PHONOLOGY

REVIEW

Hall, Tracy Alan (2022). *Velar fronting in German dialects: a study in synchronic and diachronic phonology.* Number 3 in Open Germanic Linguistics. Berlin: Language Science Press. Pp. xx + 896.

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1. Overview

Velar fronting, or 'the realization of any velar consonant […] as the corresponding fronted sound' (p. 6), is on the surface a straightforward synchronic articulatory assimilation or diachronic sound change. In the open-access monograph *Velar fronting in German dialects: a study in synchronic and diachronic phonology,* Hall investigates this phenomenon by drawing on extremely rich and detailed data, with numerous points of comparison and contrast within and across dialects of German. He sets out to investigate the following core research questions, summarised from p. 15:

1. What are the targets and triggers for velar fronting, and how do these vary in different stages of language history?
2. How does opacity arise and how is it phonologised?
3. What are the outputs of velar fronting?
4. What are the correct underlying representations for targets and triggers?
5. What are the typological implications for velar fronting patterns in German varieties?

Hall's analysis reveals a diverse array of conditioning factors and targets for velar fronting, with differing impacts on the phonological structures of the relevant dialects. The work primarily has a (generative) phonological focus, yet it is firmly rooted in historical phonology, phonological typology and historical dialectology, with clear ties to language variation and change. A strength of the work is that it draws on the perspectives from these fields of inquiry to build a detailed and comprehensive analysis of velar fronting. Although the book makes a valuable contribution to multiple fields, from historical linguistics to typology to dialectology, I restrict my discussion to those that bear most strongly on issues in phonology, which will primarily concern rules and representations relevant to research question (4) above, following a brief overview. Space does not allow for an in-depth summary and commentary on each chapter, but throughout this review, I synthesise broad themes and discuss specific examples and conclusions for the other research questions, where appropriate.

The book is structured as follows: Following an introduction of the central research questions, motivation and empirical sources for the investigation in chapter 1, the theoretical approach is presented in chapter 2, which involves a discussion of core phonological, typological and historical concerns. Chapters 3 and 4 outline and discuss various types of velar fronting allophony, and chapter 5 exemplifies and analyses 'underapplication opacity' – cases where velar fronting applies, although there are instances of velar [x] in a [coronal] (fronting) context, but derived from another phoneme, for example, /ɣ/ or /ʀ/, by another rule. The following chapters deal with different kinds of opacity: one (chapter 6)

discusses cases where surface-level front vowels do not induce velar fronting – Hall treats these as neutral vowels lacking [coronal] distinctive features (see below); and the other (chapter 7) explores palatal quasi-phonemes. These are the consequence of the previously front vowels (triggering velar fronting) undergoing a change to back vowels, yet retaining the earlier palatal; velar fronting of the original velar still takes place. Chapters 8–10 present the phonemicisation of palatals, discussing approaches to phonological change, rule generalisation and areal distributions. These considerations feed into chapter 11, where the palatalisation of velar stops and nasals come under focus. Chapter 12 examines targets and triggers across time and space; these are then argued to reflect historical stages attested in a specific geographical location, Lower Bavaria, which are discussed in chapter 13. Cases of velar fronting in non-coronal environments and velar fronting islands are, respectively, presented in chapters 14 and 15, followed by an analysis of the phonologisation of velar fronting by phonological environment, as well as diachronically and geographically, in chapter 16. A discussion of velar fronting in Standard German is given in chapter 17, and a conclusion follows in chapter 18. The book also includes 12 appendices, which summarise dialect classifications and sources of dialect material in the book; provide relevant maps, also presented throughout the book, and illustrate Germanic language relationships; list an overview of velar fronting rules, as well as related processes in other Indo-European languages; give a reference for non-syllabic sounds; and highlight the status of velar [x] and palatal [ç] in loanwords.

2. Discussion: features, representations and rules

In terms of features, presented in chapter 2, Hall uses a well-established set, where place of articulation is represented by privative [labial], [coronal] and [dorsal], with additional binary features for vowel and sonorant distinctions. Velar fronting as a phonological process, then, occurs when a (sub)set of [dorsal] consonants, that is, velars, enters into a local phonological domain with a (sub)set of [coronal] segments, that is, front vowels or sonorants /n, l, r/. This domain can be word-initial or post-sonorant, or both, and varieties differ on this front. The result is a complex [coronal, dorsal] representation for the original velar, which creates a palatal place of articulation. The primary set of targets, also varying from dialect to dialect, consists of /x, ɣ, kx, k, g, ŋ/, which front, respectively, to [ç, j, kç, c, ɟ, ɲ]. Hall contextualises velar fronting in the typological literature as a type of velar palatalisation (§2.3), which is distinguished from fronting in that velar fronting only changes the primary place of articulation, whereas velar palatalisation can also alter the manner of articulation (e.g., the stops [k, g] palatalise to the affricates [ʧ, ʤ]; p. 47) and/or induce secondary palatalisation to the primary place of articulation (p. 48).

