

Syllabification and Devoicing in Dialectal German

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1 Introduction

The phenomenon of word-final devoicing in German is well known. Many non-native speakers of German know to say [tak] instead of [tag], for example. More properly referred to as “final sound fortition” (German *Auslautverhärtung*), it is a process that affects (some) syllable-final sounds as well. Specifically, *Auslautverhärtung* targets word- and syllable-final obstruents; this makes understanding the process of syllabification in German crucial to understanding the devoicing process. In this paper, I give an account of German syllabification and examine its consequences for the devoicing rule.

2 Subject

The data in this project come from a native speaker from a town called Wertheim, near Würzburg. Although she claims to speak the Bavarian dialect, Würzburg and Wertheim are located in the administrative region of Lower Franconia. She is in her mid-twenties and is a doctoral student in the Germanic Studies department at the Bloomington campus of Indiana University.

3 Methods

The subject was asked to read a list of words I composed. She read the words into a tape recorder. The tape recording was downloaded onto a personal computer and re-encoded as a 192kbs Ogg Vorbis file.¹ I transcribed the data from that Ogg file.

4 Results

The data from the subject are presented in Table 1, along with what I have assumed to be the underlying representations (using my intuition as a near-native speaker of German). In my transcription I have left vowel length unmarked as it is usually not contrastive. One can assume (with a few exceptions—in the language, but not in these data) that [+ATR] vowels (i, e, u, etc.) are long and that [-ATR] vowels (ɪ, ɛ, ʊ, etc.) are short. I assume the existence of a morpheme boundary between a noun and its case ending (e.g., /feld+es/), but combining forms (such as /bundes/) are assumed to be monomorphemic. To simplify this problem, I have assumed that German has a phoneme /ŋ/, although it is probably actually derived from an underlying /ng/.² Also interesting to note (but I think irrelevant to this problem) are the alternations with respect to /(\ə)r/. It can be realized as a uvular fricative (when followed by a consonant, apparently) or as an open mid vowel (ɐ) which Hall describes as “a lax, central vowel with a tongue position somewhat below half-open and neutral lip position, very similar to [South British Standard] /ʌ/.³”

¹See <http://www.vorbis.com/>.

²See, for example, Kenstowicz p. 307.

³Hall p. 100.

UR	PR	Gloss
/ab+ɛndər+n/	[ap.ɛn.dɛn]	‘change (infinitive)’
/adlər/	[ad.lɐ]	‘eagle’
/algebra/	[al.ge.bɛra]	‘algebra’
/bʊndəs+tag/	[bʊn.dɛs.tak]	‘Bundestag’ (German Upper House)
/fɛld+ɛs/	[fɛl.dɛs]	‘field (genitive)’
/kɪnd+ɪʃ/	[kɪn.dɪʃ]	‘childish’
/ɔrdn+ʊŋ/	[ɔrd.nʊŋ]	‘order’
/tag+ajn tag+aws/	[tak.ajn tak.aws]	‘day in, day out’
/ver+bɪnd+ɛn/	[vɛr.bɪn.dɛn]	‘connect (infinitive)’
/vagnər/	[vag.nɐ]	‘Wagner’
/tsebra/	[tse.bɛra]	‘zebra’

Table 1: Assumed underlying representations and phonetic realizations

5 Analysis

5.1 Syllabification

Possible onsets in German consist mostly of single consonants or pairs of consonants with rising sonority in accordance with the Sonority Sequencing Principle. There is a ban on coronal-coronal and labial-labial pairs, although the affricates /tʃ/ and /pf/ and many combinations involving /r/ are allowed. In general, there must be a minimal sonority distance of 2 (assuming stops are 0, nasals are 1, liquids are 2 and glides are 3), but there are exceptions to this, especially in placenames (e.g., *Schwäbisch Gmund* [ʃvɛ:.bɪʃ gmunt]). Additionally [ʃ] can be adjoined to the beginning of a syllable much like [s] in English. Anything that remains unattached to a syllable after onsets have been maximized and ʃ’s have been adjoined is assumed to become part of a syllable rhyme.

A naive approach to German syllabification would be to uniformly apply the maximal onset principle without regard to any word-internal structure. This approach would yield the correct results in a few cases (fɛldɛs → fɛl.dɛs, tsebra → tse.bɛra), but not in others (abɛndərɪn → *a.bɛn.dɛn). We can account for the syllabification in the word meaning ‘change’ and the phrase meaning ‘day in, day out’ if we postulate that morpheme boundaries

block a syllable-peak’s abilities to “grab” an onset consonant, but that would result in the incorrect form *fel(d/t).es . It seems then, that some morpheme boundaries form a barrier to onset-maximizing while others do not, suggesting that we might find a solution in lexical morphology.

5.2 Two kinds of affixes

The affixes that trigger resyllabification of the root include grammatical morphemes, such as /-ɛn/ (the infinitive), case endings (such as /-ɛs/ for masculine and neuter genitive), and /-ʊŋ/ (gerund), as well as (somewhat) content-bearing morphemes like /ɪʃ/ ‘-ish’: all bound morphemes. After the affixation of these morphemes (henceforth “level 1 morphemes”), the root may be resyllabified as seen in Table 2.

