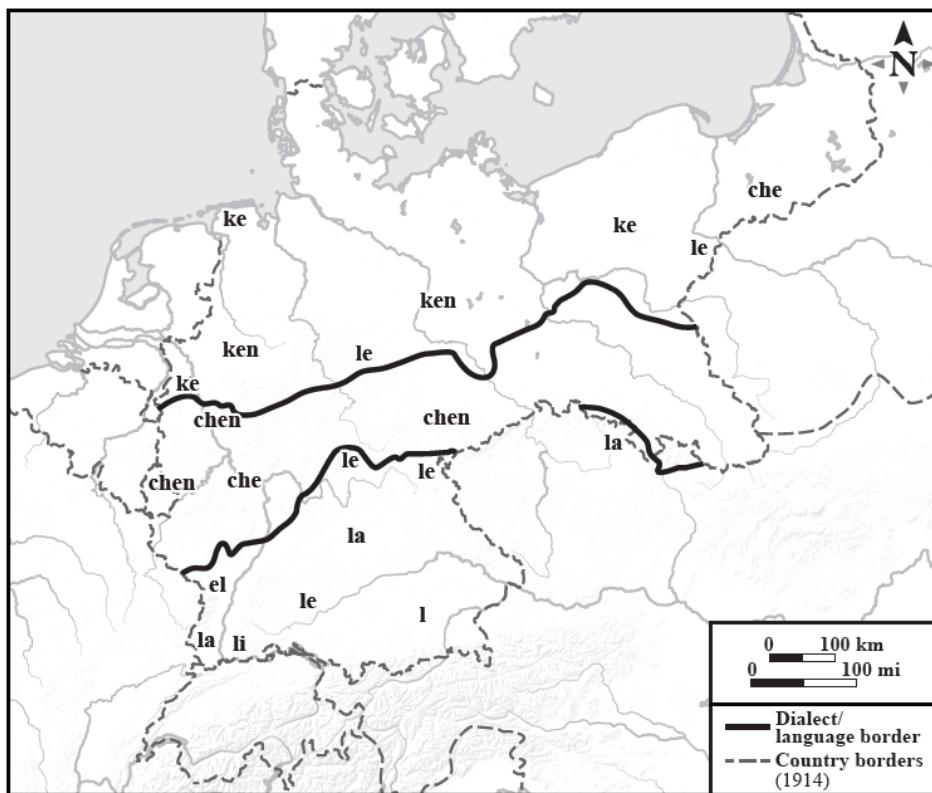
Second, and most important, it is not clear how Robinson's treatment actually works. According to his analysis, the [coronal] sound [e] derives from /r/, which is he analyzes as a singleton [dorsal]; see Robinson (2001: 113). His equivalent of Velar Fronting-1 spreads [coronal] from a sonorant to a following dorsal fricative, although he sees the target segment as [+high] and not [dorsal]. In any case, underlying /x/ correctly surfaces as the corono-dorsal fricative [ç] after a front vowel, as in my own treatment. However, Robinson never says how /r/ changes from [dorsal] to [coronal] in words like [dœç] 'through' and [kœçə] 'church'. Since Robinson sees every instance of [e] is [coronal] and not simply the [e] before [ç], the change from [dorsal] to [coronal] needs to occur in a context-free fashion. One can speculate that the featural change described here is a part of r-Vocalization (which Robinson never formalizes), but if so, we have no explanation for why the vocalization of a consonant should also entail the change in place.

None of these problems hold for the present analysis. As noted above, Velar Fronting-1 correctly fails to affect the /x/ in examples like the ones in (12) and therefore surfaces without change as [x]. The dorsal fricative in MoStGm examples like [dœç] 'through' and [kœçə] 'church' cannot be /x/, otherwise [x] would be the expected surface realization. The surface palatal fricative in examples like those is therefore an underlying palatal (quasi-phoneme). If it is true that [e] is further forward before [ç] than in other contexts, then this is due to phonetic implementation and is not an articulation that a phonological analysis can or should account for. Put differently, the fronted [e] in words like [dœç] 'through' is a consequence of [ç] and not the other way around.

#### 17.3.2 Status of *-chen*

It was noted in chapter 1 that the analysis of [-çən] in words like [tauçən] 'rope-DIM' in (11a) is moot for most of the dialects discussed in the present book because those dialects do not have [-çən] or any variant of that suffix with [ç]. See also Robinson (2001: 64–70), who bases his remarks on the maps in Tiefenbach (1987); see Map 17.1:

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Map 17.1: Diminutive suffixes in High and Low German. Adapted from Tiefenbach (1987).

For example, LGm dialects have a [k]-initial diminutive that is some variant of [-kən], while UGm varieties have an [l]-initial variant of [-lain], the latter of which also occurs in MoStGm, e.g. *Kindlein* ‘child-DIM’; cf. *Kind* ‘child’. Not surprisingly, those patterns are reflected in the original sources cited earlier. For example, in the HstAlmc dialect of Visperterminen (§6.2), Wipf (1910: 168–172) discusses at length the following realizations of the diminutive in her dialect: [-i], [-li], [ji], [-tsi], [-tsi] and [-ki], but no mention is made of a variant with [ç]. The same point holds for the Wph dialect of Soest (§4.3), where the diminutive appears to be consistently realized as [kn]; see Holthausen (1886).

These points aside, it is undeniably the case that [-çən] – or a similar variant with [ç] – occurs in many of the other dialects investigated in the preceding chapters, in particular CGm dialects, on which MoStGm is based. Some of the CGm sources cited earlier list examples with *-chen*, while others do not. In (13)

### 17.3 Discussion

I give examples from three of the former dialects. In each item, *-chen* surfaces with [ç] even after stems ending in non-front segments:

- (13) [-çən] after nonfront sounds in CGm dialects:

- a. kœpçən [kœpçən] Tasse ‘cup-DIM’ Hasenclever (1905: 86)
- b. kibχən [kibçən] Kuh, dim ‘cow-DIM’ Hofmann (1926: 151)
- c. begχən [begçən] Bock, dim ‘buck-DIM’ Schirmer (1932: 21)

The problem that has been discussed at length in the theoretical literature cited in §1.2 is how to account for the opaque palatal in *-chen* after a stem ending in a back vowel in MoStGm (as in 11a), although the same issue holds for the realization of that suffix after nonfront segments in other varieties of German, as in (13).

As stated above, I hold that the initial segment in the diminutive suffix [-çən] in MoStGm is an underlying palatal (/ç/). The same analysis can be applied to dialect data like the ones in (13). Since the target segment for velar fronting is by definition a velar that process cannot affect the /ç/ in /-çən/, which therefore surfaces as [çən] even after nonfront sounds. An analysis of the initial segment in [-çən] as an underlying velar /x/ with a separate rule applying only at the left edge of a morpheme is hardly credible for the simple reason that the rule required would only apply in a single morpheme.

The underlying palatal /ç/ in [-çən] is a direct consequence of the history of that suffix. The MHG reflex of [-çən] was *-ichen* (Seibold 2011: 171). The reader is also referred to the extensive discussion of the German diminutive suffixes in Schirmunski (1962: 475–488). Since the dorsal fricative represented by *ch* followed the front vowel *i*, it was realized as the palatal fricative [ç] at the point where velar fronting became phonologized (=Stage 2 in the historical model described in §2.5). When the initial vowel [i] in *-ichen* was elided, [ç] came to stand after any stem, even if that stem ended in a back vowel. At that point, the original allophone [ç] changed into /ç/, as indicated in (14). I give the underlying and phonetic representations for both historical stages. I include only the relevant features for /i/ and /x/, namely [coronal] and [dorsal]:

(14)	/i	x	ə	n/	>	/ç	ə	n/
	[i]	ç	ə	n]	>	[ç]	ə	n]
	[CORONAL][DORSAL]					[CORONAL][DORSAL]		

To the left of the wedge the dorsal fricative is underlyingly /x/, which surfaces as [ç] by some version of velar fronting. The result of that spreading operation

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is the creation of a synchronically derived complex segment which is [coronal] and [dorsal]. When the initial /i/ was elided the feature [coronal] was retained on the newly-created underlying segment /ç/.

### 17.3.3 Velar to palatal or palatal to velar?

An issue dealt with at length in the literature on MoStGm phonology is whether or not the rule relating [ç] and [x] derives the former from the latter or the latter from the former (§1.2, §7.4.3). The same question can be posed with respect to the velars and palatals in the velar fronting dialects discussed in the present book. The two options referred to here are stated in (15), where (15a,b) apply in the postsonorant context and (15c,d) word-initially. In (15), [x] and [ç] are understood to be representative for any type of velar and palatal respectively.<sup>7</sup>

- (15) a. /ç/ → [x] / ...
- b. /x/ → [ç] / ...
- c. /ç/ → [x] / wd[ ...
- d. /x/ → [ç] / wd[ ...

Compare, for example, the treatment proposed for MoStGm above, which adopts (15b), with the one in (16) and (17), which presupposes (15a). Variants of (15a) for MoStGm have been proposed in a number of the works cited earlier (e.g. Wurzel 1980, Meinhold & Stock 1982, Hall 1989).

- (16) Underlying /ç/ in MoStGm (rejected):
  - a. /tu:ç/ → [tu:x] ‘scarf’
  - b. /lɪçt/ → [lɪçt] ‘light’
  - c. /dʊrç/ → [dʊrç], [dʊəç] ‘through’
- (17) Hypothetical alternative to velar fronting (rejected):
  - /ç/ → [x] / {back vowels}—

The consequence of the treatment in (16) and (17) is that it must require a special provision for the occurrence of [ç] in the diminutive suffix [çən] after a back vowel; recall [tauçən] ‘rope-DIM’ from (11a).

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<sup>7</sup>From the historical perspective, (15a,b) are uncontroversially correct, but the debate described below holds for the synchronic phonology. If (15a) and/or (15c) can be shown to be correct synchronically, then rule inversion must have taken place; recall Neuendorf (§8.5).

### 17.3 Discussion

The “velar to palatal” approach in (15b,d) was uncritically adopted for MoStGm as well as the German dialects discussed in Chapter 3–Chapter 15, but it is important to consider what the proposed treatment for those varieties might look like if velars were being derived from palatals, as in (15a,c). Although one variety was discussed earlier in which the “palatal to velar” change in word-initial position (=15c) is the only possible one (Neuendorf in §8.5), it is demonstrated below that in the overwhelming number of dialects – including MoStGm – the “velar to palatal” analysis is correct.

There are three reasons why a rule changing a palatal to a velar either leads to treatments that are far less explanatory than ones with a velar changing to a palatal or does not even work on technical grounds. (The unique case of Neuendorf is discussed at the end of this section). For convenience, I refer henceforth to the “palatal to velar” treatment in (15a,c) as the Pa→Ve Analysis.

The first argument against the Pa→Ve Analysis pertains to the dialects discussed in Chapter 8–Chapter 10 and many of the varieties in Chapter 11. Those dialects have in common that velars (e.g. [x], [y]) and palatals (e.g. [ç], [j]) contrast in the context of the same back sounds. As demonstrated in those chapters, velar fronting is still active synchronically as a rule neutralizing the palatal vs. velar contrast to palatal in the context of front segments. That type of dialect is important because the Pa→Ve Analysis does not even work technically. As a representative example, consider Schlebusch (§10.3.1): [x] occurs only after a back vowel, but [ç] surfaces after a front vowel, coronal sonorant consonant, or back vowel. On the basis of these generalizations it was demonstrated that velar fronting applies to /x/ in the context after a coronal sonorant. For example, /x/ surfaces as [ç] in [lø:çə] ‘holes’ (from /lø:x-ə/), but /x/ is realized without change as [x] in [løx] ‘hole’ (from /løx/). It was noted in §10.3.1 that one does not even have the option of analyzing such data with an underlying /ç/ which surfaces as [x] after a back vowel (as in 15a). The reason is that there are many morphemes with nonalternating [ç] after a back vowel which would incorrectly undergo the rule, e.g. [vrɔç] ‘frog (from /vrɔç/)’ (cf. [vrøç] ‘frogs’ from /vrøç/).

In Table 17.1 I provide a list of dialects investigated in Chapter 8–Chapter 11 in which the Pa→Ve Analysis does not work (as in Schlebusch) because velars and the corresponding palatals contrast in the neighborhood of the same back vowel. The examples in the upper box refer to postsonorant position and in the lower box to word-initial position. The velars and palatals in question are listed in the final column. I do not attempt to list all of the dialects investigated in Chapter 8–Chapter 11 involving word-initial [j] and [y]/[g] because that is an extremely common pattern.

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Table 17.1: Pa→Ve Analysis not possible after a sonorant (upper box) or word-initially (lower box)

Place/Region	Section	Sounds
Wissenbach	§9.2	
Langenselbold	§9.2	
Weidenhausen	§9.2	
Ebsdorf	§9.2	[ç] and [x]
Atzenhain/Grünberg	§9.2	
Zell im Mümlingtal	§9.3	
Heppenheim	§9.3	
Schlebusch	§10.3	
Luxembourgish	§10.3	
Leipzig	§10.3	
Cologne	§10.4	[ç] and [x]
Frankfurt am Main/Montabaur	§10.4	
Kreis Bülow	§11.5	[ŋ] and [ŋ̊]
Lauenburg	§11.5	[c] and [k]
Kreis Konitz	§11.5	[ç n] and [k n̊]
Reimerswalde	§11.6	[c ŋ] and [k g]
Many dialects	§8, §10, §11	[j] and [y]/[g]
Kreis Konitz	§11.5	[ç] and [k]
Reimerswalde	§11.6	[c ŋ] and [k g]

Recall from Table 10.1 that there are many CGm varieties like Schlebusch, Luxembourgish, Leipzig, Cologne, Frankfurt am Main/Montabaur that could be added to the Table 17.1.

The second reason for calling the Pa→Ve Analysis into question is that the alternative rules involved often require disjunctions in which one of the contexts is clearly ad hoc. As a representative example consider the distribution of word-initial [x] and [ç] in Soest (§4.3): Recall that [x] surfaces in that variety before back vowels or sonorant consonants and [ç] before front vowels. The correct rule therefore converts /x/ to palatal in word-initially before a front vowel. If /ç/ were taken as basic then the rule would create [x] in word-initial position before (a) back vowels or (b) sonorant consonants (/l n r/). The problem is that context (b) is an arbitrary list of sounds that fails to express the assimilatory nature of the

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rule. In Table 17.2 I list some of the dialects investigated in Chapter 3–Chapter 11 which, like Soest, require an awkward disjunction given the Pa→Ve Analysis. In the final column of that box I list the arbitrary contexts that would be required if the velar is derived from the palatal.

Table 17.2: Disjunctions with an ad hoc context assuming the Pa→Ve Analysis

Place/Region	Section	Ad hoc context
Rheintal	§3.4	
Rhoden	§5.2	/ç/→[x] in context of low front vowels
Kamnitz	§11.5	
Soest	§4.3	/ç/→[x] word-initially before a sonorant consonant
Dorste	§4.4	
Obersaxen	§6.3	/ç kç/→[x kk] in context of low front vowels and /yu/
Visperterminen	§6.2	/ç kç/→[x kk] in context of nonlow front vowels and neutral vowels
Kreis Rummelsburg	§11.5	/ç j/→[x y] after front lax vowels
Rauchenberg Rhöntal	§7.2	/ç/→[x] after any back vowel other than /a:/

A deeper generalization is expressed in Table 17.3, which lists four of the Trigger Types discussed in Chapter 12 and shows the connection between those Trigger Types and the kind of ad hoc contexts required. For example, the Pa→Ve Analysis for any dialect with Trigger Type A requires palatals to be realized as velar in the context of nonhigh front vowels or coronal sonorant consonants. The additional problematic Trigger Types and the corresponding disjunctions are listed in Table 17.3 as well.

The reader may recall that disjunctions were posited in several varieties discussed in the previous chapters; however, in contrast to the problematic ones in Tables 17.2 and 17.3, the disjunctions in the present analysis all involve assimilations. Consider as a representative example, the distribution of velars ([x] and [kx]) and palatals ([ç] and [kç] in Rheintal (§3.4)). In that section it was shown that the velars surface in the context of (a) nonlow front vowels, or (b) coronal sonorant consonants, captured formally with two versions of velar fronting (both assimilatory). By contrast, an alternative given the P→V Analysis requires the

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Table 17.3: Connection between Trigger Type and ad hoc contexts necessary given the Pa→Ve Analysis

Trigger	Ad hoc disjunction
A	Nonhigh front vowel or coronal sonorant consonant
B	Nonlow front vowel or coronal sonorant consonant
C/AA	Nonlow front vowel
D/BB	Coronal sonorant consonant

two contexts: (a) back vowels, or (b) nonlow front vowels, but the (b) context is ad hoc.

The third reason for rejecting the P→V Analysis is that in a number of dialects there is a [dorsal] segment serving as a target for velar fronting that is derived synchronically from a [dorsal] nontarget segment. The derived sound in question ( $|x|$ ) can have more than one synchronic source, namely: (a) /y/ (by Final Fortition), (b) /g/ (by g-Spirantization and Final Fortition), or (c) /r/ (by Laryngeal Assimilation-2 or Final Fortition). The problem for the Pa→Ve Analysis is that the type of dialect referred to here requires a rule fronting the derived velar  $|x|$  which would be required alongside the rule creating  $[x]$  from an underlying palatal; see [Glover \(2014\)](#), who makes the same point for MoStGm. Consider Soest as a representative example. Alternations from that dialect between [y] and [ç] in words like [stui.yə] ‘climb-INF’ vs. [stırçst] ‘climb-2 SG’ require an underlying velar /y/ which surfaces as [y] after a vowel in a word-internal onset (in [stui.yə] from /stuiy-ə/). That velar undergoes Final Fortition to  $|x|$  in coda position and then velar fronting to [ç] after a front vowel (in [stırçst] from /stiy-st/). If the Pa→Ve Analysis is adopted to capture the complementary distribution of [x] and [ç] not deriving from /y/, e.g. [niçtə] ‘niece’ /niçtə/ and [løxt] ‘air’ /løçt/, then the rule backing /ç/ to [x] would be unable to front the derived  $|x|$  to [ç]. In Table 17.4 I list in the third column the three types of derived velars referred to above and a selection of some of the corresponding dialects from Chapter 3–Chapter 5 in the first column. Note that Soest has Target Type L discussed in Chapter 12; hence, that one dialect is simply one representative example of a significantly larger set of dialects. Impressionistically many CGm varieties not discussed in the present book have some version of g-spirantization; hence, the two examples Altengamme and LRGm are simply two representative instances of a much larger sample of German dialects.

MoStGM can be included in the list of dialects with  $|x|$  derived from /g/. Recall from (9) that there are examples involving [g]~[ç] alternations like [kø:nic] ‘king’

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Table 17.4: Dialects with a derived velar ( $|x|$ ) which undergoes fronting

Place/Region	Section	Source for derived velar
Soest	§4.3	$ x $ from /χ/
Altengamme	§4.2	$ x $ from /g/
LRGm	§5.3	
Upper Austria	§3.6	
Erdmannsdorf	§5.3	$ x $ from /r/
LRGm	§5.3	

vs. [kønɪgə] ‘kings’. That type of word requires that /g/ shift to the corresponding fricative (i.e. |χ| by g-Spirantization-2 and to |x| by Final Fortition), which then surfaces as [ç] by velar fronting.

There is a small set of dialects discussed earlier in which the relationship between velars ([x]) and palatals ([ç]) is potentially free from the three problems discussed above. In that type of system, velars and palatals fulfill the following three conditions: (a) they are in complementary distribution, (b) the palatals occur in the context of all front vowels (and not a subset thereof), and (c) there are no derived velars that undergo fronting to palatal. Potential examples are listed in the upper box in Table 17.5. The dialects listed from Chapter 3 are Almc or CBav varieties attested in South Germany, Switzerland, and Austria and ones from Chapter 7 are Eph-speaking areas once spoken in North Germany. Consider Erdmannsweiler as a representative example. In that dialect [ç] surfaces after a front vowel or coronal sonorant consonant and [x] after a back vowel. The velar fronting treatment proposed in §3.2 could be replaced with a Pa→Ve Analysis given in the final column of the upper box in Table 17.5. Note that this is only a potential example of a dialect in which a P→V Analysis works technically because the dialect does not possess low front vowels like [æ]. Since that vowel is not present in Erdmannsweiler one cannot know for sure if [ç] or [x] surfaces after that sound. If [ç] surfaced after [æ] then Erdmannsweiler would be a true example of a dialect in which the Pa→Ve Analysis works technically, but if [x] surfaced after [æ] then the Pa→Ve Analysis would require an ad hoc disjunction (“palatal shifts to velar after a low front vowel”). The same indeterminacy holds for Maienfeld, Ramsau am Dachstein, Reinhäusen, and Schieder-Schwalenberg. By contrast, Elspe possesses [æ], before which [ç] occurs; hence, the facts from word-initial position in Elspe represent the only clear-cut case in

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which the Pa→Ve Analysis works technically. Additional examples of dialects like Elspe are ones in which (a)-(c) are fulfilled which (like Elspe) represent Trigger Type E.

Table 17.5: Dialects in which the Pa→Ve Analysis is technically possible (upper box) or required (lower box)

Place/Region	Section	Alternative rule
Erdmannsweiler	§3.2	
Maienfeld	§3.3	/ç/→[x] after a back vowel
Ramsau am Dachstein	§3.5	
Elspe	§7.2	/ç/→[x] word-initially before a [dorsal] vowel
Reinhhausen		
Schieder-Schwalenberg	§7.2	/ç/→[x] word-initially before a [dorsal] sonorant
Neuendorf	§8.5	/ç/→[x] word-initially before a [dorsal] vowel

The only example of a German dialect uncovered in the present book in which the relationship between velars and palatals actually requires a rule converting an underlying palatal to velar (as in 15a,c) is Neuendorf (§8.5). The correct rule for that dialect (referred to earlier as Wd-Initial Palatal Retraction) is stated in prose form in the final column in the lower box in Table 17.5. Recall from §8.5 that Wd-Initial Palatal Retraction in Neuendorf had a peculiar history: In particular, it was the product of rule inversion from a pre-Neuendorf system with velar fronting. That earlier fronting operation reverted to Wd-Initial Palatal Retraction by the elimination of one of the [coronal] triggers (r-Deletion). It was also mentioned in passing in that earlier chapter (§8.6) that it is notoriously difficult to find unambiguous examples of “palatal to velar” assimilations in any natural language. That kind of cross-linguistic evidence suggests that it would be misguided to propose a reanalysis of the velar fronting operations for the dialects in the upper box in Table 17.4 as in the final column.

In sum, the relationship between velars and palatals in the overwhelming number of German dialects investigated in this book require a rule fronting the velar to the palatal (and not the reverse). That generalization also holds for MoStGm, which has a derived velar (|x|) like the dialects listed in Table 17.4. The only case

### *17.3 Discussion*

in which a dialect actually requires a rule backing a palatal to a velar, that type of system emerged via rule inversion.



# 18 Summary and conclusion

I recapitulate here the status of velar fronting as a synchronic rule (§18.1, §18.2), provide a brief synopsis of that process from the historical perspective (§18.3), and then discuss the significance of my findings (§18.4). The chapter concludes with a series of questions I leave open for further research (§18.5).

## 18.1 Velar fronting viewed synchronically

Velar fronting differs structurally from dialect to dialect along three parameters: (a) segments undergoing the change (targets), (b) segments inducing the change (triggers), and (c) the nature of the fronted sound created (outputs). Targets consist of one or more velar sound ([k g kx x y ɳ]) and triggers of some combination of coronal sonorants, i.e. front vowels or coronal sonorant consonants ([r l n]). Velar fronting can apply either in a word-initial onset or in postsonorant position.

The relationship between velars (e.g. [x]) and palatals (e.g. [ç]) is expressed with a rule converting the former into the latter (velar fronting) and not the reverse. Both contexts for that rule (word-initial and postsonorant) have a number of different versions depending on the nature of triggers and targets. All versions of velar fronting are regular in the sense that there are no lexical exceptions.