In addition to this set of distinctive features, Hall adopts a theoretical framework aligned with Modified Contrastive Specification (Dresher *et al.* 1994, further articulated in Dresher 2009 and elsewhere). This position stipulates that, as Hall describes, 'distinctive features are assigned to the phonemic inventory in a step-wise fashion' (p. 41). This is in accordance with the Successive Division Algorithm (SDA; Dresher 2009), whereby a language's phonemic inventory is divided into natural classes of phonemes one feature at a time until all segments are distinct. On this view, both the features and the order in which they are assigned have consequences for phonological structure. There is therefore a possibility that different languages will contain the same (sub)set of phonemes in terms of their surface forms, yet diverge in how those forms are specified for contrastive features (Mackenzie 2011). In other words, languages – or dialects – may differ from one another in how they group similar-sounding phonemes into natural classes, which is understood as different outcomes of the SDA applied to potentially different sizes and compositions of inventories. Although this point is not addressed explicitly in the book, phonological variation of this type is a promising topic for future work. Still, structural differences are brought to bear to explain differences in phonologically active patterns (see below).

From the comprehensive survey that comprises data from dialects and varieties with broad geographical coverage, collected from 54 dialect dictionaries and language atlases (listed in Appendices K and L, respectively), and analysed from the theoretical positions outlined above, Hall proposes 22 versions of velar fronting – 8 for velars in word-initial onsets and 14 for those in post-coronal

sonorant positions – based on various combinations of targets and triggers involved (Appendix D). All the rule subtypes involve a restricted set of representations that vary along constrained parameters. These constraints reveal one of the important findings from the analysis, which concerns implicational universals for both targets and triggers. There are two universals for triggers: (1) fronting of stops will also involve fronting of fricatives (but not the reverse) and (2) the fronting of lenis ('voiced') velars implies the fronting of the fortis ('voiceless') class. Relationships for fronting triggers are consistent with those for velar palatalisation. Specifically, high front vowels are the most likely to induce fronting, a familiar pattern, and fronting triggered by a mid or low front vowel implies the higher class as a trigger as well, with sonorant consonant triggers implying mid front vowel triggers. As Hall (p. 145) emphatically states: 'The progression from high front vowels to high and mid front vowels to all front vowels is a consequence of the Implicational Universal for Palatalization triggers […]. No dialect is attested which fails to obey this hierarchy'. Differences in attested velar fronting patterns, that is, the 22 rules proposed from the investigation, result in expansions of trigger or target conditions over time and space, that is, sound change by rule generalisation (e.g., Ramsammy 2015).

The mode of analysis that Hall supports and applies throughout the book provides testable predictions for further research into potential ongoing changes in velar fronting environments. For example, investigations into sociophonetic distributions of velar *vs.* coronal place of articulation for the 'next' target, or within the 'next' trigger environment, compared across a similar sample of varieties in terms of velar fronting typology, would prove incredibly valuable, not the least to contribute to work that seeks to more explicitly draw on formal structure as a constraining factor for phonetic variation (e.g., Natvig & Salmons 2021). Research along these lines would also have the potential to contribute to a better understanding of the roles that phonetics and phonology play together in established changes, changes in progress and incipient change, as well as the different contributions that phonology and phonetics make synchronically, that is, the extent to which attested assimilation processes may have different subrules owing to a phonological rule on the one hand and phonetic coarticulation on the other.