UR	/fɛld/	/ɔrdn/
syllabification	[fɛld] _σ	[ɔr] _σ [dn] _σ
affixation	[fɛld] _σ +ɛs	[ɔr] _σ [dn]+ʊŋ
resyllabification ₁	[fɛl] _σ [d+ɛs] _σ	[ɔrd] _σ [n+ʊŋ] _σ
devoicing	—	—
(r-vocalization)	—	[ɔ̞ɹd] _σ [n+ʊŋ] _σ
PR	[fɛl.dɛs]	[ɔ̞ɹd.nʊŋ]

Table 2: Level 1 morphemes

The affixes to which the root is inaccessible are free morphemes like /-ajn/ ‘in’, /-aws/ ‘out’, /ab-/ ‘from, off, away.’ After the affixation of the level 1 morphemes, the syllabification of the root becomes frozen. I propose that the members of this second group of morphemes are affixed during a second level of lexical phonology. The resyllabification rule in this second level (resyllabification₂) is different from that in level 1 (resyllabification₁). Resyllabification₂ does not allow the incorporation of a morpheme boundary into a syllable onset. Examples are shown in Table 3.

UR	/tag/	/ɛndər/
syllabification	[tag] _σ	[ɛn] _σ [dər] _σ
affixation	—	[ɛn] _σ [dər] _{σ+n}
resyllabification ₁	—	[ɛn] _σ [dər+n] _σ
affixation	[tag] _σ +ajn	ab+[ɛn] _σ [dər+n] _σ
resyllabification ₂	[tag] _σ +[ajn] _σ	[ab] _σ + [ɛn] _σ [dər+n] _σ
devoicing	[tak] _σ + [ajn] _σ	[ap] _σ + [ɛn] _σ [dər+n] _σ
(r-vocalization)	—	[ap] _σ + [ɛn] _σ [dɐ+n] _σ
PR	[tak.ajn]	[ap.ɛn.dɛn]

Table 3: Level 2 morphemes

5.3 The devoicing rule

I have placed devoicing at the end of the second level of lexical phonology. All syllables have reached their final composition by the time devoicing applies (forms in which a non-coda obstruent are devoiced and which cannot be explained by other phonological processes do not occur), but the rule seems to be sensitive to word-internal structure. Devoicing applies syllable-final obstruents (and, more generally, all obstruents in the coda) when the syllable boundary coincides with the morpheme boundary. A formal representation of this is given in Figure 1. In this form, the devoicing rule correctly predicts all of the data in Table 1 (assuming that word-final is also morpheme-final).

$$\begin{array}{ccc}
 \text{C} & \rightarrow & \text{C} \\
 [-\text{son}] & & [-\text{voi}]
 \end{array}
 / \text{ -- } \text{C}_0]_{\sigma} +$$

Figure 1: The devoicing rule

6 Discussion

6.1 Consequences of syllabification

This account of German syllabification has some interesting consequences for the process of *Auslautverhärtung* and other German phenomena. Monomorphemic words, for example, will

never have word-internal devoicing as seen in words like /adler/ and /tsebra/. Prefixes like /ab-/ will never be realized with the final consonant voiced. Perhaps the voiced consonant is already a Ghost of German Past. An additional consequence of this account of syllabification is that all bound morphemes must be affixed before any free morphemes are added to a stem. This is supported by the formation of the past participle of verbs with prefixes. The morpheme marking past participles (/gə-/) only appears in verbs where the prefix is separable from the stem, most likely because adding the bound (level 1) participle prefix to a form that already has a level 2 prefix would violate the general principle of lexical phonology that the derivation cannot return to a lower level.

6.2 Comparison with other accounts

Hall writes that “lenis (voiced) obstruents cannot occur (a) in word-final position, or (b) in syllable-final position before a morpheme boundary. . . . In these positions the lenis obstruents are replaced by their fortis counterparts, a process which is known in German as *Auslautverhärtung*.⁴” His formulation of the rule agrees with mine, but his book contains no account of German syllable formation. Gussenhoven and Jacobs have a similar definition of the rule (also with no discussion of German syllable formation) with the added stipulation that it applies only to “High German” and that in “Low German . . . this process applies to [all] syllable-final obstruents. . . .⁵” Their use of the terms “Low” and “High” German is unfortunate because the terms—unless used in a very strict sense⁶—are meaningless.

6.3 Questions in dialect geography and sociolinguistic variation

As mentioned in section 2, my informant identified herself as a Bavarian speaker, but this is a suspicious report because of her home and birthplace in Lower Franconia (*Niederfranken*).

⁴Hall p. 28.

⁵Gussenhoven **and** Jacobs p. 122.

⁶with Low German referring to the Saxon dialect and High German referring to the national standard Modern High German—see explanation in Nielsen chapter 4.

The Second (or High) German Sound Shift—the normal division made between “High” and “Low” German dialects—split the older Franconian dialect in half, as some parts of Franconia participated in the shift while others did not.⁷ Looking at the data and the devoicing rule derived from it, my informant follows the pattern attributed to “High” German dialects. Two possible explanations for this come to mind: (1) my informant really is a Bavarian speaker; regional dialects are gaining in popularity with comparison to more local dialects, or (2) my informant speaks her local dialect, but the political boundaries of Lower Franconia do not coincide with the Lower Franconian dialect area.

References

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⁷Nielsen.