In the overwhelming number of dialects investigated, the front vowel triggers for velar fronting exhibit variation along the height dimension: In some varieties, the segments inducing fronting subsume only high front vowels, in others high and mid front vowels but not the low front vowels, and in yet others all front vowels, regardless of height. The fronting of velars can also be induced by a coronal sonorant consonant ([r l n]). In the most common velar fronting system – referred to below as the default pattern – the triggers consist of all front vowels and all coronal sonorant consonants. In many areas, historical velars succumbed to velar fronting regardless of the nature of the adjacent sound; thus, velars surfaced as palatal even in the context of back vowels. It is probably not the case that nonassimilatory velar fronting remains active synchronically.

In many varieties, the set of target sounds for velar fronting subsumes all and only velar fricatives ([x] and [y]), but in other systems the target consists solely

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of [x] but not [y]. In yet another set of dialects, velar fronting affects not only [x] and [y], but also velar stops and the velar nasal (velar noncontinuants). In dialects with the velar affricate [kx], that sound can also undergo fronting.

In the typical velar fronting system the target segments are realized as the corresponding palatals; hence, only place changes, while manner does not, i.e. [k g kx x y ɳ] surface as [c ɟ kç ɺ ɟ ɲ] respectively. In the type of dialect referred to here, velar fronting alters a place feature only; in the formal model adopted that feature is [coronal], which spreads from a front ([coronal]) trigger to a velar ([dorsal]) target, thereby creating a complex corono-dorsal (palatal) segment. A common pattern for many varieties of CGm is that the fortis fricative /x/ is realized in the front vowel context as the (sibilant) alveolopalatal fricative [ç]. Velar fronting in such alveolopalatalizing dialects only alters a place feature; hence, [coronal] spreads to a [dorsal] target, and siblancy is assigned to that complex segment by rules of phonetic implementation.

An important theme discussed at length in the preceding chapters is the ways in which velar fronting interacts with synchronic and diachronic changes creating or eliminating structures which can potentially undergo or trigger it. In many dialects the relationship between velars (e.g. [x]) and the corresponding palatals (e.g. [ç]) is transparent because velars only occur in the back vowel context and palatals only when adjacent to front sounds. In that type of system, independent processes can either feed or bleed velar fronting. When velars and palatals have a transparent relationship they stand in complementary distribution and are classified as allophones.

A transparent relationship between velars and palatals does not obtain in other dialects. For example, in many varieties, both dorsal articulations occur in the context of front segments. Hence, in addition to expected sequences (e.g. [iç]), there are also unexpected ones (e.g. [ix]). In other systems velars and palatals both occur in the context of back segments; hence, expected sequences (e.g. [ax]) occur alongside unexpected ones (e.g. [aç]). Both types of system exemplify opacity: A sequence like [ix] in the first system and [aç] in the second one illustrate the underapplication and overapplication of velar fronting respectively.

Two types of underapplication have been identified: In one system velar fronting actively creates palatals (e.g. [ç]) from velars (e.g. /x/), and the opaque velar in the front vowel context (e.g. [x] in [ix]) is derived from an independent segment (/A/). In that dialect a sequence like [ix] (from /iA/) illustrates the underapplication because the rule creating [x] from /A/ counterfeeds velar fronting. In another type of system, velar fronting is active synchronically (e.g. /ix/ is realized as [iç] and /ax/ as [aç]), but [x] surfaces unexpectedly in the context of neutral vowels, i.e. front vowels that are phonetically front but which behave phonologically as

## 18.2 Additional properties of velar fronting

nonfront (e.g. /øix/ is realized as [øix]). An important generalization is that such neutral vowels were historically back (e.g. [øi] < [ou]). Since [øi] is synchronically /øi/ and not /ou/, systems with neutral vowels do not involve a synchronic counterfeeding relationship between velar fronting and vowel fronting ([øi] /øi/ < [ou] /ou/). However, vowel fronting does exemplify the historical underapplication of velar fronting.

Two types of overapplication can be distinguished: In one, palatals (e.g. [ç]) occur in the context of front vowels and certain nonfront sounds ([Bk]) and velars (e.g. [x]) only in the context of nonfront sounds with the exception of [Bk]. Observe that palatals ([ç]) and velars ([x]) stand in complementary distribution. All instances of palatals ([ç]) in the context of front vowels derive from the corresponding velars, but opaque palatals ([ç]) in the context of [Bk] are underlying (/ç/) and not derived from velars. Underlying (opaque) palatals in like those are referred to in the present book as palatal quasi-phonemes. In another type of system, velars and palatals both contrast in the neighborhood of the same back sounds. In that type of dialect velars and palatals are both underlying sounds in the context of the same back vowels (e.g. /x/ and /ç/). Underlying palatals in that type of example are referred to throughout this book as phonemic palatals. In dialects where palatals and velars are both phonemic, velar fronting is still active synchronically in order to capture regular alternations between velars and palatals because palatals but never velars surface in the front vowel context.

## 18.2 Additional properties of velar fronting

Velar fronting is categorical and not gradient because it relates only two articulations – velar (back dorsal) and palatal (front dorsal) – and not multiple articulations, i.e. the fine-grained back dorsals and/or front dorsals observable in the phonetics. This interpretation of velar fronting accounts for the fact that the back dorsal fricative (e.g. [x]) and the front dorsal fricative (e.g. [ç]) can be perceived by native speakers and that there are established colloquial terms for those two categories (ach-Laut and ich-Laut). By contrast, the distinction between various articulations within the back dorsal or front dorsal category lie below the threshold of consciousness of the linguistically naïve speaker and hence no colloquial terms exist to characterize them. This assessment of velar fronting is true for MoStGm, but it also derives support from most of the descriptive studies on German dialects cited above, whose authors decided to describe the distribution of two categories (velar and palatal) and ignore finer-grained distinctions.

In those dialects where data are available, velar fronting fails to apply in connected speech as a phrasal (postlexical) rule. The trigger and target for velar

## 18 Summary and conclusion

fronting (in both the word-internal and postsonorant context) therefore belong to the same word. It can also be said that the trigger and target belong to the same morpheme, although the formal rules of velar fronting posited above do not need to encode that fact into their structural description because there are no words where a target (e.g. /x/) and trigger are separated by a morpheme boundary.

In the vast majority of dialects under investigation the trigger and target for velar fronting are adjacent. In some dialects the trigger and target can be separated by an intermediate sound (Q). If Q is schwa (/ə/) then the velar after Q surfaces as palatal if the sound preceding Q is a front trigger (e.g. /iəx/ → [iɸç] vs. /uəx/ → [uɸx]). It was shown that velar fronting in such cases is fed by a process creating a fronted ([coronal]) schwa ([ɸ]). In dialects where Q is a liquid (e.g. /ilx/ → [ilç] vs. /alx/ → [alç]) it was argued that velar fronting is fed by a process merging the frontness feature of the vowel with the frontness feature of the liquid.

One way in which rules of assimilation can vary cross-linguistically is in terms of direction: If the trigger is to the right of the target then spreading is right-to-left (regressive), but if the trigger is to the left of the target then spreading is left-to-right (progressive). If a velar target is situated between two sonorants (e.g. vowels) then spreading is always progressive. That generalization is true without exception; it holds for the native words which have been the object of investigation of the present book as well as nonnative words. Significantly, this is one way velar fronting in German dialects differs from velar palatalization because typological work has demonstrated that there are languages in which the latter process can be regressive and others in which it can be progressive.

### 18.3 Velar fronting viewed diachronically

At an early point in the history of Gmc – namely Proto-WGmc – velar fronting was absent (Stage 1). It is hypothesized that velars ([x]) at Stage 1 were subject to some coarticulatory (phonetic) fronting in the context of front vowels, especially high front vowels like [i]. Phonologization (Stage 2) occurred when the difference between velar [x] and the slightly fronted variant (prevelar) was exaggerated to the point where the latter was realized as palatal ([ç]), while the latter remained velar ([x]). At that point velar fronting became active as a synchronic process relating the two dorsal sounds. The target segment for velar fronting at that early stage was the fortis fricative [x] and the triggers were high front vowels like [i].

The newly phonologized rule of velar fronting diffused in terms of time and place to include a greater set of targets (Stage 2a > Stage 2n) and/or triggers (Stage

### 18.3 *Velar fronting viewed diachronically*

2aa > Stage 2n). Targets could expand to include not only fortis [x] but also lenis [y], and then noncontinuants ([k g ŋ]). The set of triggers likewise increased to include high and mid front vowels, then all front vowels, and finally all coronal sonorants. In some regions velar fronting went one step further in applying as a nonassimilatory change in the context of front and back segments alike. Those historical stages are all preserved in dialects described in the modern era (late 19<sup>th</sup> century to the present). Of particular significance is Lower Bavaria, where over 200 villages and towns represent three distinct historical stages.

A small number of dialects display a unique behavior suggesting that the historical paths described in the preceding paragraph need not be slavishly adhered to without exception. In particular, there are cases where velar fronting triggers are sensitive to tenseness (Kreis Rummelsburg), roundedness (Plettenberg, South Mecklenburg, Mitterdorf), and stress (Sörth). Although those places suggest idiosyncratic developments, it is significant that the peculiar sets of triggers comprise natural classes of sounds (e.g. front unrounded vowels, nonlow front tense vowels, high front unstressed vowels) and not arbitrary lists of segments.

The Stage 2 allophonic rule relating [x] and [ç] has undergone a change in many CGm varieties whereby the palatal allophone [ç] developed into [ç]. Such alveolopalatalizing dialects were shown to require more than one stage. Evidence for those stages come from modern CGm dialects.

Variation in terms of space (regional dialects) directly reflects changes along the temporal dimension. That interpretation of time is applied in the present book to velar fronting. Hence, dialects with a more restricted set of triggers (e.g. only nonlow front vowels) preserve an earlier historical stage than dialects with the full set of triggers (all coronal sonorants), which represent a later stage. The same point holds for dialects with a small set of targets (e.g. /x/) vs. those with an expanded set (e.g. /x y/).

The phonologization of velar fronting occurred independently at more than one place (polygenesis). The most conclusive evidence against a single point of origin (monogenesis) comes from the many velar fronting islands. Whether or not monogenesis of polygenesis was correct for velar fronting in areas where velar fronting is the norm (i.e. most of Germany) is a question that cannot be known.

The conclusion was drawn is that the WGmc language (Proto-WGmc) represented Stage 1; hence, velar fronting at that time was absent. The reason for this conclusion is that the linguistic evidence points to velar fronting in the earliest attested stages, namely OHG and OSax: Although velar fronting was not phonologized in a single place at a single point in time, it can be said that the change

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must have had at least one point of origin in somewhere in an area corresponding to modern-day northwest Germany by the end of the 9<sup>th</sup> century. The reason for that time frame is that velar fronting predated the change from full vowel velar fronting triggers like [i] to schwa (Vowel Reduction), which was complete by the onset of MHG/MLG. Velar fronting was phonologized first in postsonorant position and the extension of that process to word-initial position came later. Evidence is strong that velar fronting is much older in CGm (Rpn/MFr) dialects of OHG and is of a much more recent origin in LGm (Wph) varieties of OSax.

When velar fronting was in the process of expanding through time and space to include a greater number of targets and triggers, velars ([x]) and palatals ([ç]) stood in a transparent (allophonic) relationship. Changes affecting the velar fronting target/trigger often interfered with the allophonic nature of velar fronting by producing opacity (Stage 3). For example, rules creating new velar targets (e.g. /r/ > /x/) could exhibit underapplication if those new velars failed to undergo velar fronting. Likewise sound changes eliminating the front ([coronal]) trigger (e.g. /i/ > /a/ or /r/ > /R/) could lead to the historical overapplication of velar fronting. Overapplication occurred if the original front sound (e.g. /r/) once served as a trigger for velar fronting, but the original palatal allophone remained palatal even after the front trigger has been removed, e.g. /rx/ [rç] > /rç/ [rç]. The palatal fricative [ç] in the diminutive suffix *-chen* has a similar history: That [ç] was once preceded by a front vowel (cf. MHG *-ichen*), the loss of which led directly to the creation of the underlying palatal /ç/. That palatal is retained to the present day in those dialects with *-chen* [çən].

The emergence of palatal quasi-phonemes or phonemic palatals like /ç/ exemplifies what is referred to in the traditional literature on historical linguistics as a phonemic split, whereby the original trigger for a rule creating an allophone [A] from the phoneme /B/ causes the original allophone [A] to become the phoneme /A/.

Dialect-specific changes affecting the velar fronting target/trigger could interfere with the allophonic nature of velar fronting in other ways. In particular, the historically allophonic rule of velar fronting could undergo either rule loss or rule inversion. Rule loss is attested most clearly in the neighboring dialects of North Luxembourg (Nordösling), East Belgium (in and around Burg-Reuland), and West Central Germany (Lützkampen and Dahn) with (alveolo)palatals (e.g. [ç]/[ç]) but no velars (e.g. [x]); hence, all historical velars in those places are realized as palatals. In that type of system the original rule of velar fronting was lost because earlier velars (e.g. /x/) were later restructured as phonemic palatals (e.g. /ç/). Rule inversion is attested in a particular place (Neuendorf) where earlier palatal allophones ([ç] from /x/ in the context of front vowels) were restructured as

## 18.4 Significance of the findings

underlying palatals and a rule retracting those sounds to velar ([x] from /ç/ in the context of back vowels). Rule inversion was shown to be a direct consequence of a sound change eliminating one of the earlier triggers for velar fronting.

### 18.4 Significance of the findings

The conclusions described in §18.1–§18.3 bear on several questions probed at length in the cross-linguistic research on phonology (diachronic and synchronic), language-specific research on German phonology, as well as typology.

The most significant contribution of the present work to linguistic scholarship is that it represents an in-depth investigation of the ways in which a single rule (velar fronting) can be phonologized in different dialects in different ways. It is my hope that the data in the *Ortsgrammatiken* which served as the base for my treatment of velar fronting will inspire future linguists to conduct similar case studies on other types of changes.

The literature on historical German phonology has remained silent on the origin of the palatal allophone [ç] because earlier stages of German (and MoStGm) spell [x] and [ç] the same way. The present book has demonstrated that it is possible to shed light on the origin of [ç] by putting aside orthography and by considering linguistic arguments.

This book sheds light on proposals made in the literature on the life cycle of a rule, e.g. Hyman (1976), Dressler (1976), Kiparsky (1995), Bermúdez-Otero (2007), Hyman (2013), Kiparsky (2015), Bermúdez-Otero (2015), Ramsammy (2015), Sen (2016), and Turton (2017). Although the works cited here (as well as those of scholars not mentioned) endorse a variety of different models, they generally agree that a purely phonetic (gradient) process becomes phonologized as an allophonic (categorical) rule whose effects later become opaque and then ultimately lost from the grammar entirely. That general trajectory is corroborated in the present cross-dialectal treatment of velar fronting, although there are various quirks in the German dialects investigated (referred to above) and commented on below.

The gradual increase in the number of targets/triggers when velar fronting was phonologized as an allophonic can be captured in the rule generalization model. That theory derives support from sound changes within and outside of Gmc, e.g. Davis et al. (1999), Bermúdez-Otero (2015). That the historical progression among triggers proceeds according to vowel height is corroborated in the present study, although some rare places suggest that the original high front vocalic trigger may have expanded along alternate dimensions (roundedness, tense-

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ness, orality, stress). The tentative analysis of the way in which rule generalization occurred in those unique communities can be corroborated in the future if parallel cases in independent languages become known.

The present treatment sheds light on how an originally transparent change can develop opaque outputs. Although the change from a transparent system to an opaque one has been observed by a number of linguists cited earlier, the types of opaque systems attested in the present book are much more fine-grained than the commonly ones discussed in the literature. Consider the following examples:

One case of underapplication opacity comes in the form of neutral vowels. Precedent for neutral vowels outside of Gmc comes from Inuit dialects spoken in Alaska described and analyzed by [Dresher \(2009\)](#). However, the models cited above for the life cycle of a rule appear not to recognize that type of change. To the best of my knowledge Dresher's work is not referred to in the literature on the life cycle of a rule.

Overapplication as attested in German dialects was shown be more subtle than what is typically assumed in the literature on phonemic splits in historical linguistics. The reason is that palatal allophones of velars can develop into either palatal quasi-phonemes or phonemic palatals. Palatal quasi-phonemes are not defined the same way as the vocalic quasi-phonemes proposed by [Kiparsky \(2015\)](#). A significant difference between the two approaches is that palatal quasi-phonemes in the present treatment always emerge as a direct consequence of the elimination of a (velar fronting) trigger and not before that trigger is lost (as per Kiparsky). What is more, only in my approach is it possible for the original velar to revert back to an underlying velar after the loss of the conditioning environment. That change was shown to be attested in several LGm varieties, r.g. Schieder-Schwalenberg.

The case of rule loss mentioned above demonstrates that the expulsion of velar fronting from the grammar is not necessarily preceded by a morphologized and/or lexicalized version of velar fronting, contrary to what is sometimes postulated for the life cycle of a rule ([Hyman 2013](#)).

The one case involving the change from a historical rule of velar fronting to a later rule of palatal retraction (Neuendorf) involves a true case of rule inversion and therefore poses a challenge for the claim made in [McCarthy \(1991\)](#) that true rule inversion does not exist. The fact that the inverted rule of palatal retraction is apparently unattested cross-linguistically lends yet additional support to the established claim that rule inversion can create crazy rules (e.g. [Vennemann 1972](#), [McCarthy 1991](#), [Blevins 2004](#), [Hall 2009b](#)).

In terms of German phonology the present cross-dialectal study sheds light on how the distribution of [x] and [ç] in MoStGm should best be analyzed. First,

### 18.5 *Questions for future research*

the two sounds are related by a rule fronting the velar to the palatal and not the reverse (contrary to many treatments proposed in the literature cited earlier, including my own). Second, the [ç] in the diminutive suffix *-chen* ([ -çən]) and in the post-rhotic (/r/) context are underlying palatals (/ç/). That synchronic treatment (which is corroborated by the history of [ç] in those two contexts) therefore accounts for the presence of [-çən] even after stems ending in a back vowel and [ç] after the vocalized (back) rhotic ([ə]). The occurrence of [ç] after [v]/[R] is not in any way natural, contrary to the assertion made by Robinson (2001). Finally, the investigation of German dialects undertaken in the previous chapters should put to rest Robinson's (2001) claim that velar fronting is a "low-level, phonetic rule" and his implicit claim that the rule is essentially the same in all German dialects.

The present study contributes to the literature on velar palatalization typology (e.g. Neeld 1973, Chen 1973, Bhat 1978, and especially Bateman 2007, 2011, 2007, Kochetov 2011, and Krämer & Urek 2016). That the front vowel triggers for velar fronting vary along the height dimension derives support from that literature. This book also corroborates the finding in the cross-linguistic studies referred to above that front vowel triggers for velar fronting only rarely refer to nonheight features. Another significant finding in the present study is that velar fronting can be triggered by front vowels and front (coronal) consonants. That finding does not appear to have support outside of German. The fricative targets for velar fronting in German dialects affect /x/ or /x y/ but not /y/ to the exclusion of /x/. That generalization is a corollary of similar claims made in the literature (e.g. Guion 1998, Hall & Hamann 2006 and Hall et al. 2006).

A typological oddity uncovered in the present study is the synchronic rule retracting an underlying palatal to velar in the back vowel context (Neuendorf), which represents one of the few known cases of "palatal to velar" assimilations. I am unaware of parallel examples outside of German.

## 18.5 Questions for future research

Any book of this magnitude will inevitably leave many questions open, and the present work is no exception. I describe below several general and specific topics touched on briefly in Chapters 2-17 that could be pursued in future research.

A number of open questions pertain specifically to phonological models. Some of those issues are described in (1-5). A question concerning phonetics is posed in (6).

- (1) Structure of palatals: A complex place representation for palatals was adopted, according to which those segments are both [coronal] and

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[dorsal]. One could alternatively argue that palatals are simplex [coronal] or simplex [dorsal] segments (see §2.2.2 for references). No attempt was made in this book to compare and contrast the complex representation with simplex one. Whether or not there are significant differences among the various approaches is a question that needs to be determined.

- (2) Structure of alveolopalatals: It was argued (Chapter 10) that alveolopalatal sounds like /ç/ have a structure that is identical to the corresponding palatals (/ç/) and that the difference between the two types of articulation involves rules of phonetic implementation. This approach is very different from the one proposed by authors who have looked at alveolopalatals in German (e.g. Hall 2014a, Féry 2017) as well as the equivalent sounds in other languages (e.g. Rubach 1984 for Polish). It remains to be seen whether or not the phonetic implementation approach endorsed in Chapter 10 has more to offer than the ones cited above.
- (3) Analysis of front vowels: A featural model was adopted in which front vowels are [coronal] and back vowels (including phonetically central vowels) are [dorsal]. That treatment can be contrasted with approaches (e.g. Chomsky & Halle 1968, Sagey 1986, Kostakis 2015). No attempt has been made in this book to compare the present treatment with those alternative ones, but this endeavor could be undertaken in the future.
- (4) Adjacency: In the default case, the velar fronting target is adjacent to its trigger, but several patterns involving nonadjacency are well-attested in German dialects (§12.8.1). Much research in phonology has concerned itself with the topic of adjacency (e.g. Odden 1994); hence, one could consider how any of the patterns involving the nonadjacency of velar fronting targets and triggers fits into this overall research program.
- (5) Opacity: This is a topic that has been discussed at length in theoretical phonology. A number of models have been proposed to account for various types of opacity, but those models have been shown to make different predictions. In particular, proponents of Optimality Theory have put forth a number of specific proposals concerning opaque rule interaction (see McCarthy 2002 for discussion). Since the present study has dealt with a number of cases involving both synchronic and diachronic opacity one could apply those formal models to the German data presented in this book.
- (6) Non-velar fronting varieties: A number of places have been identified with velar sounds like [x] without a corresponding palatal. Little was said

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about that type of system, but it would be interesting to take a close look at the realization of those velars after all phonemic vowels and sonorant consonants in order to determine whether or not the degree of fronting in the coronal sonorant context in the phonetics matches the proposed steps for Stage 2 for the phonology. Is there a significant difference between non-velar fronting varieties, or do the same facts obtain in all of them?

Several open questions fit into the literature cited throughout this book on velar palatalization typology. Three such issues are described here:

- (7) Palatal Retraction: The Eph variety once spoken in Neuendorf was shown to have regular alternations between [x] and [ç] requiring a synchronic rule converting the former (/ç/) into the latter ([x]) in word-initial position before back vowels (§8.5). That rule of Palatal Retraction was the product of rule inversion. A question for further research concerns languages with similar rules changing a palatal into a velar in the neighborhood of back sounds. As noted earlier, no examples are presently known to me, nor are such examples discussed in the velar palatalization literature. If such rules are attested were they the result of rule inversion or did they arise in some other way?
- (8) Vocalic triggers for velar fronting: The triggers for the various versions of velar fronting are defined primarily in terms of vowel height. A few varieties were discussed in which the triggers are nonheight features, namely tenseness, rounding, and stress. A recent publication ([Cardoso & Honeybone forthcoming](#)) argues that vowel length is a factor in defining the set of triggers for velar fronting in a dialect of English. What is the entire range of parameters defining the set of triggers for velar fronting (palatalization) in the languages of the world?
- (9) Adjacency: The dialects under investigation reveal various conditions on the type of segment that can intervene in nonadjacent velar fronting targets and triggers (§12.8.1). Are other languages attested with similar patterns, or is German unique?

The present work has left several questions unanswered concerning velar fronting in German dialects. The topic I find the most intriguing is stated here:

- (10) Alveolopalatalization: This has been a change in progress primarily in CGm from at least the late 19<sup>th</sup> century to the present day. It was proposed (Chapter 10) that there are two distinct stages, but a question

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for future work is whether or not this is the correct prediction for German varieties that are just starting to undergo alveolopalatalization. Does the phonologization of alveolopalatalization always involve those two stages, or other stages attested?

Finally, the treatment of velar fronting begs several questions that in all likelihood have no answer. The three most intriguing questions in my view are the ones stated below. Recall that all three questions were mentioned briefly in previous chapters.