Returning to the theme of language-specific representations, Hall makes use of these insights to explain certain types of opacity in velar fronting, specifically what he refers to as underapplication opacity. Here, a phonetically front vowel does not trigger velar fronting and is accordingly phonologically neutral. This phenomenon is examined in two Swiss German varieties (chapter 6), where Hall convincingly demonstrates that the relevant vowels lack contrastive [coronal] features, in spite of the fact that they occur as front phones in speech. This is a strong argument for a phonological computational component of the grammar, and a derivational account of rule-based phonological phenomena that exists in addition to, or alongside of, the surface-level properties of speech sounds. The stepwise nature of contrastive feature assignment owing to the SDA is relevant from both synchronic and diachronic perspectives, where the former deals in other phonological processes that either feed or bleed velar fronting. The other concerns sound changes that obscure or complicate the process, at least from a surface-true perspective. This results in over- and underapplication of velar fronting – respectively, (1) where palatals occur with back (or non-front) sonorants and (2) where velars occur with front sonorants, both within the relevant velar fronting domain. Hall undertakes a detailed discussion of the range of phonologically opaque patterns in chapters 5–9.

As discussed above, Hall expresses the typology of (German) velar fronting using 22 distinct and explicit versions of a phonological rule. The necessity for these rule subtypes is partially borne out from adopting a fairly direct relationship between surface forms and phonological representations, unless there is evidence to the contrary (e.g., neutral vowels, discussed above). In other words, it often appears that a phoneme's surface form, for example, front vowel or coronal(ly articulated) sonorant, attests to its phonological features rather than the reverse, where a phoneme's potential output is constrained by its representational structure. The implications of the latter view are that velar fronting as a phonological process is itself the evidence for [coronal] and [dorsal] representations, a position articulated as the 'contrastivist hypothesis' (D. C. Hall 2007) and adopted as the guiding principle for language-specific contrast-based, underspecified phonological representations (Dresher 2009). This tension – which McCarthy (1988: 84) famously articulated as, 'if the representations are right, then the

rules will follow' – is at the heart of much phonological theorising, and one that this book both lends support for and provides ample opportunities for discussion and debate on.

A logical question that follows concerns whether the number of variations for velar fronting can be attributed to generalisations over phonological specification, rather than different featural scopes of triggers and targets. Put differently, is there a representational account that explains differences in both targets and triggers? If so, can the implicational hierarchies be as straightforwardly modelled and constrained using representational, rather than rule-oriented statements? One way to approach this is to consider whether rules account for spreading *vs.* non-spreading of phonological features, or whether autosegments deserve special status, or as Ladd (2018: 114) remarks, 'by equating autosegments with feature, we have forgone important insights about the potential diversity of phonological objects and the ways they can be arranged.' From this line of reasoning, contrast and phonological activity are properties that work together to provide evidence for which features are relevant, which phonemes need to be grouped together in a natural class, and how these representations need to be ordered in (underspecified) time (Idsardi 2022 and references therein).

An interesting case in point that Hall examines in §17.3.2 is the Standard German diminutive -*chen* [çən], for which Hall posits an underlying palatal phoneme /ç/ rather than velar fronting (see also Robinson 2001 for discussion). The suffix originated from -*ichen* /ixən/, and as present-day /çən/ often induces umlaut, although other [coronal] obstruents do not (e.g., *Katze* 'cat', *Kätzchen* 'kitten'). This suggests that the ([coronal]) feature that is responsible for umlauting *a* to *ä* (on which see, e.g., Trommer 2021) may also be responsible for fronting /x/ to [ç]. Regardless of whether or not this turns out to be a viable explanation, the potential connection between velar fronting and umlaut is worth investigating. Hall's work provides an excellent point of departure.

The illustration of a representational account rather than a rule-centred one is not intended to rebuke Hall's analysis or indicate that the theoretical approaches or assumptions adopted in the book are lacking. Rather, I would like to underscore the value of this work in (re)centering fundamental concerns in theoretical phonology. Engaging in these and similar discussions is necessary for the field, and different approaches to the relationship between rules and representations should make different predictions and be tested from a range of different perspectives, including historical phonology/sound change, typological investigations, dialectology and language variation and change. Hall draws on these disciplines and synthesises their empirical and theoretical contributions into a cohesive and comprehensive analysis, which is a major accomplishment.

3. Conclusion

In addition to scholars concerned with formal phonology, *Velar fronting in German dialects* is valuable for dialectologists, historical linguists – particularly historical phonologists – and Germanicists. Due to the expansive coverage and engagement with a broad range of interconnected topics, some chapters may be more relevant than others, depending on one's specific interest. But because it approaches a core phonological issue from a variety of perspectives, the investigation both advances phonological inquiry and deepens our understanding of how formal concerns relate to geographical and diachronic issues, providing a path for application to sociolinguistic questions. It therefore serves as a model for future work even – or maybe especially – if the size and scope of the extant empirical material is less robust than that of the German-speaking regions.

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