- (11) Actuation Problem: Why was velar fronting phonologized in certain places (e.g. Germany) but not in others (e.g. most of German-speaking Switzerland and West Tirol)?
- (12) Directionality: Why was velar fronting phonologized as a progressive spreading (and not as a regressive spreading) in all HGm and LGm varieties with that rule?
- (13) Uniqueness: Velar fronting in the many varieties of HGm and LGm is a textbook case of assimilation, which can easily be expressed with phonological units. If this is the case, then why is it that the typological literature referred to earlier has not discovered a parallel case outside of German with the unique properties associated with velar fronting (e.g. target includes at least one velar fricative, triggers include coronal consonants, left to right spreading)?

Since I cannot offer answers to (11)–(13) I simply leave them open for the inquisitive reader to ponder.



## References

- Abegg, Emil. 1910. *Die Mundarten von Urseren*. Frauenfeld: Huber.
- Alber, Birgit. 2014. Obstruent systems of Northern Italy. *L’Italia Dialettale* 75. 13–36.
- Albrecht, Karl. 1983. *Die Leipziger Mundart. Grammatik und Wörterbuch der Leipziger Volkssprache. Zugleich ein Beitrag zur Schilderung der Volkssprache im Allgemeinen*. [New printing 1983. Frankfurt am Main: Verlag Wolfgang Weidlich]. Leipzig: Arnoldische Buchhandlung.
- Anderson, Stephen R. 1981. Why phonology isn’t natural. *Linguistic Inquiry* 12(4). 493–539.
- Appel, Wilhelm. 1963. *Die Mundart von Hilbetten im Schönhengstgau*. Marburg: N. G. Elwert.
- Arend, Stefan Berthold. 1991. *Studien zur Erforschung des Niederhessischen und zur Lautstruktur der Mundart von Holzhausen am Reinhardswald*. Marburg: N. G. Elwert.
- Arens, Josef. 1908. *Der Vokalismus der Mundarten im Kreise Olpe unter Zugrundelegung der Mundart von Elspe*. Borna-Leipzig: Robert Noske.
- Auer, Peter. 1997. Areale Variation und phonologische Theorie: Überlegungen am Beispiel der mitteldeutschen “Epenthese”. In Gerhard Stickel (ed.), *Varietäten des Deutschen. Regional- und Umgangssprachen*, 46–87. Berlin: Mouton de Gruyter.
- Auer, Peter. 2002. Türkenslang: Ein jugendsprachlicher Ethnolekt des Deutschen und seine Transformationen. In Annelies Häckl Buhofer (ed.), *Spracherwerb und Lebensalter*, 255–264. Tübingen: Francke.
- Bach, Adolf. 1921. Die Schärfung in der moselfränkischen Mundart von Arzbach (Unterwesterwaldkreis). *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 45. 266–290.
- Bach, Emmon & Robert D. King. 1970. Umlaut in modern German. *Glossa* 4. 3–21.
- Bacher, Josef. 1905. *Die deutsche Sprachinsel Lusern. Geschichte, Lebensverhältnisse, Sitten, Gebräuche, Volksglaube, Sagen, Märchen, Volkserzählungen und Schwänke, Mundart und Wortbestand*. Innsbruck: Verlag der Wagner’schen Universitäts-Buchhandlung.

## References

- Bachmann, Armin R. 2000. *Die Mundart von Eslarn in der Oberpfalz*. Stuttgart: Franz Steiner.
- Baković, Eric. 2011. Opacity and ordering. In Jason Riggle Goldsmith John A. & Alan C. L. Yu (eds.), *The handbook of phonological theory*, 2nd edn., 40–67. Oxford: Blackwell.
- Baldes, Heinrich. 1896. *Die Birkenfelder Mundart: Ein Beitrag zur Kenntnis des Südmittelfränkischen. I. Die Lautlehre. B. Der Konsonantismus*. Birkenfeld: Horstermann.
- Baltazani, Mary, Evia Kainada, Anthi Revithiadou & Nina Topintzi. 2016. Vocoid-driven processes: Palatalization and glide hardening in Greek and its dialects. *Glossa* 1(1). 1–28. DOI: [10.5334/gjgl.108](https://doi.org/10.5334/gjgl.108).
- Barry, William J. 1995. Schwa vs. schwa + /r/ in german. *Phonetica* 52(3). 228–235.
- Bateman, Nicoleta. 2007. *A crosslinguistic investigation of palatalization*. San Diego, CA: UC San Diego. (Doctoral dissertation).
- Bateman, Nicoleta. 2011. On the typology of palatalization. *Language and Linguistics Compass* 5. 588–602.
- Bathe, Max. 1932. *Die Herkunft der Siedler in den Landen Jerichow, erschlossen aus der Laut-, Wort- und Flurnamen-Geographie*. Halle an der Saale: Max Niemeyer.
- Bathe, Max. 1937. *Deutsche Mundarten. Niederdeutsch aus Kleinwusterwitz Kr. Jerichow (Mark) (Lautbibliothek 38)*. Berlin: Preußische Staatsbibliothek.
- Bathe, Max. 1965. Zur Westgrenze der märkischen j-Aussprache. *Altmärkisches Museum Stendal. Jahresgabe* 19. 9–37.
- Batz, Hans. 1911. *Lautlehre der Bamberger Mundart*. Halle an der Saale: Buchdruckerei des Waisenhauses.
- Baudouin de Courtenay, Jan. 1895 [1972]. An attempt at a theory of phonetic alternations. In Edward Stankiewicz (ed.), *A Baudouin de Courtenay Anthology*, 144–212. Bloomington, IN: Indiana University Press.
- Bauer, Erika. 1925. *Die Moringer Mundart. Laut- und Formenlehre nebst Sprachproben. Ein Beitrag zur nordfriesischen Dialektforschung*. Heidelberg: Carl Winter.
- Bauer, Erika. 1957. *Dialektgeographie im südlichen Odenwald und Ried*. Marburg: N. G. Elwert.
- Baumgartner, Heinrich. 1922. *Die Mundarten des Berner Seelandes*. Frauenfeld: Huber.
- Baur, Gerhard W. 1967. *Die Mundarten im nördlichen Schwarzwald*. Marburg: N. G. Elwert.
- Bausinger, Hermann & Arno Ruoff. 1959. *Beuren. Kreis Wangen im Allgäu (Lautbibliothek der deutschen Mundarten 12/13)*. Göttingen: Vandenhoeck & Ruprecht.

- Beck, Ernst. 1926. *Lautlehre der oberen Markgräfler Mundart*. Halle an der Saale: Buchhandlung des Waisenhauses.
- Becker, Horst. 1969. *Sächsische Mundartenkunde. Entstehung, Geschichte und Lautstand der Mundarten des obersächsischen Gebietes. Neu bearbeitet und herausgegeben von Gunter Bergmann. Kartenbearbeitung von Lieselotte Flehsig*. Halle an der Saale: Max Niemeyer.
- Beckman, Jill, Michael Jessen & Catherine Ringen. 2009. German fricatives: Coda devoicing or positional faithfulness? *Phonology* 26. 231–268.
- Behaghel, Otto. 1902. *Die deutsche Sprache. Zweite neubearbeitete Auflage*. Vienna: F. Tempsky.
- Behaghel, Otto. 1911. *Geschichte der deutschen Sprache*. Dritte vollständig umgearbeitete Auflage. Strassburg: Karl J. Trübner.
- Beisenherz, Heinrich. 1907. *Vokalismus der Mundart des nordöstlichen Landkreises Dortmund*. Borna-Leipzig: Robert Noske.
- Bender, Heinrich. 1938. *Die Gliederung der Mundarten um Marburg a. d. Lahn*. Marburg: N. G. Elwert.
- Benesch, Irmfried. 1979. *Lautgeographie der Schönhengster Mundarten*. Brünn: M. Rohrer.
- Benware, W. A. 1996. Processual change and phonetic analogy: Early new high German <s> > <sch>. *American Journal of Germanic Linguistics & Literatures* 8.2. 265–287.
- Berger, Jacob. 1913. *Die Laute der Mundarten des St. Galler Rheintals und der angrenzenden voralbergischen Gebiete*. Frauenfeld: Huber.
- Bergmann, Gunter. 1965. *Das Vorerzgebirgische. Mundart und Umgangssprache im Industriegebiet um Karl-Marx-Stadt – Zwickau*. Halle an der Saale: Max Niemeyer.
- Bermúdez-Otero, Ricardo. 2007. Diachronic phonology. In Paul de Lacy (ed.), *The Cambridge handbook of phonology*, 497–517. Cambridge: Cambridge University Press.
- Bermúdez-Otero, Ricardo. 2015. Amphichronic explanations in the life cycle of phonological processes. In Patrick Honeybone & Joseph C. Salmons (eds.), *The handbook of historical phonology*, 374–399. Oxford: Oxford University Press.
- Bertram, Otto. 1937. *Die Mundart der mittleren Vorderpfalz*. Erlangen: Palm & Enke.
- Bertrang, Alfred. 1921. *Die Grammatik der Areler Mundart*. Brussels: Hayez.
- Besch, Werner. 1961. *Studien zur Lautgeographie und Lautgeschichte im obersten Neckar- und Donaugebiet*. Freiburg im Breisgau: Eberhard Albert.
- Bethge, Wolfgang. 1970. *Riesenbeck. Kreis Tecklenburg*. (Monographien 1. Phonai. Deutsche Reihe 6.). Tübingen: Max Niemeyer.

## References

- Bethge, Wolfgang & Gunther M. Bonnin. 1969. *Proben deutscher Mundarten*. (Phonai. Lautbibliothek der europäischen Sprachen und Mundarten. Deutsche Reihe 5.). Tübingen: Max Niemeyer.
- Bethge, Wolfgang & Werner Flechsig. 1958. *Mascherode. Kreis Braunschweig. Lautbibliothek der deutschen Mundarten 3*. Göttingen: Vandenhoeck & Ruprecht.
- Bhat, D. N. S. 1978. A general study of palatalization. In Joseph Greenberg (ed.), *Universals of human language*, 47–92. Stanford, CA: Stanford University Press.
- Bierwirth, Heinrich Conrad. 1890. *Die Vokale der Mundart von Meinersen*. Jena: Frommannsche Buchdruckerei.
- Bink, Karl Wilhelm. 1953. Ostpreußisches Niederdeutsch. *Eine Grammatik. Jahrbuch der Albertus-Universität zu Königsberg/Pr 3*. 84–127.
- Bíró, Ludwig Anian. 1918. Mundart von Neckenmarkt bei Ödenburg (Sopron), Ungarn. In Joseph Seemüller (ed.), *Deutsche Mundarten 5*, 49–54. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Bischoff, Karl. 1935. *Studien zur Dialektgeographie des Elbe-Saale-Gebietes in den Kreisen Calbe und Zerbst*. Marburg: N. G. Elwert.
- Bister-Broosen, Helga. 1989. *Sprachwandel im Dialekt von Krefeld*. New York, NY: Peter Lang.
- Blaschke, Gerhard. 1966. *Lautgeographie der südlichen Grafschaft Glatz*. Marburg: N. G. Elwert.
- Blevins, Juliette. 1994. A place for lateral in the feature geometry. *Journal of Linguistics* 30. 301–348.
- Blevins, Juliette. 2004. *Evolutionary phonology*. Cambridge: Cambridge University Press.
- Block, Richard. 1910. Die Mundart von Eilsdorf (bei Halberstadt). *Zeitschrift für Deutsche Mundarten* 5. 325–349.
- Bloomfield, Leonard. 1933. German ç and x. *Le Maître Phonétique* 29. 27–28.
- Blume, Rudolf. 1933. Wortgeographie des Landes Stargard. *Teuthonista* 9. 1–33, 65–89, 129–143, 193–207.
- Blumenstock, Friedrich. 1911. *Die Mundart von Klein-Almerspann OA Gerabrunn*. Tübingen: H. Laupp.
- Bock, Gudrun. 1965. *Die Mundart von Waldau bei Schleusingen*. Cologne: Böhlau.
- Böger, Richard. 1906. Die Schwälenbergische Mundart. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 32. 140–167.
- Bohnenberger, Karl. 1913. *Die Mundart der deutschen Walliser im Heimattal und in den Außenorten*. Frauenfeld: Huber.
- Bollmann, Heinrich. 1942. *Mundarten auf der Stader Geest*. Oldenburg: Gerhard Stalling.

- Bolter, David. 2022. *The phonetics and phonology of Austrian l-rounding*. Bloomington, IN: Indiana University. (Doctoral dissertation).
- Booij, Geert. 1995. *The phonology of Dutch*. Oxford: Oxford University Press.
- Booij, Geert. 2010. *Construction morphology*. Oxford: Oxford University Press.
- Bopp, Carl. 1890. *Der Vokalismus des Schwäbischen in der Mundart von Münsingen*. Strassburg: Karl J. Trübner.
- Borchert, Hans. 1955. *Dialektgeographie des südlichen Emslandes (Kr. Lingen und Kr. Steinfurt)*. Marburg: Philipps-Universität Marburg. (Doctoral dissertation).
- Brand, Joseph. 1914. *Studien zur Dialektgeographie des Hochstiftes Paderborn und der Abtei Corvey*. Münster: Aschendorffsche Buchdruckerei.
- Brandner, Ellen. 2012. Syntactic microvariation. *Linguistic Compass* 6.2. 113–130.
- Brandt, Ernst. 1913. *Die nordfriesische Sprache der Goeshaden*. Halle an der Saale: Buchdruckerei des Waisenhauses.
- Branscheid, Theodor (ed.). 1927. *Oberbergische Sprachproben. Mundartliches aus Eckenhagen und Nachbarschaft*. Vol. 1. Eckenhagen: Branscheid & Rippel.
- Braun, Karl. 1906. *Vergleichende Darstellung der Mundarten in der Umgebung von Heilbronn a. N. (Schwäbisch-fränkisches Grenzgebiet)*. Heilbronn: Carl Rembold.
- Braune, Wilhelm. 2004. *Althochdeutsche Grammatik*. Ingo Reiffenstein (ed.). 15th edn. Tübingen: Max Niemeyer.
- Bremer, Otto. 1909. Die Mundart. In Willi Ule (ed.), *Heimatkunde des Saalkreises einschließlich des Stadtkreises Halle und Mansfelder Seekreises*, 644–656. Halle an der Saale: Buchhandlung des Waisenhauses.
- Bremmer, Rolf H. 2009. *An introduction to Old Frisian. History, Grammar, Reader, Glossary*. Amsterdam: John Benjamins.
- Bretschneider, Anneliese. 1951. Volkssprache der prigniz. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 74. 82–98.
- Bromm, Erich. 1936. *Studien zur Dialektgeographie der Kreise Marburg, Kirchhain, Frankenberg*. Marburg: N. G. Elwert.
- Brose, Gerhard. 1955. Zur Dialektgeographie der pommersch-neumärkischen Grenzzone. *Zeitschrift für Mundartforschung* 23. 22–37.
- Brownman, Catherine P. & Louis Goldstein. 1992. Articulatory phonology: An overview. *Phonetica* 49. 155–180.
- Bruch, Robert. 1952. *Die Mundart Nordöslings*. Annuaire de l’Institut Grand-Ducal, Section de linguistique, de folklore et de toponymie (1952). 1-50.
- Brugge, Edvin. 1944. *Vokalismus der Mundart von Emmerstedt. Mit Beiträgen zur Dialektgeographie des östlichen Ostfalen*. Lund: C. W. K. Gleerup.
- Brun, Leo. 1918. *Die Mundart von Obersaxen im Kanton Graubünden. Lautlehre und Flexion*. Frauenfeld: Huber.

## References

- Bubner, Rudolf Helmut. 1935. *Untersuchungen zur Dialektgeographie des bergischen Landes zwischen Agger und Dhünn*. Marburg: N. G. Elwert.
- Buckley, Eugene. 2009. Phonetics and phonology in Gallo-Romance palatalisation. *Transactions of the Philological Society* 107. 31–65.
- Büschen, Theodor. 1888. *Über den Eifeldialekt. Ein Beitrag zur Kenntnis des Mittelfränkischen*. Beilage zum Programm des Progymnasiums zu Maledy. Ostern 1888.
- Cajot, José & Hartmut Beckers. 1979. Zur Diatopie der deutschen Dialekte in Belgien. In Peter Nelde (ed.), *Deutsch als Muttersprache in Belgien. Forschungsberichte zur Gegenwartslage. Mit 6 Abbildungen und 33 Karten*, 151–218. Wiesbaden: Franz Steiner.
- Calabrese, Andrea. 2005. *Markedness and economy in a derivational model of phonology*. Berlin: Mouton de Gruyter.
- Capell, C. E. 1979. Transcription, vowel and consonant systems of upper Bavarian dialect. *Journal of the International Phonetic Association* 9. 7–14.
- Cardoso, Amanda & Patrick Honeybone. Forthcoming. Palatalisation can be quantity-sensitive: Dorsal fricative assimilation in Liverpool English. *Journal of Linguistics*.
- Carlton, Terence R. 1990. *Introduction to the phonological history of the Slavic languages*. Columbus, OH: Slavica.
- Caro Reina, Javier. 2019. *Central Catalan and Swabian: A study in the framework of the typology of syllable and word languages*. Berlin: Walter de Gruyter.
- Castleman, Alan S. 1975. *Das Lautsystem der Mundart von Zweibrücken-Niederauerbach*. Marburg: N. G. Elwert.
- Ćavar, Małgorzata E. 2007. [ATR] in Polish. *Journal of Slavic Linguistics* 10. 207–228.
- Ćavar, Małgorzata E. 2004. *Palatalization in Polish. an interaction of articulatory and perceptual factors*. Potsdam: Universität zu Potsdam. (Doctoral dissertation).
- Cercignani, Fausto. 1979. *The consonants of German: Synchrony and diachrony*. Milan: Cisalpino-Goliardica.
- Chen, Matthew. 1973. Predictive power in phonological description. *Lingua* 32. 173–191.
- Chen, Matthew & William S.-Y. Wang. 1975. Sound change: Actuation and implementation. *Language* 51.2. 255–281.
- Chomsky, Noam & Morris Halle. 1968. *The sound pattern of English*. New York, NY: Harper & Row.

- Christmann, Ernst. 1927. *Der Lautbestand des Rheinfränkischen und sein Wandel in der Mundart von Kaulbach (Pfalz)*. Speyer: Pfälzische Gesellschaft zur Förderung der Wissenschaft.
- Clauss, Walter. 1929. *Die Mundart von Uri*. Laut- und Flexionslehre. Frauenfeld: Huber.
- Clements, George N. 1976. Palatalization: Linking or assimilation? In *Papers from the Annual Regional Meeting, Chicago Linguistic Society*, vol. 12, 96–109.
- Clements, George N. 1990. The role of the sonority cycle in core syllabification. In John Kingston & Mary Beckman (eds.), *Papers in laboratory phonology I: Between the grammar and physics of speech*, 283–333. Cambridge: Cambridge University Press.
- Clements, George N. 1997. Berber syllabification: Derivations or constraints? In Iggy Roca (ed.), *Derivations and constraints in phonology*, 289–330. Oxford: Clarendon Press.
- Clements, George N. 1999. Affricates as noncontoured stops. In Brian D. Joseph Fujimura Osamu & Bohumil Palek (eds.), *Item, order in language and speech*, 271–299. Prague: Charles University Press.
- Clements, George N. & Elizabeth Hume. 1995. The internal organization of speech sounds. In John A. Goldsmith (ed.), *The handbook of phonological theory*, 245–306. Oxford: Blackwell.
- Cohn, Abigail C. 1993. Nasalisation in English: Phonology or phonetics. *Phonology* 10. 43–81.
- Collitz, Hermann. 1899. *Die niederdeutsche Mundart im Fürstentum Waldeck*. Norden: Diedr. Soltau's Druckerei.
- Combrink, J. G. H. & L. G. de Stadler. 1987. *Afrikaanse Fonologie*. Johannesburg: Macmillan Suid-Afrika.
- Corell, Hans. 1936. *Studien zur Dialektgeographie der ehemaligen Grafschaft Ziegenhain mit benachbarter Gebietsteile*. Marburg: N. G. Elwert.
- Cornelissen, Georg. 2000. Kleve, Köln und die Uerdingen Zone auf Dialektkarten. In Dieter Geuenich (ed.), *Köln und die Niederrheinlande in ihren historischen Raumbeziehungen (15.-20. Jahrhundert)*, 393–405. Pulheim: Rheinland Verlag.
- Cornelissen, Georg. 2002. Muster regionaler Umgangssprache. *Ergebnisse einer Fragebogenerhebung im Rheinland*. *Zeitschrift für Dialektologie und Linguistik* 69. 275–313.
- Cornelissen, Georg, Peter Honnen & Fritz Langensiepen (eds.). 1989. *Das Rheinische Platt: Eine Bestandsaufnahme. Handbuch der rheinischen Mundarten. Teil I: Texte*. Bonn: Rheinland Verlag.
- Dahlberg, Torsten. 1934. *Die Mundart von Dorste. Teil 1*. Lund: C. W. K. Gleerup.
- Dahlberg, Torsten. 1937. *Die Mundart von Dorste. Teil 2*. Lund: C. W. K. Gleerup.

## References

- Damköhler, Eduard. 1919. G in der Mundart des Dorfes Cattenstedt bei Blankenburg a. Harz. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 45. 1–17.
- Darski, Józef. 1973. Diachronische Betrachtung des Lautbestandes der ehemaligen niederdeutschen Mundart von Sępóno Krajeńskie. *Lingua Posnaniensis* 37. 81–96.
- Daube, Ernst. 1906. Zwei Erzählungen in Altenburger Mundart. *Zeitschrift für Deutsche Mundarten* 1906. 271–274.
- Davis, Garry & Gregory K. Iverson. 1996. The Verschärfung as feature spread. In Rosina Lippi-Green & Joseph C. Salmons (eds.), *Germanic linguistics. Syntactic and diachronic*, 103–120. Amsterdam: John Benjamins.
- Davis, Garry W., Gregory K. Iverson & Joseph C. Salmons. 1999. Peripherality and markedness in the spread of the high German consonant shift. *Beiträge zur Geschichte der deutschen Sprache und Literatur* 121. 177–200.
- de Lacy, Paul. 2006. *Markedness: reduction and preservation in phonology*. Cambridge: Cambridge University Press.
- Dellit, Otto. 1913. *Die Mundart von Kleinschmalkalden*. Marburg: N. G. Elwert.
- Denton, Jeannette Marshall. 2003. Reconstructing the articulation of early Germanic \*r. *Diachronica* 20. 11–43.
- Denz, Josef. 1977. *Die Mundart von Windisch-Eschenbach. Ein Beitrag zum Lautstand und zum Wortschatz des heutigen Nordbairischen*. Frankfurt am Main: Peter Lang.
- Diederichs, August. 1884. *Über die Aussprache von sp, st, g und ng. Ein Wort zur Verständigung zwischen Nord und Süd*. Strassburg: Karl J. Trübner.
- Diegritz, Theodor. 1971. *Lautgeographie des westlichen Mittelfrankens*. Neustadt an der Aisch: Degener.
- Dietrich, Gerhard. 1957. Über die Geraer Mundart. *Zeitschrift für Phonetik und Allgemeine Sprachwissenschaft* 10.1. 49–65.
- Dietzel, Franz. 1908. *Die Mundart des Dorfes Wachbach im Oberamt Mergentheim*. Freiburg im Breisgau: C.A. Wagner.
- Dingeldein, Heinrich J. 1995. Fulda in der Sprachgeschichte und in der Sprachlandschaft mit einer grammatischen Skizze des Osthessisch-Fuldischen. In Walter Heinemeyer & Bertold Jäger (eds.), *Fulda in seiner Geschichte. Landschaft, Reichsabtei, Stadt*, 55–72. Marburg: N. G. Elwert.
- Dittmar, Eduard. 1891. *Die Blankenheimer Mundart. Eine lautliche Untersuchung*. Darmstadt: G. Otto's Hofbuchdruckerei.
- Downing, Laura, Tracy Alan Hall & Renate Raffelsiefen (eds.). 2005. *Paradigms in phonological theory*. Oxford: Oxford University Press.

- Dozauer, Rudolf. 1967. *A phonology of Bergstetten*. Ann Arbor, MI: University of Michigan. (Doctoral dissertation).
- Dreher, Eleonore. 1919. *Laut- und Flexionslehre der Mundart von Liggersdorf und Umgebung*. Tübingen: H. Laupp.
- Dresher, B. Elan. 2009. *The contrastive hierarchy in phonology*. Cambridge: Cambridge University Press.
- Dressler, Wolfgang. 1976. Morphologization of phonological processes (are there distinct morphonological processes?). In Alphonse Juillard (ed.), *Linguistic studies offered to Joseph Greenberg on the occasion of his sixtieth birthday*, 313–337. Saratoga, CA: Anma Libri.
- Durrell, Martin & Winifred V. Davies. 1989. Thuringian. In Charles Russ (ed.), *The dialects of modern German*, 210–230. Stanford, CA: Stanford University Press.
- Dützmann, Heinz Wilhelm. 1932. *Ostlüneburgische Dialektstudien (Teildruck)*. Marburg: R. Friedrich.
- Eckerle, Joseph. 1936. *Die Mundarten der Landschaft Freiburg im Breisgau*. Bühl (Baden): Konkordia.
- Egger, Alois. 1909. *Die Laute der Silltaler Mundart. Programm der k. k. Ober-Realschule in Innsbruck 1908/09*. Innsbruck: Wagner'sche Universitätsbuchdruckerei.
- Ehret, Karl. 1911. *Lautlehre der Mundart von St. Georgen im Breisgau*. Freiburg im Breisgau: Hof- und Universitäts-Buchdruckerei C. A. Wagner.
- Eichhorn, Otto. 1908. *Die südegerländische Mundart*. Reichenberg: Sudetendeutsche Heimat-forschung.
- Elmentaler, Michael. 2012. In Hannover wird das beste Hochdeutsch gesprochen. In Lieselotte Anderwald (ed.), *Sprachmythen – Fiktion oder Wirklichkeit?*, 101–115. Frankfurt am Main: Peter Lang.
- Enderlin, Fritz. 1910. *Die Mundart von Kesswil im Oberthurgau*. Frauenfeld: Huber.
- Engelmann, René. 1910. *Der Vokalismus der Viandener Mundart*. Diekirch: J. Schroell.
- Faber, Georg. 1912. *Vokalismus der Mundarten am nördlichen Pfahlgraben*. Darmstadt: Carl Winter.
- Féry, Caroline. 1998. German word stress in optimality theory. *Journal of Comparative Germanic Linguistics* 2. 101–142.
- Féry, Caroline. 2017. Die allophonischen Frikative in der Standardsprache und in den hessischen Dialekten. In Marek Konopka & Angelika Wöllstein (eds.), *Grammatische Variation. Empirische Zugänge und theoretische Modellierung*, 181–202. Berlin: Mouton de Gruyter.
- Festa, Friedrich. 1925. *Die schlesische Mundart Ostböhmens. 1. Die Lautlehre*. Prague: Verein für Geschichte der Deutschen in Böhmen.

## References

- Feyer, Ursula. 1939. *Deutsche Mundarten. Nordniedersächsisch aus Oldenburg. (Friesische Wede und Ammerland)*. Berlin: Institut für Lautforschung an der Universität Berlin.
- Feyer, Ursula. 1941. *Deutsche Mundarten. Die Mundart des Dorfes Baden, Kreis Verden grammatisch und phonetisch dargestellt, mit einer quantitativen Analyse der Vokale*. Leipzig: Otto Harrassowitz.
- Fleischer, Jürg & Stephan Schmid. 2006. Zurich German. *Journal of the International Phonetic Association* 36.2. 243–253.
- Fleischer, Wolfgang. 1961. *Namen und Mundart im Raum von Dresden. Toponymie und Dialektologie der Kreise Dresden-Altstadt und Freital als Beitrag zur Sprach- und Siedlungsgeschichte*. Berlin: Akademie-Verlag.
- Flex, Rudolf. 1893. Beiträge zur Erforschung der Eisenacher Mundart. 2. Theil: Zur Flexion. In *Beigabe zum Jahresbericht des Carl Friedrichs-Gymnasiums in Eisenach 1897/98*. Eisenach: Hofbuchdruckerei.
- Foerste, William. 1957. Geschichte der niederdeutschen Mundarten. In Wolfgang Stammel (ed.), *Deutsche Philologie im Aufriss*. 2nd edn., vol. 1. 1729–1898. Berlin: Erich Schmidt.
- Foley, James. 1975. Latin origin of Romance rules. In Mario Saltarelli & Dieter Wanner (eds.), *Diachronic studies in Romance linguistics*, 37–54. Berlin: Mouton de Gruyter.
- Follen, Charles. 1828. *Practical grammar of the German language*. Boston, MA: Hilliard, Gray, Little, & Wilkins.
- Fort, Marron C. 1980. *Saterfriesisches Wörterbuch*. Hamburg: Helmut Buske.
- Frank, Julius. 1898. *Die Frankenhäuser Mundart*. Halle an der Saale: Ehrhardt Kar ras.
- Frebel, Peter. 1957. *Die Mundarten des westlichen Sauerlandes zwischen Ebbegebirge und Arnsberger Wald*. Marburg: N. G. Elwert.
- Freiling, Paul. 1929. *Studien zur Dialektgeographie des hessischen Odenwaldes*. Marburg: N. G. Elwert.
- Freund, Julius. 1910. The sounds of West Middle German as spoken at Marburg an der Lahn. *Modern Language Review* 5. 90–113.
- Frey, Eberhard. 1975. *Stuttgarter Schwäbisch. Laut- und Formenlehre eines Stuttgarter Idiolekt*s. Marburg: N. G. Elwert.
- Friebertshäuser, Hans. 1961. *Sprache und Geschichte des nordwestlichen Althessen*. Marburg: N. G. Elwert.
- Frings, Theodor. 1913. *Studien zur Dialektgeographie des Niederrheins zwischen Düsseldorf und Aachen*. Marburg: N. G. Elwert.
- Fuchs, Ernst. 1903. *Die Merziger Mundart. Erster Teil: Vokalismus*. Darmstadt: G. Otto.

- Fulk, R. D. 2018. *A comparative grammar of early Germanic languages*. Amsterdam: John Benjamins.
- Fuss, Martin. 2001. *Bachemer Platt. Eine akustische Dokumentation der Mundart von Niederbachem und Oberbachem*. Siegburg: Franz Schmitt.
- Gabriel, Eugen. 1963. *Die Mundarten der alten churräisch-konstanzerischen Bistums-grenze im Vorarlberger Rheintal. Eine sprachwissenschaftliche und sprachpsy-chologische Untersuchung der Mundarten von Dornbirn, Lustenau und Hohen-em (mit Flexionslehre)*. Marburg: N. G. Elwert.
- Gabriel, Eugen. 1985. *Einführung in den Vorarlberger Sprachatlas. Mit Einschluss des Fürstentums Liechtenstein, Westtirols und des Allgäus (VALTS)*. Zurich: Vorarlberger Landesregierung Bregenz.
- Gartner, Theodor. 1900. Lautbestand der Wiener Mundart. *Zeitschrift für Hochdeutsche Mundarten* 1. 141–147.
- Gebhardt, August. 1907. *Grammatik der nürnberger Mundart*. Leipzig: Breitkopf & Härtel.
- Gebhardt, Heinz. 1965. Zur Geschichte und Mundart von Schollene. *Alt-märkisches Museum Stendal. Jahresausgabe* 19(1965). 77–82.
- Gerbet, Emil. 1908. *Grammatik der Mundart des Vogtlandes*. Leipzig: Breitkopf & Härtel.
- Giernoth, Josef. 1917. Die Sprache des Kuhländchens nach der Mundart von Kunewald. *Mitteilungen des Schlesischen Vereins für Volkskunde* 19. 157–214.
- Gilles, Peter. 1999. *Dialektausgleich im Lützebuergeschen. Zur phonetisch-phonologischen Fokussierung einer Nationalsprache*. Tübingen: Max Niemeyer.
- Gladiator, Klaus. 1971. *Untersuchungen zur Struktur der Mittelbairischen Mundart von Großberghofen*. Munich: Fink.
- Glöckner, Karl. 1913. *Die Mundarten der Rhön*. Fulda: Verlag des Fuldaer Geschichtsvereins.
- Glover, Justin. 2011. G-spirantization and lateral ambivalence in Northern German dialects. *Journal of Germanic Linguistics* 23. 183–193.
- Glover, Justin. 2014. *Liquid vocalization and underspecification in German dialects*. Bloomington, IN: Indiana University. (Doctoral dissertation).
- Goblirsch, Kurt. 2018. *Gemination, lenition, and vowel lengthening. on the history of quantity in germanic*. Cambridge: Cambridge University Press.
- Goepfert, Ernst. 1878. *Die Mundart des sächsischen Erzgebirges nach den Lautver-hältnissen, der Wortbildung und Flexion*. Leipzig: Veit.
- Goessgen, Waldemar. 1902. *Die Mundart von Dubraucke. Ein Beitrag zur Volks-kunde der Lausitz*. Breslau: Königliche Universität Breslau. (Doctoral disserta-tion).

## References

- Goldsmith, John A. 1976. *Autosegmental phonology*. Cambridge, MA: MIT. (Doctoral dissertation).
- Goltz, Richard H. & Alastair G. H. Walker. 1989. North Saxon. In Charles Russ (ed.), *The dialects of modern German. A linguistic survey*, 31–58. Stanford, CA: Stanford University Press.
- Göschel, Joachim. 1973. *Strukturelle und instrumentalphonetische Untersuchungen zur gesprochenen Sprache*. Berlin: Mouton de Gruyter.
- Götz, Ursula. 1987. Die Mundart von Kallmünz. Phonetisch-phonologische Untersuchung unter diachronem und synchronem Aspekt. *Sprachwissenschaft* 12. 396–474.
- Götze, Alfred. 1922. *Proben hoch- und niederdeutscher Mundarten*. Bonn: A. Markus & E. Weber's Verlag.
- Gradl, Heinrich. 1895. *Die Mundarten Westböhmens. Lautlehre des Bordgauischen Dialektes in Böhmen*. Munich: Christian Kaiser.
- Graebisch, Friedrich. 1912. Proben schlesischer Gebirgsmundarten. *Zeitschrift für deutsche Mundarten* 7. 127–141, 263–375, 319–347.
- Graebisch, Friedrich. 1915. Mundartproben. *Mitteilungen der Schlesischen Gesellschaft für Volkskunde* 17. 123–127.
- Grass, Joseph. 1920. *Experimentalphonetische Untersuchungen über Vokaldauer. Vorgenommen an einer ripuarischen Dorfmundart*. Gießen: Großherzoglich Hessische Ludwigs-Universität zu Gießen. (Doctoral dissertation).
- Gréb, Julius. 1921. Palatalisierung in der Zipser Mundart von Hobgarten. *Zeitschrift für Deutsche Mundarten* 16. 67–76.
- Greferath, Theodor. 1922. *Studien zu den Mundarten zwischen Köln, Jülich, M.-Gladbach und Neuss*. Marburg: N. G. Elwert.
- Gregory, Otto. 1934. *Flächengrammatik des Gebietes von Plettenberg in Westfalen*. Gießen: Wilhelm Schmitz.
- Griffin, T. D. 1977. German [x]. *Lingua* 43. 375–390.
- Grimme, Hubert. 1922. *Plattdeutsche Mundarten. Zweite, durchgesehene Auflage*. Leipzig: Göschen.
- Gröger, Otto. 1914a. Mundart von Frutigen (Kanton Bern). In Otto Gröger (ed.), *Schweizer Mundarten. Im Auftrag der leitenden Kommission des Phonogramm-Archivs der Universität Zürich*, 55–57. Vienna: Alfred Hölder.
- Gröger, Otto. 1914b. Mundart von Leissigen (Bezirk Interlaken, Kanton Bern). In Otto Gröger (ed.), *Schweizer Mundarten. Im Auftrag der leitenden Kommission des Phonogramm-Archivs der Universität Zürich*, 53–54. Vienna: Alfred Hölder.
- Gröger, Otto. 1914c. Mundart von Nufenen (Bez. Hinterrhein, Kt. Graubünden). In Otto Gröger (ed.), *Schweizer Mundarten. Im Auftrag der leitenden Kommission des Phonogramm-Archivs der Universität Zürich*, 38–41. Vienna: Alfred Hölder.

- Gröger, Otto. 1914d. Mundart von Saanen (Kanton Bern). In Otto Gröger (ed.), *Schweizer Mundarten. Im Auftrag der leitenden Kommission des Phonogramm-Archivs der Universität Zürich*, 57–60. Vienna: Alfred Hölder.
- Gröger, Otto. 1914e. Mundart von Vals (Bez. Glenner, Kt. Graubünden). In Otto Gröger (ed.), *Schweizer Mundarten. Im Auftrag der leitenden Kommission des Phonogramm-Archivs der Universität Zürich*, 41–46. Vienna: Alfred Hölder.
- Gröger, Otto. 1924. Der Lautstand der deutschen Mundart des Samnauns verglichen mit jenem der benachbarten Tiroler Mundarten. *Zeitschrift für deutsche Mundarten* XIX. 103–144.
- Große, Rudolf. 1955. *Die meißnische Sprachlandschaft. Dialektgeographische Untersuchungen zur obersächsischen Sprach- und Siedlungsgeschichte*. Halle an der Saale: Max Niemeyer.
- Große, Rudolf. 1957. Leipzigisch escha. Ein Lautwandel der obersächsischen Umgangssprache vor unseren Ohren. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 79. 181–190.
- Grund, Heinrich. 1935. *Die Mundart von Pfungstadt und ihre sprachliche Schichtung*. Bühl (Baden): Konkordia.
- Guentherodt, Ingrid. 1982. *Dudenrode Kr Witzenhausen. Netra Kr Eschwege*. (Monographien 14. Phonai. Deutsche Reihe 23.). Tübingen: Max Niemeyer.
- Guion, Susan Guignard. 1998. The role of perception in the sound change of velar palatalization. *Phonetica* 55. 18–52.
- Gussmann, Edmund. 2004. The irrelevance of phonetics: The Polish palatalization of velars. *Corpus* 3. 1–28.
- Gütter, Adolf. 1962a. *Asch. Westsudetenland*. (Lautbibliothek der deutschen Mundarten). Göttingen: Vandenhoeck & Ruprecht.
- Gütter, Adolf. 1962b. *Schönbach, Kr. Eger. Westsudetenland* (Lautbibliothek der deutschen Mundarten). Göttingen: Vandenhoeck & Ruprecht.
- Gütter, Adolf. 1963a. *Graslitz. Westsudetenland*. (Lautbibliothek der deutschen Mundarten). Göttingen: Vandenhoeck & Ruprecht.
- Gütter, Adolf. 1963b. *Lauterbach. Kaiserwald*. (Lautbibliothek der deutschen Mundarten). Göttingen: Vandenhoeck & Ruprecht.
- Haag, Carl. 1898. *Die Mundarten des oberen Neckar- und Donaulandes (Schwäbisch-Alemannisches Grenzgebiet: Baarmundarten)*. Reutlingen: Eugen Hutzler.
- Haasbauer, Anton. 1924. Die oberösterreichischen Mundarten. *Teuthonista* 1. 81–107.
- Hackler, Fritz. 1914. *Der Konsonantismus der Wittgensteiner Mundart (mit einer Lautkarte)*. Bonn: Rhenania.
- Hain, Heinrich. 1936. *Mundartgeographie des oberen Rednitzgebietes*. Nürnberg: Lorenz Spindler.

## References

- Halbsguth, Johannes. 1938. *Die Mundart des Kreises Jauer*. Breslau: Maruschke & Berendt.
- Hale, Mark, Madelyn Kissock & Charles Reiss. 2015. An i-language approach to phonologization and lexification. In Patrick Honeybone & Joseph C. Salmons (eds.), *The handbook of historical phonology*, 337–358. Oxford: Oxford University Press.
- Hall, Ewald M. 1991. *Die Sprachlandschaft der Baar und des ehemaligen Fürstentums Fürstenberg*. Marburg: N. G. Elwert.
- Hall, Ross David. 1973. *Upper Hessian Vocalism: Structure and History*. Marburg: N. G. Elwert.
- Hall, Tracy Alan. 1989. Lexical phonology and the distribution of German [ç] and [χ]. *Phonology* 6. 1–17.
- Hall, Tracy Alan. 1992. *Syllable structure and syllable-related processes in German*. Tübingen: Max Niemeyer.
- Hall, Tracy Alan. 1993. The phonology of German /R/. *Phonology* 10.1. 83–105.
- Hall, Tracy Alan. 1995. Remarks on coronal underspecification. In Harry van der Hulst & Jeroen van de Weijer (eds.), *Leiden in last. HIL phonology papers I*, 187–203. The Hague: Holland Academic Graphics.
- Hall, Tracy Alan. 1997. *The phonology of coronals*. Amsterdam: John Benjamins.
- Hall, Tracy Alan. 2002. Against extrasyllabic consonants in German and English. *Phonology* 19.1. 33–75.
- Hall, Tracy Alan. 2007. German glide formation and its theoretical consequences. *The Linguistic Review* 24. 1–31.
- Hall, Tracy Alan. 2009a. Liquid dissimilation in Bavarian German. *Journal of Germanic Linguistics* 21(1). 1–36.
- Hall, Tracy Alan. 2009b. Rule inversion in a regional variety of Bavarian German. *Zeitschrift für Dialektologie und Linguistik* 76. 137–164.
- Hall, Tracy Alan. 2010. On the status of [h]–[χ] alternations in German dialects: The case for buccalization. In Susanne Fuchs, Philip Hoole, Christine Mooshammer & Marzena Źygis (eds.), *Between the regular and the particular in speech and language*, 29–56. Berlin: Peter Lang.
- Hall, Tracy Alan. 2011a. The status of diachronic buccalizations in Germanic. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 133(3). 389–410.
- Hall, Tracy Alan. 2011b. Vowel prothesis in Walliser German. *Linguistics* 49(5). 945–976.
- Hall, Tracy Alan. 2012. The representation of affricates in Cimbrian German. *Journal of Germanic Linguistics* 24(1). 1–22.
- Hall, Tracy Alan. 2014a. Alveolopalatalization in Central German as markedness reduction. *Transactions of the Philological Society* 112. 143–166.

- Hall, Tracy Alan. 2014b. The analysis of Westphalian German spirantization. *Diachronica* 31. 223–266.
- Hall, Tracy Alan. 2014c. The phonology of Westphalian German glides. *Journal of Germanic Linguistics* 26(4). 323–360.
- Hall, Tracy Alan. 2017. Underlying and derived glides in Middle High German. *Glossa* 54(1). 1–31. DOI: [10.5334/gjgl.170](https://doi.org/10.5334/gjgl.170).
- Hall, Tracy Alan. 2020. Phonological processes in Germanic languages. In B. Richard Page & Mike Putnam (eds.), *Cambridge handbook of Germanic linguistics*, 11–32. Cambridge: Cambridge University Press.
- Hall, Tracy Alan. 2021. The realization of West Germanic +[sk] in low German. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 143. 1–50.
- Hall, Tracy Alan & Silke Hamann. 2006. Towards a typology of phonological stop assibilations. *Linguistics* 44.6. 1195–1236.
- Hall, Tracy Alan, Silke Hamann & Marzena Żygis. 2006. The phonetic motivation for phonological stop assibilations. *Journal of the International Phonetic Association* 36.1. 59–81.
- Halle, Morris. 2005. Palatalization/velar softening: What it is and what it tells us about the nature of language. *Linguistic Inquiry* 36. 23–41.
- Hamann, Silke. 2009. The learner of a perception grammar as a source of sound change. In Paul Boersma & Silke Hamann (eds.), *Phonology in perception*, 111–149. Berlin: Mouton de Gruyter.
- Hanenberg, Albert. 1915. *Studien zur neiderrheinischen Dialektgeographie zwischen Nymegen und Ürdingen*. Marburg: N. G. Elwert.
- Hankel, Carl. 1913. *Sprachgrenzen im nordöstlichen Thüringen*. Halle an der Saale: Hohmann.
- Hargus, Sharon & Ellen M. Kaisse (eds.). 1993. *Phonetica and phonology. studies in lexical phonology*. San Diego, CA: Academic Press.
- Harnisch, Rüdiger. 1987. *Natürliche Generative Phonologie des Dialekts von Ludwigstadt. Die Erprobung eines Grammatikmodels an einem einzelsprachlichen Gesamtsystem*. Tübingen: Max Niemeyer.
- Harris, James W. & Ellen M. Kaisse. 1999. Palatal vowels, glides and obstruents in Argentinian Spanish. *Phonology* 16. 117–190.
- Hasenclever, Hans. 1905. *Der Dialekt der Gemeinde Wermelskirchen*. Marburg: N. G. Elwert.
- Hassel, Heinrich. 1942. *Die Mundartlandschaften des unteren Werratales*. Marburg: Karl Gleiser.
- Hasselbach, Karlheinz. 1971. *Die Mundarten des zentralen Vogelsbergs*. Marburg: N. G. Elwert.

## References

- Hasselberg, Joachim. 1979. *Differenzgrammatik Mittelhessisch: Hochsprache. Eine Untersuchung dialektspezifischer Kommunikationsbehinderungen von hessischen Schülern*. Gießen: W. Schmitz.
- Haster, Wilhelm. 1908. *Rheinfränkische Studien. Der Konsonantismus in Rheinhessen und der Pfalz*. Darmstadt: Schröder & Freund.
- Hathaway, Luise. 1979. *Der Mundartwandel in Imst in Tirol zwischen 1897 und 1973*. Vienna: Wilhelm Braumüller.
- Haugen, Einar. 1976. *The Scandinavian Languages. An introduction to their history*. Cambridge, MA: Harvard University Press.
- Haugen, Einar. 1982. *Scandinavian language structures. a comparative historical survey*. Minneapolis, MN: University of Minnesota Press.
- Hausernblas, Adolf. 1898. *Die Brüxer Mundart. (Erster Theil: Vokalismus.) Jahresbericht des ersten k. k. Staatsgymnasiums im II. Bezirke von Wien, Taborstraße Nr. 24, für das Schuljahr 1897/1898*. Vienna: Selbstverlage des Ersten k.
- Hausernblas, Adolf. 1914. *Grammatik der nordwestböhmischen Mundart (Laut- und Formenlehre mit Textproben)*. Prague: Verlag des Vereins für Geschichte der Deutschen in Böhmen.
- Hausknecht, Ernst. 1911. *Die Mundarten der Stadt St. Gallen und des Fürstenlandes*. Frauenfeld: Huber.
- Hecker, Heinz. 1972. *Die deutsche Sprachlandschaft in den Kantonen Malmedy und St Vith. Untersuchungen zur Lautgeschichte und Lautstruktur ostbelgischer Mundarten*. Göppingen: Alfred Kümmerle.
- Hedrich, Albin Richard. 1891. *Die Laute der Mundart von Schöneck i. Vogtl. Abhandlung zum Programm der Realschule mit Progymnasium*. Leisnig: Hermann Ulrich.
- Heege, Georg. 1896. *Der Dialekt der Südost-Pfalz, I. Teil: Die Laute*. Landau: K. & A. Kaußler.
- Heibey, Hermann. 1891. *Die Mundart von Börssum*. Halle an der Saale: Erhardt Karras.
- Heidt, Heinrich. 1922. *Die Mundarten des Kreises Alsfeld*. Gießen: Swets & Zeitlinger.
- Heigener, Hans. 1937. *Niederdeutsche Mundarten im Kreise Herzogtum Lauenburg*. Hamburg: Karl Wachholtz.
- Heike, Georg. 1964. *Zur Phonologie der Stadtkölner Mundart*. Marburg: N. G. Elwert.
- Heike, Georg. 1970. *Gleuel. Kreis Köln* (Monographien 1. Phonai. Deutsche Reihe 6). Tübingen: Max Niemeyer. 67–127.
- Heilig, Otto. 1897. Zum Vokalismus des Alemannischen in der Mundart von Forbach im Murgtal. *Alemannia* 24. 17–23.

- Heilig, Otto. 1912. Mundartliche Proben aus dem badischen Frankenland. *Zeitschrift für Deutsche Mundarten* 1912. 357–360.
- Heimburger, Karl Friederich. 1887. *Grammatische Darstellung der Mundart des Dorfes Ottenheim. Lautlehre*. Halle an der Saale: Ehrhardt Karras.
- Heinrichs, Werner. 1978. *Bergisch Platt. Versuch einer Bestandsaufnahme*. Remscheid: Ute Kierdorf.
- Hellberg, Helmut. 1936. *Studien zur Dialektgeographie im Ruhrgebiet und im West Recklinghausen*. Marburg: N. G. Elwert.
- Hempl, George. 1898. *German orthography and phonology*. Boston, MA: Ginn & Company.
- Hennemann, Hermann. 1901. *Die Mundart der sogenannten Grunddörfer in der Grafschaft Mansfeld. Teil I: Lautlehre*. Heidelberg: Carl Winter.
- Henry, Victor. 1900. *Le dialecte alaman de Colmar (Haute-Alsace) en 1870. grammaire et lexique*. Paris: Creative Media Partners.
- Hentrich, Konrad. 1905. *Die Vokale der Mundart von Leinefelde*. Halle an der Saale: Ehrhardt Karras.
- Hentrich, Konrad. 1920. Dialektgeographie des thüringischen Eichsfeldes und seiner Nachbargebiete. *Zeitschrift für deutsche Mundarten*. 133–164.
- Henzen, Walter. 1927. *Die deutsche Freiburger Mundart im Sense- und südöstlichen Seebezirk*. Frauenfeld: Huber.
- Henzen, Walter. 1932. Der Genitiv im heutigen Wallis. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 56. 91–138.
- Henzen, Walter. 1928/1929. Zur Abschwächung der Nachtonvokale im Höchstalemannischen. *Teuthonista* 5. 105–156.
- Herdemann, Ferdinand. 1921 [2006]. *Versuch einer Lautlehre der westmünsterländischer Mundart. Nach der handschriftlichen Fassung von 1921 unter Mitarbeit von Erhard Mietzner*. Münster [Vreden]: Westfälische Wilhelms-Universität zu Münster. (Doctoral dissertation).
- Herrgen, Joachim. 1986. *Koronalisierung und Hyperkorrektion. Das palatale Allophon des /ch-/Phonemes und seine Variation im Westmitteldeutschen*. Wiesbaden: Franz Steiner.
- Herrgen, Joachim & Jürgen Schmidt. 2019. *Ein internationales Handbuch der Sprachvariation*. Vol. 4: Deutsch. Berlin: De Gruyter Mouton.
- Hertel, Ludwig. 1887. Die Greizer Mundart. *Mitteilungen der geographischen Gesellschaft (für Thüringen) zu Jena* 5. 132–165.
- Hertel, Ludwig. 1888. *Die Salzunger Mundart. I. Laut- und Formenlehre*. Meiningen: Keyssner'sche Hofbuchdruckerei.
- Hertel, Oskar & Ludwig Hertel. 1902. Die Pfersdorfer Mundart. *Zeitschrift für Hochdeutsche Mundarten* 3. 96–120.

## References

- Heusler, Andreas. 1888. *Die Mundart von Baselstadt*. Strassburg: Karl J. Trübner.
- Hildebrand, Sune. 1913. Die Mundart von Strodehne (Kreis Westhavelland). In Adolf Noreen & Karl Vilhelm Zetterstéen (eds.), *Minneskrift afforna lärjungar tillägnad Professor Axel Erdmann på hans sjuttioårsdag den 6 Febr. 1913*, 213–268. Uppsala: Almqvist & Wiksells.
- Hille, Hermann. 1939. *Die Mundart des nördlichen Harzvorlandes insbesondere des Huygebietes*. Wiesbaden: Dr Martin Sändig.
- Hinskens, Frans. 1992. *Dialect levelling in Limburg: Structural and sociolinguistic aspects*. Nijmegen: Katholieke Universiteit te Nijmegen. (Doctoral dissertation).
- Hinskens, Frans. 2021. The expanding universe of the study of sound change. In Richard D. Janda, Brian D. Joseph & Barbara Vance (eds.), *The handbook of historical linguistics*, vol. II, 7–46. Oxford: Wiley & Blackwell.
- Hirsch, Anton. 1971. *Mundarten im Spessart*. Aschaffenburg: Kunstverein Aschaffenburg.
- Hobbing, J. 1879. *Ueber die Mundart von Greetsiel in Ostfriesland. Ein lautphysiologischer Versuch. I. Einleitung. Ueber die einzelnen Sprachlaute*. Emden: Hoffmann.
- Hock, Hans Henrich. 1986. *Principles of historical linguistics*. Berlin: Mouton de Gruyter.
- Höder, Steffen. 2010. Das Lautsystem des Altenwerder Platt. Eine phonetisch-phonologische Bestandsaufnahme. *Niederdeutsches Wort* 50. 1–27.
- Hoenigswald, Henry M. 1960. *Language change and linguistic reconstruction*. Chicago, IL: University of Chicago Press.
- Hoffmann, Emma. 1887. *Die Vocale der lippischen Mundart*. Hannover: Helwingsche Verlagsbuchhandlung.
- Hoffmann, Hugo. 1906. Die Lautverhältnisse der Mundart von Lehmwasser. *Zeitschrift für Deutsche Mundarten* 1. 316–344.
- Hofmann, Fritz. 1926. *Niederhessisches Wörterbuch zusammengestellt auf Grund der Mundart von Oberellenbach, Kreis Rotenburg (Fulda)*. Marburg: N. G. Elwert.
- Hofmann, Karl. 1940. *Mundartgliederung Niederhessens südlich von Kassel*. Marburg: N. G. Elwert.
- Hogg, Richard M. 2011. *A grammar of Old English*. Oxford: Wiley-Blackwell.
- Holst, Clara. 1907. Zur Aussprache in Fritz Reuters Heimat. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 33. 143–158.
- Holt, D. Eric. 1997. *The role of the listener in the historical phonology of Spanish and Portuguese: An optimality-theoretic account*. Georgetown University. (Doctoral dissertation).

- Holthaus, E. 1887. Die Ronsdorfer Mundart. *Zeitschrift für deutsche Philologie* 19. 339–368.
- Holthausen, Ferdinand. 1885. Die Remscheider Mundart. *Beiträge zur Geschichte der deutschen Sprache und Literatur* 10. 404–425.
- Holthausen, Ferdinand. 1886. *Die Soester Mundart*. Norden und Leipzig: Diedrich Soltau.
- Holthausen, Ferdinand. 1900. *Altsächsisches Elementarbuch*. Heidelberg: Carl Winter.
- Holtmann, Bernhard. 1939. *Mundart des Dorfes Ostbevern, Westfalen. Lautbibliothek* 41. Berlin: Institut für Lautforschung.
- Hommer, Emil. 1910. *Studien zur Dialektgeographie des Westerwaldes*. Marburg: R. Friedrich.
- Honeybone, Patrick & Joseph C. Salmons. 2015a. Introduction: Key questions for historical phonology. In Patrick Honeybone & Joseph C. Salmons (eds.), *The Handbook of Historical Phonology*, 3–10. Oxford: Oxford University Press.
- Honeybone, Patrick & Joseph C. Salmons (eds.). 2015b. *The handbook of historical phonology*. Oxford: Oxford University Press.
- Hotzenköcherle, Rudolf. 1934. *Die Mundart von Mutten*. Laut- und Flexionslehre. Frauenfeld: Huber.
- Hotzenköcherle, Rudolf (ed.). 1962. *Einführung in den Sprachatlas der deutschen Schweiz B: Fragebuch – Transkriptionsschlüssel – Aufnahmeprotokoll*. Bern: Francke.
- Hove, Ingrid. 2002. *Die Aussprache der Standardaussprache in der deutschen Schweiz*. Tübingen: Max Niemeyer.
- Hove, Ingrid & Walter Haas. 2009. Die Standardaussprache in der deutschsprachigen Schweiz. In Eva-Maria Krech, Eberhard Stock, Ursula Hirschfeld & Lutz-Christian Anders (eds.), *Deutsches Aussprachewörterbuch*, 259–277. Berlin: Mouton de Gruyter.
- Howell, R. 1991. *Old English breaking and its Germanic analogues*. Tübingen: Max Niemeyer.
- Hufnagl, Alfred. 1967. *Laut- und Formenlehre der Mundart von Memmingen und Umgebung samt einer dialektgeographischen Übersicht*. Munich: Ludwig-Maximilians-Universität München. (Doctoral dissertation).
- Hume, Elizabeth. 1994. *Front vowels, coronal consonants and their interaction in non-linear phonology*. New York, NY: Garland.
- Hume, Elizabeth & Keith Johnson. 2001. A model of the interplay of speech perception and phonology. In Elizabeth Hume & Keith Johnson (eds.), *The role of speech perception in phonology*, 3–26. San Diego, CA: Academic Press.

## References

- Hyman, Larry M. 1976. Phonologization. In Alphonse Juillard (ed.), *Linguistic studies offered to Joseph Greenberg on the Occasion of his Sixtieth Birthday*, 407–418. Saratoga, CA: Anma Libri.
- Hyman, Larry M. 2013. Enlarging the scope of phonologization. In Alan C. L. Yu (ed.), *Origins of sound change: Approaches to phonologization*, 3–28. Oxford: Oxford University Press.
- Ibrom, Ernst-Walter. 1971. *Lauttopographie der schwäbisch-bairischen Dialekte beiderseits des unteren Lech*. Marburg: Philipps-Universität. (Doctoral dissertation).
- Insam, Matthias. 1936. *Der Lautstand des Burggrafenamtes von Meran. Mit einer dialektgeographischen Studie*. Leipzig: S. Hirzel.
- Ito, Junko & R. Armin Mester. 2002. On the sources of opacity in OT: Coda processes in German. In Caroline Féry & Ruben van de Vijver (eds.), *The syllable in optimality theory*, 271–303. Cambridge: Cambridge University Press.
- Iverson, Gregory K. & Joseph C. Salmons. 1995. Aspiration and laryngeal representation in Germanic. *Phonology* 12. 369–396.
- Jacobs, Hugo. 1925a. Dialektgeographie Südmecklenburgs zwischen Lübz und Hagenau. *Teuthonista* 2. 46–55.
- Jacobs, Hugo. 1925b. Dialektgeographie Südmecklenburgs zwischen Lübz und Hagenau. *Teuthonista* 2. 107–133.
- Jacobs, Hugo. 1926. Dialektgeographie Südmecklenburgs zwischen Lübz und Hagenau (Fortsetzung). *Teuthonista* 3. 119–152.
- Jacobs, Neil. 1996. Toward a phonological description of palatalization in Central Yiddish. In Rosina Lippi-Green & Joseph C. Salmons (eds.), *Germanic linguistics: Synchronic and diachronic*, 149–168. Amsterdam: John Benjamins.
- Jakob, Karlheinz. 1985. *Dialekt und Regionalsprache im Raum Heilbronn. Zur Klassifizierung von Dialektmerkmalen in einer dialektgeographischen Übergangslandschaft. Teil I: Textband*. Marburg: N. G. Elwert.
- Jakobson, Roman, Gunnar Fant & Morris Halle. 1951. *Preliminaries to speech analysis*. Cambridge, MA: MIT Press.
- Janda, Richard D. 1987. *On the motivation for an evolutionary typology of sound-structural rules*. Los Angeles, CA: UCLA. (Doctoral dissertation).
- Janda, Richard D. 2005. “Phonologization” as the start if dephoneticization – or, on sound change and its aftermath: Of extension, generalization, lexicalization, and morphologization. In Brian D. Joseph & Richard D. Janda (eds.), *The handbook of historical linguistics*, 401–422. Oxford: Blackwell.
- Janiczek, Julius. 1911. *Der Vokalismus der Mundarten in der Schönhengster Sprachinsel*. Freiburg im Breisgau: Fragnière.

- Jannedy, Stefanie & Melanie Weirich. 2014. Sound change in an urban setting: Category instability of the palatal fricative in Berlin. *Laboratory Phonology* 5. 91–122.
- Jardon, Arnold. 1891. *Grammatik der Aachener Mundart. I. Teil: Laut- und Formenlehre*. Aachen: Verlag der Cremerschen Buchhandlung.
- Jarfe, Walter. 1929. *Studien zur hannoverschen Dialektgeographie der Kreise Burghof, Celle und eines großen Teiles des Kreises Peine*. Marburg: N. G. Elwert.
- Jensen, John T. 2000. Against ambisyllabicity. *Phonology* 17. 187–235.
- Jessen, Michael. 1988. Die dorsalen Reibelaute [ç] und [x] im Deutschen. *Linguistische Berichte* 117. 371–396.
- Jessen, Michael & Catherine Ringen. 2002. Laryngeal features in German. *Phonology* 19. 189–218.
- Jongen, René. 1972. *Phonologie der Moresneter Mundart. Eine Beschreibung der segmentalen und prosodischen Wortformdiakrise*. Assen: Van Gorcem.
- Jungandreas, Wolfgang. 1926. Die Reinhäuser Mundart und die Frage der ostfälisch-engrischen Grenze in Mittelalter und Neuzeit. *Teuthonista* 3. 187–193.
- Jungandreas, Wolfgang. 1927. Die Reinhäuser Mundart und die Frage der ostfälisch-engrischen Grenze im Mittelalter und Neuzeit. *Teuthonista* 3. 279–305.
- Jurgec, Peter. 2016. Velar palatalization in Slovenian: Local and long-distance interactions in a derived environment effect. *Glossa* 1(1) 24. 1–28.
- Jutz, Leo. 1922. Die Mundart. In Hans Barbisch (ed.), *Vandans, eine Heimatkunde aus dem Tale Montafon in Vorarlberg*, 266–315. Innsbruck: Wagner.
- Jutz, Leo. 1925. *Die Mundart von Südvorarlberg und Liechtenstein*. Heidelberg: Carl Winter.
- Jutz, Leo. 1931. *Die Alemannischen Mundarten. (Abriss der Lautverhältnisse.)* Halle an der Saale: Max Niemeyer.
- Kahn, Sameer ud Dowla & Constanze Weise. 2013. Upper Saxon (Chemnitz dialect). *Journal of the International Phonetic Association* 43.2. 231–241.
- Kaiser, Albert. 1910. *Lautlehre der Mundart von Todtmoos-Schwarzenbach*. Bonn: Carl Georgi.
- Kaisse, Ellen M. 1992. Can [consonantal] spread? *Language* 68. 313–332.
- Kaisse, Ellen M. & April McMahon. 2011. Lexical phonology and the lexical syndrome. In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.), *The Blackwell companion to phonology*, vol. 4, 2236–2257. Oxford: Blackwell.

## References

- Kaisse, Ellen M. & Patricia Shaw. 1985. On the theory of lexical phonology. *Phonology Yearbook* 2. 1–30.
- Kämpf, Robert. 1920. *Lautlehre der Reichenberger Mundart*. Reichenberg in Böhmen: Verlag des Vereins für Heimatkunde des Jeschken-Iser-Gaues.
- Kamprath, Christine. 1986. The syllabification of consonantal glides: Post-peak distinctions. *North Eastern Linguistic Society* 16. 217–29.
- Karch, Dieter. 1980. *Dahn, Kr. Pirmasens, Wilgartwiesen, Kr. Irmasens, Igglebach, Kr. Dürkheim*. (Monographien 13. Phonai. Deutsche Reihe 22.). Tübingen: Max Niemeyer.
- Karch, Dieter. 1981. *Phonemdistribution dargestellt an rheinischen Ortsmundarten*. Marburg: N. G. Elwert.
- Kauffmann, Friedrich. 1887. *Der Vokalismus des Schwäbischen in der Mundart von Horb*. Strassburg: Karl J. Trübner.
- Kaupert, Ernst. 1914. *Die Mundart der Herrschaft Schmalkalden*. Marburg: R. Friedrich.
- Keating, Patricia A. 1990. The window model of coarticulation: Articulatory evidence. In John Kingston & Mary Beckman (eds.), *Papers in laboratory phonology I: Between the grammar and physics of speech*, 451–470. Cambridge: Cambridge University Press.
- Keating, Patricia A. 1996. The phonology-phonetics Interface. In Ursula Kleinhenz (ed.), *Interfaces in phonology*, 262–278. Berlin: Akademie.
- Keating, Patricia A. & Aditi Lahiri. 1993. Fronted velars, palatalized velars, and palatals. *Phonetica* 50.2. 73–101.
- Kehrein, Wolfgang. 2002. *Phonological representation and phonetic phrasing: Affricates and laryngeals*. Tübingen: Max Niemeyer.
- Keller, R. E. 1961. *German dialects*. Manchester: Manchester University Press.
- Keller, R. E. 1963. Zur Phonologie der hochalemannischen Mundart von Jestetten. *Phonetica* 10. 51–79.
- Kenstowicz, Michael. 1994. *Phonology in generative grammar*. Oxford: Blackwell.
- Kessler, Heinrich. 1931. Zur Mundart des Schanfigg – Mit besonderer Berücksichtigung ihrer Diphthongierungen. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 55. 81–206.
- Kieser, Otto. 1963. Anlautendes g um Liebenwerda. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 86. 118–124.
- Kijak, Artur Konrad. 2021. Two palatoalveolar fricatives? The case of the *ich*-Laut in German. *Poznan Studies in Contemporary Linguistics* 57(2). 249–271.
- Kilian, Oskar. 1935. *Die Mundarten zwischen Schutter und Rench*. Lahr: Moritz Schauenburg.

- Kilian, Oskar. 1951. Die Mundart von Eberbach am Neckar. In Karl Friedrich Müller (ed.), *Sprachwissenschaft und Volkskunde. Festschrift für Ernst Ochs zum 60. Geburtstag*, 248–252. Lahr: Moritz Schauenburg.
- Kim, Hyunsoon. 2001. A phonetically based account of phonological stop assimilation. *Phonology* 18. 81–108.
- King, Robert D. 1965. Weakly stressed vowels in Old Saxon. *Word* 21. 19–39.
- King, Robert D. 1969. *Historical linguistics and generative grammar*. Englewood Cliffs, NJ: Prentice-Hall.
- King, Robert D. & Stephanie A. Beach. 1998. On the origins of German uvular [r]: The Yiddish evidence. *American Journal of Germanic Linguistics & Literatures* 10.2. 279–290.
- Kiparsky, Paul. 1973. Phonological representations. In Osamu Fujimura (ed.), *Three dimensions of linguistic theory*, 3–136. Tokyo: TEC.
- Kiparsky, Paul. 1982a. *Explanation in phonology*. Dordrecht: Foris.
- Kiparsky, Paul. 1982b. Lexical phonology and morphology. In I.-S. Yang (ed.), *Linguistics in the morning calm*, 3–91. Seoul: Hanshin Publishing.
- Kiparsky, Paul. 1988. Phonological change. In Frederick J. Newmeyer (ed.), *Linguistics: The Cambridge survey. I. Linguistic theory: Foundations*, 363–415. Cambridge: Cambridge University Press.
- Kiparsky, Paul. 1995. The phonological basis of sound change. In John A. Goldsmith (ed.), *The handbook of phonological theory*, 640–670. Oxford: Blackwell.
- Kiparsky, Paul. 2000. Opacity and cyclicity. *The Linguistic Review* 17. 351–365.
- Kiparsky, Paul. 2015. Phonologization. In Patrick Honeybone & Joseph C. Salmons (eds.), *The handbook of historical phonology*, 563–579. Oxford: Oxford University Press.
- Klausmann, Hubert. 1985a. *Die Breisgauer Mundarten, Teil I: Textband*. Marburg: N. G. Elwert.
- Klausmann, Hubert. 1985b. *Die Breisgauer Mundarten, Teil II: Karten*. Marburg: N. G. Elwert.
- Kloeke, Gesinus. 1914. *Der Vokalismus der Mundart von Finkenwärder bei Hamburg*. Hamburg: Lütcke & Wulff.
- Knauss, Otto. 1906. *Vergleichung des vokalischen Lautstandes in den Mundarten von Atzenhain und Grünberg*. Darmstadt: Carl Winter.
- Knupfer, Karl. 1912. *Die Mundarten des Rot-Tales*. Tübingen: H. Laupp.
- Kober, Julius. 1962. *Die Mundart der Stadt Suhl im Thüringer Wald*. Marburg: N. G. Elwert.
- Koch, Franz. 1879. *Laut- und Flexionslehre der Werdener Mundart. I. Theil: Die Laute der Werdener Mundart in ihrem Verhältnisse zum Altniederfränkischen, Altsächsischen, Althochdeutschen*. Aachen: J. J. Beaufort.

## References

- Kochetov, Alexei. 2011. Palatalization. In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.), *The blackwell companion to phonology*, vol. 3, 1666–1690. Oxford: Blackwell.
- Kohbrok, Hugo. 1901. *Der Lautstand des Žymgebiets in Dithmarschen*. Darmstadt: G. Otto.
- Kohler, Klaus K. 1977. *Einführung in die Phonetik des Deutschen*. Berlin: Erich Schmidt.
- Kohler, Klaus K. 1990a. Comment on German. *Journal of the International Phonetic Association* 20(2). 44–46.
- Kohler, Klaus K. 1990b. German. *Journal of the International Phonetic Association* 20(1). 48–50.
- Kollmann, Cristian. 2007. *Synchrone und diachrone Laut- und Formenlehre der Mundart von Laurein (Südtirol. Ein Beitrag zur historisch-vergleichenden Grammatik des Bairischen)*. Munich: Ludwig-Maximilians-Universität München. (Doctoral dissertation).
- Kolz, Willy. 1914. *Das Lautsystem der hochtonigen Silben des westmecklenburgischen Dialekts*. Schönberg in Mecklenburg: Lehmann & Bernhard.
- König, Werner. 1970. *Untersuchungen zu Phonologie und Fachsprache im Schwäbisch-Alemannischen Mundraum*. Erlangen-Nürnberg: Friedrich-Alexander-Universität Erlangen-Nürnberg.
- Kostakis, Andrew. 2015. *Height, frontness, and the special status of /x/, /r/, and /l/ in Germanic language history*. Bloomington, IN: Indiana University. (Doctoral dissertation).
- Krafft, Matthias. 1969. *Studien zu einem Wörterbuch der Schlitzerländer Mundart nach Sachgruppen*. Justus-Liebig-Universität Gießen. (Doctoral dissertation).
- Krämer, Martin. 2009. *The phonology of Italian*. Oxford: Oxford University Press.
- Krämer, Martin & Olga Urek. 2016. Perspectives on palatalization. *Glossa* 1. 1–17.
- Kranzmayer, Eberhard. 1956. *Historische Lautgeographie des gesamtbairischen Dialektraumes*. Vienna: Hermann Böhlaus.
- Kranzmayer, Eberhard. 1981. *Laut- und Flexionslehre der deutschen zimbrischen Mundart*. Vienna: VWGÖ.
- Krause, Gustav. 1895. Ortsmundarten der Magdeburger Gegend. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 21. 60–80.
- Krause, Gustav. 1896. Die Mundarten im südlichen Teile des ersten Jerichowschen Kreises (Provinz Sachsen). *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 22. 1–35.
- Krech, Eva-Maria. 1982. *Großes Wörterbuch der deutschen Aussprache*. Leipzig: VEB Bibliographisches Institut.

- Krell, Leo. 1927. *Die Stadtmundart von Ludwigshafen am Rhein*. Kaiserslautern: Hermann Kayser Hofbuchdruckerei und Verlag.
- Kreymann, Martin. 1994. *Aktueller Sprachwandel im Rheinland*. Cologne: Böhlau.
- Kristoffersen, Gjert. 2000. *The phonology of Norwegian*. Oxford: Oxford University Press.
- Kroh, Wilhelm. 1915. *Beiträge zur nassauischen Dialektgeographie*. Marburg: N. G. Elwert.
- Krug, Walter. 1969. *Laut- und Wortgeographische Untersuchungen in der Heidelandshaft zwischen unterer Mulde und Elbe*. Halle an der Saale: Max Niemeyer.
- Kubitschek, Rudolf. 1926. *Die Mundarten des Böhmerwaldes*. Pilsen: Carl Maasch.
- Kuck, Walther. 1933. Dialektgeographisches aus dem Kreise Rosenberg. *Teuthonista* 9. 143–160.
- Kuck, Walther & Peter Wiesinger. 1965. *Die nordöstliche Sprachgrenze des Ermlandes. Eine Studie zur Lautlehre des Hoch- und Niederpreußischen*. Marburg: N. G. Elwert.
- Kufner, Herbert. 1957. Zur Phonologie einer mittelbairischen Mundart. *Zeitschrift für Mundartforschung* 25. 175–184.
- Kufner, Herbert. 1960. History of the Central Bavarian obstruents. *Word* 16. 11–27.
- Kufner, Herbert. 1961. *Strukturelle Grammatik der Münchner Stadtmundart*. Munich: R. Oldenbourg.
- Kühl, Karl. 1932. *Die Saatzig-Dramburger Mundart*. Greifswald: Universitätsverlag L. Bamberg.
- Kümmel, Martin Joachim. 2007. *Konsonantenwandel. Bausteine zu einer Typologie des Lautwandels und ihre Konsequenzen für die vergleichende Rekonstruktion*. Wiesbaden: Reichert.
- Kuntze, Erich. 1932. *Studien zur Mundart der Stadt Saarbrücken*. Marburg: N. G. Elwert.
- Kurath, Hans. 1965. *Die Lautgestalt einer Kärntner Mundart und ihre Geschichte*. Wiesbaden: Franz Steiner.
- Kürsten, Otto. 1910. Der Vokalismus der südwestthüringischen Mundart, veranschaulicht an dem Dialekte an den Gleichen. I. Die kurzen Vokale. *Beilage zum Jahresbericht der städtischen Oberrealschule zu Erfurt. Prog. Nr 365*. 1–12.
- Kürsten, Otto. 1911. Der Vokalismus der südwestthüringischen Mundart, veranschaulicht an dem Dialekte an den Gleichen. II. Die langen Vokale. *Beilage zum Jahresbericht der städtischen Oberrealschule zu Erfurt. Prog. Nr 367*. 1–12.
- Kürsten, Otto & Otto Bremer. 1910. *Lautlehre der Mundart von Buttelstedt*. Leipzig: Breitkopf & Härtel.
- Kuryłowicz, Jerzy. 1967. The Germanic Verschärfung. *Language* 43. 445–451.

## References

- La Charité, Darlene. 1993. *The internal structure of affricates*. Ottawa: University of Ottawa. (Doctoral dissertation).
- Ladefoged, Peter & Ian Maddieson. 1996. *The sounds of the world's languages*. Oxford: Blackwell.
- Lahiri, Aditi & Vincent Evers. 1991. Palatalization and coronality. In Carole Paridis & Jean-François Prunet (eds.), *The special status of coronals. Internal and external evidence*, 79–100. San Diego, CA: Academic Press.
- Lang, Alfred. 1906. *Die Zschorlauer Mundart*. Leipzig: Robert Noske.
- Lange, Heinrich. 1963. *Die Mundart der Orte Götdeckenrode und Isingerode und die Dialektgrenzen an der oberen Oker*. Marburg: N. G. Elwert.
- Langner, Helmut. 1977. *Untersuchungen zur Mundart und zur Umgangssprache im Raum um Wittenberg*. Berlin: Akademie-Verlag.
- Larsson, Hugo. 1917. *Lautstand der Mundart der Gemeinde Altengamme*. Hamburg: O. Meissner.
- Lasch, Agathe. 1914. *Mittelniederdeutsche Grammatik*. Halle an der Saale: Max Niemeyer.
- Lauf, Raphaela. 1996. 'Regional markiert'. Großräumliche Umgangssprache(n) im niederdeutschen Raum. *Niederdeutsches Jahrbuch* 119. 193–218.
- Lauinger, Emil. 1929. *Lautlehre der Mundart des Dorfes Spessart*. Borna-Leipzig: Robert Noske.
- Lehnert, Aloys. 1926. *Studien zur Dialektgeographie des Kreises Saarlouis*. Bonn: Fritz Kopp.
- Leidolf, Julius. 1891. *Die Naunheimer Mundart*. Darmstadt: G. Otto's Hof-Buchdruckerei.
- Lenz, Philipp. 1900. Die Flexion des Verbums im Handschuhsheimer Dialekt. I. Konjugation eines regelmäßigen schwachen Verbums. *Zeitschrift für Hochdeutsche Mundarten* 1. 17–26.
- Leopold, Werner F. 1948. German ch. *Language* 24. 179–180.
- Lessiak, Primus. 1959. *Die deutsche Mundart von Zarz*. Marburg: N. G. Elwert.
- Levi, Susannah V. 2004. *The representation of underlying glides*. Seattle, WA: University of Washington. (Doctoral dissertation).
- Lberman, Anatoly. 1991. Phonologization in Germanic: Umlaut and vowel shifts. In Elmer H. Antonsen & Hans H. Hock (eds.), *Stæfcræft. Studies in Germanic linguistics: Selected papers from the 1st and 2nd symposium on Germanic linguistics*, 125–137. Amsterdam: John Benjamins.
- Lieber, Rochelle. 1987. *An integrated theory of autosegmental processes*. Albany, NY: State University of New York.
- Liébray, Gilbert. 1969. *Das phonologische System der Oftersheimer Mundart*. Marburg: N. G. Elwert.

- Liesenberg, Friedrich. 1890. *Die Stieger Mundart, ein Idiom des Unterharzes, besonders hinsichtlich der Lautlehre dargestellt, nebst einem etymologischen Idiotikon*. Göttingen: Vandenhoeck & Ruprecht.
- Lipold, Günter. 1984. *Gottschee in Jugoslawien. System, Stil und Prozess. Phonologie einer Sprachinselmundart. 1. Teil: Suchen, Hinterland, Zentralgebiet*. (Monographien 16. Phonai.). Tübingen: Max Niemeyer.
- Lobbes, Otto. 1915. *Nordbergische Dialektgeographie*. Marburg: N. G. Elwert.
- Löfstedt, Ernst. 1933. *Ostfälische Studien. I. Grammatik der Mundart von Lesse im Kreise Wolfenbüttel (Braunschweig)*. Lund: Håkan Ohlsons Buchdruckerei.
- Lombardi, Linda. 1990. The nonlinear organization of the affricate. *Natural Language and Linguistic Theory* 8. 375–425.
- Lüdtke, Helmut. 1959. Deutsche /χ/ und /ç/ in diachron-phonologischer Betrachtung. *Phonetica* 4. 178–183.
- Ludwig, Johannes. 1906. *Lautlehre der moselfränkischen Mundart von Sehlem (Reg.-Bez Trier)*. Bonn: P. Hauptmann.
- Macha, Jürgen. 1991. *Der flexible Sprecher. Untersuchungen zu Sprache und Sprachbewusstsein rheinischer Handwerksmeister*. Cologne: Böhlau.
- Mackel, Emil. 1939. *Deutsche Mundarten. Weserostfälisch. 1. Grubenhagen – Göttingisch. 2. Ostkalenbergisch. Arbeiten aus dem Institut für Lautforschung an der Universität Berlin* 8. Leipzig: Otto Harrassowitz.
- Mackenbach, Wilhelm. 1924. *Dialektgeographie des Siegerkreises zwischen Agger und Bröl und der angrenzenden Orte der Kreise Mülheim a./Rhein, Wipperfürth und Gummersbach*. Marburg: Philipps-Universität Marburg. (Doctoral dissertation).
- Maddieson, Ian. 1984. *Patterns of sounds*. Cambridge: Cambridge University Press.
- Mahnke, Georg. 1931. *Die Schlawer Mundart: Sprachgeschichtliche und dialektogeographische Untersuchung*. Greifswald: Verlag Ratsbuchhandlung L. Bamberg.
- Maier, Gerhard. 1965. *Die südmittelbairischen Mundarten zwischen Isar und Inn (Oberbayern)*. Munich: Ludwig-Maximilians-Universität. (Doctoral dissertation).
- Mangold, Max. 2005. *Duden Aussprachewörterbuch: Wörterbuch der deutschen Standard-aussprache*. 6th edn. Vol. 6. Mannheim: Dudenverlag.
- Manherz, Karl. 1977. *Sprachgeographie und Sprachsoziologie der deutschen Mundarten in Westungarn*. Budapest.
- Mankel, Wilhelm. 1886. *Laut- und Flexionslehre des Münsterthales im Elsass*. Strassburg: Karl J. Trübner.

## References

- Manolessou, Io & Nikolaos Pantelidis. 2013. Velar fronting in modern Greek dialects. In Angela Ralli Janse Mark Brian D. Joseph & Metin Bagriacik (eds.), *Proceedings of the 5th international conference on modern Greek dialects and linguistic theory*, 272–286. Patras: University of Patras.
- Marti, Werner. 1985. *Berndeutsch-Grammatik für die heutige Mundart zwischen Thun und Jura*. Bern: Francke.
- Martin, Bernhard. 1922. *Untersuchungen zur rhein-moselfränkischen Dialektgrenze*. Marburg: N. G. Elwert.
- Martin, Bernhard. 1925. *Studien zur Dialektgeographie des Fürstentums Waldeck und des nördlichen Teils des Kreises Frankenberg*. Marburg: N. G. Elwert.
- Martin, Bernhard. 1942. *Deutsche Mundarten*. (Arbeiten aus dem Institut für Lautforschung an der Universität Berlin 10). Leipzig: Otto Harrassowitz.
- Martin, Lothar. 1957. *Die Mundartenlandschaft der mittleren Fulda (Kreis Rotenburg und Hersfeld)*. Marburg: N. G. Elwert.
- Mattheier, Klaus J. 1987. Beller Platt: Dialektologische Skizze einer Mundart der Nordoststeifel. In Ulrich Knoop (ed.), *Studien zur Dialektologie*, vol. 1 (Germanistische Linguistik 91–92), 163–182. Hildesheim: Georg Olm.
- Matzke, Josef. 1918. Mundart von Rathsdorf im Schönhengstgau, Bezierkshauptmannschaft Landskron, Böhmen. In Joseph Seemüller (ed.), *Deutsche Mundarten* 5, 44–48. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Maurer, Artur. 1959. *Die Mundart von Burgberg. Laut- und Formenlehre eines siebenbürgisch-sächsischen Dorfes*. Marburg: N. G. Elwert.
- Maurmann, Emil. 1889. *Grammatik der Mundart von Mülheim an der Ruhr*. Leipzig: Breitkopf & Härtel.
- Mayer, Reinhold. 1971. Zur Phonemik des Cimbro. *Linguistische Berichte* 11. 48–54.
- McCarthy, John J. 1986. OCP effects: Gemination and antigemination. *Linguistic Inquiry* 17. 207–263.
- McCarthy, John J. 1991. Synchronic rule inversion. In Laurel A. Christopher Sutton Johnson & Ruth Shields (eds.), *Proceedings of the seventeenth annual meeting of the Berkeley linguistics society*, 192–207. Berkeley, CA: UCLB.
- McCarthy, John J. 2002. *A thematic guide to optimality theory*. Cambridge: Cambridge University Press.
- McCarthy, John J. 2009. Sympathy and phonological opacity. *Phonology* 16. 331–399.
- Meiche, Alfred. 1898. *Der Dialekt der Kirchfahrt Sebnitz. Teil I: Lautlehre*. Halle an der Saale: Ehrhardt Karras.
- Meineke, Eckhard & Judith Schwerdt. 2001. *Einführung in das Althochdeutsche*. Paderborn: Ferdinand Schöningh.

- Meinel, Hans. 1932. *Vogtländisch und Nordbayrisch*. Halle an der Saale: Max Niemeyer.
- Meinherz, Paul. 1920. *Die Mundart der Bündner Herrschaft*. Frauenfeld: Huber.
- Meinhold, Gottfried & Eberhard Stock. 1982. *Phonologie der deutschen Gegenwartssprache*. Leipzig: VEB Bibliographisches Institut.
- Merchant, Jason. 1996. Alignment and fricative assimilation in German. *Linguistic Inquiry* 27. 709–719.
- Messow, Theodor. 1965. *Zur Dialektgeographie des schlesisch-brandenburgischen Grenzgebietes bei Züllichau*. Marburg: N. G. Elwert.
- Mews, Hans-Joachim. 1971. *Die Mundart des Oldenburger Ammerlandes*. Oldenburg: Heinz Holzberg.
- Meyer-Eppler, Werner. 1959. Zur Spektralstruktur der /r/-Allophone des Deutschen. *Acustica* 9. 247–250.
- Meyers, Heinrich. 1913. Beiträge zur Mundart der Schnee-Eifel: Mit Zugrundelegung der Mundart von Ihnen, Sellerich und Weinsheim im Kreise Plüm. *Zeitschrift für Deutsche Mundarten* 1913. 45–54, 105–130.
- Meynen, Paul F. W. 1911. *Über die Mundart von Homberg-Niederrhein*. Leipzig: Sturm & Koppe.
- Michel, Reinhart. 1891. Die Mundart von Seifhennersdorf. Lautlehre. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 15. 1–69.
- Mihm, Arend. 2004. Zur Geschichte der Auslautverhärtung und ihrer Erforschung. *Sprachwissenschaft* 29. 133–206.
- Mindl, Josef. 1924/1925. Der Konjunktiv in der Mundart des oberen Landls. *Teuthonista* 1. 108–149.
- Minkova, Donka. 2014. *A historical phonology of English*. Edinburgh: Edinburgh University Press.
- Mischke, Kurt. 1936. *Rummelsburger und Bütower Mundart*. Greifswald: Universitätsverlag Ratsbuchhandlung.
- Mitzka, Walther. 1919. *Ostpreußisches Niederdeutsch nördlich von Ermland*. Marburg: N. G. Elwert.
- Mitzka, Walther. 1922. Dialektgeographie der Danziger Nehrung. *Zeitschrift für deutsche Mundarten* 1922. 117–135.
- Mitzka, Walther. 1943. *Deutsche Mundarten*. Heidelberg: Carl Winter.
- Mitzka, Walther. 1959. *Grundzüge nordostdeutscher Sprachgeschichte*. 2nd edn. Marburg: N. G. Elwert.
- Mitzka, Walther. 1972. Mitteldeutsch ch, sch und die Konsonantenschwächung. *Beiträge zur Geschichte der Deutschen Sprache und Literatur* 93. 34–43.
- Mohanan, K. P. 1986. *The theory of lexical phonology*. Kluwer: D. Reidel.

## References

- Möhn, Dieter. 1962. *Die Struktur der niederdeutsch-mitteldeutschen Sprachgrenze zwischen Siegerland und Eichsfeld*. Marburg: N. G. Elwert.
- Möller, Robert. 2013. *Erscheinungsformen rheinischer Alltagssprache. Untersuchungen zu Variation und Kookkurrenzregularitäten im "mittleren Bereich" zwischen Dialekt und Standardsprache*. Stuttgart: Franz Steiner.
- Moltmann, Friederike. 1990. *Syllabification and lexical phonology in German*. Unpublished manuscript. Cambridge, MA.
- Moosmüller, Sylvia. 1987. *Soziophonologische Variation im gegenwärtigen Wiener Deutsch. Eine empirische Untersuchung*. Wiesbaden: Franz Steiner Verlag.
- Moosmüller, Sylvia. 1991. *Hochsprache und Dialekt in Österreich. Soziophonologische Untersuchungen zu ihrer Abgrenzung in Wien, Graz, Salzburg und Innsbruck*. Vienna: Böhlau.
- Sylvia Moosmüller, Carolin Schmid & Julia Brandstätter. 2015. Standard Austrian German. *Journal of the International Phonetic Association* 45. 339–348.
- Moser, Georg. 1936. *Studien zur Dialektgeographie des Staudengebietes und des anstossenden Lechrains*. Marburg: N. G. Elwert.
- Moulton, William G. 1941. *Swiss German dialect and Romance patois*. Baltimore, MD: Linguistic Society of America.
- Moulton, William G. 1962. *The sounds of English and German*. Chicago, IL: University of Chicago Press.
- Moulton, William G. 1972. The proto-Germanic non-syllabic (consonants). In Frans van Coetsem & Herbert Kufner (eds.), *Toward a grammar of proto-Germanic*, 142–173. Tübingen: Max Niemeyer.
- Müller, Horst. 1958a. *Hintersteinau. Kreis Schlüchtern*. (Lautbibliothek der deutschen Mundarten). Göttingen: Vandenhoeck & Ruprecht.
- Müller, Horst. 1958b. *Kassel* (Lautbibliothek der deutschen Mundarten). Göttingen: Vandenhoeck & Ruprecht.
- Müller, Joseph. 1900. *Untersuchungen zur Lautlehre der Mundart von Aegidienberg*. Bonn: Hauptmann.
- Müller, Theodor. 1911. *Lautlehre der Mundart von Mühlingen*. Freiburg im Breisgau: C.A. Wagner.
- Müller, Wilhelm. 1912. *Untersuchungen zum Vokalismus der stadt- und landkölnischen Mundart*. Bonn: P. Hauptmann'sche Buchdruckerei.
- Münch, Ferdinand. 1904 [1970]. *Grammatik der ripuarisch-fränkischen Mundart*. Wiesbaden: Dr. Martin Sändig.
- Murray, Robert. 2010. Language and space. The Neogrammarian tradition. In Peter Auer & Jürgen Erich Schmidt (eds.), *Language and space. An international handbook of linguistic variation*, 70–87. Berlin: Mouton de Gruyter.

- Murray, Robert & Theo Vennemann. 1983. Sound change and syllable structure. *Problems in Germanic phonology. Language* 59. 514–528.
- Natau, Otto. 1937. *Mundart und Siedlung im nordöstlichen Ostpreußen*. Königsberg: Ost-Europa-Verlag.
- Neeld, Ronald L. 1973. Remarks on palatalization. *Working Papers in Linguistics* 14. 37–49. <http://hdl.handle.net/1811/81450>.
- Newton, Brian. 1972a. *Cypriot Greek: Its phonology and inflections*. The Hague: Mouton.
- Newton, Brian. 1972b. *The generative interpretation of dialect: A study of Modern Greek phonology*. Cambridge: Cambridge University Press.
- Newton, Gerald. 1993. Allophonic variation in Luxemburgish palatal and alveolar-palatal fricatives: Discussion of an areal survey taken in 1979. In John L. Flood, Paul Salmon, Olive Sayce & Christopher Wells (eds.), *Das unsichtbare Band der Sprache. German language and language history studies in memory of lesslie seiffert*, 627–656. Göttingen: Hans-Dieter Heinz.
- Niebaum, Hermann. 1974. *Zur synchronischen und historischen Phonologie des Westfälischen. Die Mundart von Laer (Landkreis Osnabrück)*. Cologne: Böhlau.
- Niebaum, Hermann, Hans Taubken & Paul Teepe. 1976. Arn Mü. Zum Vokalsystem einer südwestfälischen Mundart. In Jan Gossens (ed.), *Niederdeutsche Beiträge. Festschrift für Felix Wortmann zum 70. Geburtstag*, 128–173. Cologne: Böhlau.
- Niekerken, Walther. 1963. Von den Formen und Wirkungen der Liquida r im Nordniedersächsischen. *Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung* 16. 165–175.
- Noack, Fritz. 1938. *Die Mundart der Landschaft um Fulda*. Marburg: N. G. Elwert.
- Noehden, George Henry. 1800. *German grammar adapted to the use of englishmen*. London: Whittingham.
- Noelliste, Erin. 2017. *The phonology of sonorants in Bavarian German*. Bloomington, IN: Indiana University. (Doctoral dissertation).
- Noske, Manuela. 1997. Feature spreading as dealignment: The distribution of [ç] and [x] in German. *Phonology* 14. 221–234.
- Noske, Roland. 1993. *A Theory of Syllabification and Segmental Alternation. With studies on the phonology of French, German, Tonkawa and Yawelmani*. Tübingen: Max Niemeyer.
- Nübling, Eduard Friedrich. 1938. Die “Dreistammesecke” in Bayern (Schwäbisch-Bairisch-Fränkisch) in sprachlicher und geschichtlicher Betrachtung. *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 53. 185–299.
- Odden, David. 1994. Adjacency parameters in phonology. *Language* 70. 289–330.

## References

- Ohala, John. 1981. The listener as a source of sound change. In Carrie S. Masek, Robert A. Hendrick & Mary Frances Miller (eds.), *Papers from the parasession on language and behaviour*. 178–203. Chicago, IL: Chicago Linguistic Society.
- Page, B. Richard. 1999. The Germanic Verschärfung as prosodic change. *Diachronica* 16. 297–334.
- Pahl, Karl-Heinz. 1943. Die Gliederung der Mundarten um Braunschweig. *Braunschweigisches Jahrbuch* 4. 3–50.
- Palgen, Helene. 1931. *Kurze Lautlehre der Mundart von Echternach*. Luxemburg: Linden & Hansen.
- Pallier, Gregor. 1934. *Untersuchungen zur Quantität der Vokale und Konsonanten, vorgenommen an einer westdeutschen Mundart. Mit besonderer Berücksichtigung methodischer Fragen und näherer Angaben über Ort und Grad der Stimmhaftigkeit bzw. Stimmlosigkeit. Ein Beitrag zur experimentellen Phonetik*. Marburg: Thiele.
- Panizzolo, Paola. 1982. *Die schweizerische Variante des Hochdeutschen*. Marburg: N. G. Elwert.
- Parker, Steve. 2000. Central vs. back vowels. *Working Papers of the Summer Institute of Linguistics, University of North Dakota Session 2000*. 44. 1–19.
- Parker, Steve. 2011. Sonority. Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.). Vol. 2. Oxford: Blackwell. 1160–1184.
- Paul, H. 2007. *Mittelhochdeutsche Grammatik*. 25th edn. Tübingen: Max Niemeyer.
- Pautsch, Oswald. 1901. *Grammatik der Mundart von Kieslingswalde. Ein Beitrag zur Kenntnis des glätzischen Dialektes. Teil I. Lautlehre*. Breslau: Schlesische Gesellschaft für Volkskunde.
- Peetz, Anna. 1989. *Die Mundart von Beuren. Phonetik und Morphologie*. Stuttgart: Franz Steiner.
- Penzl, Herbert. 1975. *Vom Urgermanischen zum Neuhochdeutschen. Eine historische Phonologie*. Berlin: Erich Schmidt.
- Peters, Jörg. 2017. Saterland Frisian. *Journal of the International Phonetic Association* 49.2. 223–320.
- Pfalz, Anton. 1911. Phonetische Beobachtungen an der Mundart des Marchfeldes in Nieder-Österreich. *Zeitschrift für deutsche Mundarten* 6. 244–260.
- Philipp, Marthe. 1965. *Le système phonologique du parler de Blaesheim. étude synchronique et diachronique*. Nancy: Faculté des lettres et des sciences humaines de l’Université de Nancy.
- Philipp, Marthe. 1974. *Phonologie des Deutschen*. Stuttgart: W. Kohlhammer.

- Philipp, Marthe & Arlette Bothorel-Witz. 1989. Low Alemannic. In Charles Russ (ed.), *The dialects of modern German. A linguistic survey*, 313–336. Stanford, CA: Stanford University Press.
- Philipp, Oskar. 1897. *Die Zwickauer Mundart*. Leipzig-Reudnitz: August Hoffmann.
- Phillips, Betty S. 2006. *Word frequency and lexical diffusion*. New York, NY: Palgrave Macmillan.
- Pilch, Herbert. 1966. Das Lautsystem der hochdeutschen Umgangssprache. *Zeitschrift für Mundartforschung* 33. 247–266.
- Pirk, Kurt. 1928. *Grammatik der Lauenburger Mundart*. Greifswald: L. Bamberg.
- Polomé, Edgar. 1949. A West Germanic reflex of the Verschärfung. *Language* 25. 182–189.
- Pompé, Franz. 1907. *Die Laut- und Akzentverhältnisse der Schokauer Mundart*. Borna-Leipzig: Robert Noske.
- Post, Rudolf. 1985. *Die Mundart von Bad Salzschlirf (Kreis Fulda). Einführung. Wörterbuch. Haus- und Flurnamen*. Bad Salzschlirf: R. Post.
- Post, Rudolf. 1987. *Die Mundart von Gabsheim in Rheinhessen*. Kaiserslautern: R. Post.
- Prince, Alan & Paul Smolensky. 2004. *Optimality theory. constraint interaction in generative grammar*. Oxford: Blackwell.
- Prokosch, Eduard. 1938. *A comparative Germanic grammar*. Baltimore, MD: Linguistic Society of America.
- Protze, Helmut. 1957. *Das Westlausitzische und Ostmeissnische. Dialektgeographische Untersuchungen zur lausitzisch-öbersächsischen Sprach- und Siedlungsgeschichte*. Halle an der Saale: Max Niemeyer.
- Prowatke, Christa. 1973. *Zum gegenwärtigen Lautstand der niederdeutschen Mundart in der DDR. Untersuchungen von Wortmaterial aus den drei Nordbezirken unter Berücksichtigung phonologischer Erkenntnisse*. Rostock: Universität Rostock. (Doctoral dissertation).
- Pühn, Hans-Joachim. 1956. *Ostholsteinische Mundarten zwischen Trave und Schwentine*. Marburg: Philipps-Universität Marburg. (Doctoral dissertation).
- Putnam, Michael T. 2011. *Studies on German-language islands*. Amsterdam: John Benjamins.
- Pützer, Manfred. 1988. *Die Mundart von Großrosseln*. Saarbrücken: Saarbrücker Druckerei und Verlag.
- Rabeler, Theodor. 1911. *Niederdeutscher Lautstand im Kreise Bleckede*. Stuttgart: W. Kohlhammer.
- Rakers, Arnold. 1944. *Die Mundarten der alten Grafschaft Bentheim und ihrer reichsdeutschen und niederländischen Umgebung*. Oldenburg: Gerhard Stalling.

## References

- Ramisch, Jacob. 1908. *Studien zur niederrheinischen Dialektgeographie*. Marburg: N. G. Elwert.
- Ramsammy, Michael. 2015. The life cycle of phonological processes: Dialectal microtypologies. *Language and Linguistics Compass* 9. 33–54.
- Rasch, Otto. 1912. *Dialektgeographie des Kreises Eschwege*. Marburg: R. Friederich.
- Rauh, Hans Ludwig. 1921. *Die Frankfurter Mundart in ihren Grundzügen dargestellt*. Frankfurt am Main: Moritz Diesterweg.
- Recasens, Daniel. 2013. On the articulatory classification of (alveolo)palatal consonants. *Journal of the International Phonetic Association* 43. 1–22.
- Recasens, Daniel. 2020. *Phonetic causes of sound change: The palatalization and assibilation of obstruents* (Oxford Studies in Diachronic and Historical Linguistics 42). Oxford: Oxford University Press.
- Reichert, Heinrich. 1914. *Lautlehre der Mundart von Mönchzell*. Freiburg im Breisgau: C.A. Wagner.
- Rein, Kurt. 1974. Die mittelbairische Liquiden-Vokalisierung. *Zeitschrift für Dialektologie und Linguistik* 41. 21–37.
- Reis, Hans. 1892. Mischungen von Schriftsprache und Mundart in Rheinhessen. *Germania* 37. 423–425.
- Renwick, Margaret E. L. & D. Robert Ladd. 2016. Phonetic distinctiveness vs. lexical contrastiveness in non-robust phonemic contrasts. *Journal of the Association for Laboratory Phonology* 7.1. 1–29.
- Reuß, Wilhelm. 1907. Die Deklination des Substantivs in der Friedberger Mundart. *Zeitschrift für Deutsche Mundarten* 1907. 68–80.
- Reuter, Elvira. 1989. *Die Mundart von Horath (Hunsrück)*. Phonetik und Morphologie. Hamburg: Helmut Buske.
- Reuter, Hermann. 1903. *Beiträge zur Lautlehre der Siegerländer Mundart*. Halle an der Saale: Ehrhardt Karras.
- Riad, Tomas. 2014. *The phonology of Swedish*. Oxford: Oxford University Press.
- Rice, Keren. 1994. Peripheral in consonants. *Canadian Journal of Linguistics* 39.3. 191–216.
- Rice, Keren. 2002. Vowel place contrasts. In Mengistu Amberber & Peter Colins (eds.), *Language universals and variation*, 239–270. Westport, CT: Praeger.
- Rice, Keren. 2007. Markedness. In Paul de Lacy (ed.), *The Cambridge handbook on phonology*, 79–97. Cambridge: Cambridge University Press.
- Rieger, Alfred. 1935. *Die Mundart der Bezirke Römerstadt und Sternberg*. Reichenberg: Anstalt für Sudetendeutsche Heimatforschung in Reichenberg.
- Ringe, Don. 2006. *From proto-Indo-European to proto-Germanic*. Oxford: Oxford University Press.

- Ringe, Don & Joseph F. Eska. 2013. *Historical linguistics. toward a twenty-first century reintegration*. Cambridge: Cambridge University Press.
- Roberts, Philip J. 2012. Latin rhotacism: A case study in the life cycle of phonological processes. *Transactions of the Philological Society* 101. 80–93.
- Robinson, Orrin. 1992. *Old English and its Closest Relatives. A Survey of the Earliest Germanic Languages*. Stanford, CA: Stanford University Press.
- Robinson, Orrin. 2001. *Whose German? The ach/ich alternation and related phenomena in ‘standard’ and ‘colloquial’*. Amsterdam: John Benjamins.
- Robinson, Orrin & Frans van Coetsem. 1973. Review of King 1969. *Lingua* 31. 331–399.
- Roedder, Edwin. 1936. *Volkssprache und Wortschatz des badischen Frankenlandes. Dargestellt auf Grund der Mundart von Oberschefflenz*. New York, NY: Modern Language Association of America.
- Roitinger, Franz. 1954. Spuren erloschenen Lautstandes und alte Lautverwechslungen im Bairisch-Österreichischen. *Zeitschrift für Mundartforschung* 22. 199–207.
- Roloff, Edmund. 1902. *Der Konsonantismus des Niederdeutschen in der Magdeburger Börde*. Halle an der Saale: C.A Kaemmerer.
- Röttches, H. 1877. Die Krefelder Mundart und ihre Verwandtschaft mit dem Altsächsischen, Angelsächsischen und Althochdeutschen. *Die Deutschen Mundarten* 24. 36–91.
- Rovenhagen, Johann Ludwig. 1860. *An Essay on the Dialect of Aix-la-Chapelle. Programm der Realschule zu Aachen für das Schuljahr 1859/60*. Aachen: Beaufort.
- Rowley, Anthony R. 1986. *Fersental (Val Fèrsina bei Trient/Oberitalien) – Untersuchung einer Sprachinselmundart*. (Monographien 18. Phonai.). Berlin: De Gruyter.
- Rowley, Anthony R. 1989. North Bavarian. In Charles Russ (ed.), *The dialects of modern German*, 417–437. Stanford, CA: Stanford University Press.
- Rubach, Jerzy. 1984. *Cyclic and lexical phonology: The structure of Polish*. Dordrecht: Foris.
- Rubach, Jerzy. 1994. Affricates as strident stops in Polish. *Linguistic Inquiry* 25. 119–143.
- Rubach, Jerzy. 2000. Glide and glottal stop insertion in Slavic languages: A DOT analysis. *Linguistic Inquiry* 31. 271–317.
- Rubach, Jerzy. 2011. Slavic palatalization. In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.), *The Blackwell companion to phonology*, vol. 4, 2908–2935. Oxford: Blackwell.

## References

- Rübel, Hans Ulrich. 1950. *Viehzucht im Oberwallis. Sachkunde. Terminologie. Sprachgeographie*. Frauenfeld: Huber.
- Rudolph, Fritz. 1924/1925. Dialektgeographie des Honsteinischen. *Teuthonista* 1. 193–200, 257–285.
- Runge, Richard M. 1973. The phonetic realization of proto-Germanic /r/. *Zeitschrift für Vergleichende Sprachforschung* 87.2. 228–247.
- Rünneburger, Henri. 1985. Le consonnes du dialecte alémanique de Benfeld (Alsace). Étude phonographémique. *Cahiers d'études germaniques* 9. 7–31.
- Runschke, Ernst. 1938. Die r-Laute und ihr Ersatz. *Das Gesprochene Wort* 1. 71–74, 102–105.
- Russ, Charles. 1978. *Historical German phonology and morphology*. Oxford: Clarendon Press.
- Russ, Charles. 1982. *Studies in historical German phonology. A phonological comparison of MHG and NHG with reference to modern dialects*. Bern: Peter Lang.
- Russ, Charles (ed.). 1989. *The dialects of modern German: A linguistic survey*. Stanford, CA: Stanford University Press.
- Russ, Charles. 2002. *Die Mundart von Bosco Gurin*. Stuttgart: Steiner.
- Sagey, Elizabeth. 1986. *The representation of features and relations in phonology*. Cambridge, MA: MIT. (Doctoral dissertation).
- Salzmann, Johannes. 1888. *Die Hersfelder Mundart. Versuch einer Darstellung derselben nach Laut- und Formenlehre*. Marburg: Fr. Sömmering.
- Sandbach, Edmund. 1922. *Die Schönhengster Ortsnamen*. Heidelberg: Carl Winter.
- Sander, Hermann. 1916. *Die Mundart von Gaisbach*. OA Öhringen. Tübingen: H. Laupp jr.
- Sapir, Edward. 1921. *Language. An introduction to the study of speech*. San Diego, CA: Harcourt Brace Jovanovich.
- Sarauw, Christian. 1921. *Vergleichende Lautlehre der niederdeutschen Mundarten im Stammlande*. Vol. 1. Copenhagen: Bianco Lunos Bogtrykkeri.
- Schaefer, Ludwig. 1907. *Die Schlierbacher Mundart. Beiträge zur hessischen Mundartenforschung*. Halle an der Saale: Königliche Vereinigte Friedrichs-Universität Halle-Wittenberg. (Doctoral dissertation).
- Schane, Sanford A. 1995. Diphthongization in particle phonology. In John A. Goldsmith (ed.), *The handbook of phonological theory*, 586–608. Oxford: Blackwell.
- Schatz, Joseph. 1897. *Die Mundart von Imst. Laut- und Flexionslehre*. Strassburg: Karl J. Trübner.
- Schatz, Joseph. 1903. Die tirolische Mundart. *Zeitschrift des Ferdinandeaums für Tirol und Vorarlberg* 3/47. 1–94.

- Scheuringer, Hermann. 2011. Mapping the German language. In Alfred Lameli, Roland Kehrein & Stefan Rabanus (eds.), *Language and space. An international handbook of linguistic variation. Volume 2: Language mapping. Part I*, 158–179. Berlin: de Gruyter.
- Scheutz, Hannes. 2005. Aktuell stattfindender Lautwandel/Sound change in progress. In Ulrich Ammon, Norbert Dittmar & Klaus J. Mattheier (eds.), *Sociolinguistics. An international handbook of the science of language and society*, 2nd edn., vol. 2, 1704–1717. Berlin: De Gruyter.
- Schirmer, Alfred. 1932. *Beiträge zur nordthüringischen Dialektgeographie*. Marburg: N. G. Elwert.
- Schirmunski, V. M. 1962. *Deutsche Mundartkunde. Vergleichende Laut- und Formenlehre der deutschen Mundarten*. Berlin: Akademie-Verlag.
- Schläpfer, Robert. 1956. *Die Mundart des Kantons Baselland. Versuch einer Deutung der Sprachlandschaft der Nordwestschweiz*. Frauenfeld: Huber.
- Schmeding, Heinrich. 1937. *Die Mundart des Kirchspiels Lävelsloh und der angrenzenden Ortschaften*. Münster: Verlag der Aschendorffschen Verlagsbuchhandlung.
- Schmid, Camill. 1969. *Bellwald. Sach- und Sprachwandel seit 1900. Dargestellt am Gemeinschaftsleben und an der Mundart von Bellwald/Wallis*. Basel: G. Krebs.
- Schmid, Karl. 1915. *Die Mundart des Amtes Entlebuch im Kanton Luzern*. Frauenfeld: Huber.
- Schmidt, Friedrich G. G. 1898. *Die Rieser Mundart*. Munich: J. Lindau.
- Schmidt, Gerhard. 1912a. *Der Vokalismus der Mundart von Barth*. Greifswald: Hans Adler.
- Schmidt, Martin. 1912b. *Der Konsonantismus der Bonnländer Mundart auf fröhalthochdeutscher Grundlage*. Bonn: Heinrich Ludwig.
- Schmidt, Wilhelm. 2007. *Geschichte der deutschen Sprache. Ein Lehrbuch für das germanistische Studium*. 10th edn. Stuttgart: Hirzel.
- Schmidt-Brockhoff, Walther. 1943. *Die Gliederung der Marschenmundarten am Jadebusen und an der Niederweser*. Oldenburg: Gerhard Stalling.
- Schmitt, Ludwig Erich & Peter Wiesinger. 1964. Vorschläge zur Gestaltung eines für die deutsche Dialektologie allgemein verbindlichen phonetischen Transkriptionssystems. *Zeitschrift für Mundartforschung* 31. 57–61.
- Schmitz, Wilhelm. 1893. *Die Misch-Mundart in den Kreisen Geldern (südlicher Teil), Kempen, Erkelenz, Heinsberg, Geilenkirchen, Aachen, Gladbach, Krefeld, Neuss und Düsseldorf, sowie noch mancherlei Volkstümliches aus der Gegend. Für Freunde deutscher Volkskunde, insbesondere für die Lehrer obiger Kreise beleuchtet und zusammengestellt*. Dülken: Kugelmeier.

## References

- Schnabel, Michael. 2000. *Der Dialekt von Weingarts. Eine phonologische und morphologische Untersuchung*. Heidelberg: Carl Winter.
- Schneider, Albert & Josef Marte. 1910. Textproben aus Vorarlberg. *Zeitschrift für Deutsche Mundarten* 5. 150–153.
- Schnellbacher, Edeltraut. 1963. Mundart und Landschaft des östlichen Taunus. In Ludwig Erich Schmitt (ed.), *Marburger Universitätsbund. Jahrbuch 1963*, 375–499. Marburg: N. G. Elwert.
- Schödel, Jutta. 1967. *Die Mundart des Rezat-Altmühl-Raumes: Eine lautgeographisch-historische Untersuchung*. Nürnberg: Hans Carl.
- Scholl, Klaus. 1912. *Die Mundarten des Kreises Ottweiler. Untersuchungen auf lautphysiologischer und sprachgeschichtlicher Grundlage*. Bonn: Hauptmann'sche Buchdruckerei.
- Schöller, Georg. 1939. *Laute und Flexion der Mundart von Bavendorf (Kreis Ravensberg) und Umgebung*. Tübingen: H. Laupp.
- Schönberger, Wilhelm. 1934. Die Sprachverhältnisse der Tirol-Salzburg-Bayerischen Länderecke. *Teuthonista* 10. 35–98.
- Schönenfeld, Helmut. 1958. *Die Mundarten im Fuhnengebiet*. Halle an der Saale: Max Niemeyer.
- Schönenfeld, Helmut. 1965. Die Mundart von Schollene. *Altmärkisches Museum Stendal. Jahresausgabe* 19. 83–101.
- Schönenfeld, Helmut. 1986. Die berlinische Umgangssprache im 19. Und 20. Jahrhundert. In Joachim Schmidt & Hartmut Schmidt (eds.), *Berlinisch. Geschichtliche Einführung in die Sprache einer Stadt*, 214–298. Berlin: Akademie-Verlag.
- Schönenfeld, Helmut. 1989. East Low German. In Charles Russ (ed.), *The dialects of modern German*, 91–135. Stanford, CA: Stanford University Press.
- Schönenfeld, Helmut. 2001. *Berlinisch heute*. Frankfurt am Main: Peter Lang.
- Schönhoff, Hermann. 1908. *Emsländische Grammatik. Laut- und Formenlehre der emsländischen Mundarten*. Heidelberg: Carl Winter.
- Schoof, Wilhelm. 1913a. Die Schwälmer Mundart: Ein Beitrag zur hessischen Mundartforschung. *Zeitschrift für Deutsche Mundartforschung* 8. 70–83.
- Schoof, Wilhelm. 1913b. Die Schwälmer Mundart: Ein Beitrag zur hessischen Mundartforschung. *Zeitschrift für Deutsche Mundartforschung* 8. 146–181.
- Schoof, Wilhelm. 1913c. Die Schwälmer Mundart: Ein Beitrag zur hessischen Mundartforschung. *Zeitschrift für Deutsche Mundartforschung* 8. 196–210.
- Schrambke, Renate. 1981. *Die sprachliche Stufenlandschaft am mittelbadischen Oberrhein*. Freiburg im Breisgau: Albert-Ludwigs-Universität. (Doctoral dissertation).

- Schuchardt, Hugo. 1885. *Über die Lautgesetze: Gegen die Junggrammatiker*. Translated by Theo Vennemann & Terence H Wilbur as “On sound laws: Against the Neogrammarians”. In Vennemann & Wilbur (eds.) 1972: Schuchardt, the Neogrammarians and the transformational theory of phonological change: four essays. Berlin: Oppenheim.
- Schudt, Heinrich. 1927. *Wortbildung der Mundart von Wetterfeld (Oberhessen)*. Gießen: Otto Kindt.
- Schudt, Heinrich. 1970. *Erbstadt. Kreis Hanau*. (Monographien 2. Phonai. Deutsche Reihe 7.). Tübingen: Max Niemeyer. 187–241.
- Schulte, Werner. 1941. *Gliederung der Mundarten im südöstlichen Sauerland*. Marburg: N. G. Elwert.
- Schultz, Susman A. 1951. Segmental phonemes of Brienznerdeutsch. *Studies in Linguistics* 9. 34–65.
- Schultze, Martin. 1874. *Idioticon der Nord-Thüringischen Mundart. Den Bürgern Nordhausens gewidmet*. Nordhausen: Ferd. Fürstemann.
- Schütze, Monika. 1953. *Dialektgeographie der goldenen Mark des Eichfeldes*. Halle an der Saale: Max Niemeyer.
- Schwäbl, Johann Nepomuk. 1903. *Die altbairische Mundart: Grammatik und Sprachproben*. Munich: J. Lindauer.
- Schwagmeyer, Friedrich. 1908. *Der Lautstand der ravensbergischen Mundart von Hiddenhausen*. Berlin: R. Trenkel.
- Schwarz, Josef. 1992. *Die Fuldaer Mundart dargestellt an der Ortssprache der Großgemeinde Petersberg (Fulda)*. Fulda: Fuldaer Verlag.
- Schweizer, Bruno. 1939. *Zimbrische Sprachreste. Teil 1. Texte aus Giazza. (Dreizehn Gemeinden ob Verona). Nach dem Volksmunde aufgenommen und mit hochdeutscher Übersetzung*. Halle an der Saale: Max Niemeyer.
- Schwend, Adolf. 1900. Lautlehre der Mundart von Oberschopfheim. *Zeitschrift für Hochdeutsche Mundarten* 1. 305–345.
- Schwing, Heinrich. 1921. Beiträge zur Dialektgeographie der mittleren Lahn. *Zeitschrift für Deutsche Mundarten* 1921. 154–163.
- Scripture, Edward Wheeler. 1902. *The elements of experimental phonetics*. New York, NY: Charles Scribner's Sons.
- Seibold, Elmar. 1982. Der Übergang von idg. -w- zu germ. -k- und -g-. *Indogermanische Forschungen* 87. 172–194.
- Seibold, Elmar (ed.). 2011. *Kluge. Etymologisches Wörterbuch der deutschen Sprache*. 25th edn. Berlin: Mouton de Gruyter.
- Seelmann, Erich. 1908. *Die Mundart von Prenden (Kreis Nieder-Barnim)*. Norden: Diedr. Soltau.

## References

- Seelmann, Wilhelm. 1913. Die Mundart der hinteren Neumark oder das Ost-märkische. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 39. 141–162.
- Seemüller, Joseph. 1908a. Mundart der Umgebung von Loosdorf, Bezirkshauptmannschaft Amstetten, Niederösterreich. In Joseph Seemüller (ed.), *Deutsche Mundarten* 1, 6–10. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seemüller, Joseph. 1908b. Mundart von Altstadt bei Mährisch-Trübau (Schön-hengster Gau), Mähren. In Joseph Seemüller (ed.), *Deutsche Mundarten* 1, 15–18. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seemüller, Joseph. 1908c. Mundart von Eisendorf, Bezirkshauptmannschaft Bischofsteinitz (südliches Egerland), Böhmen. In Joseph Seemüller (ed.), *Deutsche Mundarten* 1, 11–15. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seemüller, Joseph. 1909a. Mundart von Hohenems, Bezirkshauptmannschaft Feldkirch, Vorarlberg. In Joseph Seemüller (ed.), *Deutsche Mundarten* 2, 20–25. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seemüller, Joseph. 1909b. Mundart von Mitterdorf, Bezirkshauptmannschaft Gottschee, Krain. In Joseph Seemüller (ed.), *Deutsche Mundarten* 2, 25–28. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seemüller, Joseph. 1909c. Mundart von Pilgersham, Bezirkshauptmannschaft Ried (Innviertel), Oberösterreich. In Joseph Seemüller (ed.), *Deutsche Mundarten* 2, 13–20. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seemüller, Joseph. 1909d. Mundart von St. Georgen a. Wald, bei Grein, Bezirkshauptmannschaft Berg (Mühlviertel). In Joseph Seemüller (ed.), *Deutsche Mundarten* 2, 8–13. Vienna: K. u. k. Hof- und Universitäts-Buchhändler.
- Seibicke, Wilfried. 1967. *Beiträge zur Mundartkunde des nordobersächsischen (östlich der Elbe)*. Cologne: Böhlau.
- Seibt, Walter. 1930. *Zur Dialektgeographie der hessischen Bergstraße*. Gießen: Wilhelm Schmidt.
- Selmer, Ernst Westerlund. 1918. *Sprachstudien im Lüneburger Wendland*. Kristiania: A.W. Brøggers Boktrykkeri.
- Semrau, Maria. 1915a. Die Mundart der Koschneiderei. *Zeitschrift für Deutsche Mundarten* 10. 143–202.
- Semrau, Maria. 1915b. Die Mundart der Koschneiderei, II Teil. Einiges aus der Flexion. *Zeitschrift für Deutsche Mundarten* 10. 237–265.
- Sen, Ranjan. 2016. Examining the life cycle of phonological processes: Considerations for historical research. *Papers in Historical Phonology* 1. 5–36.
- Sexauer, Ottmar. 1927. *Die Mundart von Pforzheim*. Leipzig: Hermann Eichblatt.

- Seymour, Richard K. 1970. Linguistic change: Examples from the Westfalian dialect of Nienberge. *Word* 26. 32–46.
- Siebs, Theodor. 1898. *Deutsche Bühnenaussprache*. Cologne: Albert Ahn.
- Siebs, Theodor. 1906. Die Sprache der Tiroler in Schlesien. In Theodor Siebs (ed.), *Sonderdruck aus den Mitteilungen der Schlesischen Gesellschaft für Volkskunde. Heft XVI*, 105–128. Breslau: no publisher.
- Siebs, Theodor. 1909. *Helgoland und seine Sprache*. Cuxhaven: August Rauschenplat.
- Siebs, Theodor. 1969. *Deutsche Aussprache. Reine und gemäßigte Hochlautung mit Aussprachewörterbuch*. Herausgegeben von Helmut de Boor, Hugo Moser und Christian Winkler. 19. umgearbeitete Auflage. Berlin: Walter de Gruyter.
- Siemens, Heinrich. 2012. *Plautdietsch. Grammatik, Geschichte, Perspektiven*. Bonn: Tweeback.
- Siemon, Karl. 1922. Die Mundart von Langenselbold (Kreis Hanau) und die Dialektgrenzen seiner weiteren Umgebung. *Zeitschrift für Deutsche Mundarten* 17. 139–143.
- Sievers, Eduard. 1885. *Grundzüge der Phonetik zur Einführung in das Studium der Lautlehre der idg. Sprachen*. 3rd edn. Leipzig: Breitkopf & Härtel.
- Sievers, Heinrich. 1914. *Die Mundart der Stapelholmer*. Marburg: R. Friedrich.
- Siewert, Max. 1907. Die Mundart von Besten (Kreis Teltow, Provinz Brandenburg). *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 33. 9–26.
- Siewert, Max. 1912. Die Mundart von Neu-Golm (Kreis Beeskow-Storkow, Prov. Brandenburg). *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 38. 105–147.
- Simon, Horst J. & Heike Wiese (eds.). 2011. *Expecting the unexpected: Exceptions in grammar*. Berlin: Walter de Gruyter.
- Sipma, Pieter. 1913. *Phonology & Grammar of West Frisian*. Oxford: Oxford University Press.
- Sjölin, Bo. 1969. *Einführung in das Friesische*. Stuttgart: J. B. Metzlersche Verlagsbuchhandlung.
- Smith, Jennifer. 2003. Onset sonority constraints and subsyllabic structure. *Rutgers Optimality Archive* 608. 1–18.
- Spangenberg, Karl. 1962. *Die Mundartlandschaft zwischen Rhön und Eichsfeld*. Halle an der Saale: Max Niemeyer.
- Spangenberg, Karl. 1974. Versuch einer sprachlichen und gesellschaftlichen Grundlegung des gegenwärtigen Wandels *ch* zu *sch* in Thüringen. *Wissenschaftliche Beiträge der Friedrich-Schiller-Universität Jena*. 166–183.
- Spangenberg, Karl. 1989. Thuringian. In Charles Russ (ed.), *The dialects of modern German*, 265–289. Stanford, CA: Stanford University Press.

## References

- Spangenberg, Karl. 1998. *Die Umgangssprache im Freistaat Thüringen und im Südwesten des Landes Sachsen-Anhalt*. Rudolstadt: Hain.
- Spenter, Arne. 1964. *Sprachbewegung in der Landschaft um Marburg an der Lahn 1880–1960*. Marburg: N. G. Elwert.
- Stammerjohann, Rudolf. 1914. Die Mundart von Burg in Dithmarschen mit besonderer Berücksichtigung der Quantitätsverhältnisse. *Zeitschrift für Deutsche Mundarten* 9. 54–96.
- Steger, Hugo. 1968. *Sprachraumbildung und Landesgeschichte im östlichen Franken*. Neustadt/Aisch: Degener.
- Stein-Meintker, Anneliese. 2000. *Die Mundart von Garmisch und Partenkirchen*. Marburg: N. G. Elwert.
- Steitz, Lothar. 1981. *Grammatik der Saarbrücker Mundart*. Saarbrücken: Saarbrücker Druckerei und Verlag.
- Stellmacher, Dieter. 1972. Taxonomische und generative Phonemanalyse am Beispiel einer niederdeutschen Mundart. *Niederdeutsches Wort* 12. 124–143.
- Stellmacher, Dieter. 1973. *Untersuchungen zur Dialektgeographie des mitteldeutsch-niederdeutschen Interferenzraumes östlich der mittleren Elbe*. Cologne: Böhlau.
- Stiebels, Barbara. 2013. Rule interaction in Kleverlandish diminutive formation. In Fabian Heck & Anke Assmann (eds.), *Rule interaction in grammar* (Linguistische Arbeitsberichte 90), 163–176. Leipzig: Universität Leipzig.
- Stolle, Wilfried. 1969. *Der Vokalismus in den Mundarten der Iglauer Sprachinsel*. Munich: Lerche.
- Streiff, Catharina. 1915. *Die Laute der Glarner Mundart*. Frauenfeld: Huber.
- Stritzel, Herbert. 1937. *Die Gliederung der Mundarten um Lauenburg in Pommern*. Marburg: N. G. Elwert.
- Strohmaier, Otto. 1930. *Die Laute und die Flexion des Schwäbischen in der Mundart des Oberamts Blaubeuren*. Nürtlingen a. N.: K. Henzler.
- Stucki, Karl. 1917. *Die Mundart von Jaun im Kanton Freiburg*. Lautlehre und Flexion. Frauenfeld: Huber.
- Sütterlin, Ludwig. 1907. *Die deutsche Sprache der Gegenwart. (Ihre Laute, Wörter, Wortformen und Sätze). Ein Handbuch für Lehrer und Studierende auf sprachwissenschaftlicher Grundlage*. Zweite, stark veränderte Auflage. Leipzig: R. Voigtländer Verlag.
- Suzuki, Seiichi. 1990. The Germanic Verschärfung: A syllabic perspective. *Journal of Indo-European Studies* 19. 163–190.
- Sweet, Henry. 1877. *Handbook of phonetics*. Oxford: Clarendon Press.
- Szulc, Aleksander. 2002. *Geschichte des Standarddeutschen Lautsystems*. Vienna: Praesens.

- Tarral, Nikolaus. 1903. *Laut- und Formenlehre der Mundart des Kantons Falkenberg in Lothr.* Strassburg: Heitz & Mündel.
- Taylor, David. 2010. *Palatalization: Can stress promote the acquisition of unusual assimilation patterns?* London: University College London. (MA thesis).
- Tedsen, Julius. 1906. *Der Lautstand der fähringischen Mundart.* Halle an der Saale: Buchdruckerei des Waisenhauses.
- Tessmann, Wilhelm. 1966. Abriß einer natangisch-bartischen Laut- und Formenlehre (auf Grund der Mundart von Bieberstein bei Barten Ostpr.) *Niederdeutsches Jahrbuch* 89. 122–131.
- Teuchert, Hermann. 1907a. Die Mundart von Warthe (Uckermark). *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 33. 27–44.
- Teuchert, Hermann. 1907b. Laut- und Flexionslehre der neumärkischen Mundart. *Zeitschrift für Deutsche Mundarten* 1907. 103–155.
- Teuchert, Hermann. 1907c. Laut- und Flexionslehre der neumärkischen Mundart (Fortsetzung). *Zeitschrift für Deutsche Mundarten* 1907. 238–263.
- Teuchert, Hermann. 1913. Die niederdeutsche Mundart von Putzig in der Provinz Posen. *Zeitschrift für deutsche Mundarten* 1913. 3–44.
- Teuchert, Hermann. 1927. *Deutsche Mundarten. Mecklenburgisch. Lautbibliothek. Phonetische Platten und Umschriften herausgegeben von der Lautabteilung der preußischen Staatsbibliothek Nr. 21.* Berlin: Preußische Staatsbibliothek.
- Teuchert, Hermann. 1930. Die Mundart des Oderbruchs. In Peter Fritz Mengel (ed.), *Das Oderbruch* 1, 239–276. Eberswalde: Rudolf Müller.
- Teuchert, Hermann. 1934. Der Lautstand im Südteil des Landes Stargard. *Teuthonista* 10. 2–34.
- Teuchert, Hermann. 1964. *Die Mundarten der brandenburgischen Mittelmark und ihres südlichen Vorlandes.* Berlin: Akademie-Verlag.
- Teuchert, Hermann & Alfred Schmitt. 1933. *Deutsche Mundarten. Mecklenburgisch II und Pommersch. Lautbibliothek. Phonetische Platten und Umschriften herausgegeben von der Lautabteilung Nr. 35.* Glückstadt: J.J. Augustin.
- Thies, Hans. 1912. *Versuch einer Lautlehre der Mundart von Saarhölzbach.* Greifswald: Buchdruckerei Hans Adler.
- Thomé, Aloys. 1908. *Untersuchungen zum Vokalismus der moselfränkischen Mundart von Kenn.* Bonn: P. Hauptmann'sche Buchdruckerei.
- Tiefenbach, Heinrich. 1987. -chen und -lein. *Zeitschrift für Dialektologie und Linguistik* 54. 2–27.
- Tita, Fritz. 1921 [1965]. *Bublitzer Mundart.* Marburg: N. G. Elwert.
- Törnqvist, Nils. 1949. *Altmärkische Studien I: Zum Vokalismus der Tonsilben der Mundart von Arendsee in der Altmark.* Lund: C. W. K. Gleerup.

## References

- Trautmann, Moritz. 1884–1886. *Die Sprachlaute im Allgemeinen und die Laute des Englischen, Französischen und Deutschen im Besonderen*. Leipzig: Gustav Fock.
- Trebs, Emil. 1899. *Beiträge zur osterländischen Mundart (=Beilage zum Programm des Gymnasiums zu Fürstenwald a. d. Spree.)*. Fürstenwalde: Jaensch.
- Treiber, Gottlieb. 1931. *Die Mundart von Plankstadt*. Walldorf bei Heidelberg: Friedrich Lamade.
- Trim, J. L. M. 1951. German h, ç and x. *Le Maître Phonétique* 96. 41–42.
- Trommelen, Mieke. 1984. *The syllable in Dutch: With special reference to diminutive formation*. Dordrecht: Foris.
- Trommer, Jochen. 2021. The subsegmental structure of German plural allomorphy. *Natural Language and Linguistic Theory* 39. 601–656.
- Trost, Pavel. 1958. Systematic support for the x/ç distinction in German. *Word* 14. 243–246.
- Trüb, Rudolf. 1951. *Die Sprachlandschaft Walensee-Seeztal*. Frauenfeld: Huber.
- Trubetzkoy, Nikolaus S. 1939. *Grundzüge der Phonologie. Travaux de Cercle Linguistique de Prag* 7. Göttingen: Vandenhoeck & Ruprecht.
- Trukenbrod, Klaus. 1973. *Dialektgeographie des Obermainraumes und der nördlichen Fränkischen Schweiz*. Kulmbach: Wilhelm Lederer.
- Tschinkel, Hans. 1908. *Grammatik der Gottscheer Mundart*. Halle an der Saale: Max Niemeyer.
- Turton, Danielle. 2017. Categorical or gradient? An ultrasound investigation of /l/-darkening and vocalization in varieties of English. *Laboratory Phonology: Journal of the Association for Laboratory Phonology* 8(1) 13. 1–31.
- Twaddell, W. Freeman. 1938. A note on OHG umlaut. *Monatshefte für deutschen Unterricht* 30. 177–181.
- Tyroller, Hans. 2003. *Grammatische Beschreibung des Zimbrischen von Lusern*. Stuttgart: Franz Steiner.
- Ulbrich, Horst. 1972. *Instrumental-phonetisch-auditive r-Untersuchungen im Deutschen*. Berlin: Akademie Verlag.
- Urek, Olga. 2016. *Palatalization in Latvian*. Tromsø: Arctic University of Norway. (Doctoral dissertation).
- Urff, Hans. 1926. *Mundart und Schriftsprache im Hanauischen*. Hanau am Main: Verlag des Vereins.
- Van der Hoek, Michel. 2010. *Palatalization in West Germanic*. Minneapolis, MN: University of Minnesota. (Doctoral dissertation).
- van der Hulst, Harry & Jeroen van de Weijer. 1995. Vowel harmony. In John A. Goldsmith (ed.), *The handbook of phonological theory*, 495–534. Oxford: Blackwell.

- van de Wijngaard, Ton. 2007. De Ripuarische dialecten. In Ronny Keulen, Ton van de Wijngaard, Herman Crompvoets & Frans Walraven (eds.), *Riek van klank. Inleiding van de limburgse dialecten*, 45–59. Sittard: Veldeke.
- van Lessen Kloeke, Wus. 1982. *Deutsche Phonologie und Morphologie. Merkmale und Markiertheit*. Tübingen: Max Niemeyer.
- van Oostendorp, Marc. 2000. *Phonological projection: A theory of content and prosodic structure*. Berlin: Mouton de Gruyter.
- Vehslage, Hermann. 1908. *Die Mundart des Artlandes auf der Grundlage der Mundart des Kirchspiels Badbergen*. Borna-Leipzig: Robert Noske.
- Vennemann, Theo. 1972. Rule inversion. *Lingua* 29. 209–242.
- Vennemann, Theo. 1978. Phonetic analogy and conceptual analogy. In Philip Baldi & Ronald N. Werth (eds.), *Readings in historical phonology. Chapters in the theory of sound change*, 258–274. State College, PA: Penn State University Press.
- Vennemann, Theo. 1988. *Preference laws for syllable structure and the explanation of sound change*. Berlin: Mouton de Gruyter.
- Vennemann, Theo & Terence H. Wilbur (eds.). 1972. *Schuchardt, the Neogrammarians and the transformational theory of phonological change: Four essays*. Frankfurt am Main: Athenäum.
- Vetsch, Jakob. 1910. *Die Laute der Appenzeller Mundart*. Frauenfeld: Huber.
- Viëtor, Wilhelm. 1901. *Die Aussprache des Schriftdeutschen mit dem "Wörterverzeichnis für die deutsche Rechtschreibung zum Gebrauch in den preußischen Schulen" in phonetischer Umschrift sowie phonetischen Texten*. 5th edn. Leipzig: O. R. Reisland.
- Voge, Wilfried M. 1978. *The pronunciation of German in the 18th century*. Hamburg: Helmut Buske.
- von Essen, Otto. 1958. Die Vokale der niederdeutschen Mundart von Kirchwerder. *Zeitschrift für Phonetik* 11. 105–118.
- von Unwert, Wolf. 1908. *Die schlesische Mundart in ihren Lautverhältnissen grammatisch und geographisch dargestellt*. Breslau: M&H Marcus.
- vor Mohr, Artur. 1904. Die Vocale der oldenburgischen Mundart. *Jahrbuch des Vereins für Niederdeutsche Sprachforschung* 30. 33–73.
- Wagner, Eduard. 1912. *Über die Mundart der Thorner Stadtniederung. (Teil I. Zur Lautlehre)*. Königsberg: Albertus-Universität zu Königsberg. (Doctoral dissertation).
- Wagner, Emma & Wilhelm Horn. 1900. Verbalformen der Mundart von Großen-Buseck bei Gießen. *Zeitschrift für Hochdeutsche Mundarten* 1. 9–17.

## References

- Wagner, Philipp. 1889. *Der gegenwärtige Lautbestand des Schwäbischen in der Mundart von Reutlingen. Beilage zum Programm der königlichen Real-Anstalt zu Reutlingen, II. Teil.* Reutlingen: Carl Rupp.
- Wahlenberg, Fr. Wilh. 1877. Die Laute der Kölner Mundart und deren Bezeichnung. In Fritz Hönig (ed.), *Wörterbuch der Kölner Mundart*, 13–31. Cologne: Heyn.
- Waibel, Paul. 1932. *Die Mundarten im Rechtstrheinischen Bereich des ehemaligen Fürstbistums Speyer*. Walldorf bei Heidelberg: Friedrich Lamade.
- Walkden, George. 2017. The actuation problem. In Adam Ledgeway & Ian Roberts (eds.), *The Cambridge handbook of historical syntax*, 403–424. Cambridge: Cambridge University Press.
- Walsh Dickey, Laura. 1997. *The phonology of liquids*. Amherst, MA: University of Massachusetts Amherst. (Doctoral dissertation).
- Wängler, Hans-Heinrich. 1983. *Grundriss einer Phonetik des Deutschen mit einer allgemeinen Einführung in die Phonetik*. 4. überarbeitete Auflage. N. G. Elwert.
- Wanner, Emma. 1907. Lautlehre der Mundart von Zausenhausen. *Zeitschrift für Deutsche Mundarten* 2. 264–279.
- Wanner, Emma. 1908. Lautlehre der Mundart von Zausenhausen. *Zeitschrift für Deutsche Mundarten* 3. 66–83.
- Wanner, Georg. 1941. *Die Mundarten des Kantons Schaffhausen. Laut- und Flexionslehre*. Frauenfeld: Huber.
- Warnkross, Julius. 1912. *Die Lautlehre des Wolgaster Platt*. Greifswald: Königliche Universität zu Greifswald. (Doctoral dissertation).
- Wasmer, A. 1915. Wortbestand der Mundart von Oberweier. *Zeitschrift für Deutsche Mundarten* 1915. 333–396.
- Wasmer, A. 1916. Wortbestand der Mundart von Oberweier. *Zeitschrift für Deutsche Mundarten* 1916. 209–288, 305–350.
- Weber, Alber. 1923. *Die Mundart des Zürcher Oberlandes*. Frauenfeld: Huber.
- Weber, Edelgard. 1959. *Beiträge zur Dialektgeographie des südlichen Werra-FuldaRaums*. Tübingen: Max Niemeyer.
- Wegera, Klaus-Peter. 1977. *Kontrastive Grammatik: Osthessisch-Standardsprache. Eine Untersuchung zu mundartbedingten Sprachschwierigkeiten von Schülern am Beispiel des 'Fuldaer Landes'*. Marburg: N. G. Elwert.
- Weik, Friedrich. 1913. *Lautlehre der Mundart von Rheinbischofsheim*. Halle an der Saale: Buchdruckerei des Weisenhauses.
- Weinelt, Herbert. 1940. Die Mundart der Deutschtumsinsel Libinsdorf und ihre Bedeutung für die nordböhmische Heimat. *Archiv für Vergleichende Phonetik* 4. 36–50.

- Weinreich, William Labov, Uriel & Marvin I. Herzog. 1968. Empirical foundations for a theory of language change. In Winfred P. Lehmann & Yakov Malkiel (eds.), *Directions for Historical Linguistics. A Symposium*, 95–195. Austin, TX: University of Texas Press.
- Weiser, Franz. 1937. *Lautgeographie der schlesischen Mundart des nördlichen Nordmähren und des Adlergebirges*. Brünn: Rudolf M. Rohrer.
- Weldner, Heinrich. 1991. *Die Mundart von Barchfeld an der Werra*. Stuttgart: Steiner.
- Welter, Wilhelm. 1929. *Studien zur Dialektgeographie des Kreises Eupen*. Bonn: Ludwig Röhrscheid.
- Welter, Wilhelm. 1933. *Die niederfränkischen Mundarten im Nordosten der Provinz Lüttich*. Den Haag: Martinus Nijhoff.
- Welter, Wilhelm. 1938. *Die Mundarten des Aachener Landes als Mittler zwischen Rhein und Maas*. Bonn: Ludwig Röhrscheid.
- Wenz, Heinrich. 1911. *Laut- und Formenlehre der Mundart von Beerfelden. Mit Berücksichtigung der näheren Umgebung*. Strassburg: Heitz & Mündel.
- Wenzel, Fritz. 1919. *Studien zur Dialektgeographie der südlichen Oberlausitz und Nordböhmens*. Marburg: N. G. Elwert.
- Werlen, Iwar. 1977. *Lautstrukturen des Dialekts von Brig im Schweizerischen Kanton Wallis. Ein Versuch zur Integration strukturaler und generativer Beschreibungsverfahren in die Dialektologie*. Wiesbaden: Steiner.
- Werlen, Iwar. 1983. Velarisierung (Gutturalisierung) in den deutschen Dialekten. In Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert Ernst Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, vol. II. 1130–1136. Berlin: Walter de Gruyter.
- Werner, Otmar. 1961. *Die Mundart des Frankenwaldes*. Kallmünz-Oberpfalz: Michael Lassleben.
- Werner, Otmar. 1972. *Phonemik des Deutschen*. Stuttgart: Metzler.
- Wiese, Heike. 2012. *Kietzdeutsch: Ein neuer Dialekt entsteht*. Munich: C. H. Beck.
- Wiese, Richard. 1988. *Silbische und lexikalische Phonologie. Studien zum Chinesischen und Deutschen*. Tübingen: Max Niemeyer.
- Wiese, Richard. 1996a. Phonological versus morphological rules: On German umlaut and ablaut. *Journal of Linguistics* 32. 113–135.
- Wiese, Richard. 1996b. *The phonology of German*. Oxford: Clarendon Press.
- Wiesinger, Peter. 1970a. *Phonetisch-phonologische Untersuchungen zur Vokalentwicklung in den deutschen Dialekten*. Vol. 1: Die Langvokale im Hochdeutschen. Berlin: Walter de Gruyter.

## References

- Wiesinger, Peter. 1970b. *Phonetisch-phonologische Untersuchungen zur Vokalentwicklung in den deutschen Dialekten*. Vol. 2: Die Diphthonge im Hochdeutschen. Berlin: Walter de Gruyter.
- Wiesinger, Peter. 1983a. Deutsche Dialektgebiete außerhalb des deutschen Sprachgebietes. In Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert Ernst Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, vol. II. 900–929. Berlin: Walter de Gruyter.
- Wiesinger, Peter. 1983b. Die Einteilung der deutschen Dialekte. In Werner Besch, Ulrich Knoop, Wolfgang Putschke & Herbert Ernst Wiegand (eds.), *Dialektologie. Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, vol. II. 807–900. Berlin: Walter de Gruyter.
- Wiesinger, Peter. 1987. *Bibliographie zur Grammatik der deutschen Dialekte. Laut-, Formen-, Wortbildungs- und Satzlehre. 1981 bis 1985 und Nachträge aus früheren Jahren*. Bern: Peter Lang.
- Wiesinger, Peter. 1989. The central and southern Bavarian dialects in Bavaria and Austria. In Charles Russ (ed.), *The dialects of modern German*, 438–519. Stanford, CA: Stanford University Press.
- Wiesinger, Peter & Elisabeth Raffin. 1982. *Bibliographie zur Grammatik der deutschen Dialekte. Laut-, Formen-, Wortbildungs- und Satzlehre. 1800 bis 1980*. Bern: Peter Lang.
- Wiget, Wilhelm. 1916. *Die Laute der Toggenburger Mundarten*. Frauenfeld: Huber.
- Wilbur, Ronnie. 1974. *The phonology of reduplication*. Urbana, IL: University of Illinois. (Doctoral dissertation).
- Wilmanns, Wilhelm. 1893. *Deutsche Grammatik, erste Abteilung: Lautlehre*. Strassburg: Karl J. Trübner.
- Wilson, James L. 1964. *The phonology of Afrikaans with some remarks on contrasts with Standard Dutch phonology*. Bloomington, IN: Indiana University. (Doctoral dissertation).
- Wimmert, Peter. 1910. Bauern- und Wetterregeln aus dem Rheinlande: Zusammengestellt und wiedergegeben in der Mundart von Laubach, Kr. Cochem, Eifel. *Zeitschrift für Deutsche Mundarten* 1910. 351–356.
- Winteler, Jost. 1876. *Die Kerzener Mundart des Kantons Glarus in ihren Grundzügen dargestellt*. Leipzig: Carl Winter.
- Wipf, Elisa. 1910. *Die Mundart von Visperterminen im Wallis*. Frauenfeld: Huber.
- Wix, Hans. 1921. *Studien zur westfälischen Dialektgeographie im Süden des Teutoburger Waldes*. Marburg: N. G. Elwert.
- Wolf, Matthew. 2011. Exceptionality. In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (eds.), *The Blackwell companion to phonology*, vol. 4, 2538–2559. Oxford: Blackwell.

- Wolf, Norbert A. 1982. *Lautlehre der Mundart des Suchener Tales in der deutschen Sprachinsel Gottschee*. Vienna: VWGÖ.
- Woods, Jon Douglas. 1975. *A synchronic phonology of the Old Saxon Heliand*. M. Amherst, MA: University of Massachusetts Amherst. (Doctoral dissertation).
- Wright, Joseph. 1907. *Historical German grammar. Vol. 1. Phonology, word-formation and accidence*. London: Oxford University Press.
- Wurzel, Wolfgang Ullrich. 1980. Phonologie: Segmentale Struktur. In Karl-Erich Heidolph, Walter Flämig & Wolfgang Motsch (eds.), *Grundzüge einer deutschen Grammatik*, 898–990. Berlin: Akademie-Verlag.
- Yip, Moira. 1988. The obligatory contour principle and phonological rules: A loss of identity. *Linguistic Inquiry* 19. 65–100.
- Zahler, Hans. 1901. St. Stephan im Simmenthal. *Zeitschrift für Hochdeutsche Mundarten* 2. 226–236.
- Zeck, Karl. 1921. *Laut- und Formenlehre der Mundart von Düsseldorf-Stadt und -Land. auszug aus der Dissertation*. Münster: Westfälische Wilhelms-Universität zu Münster in Westfalen. (Doctoral dissertation).
- Zehetner, Ludwig. 1978. *Die Mundart der Hallertau*. Marburg: N. G. Elwert.
- Zeidler, Edgar. 1978. Le système vocalique et consonantique de parler de Metzéral. *Travaux de l'Institut du Phonétique de Strasbourg* 10. 165–181.
- Zinser, Richard. 1933. *Die Mundart des Oberen Gäus südlich von Herrenberg nach Lauten und Flexion*. Stuttgart: J. Fink.
- Zonneveld, Wim. 1978. *A formal theory of exceptions in generative phonology*. Lisse: Peter de Ridder.



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