

特集論文

Where American English Meets German:
Devoicing in Pennsylvania Dutchified English

Vicki ANDERSON* and Stuart DAVIS**

アメリカ英語とドイツ語の接点：ペンシルバニア地域のオランダ英語における無声化

ウィッキー・アンダーソン*, スチュアート・デイヴィス**

要旨：いわゆる「ペンシルバニア地域のオランダ英語」(Pennsylvania Dutchified English; PDE)は、ペンシルバニア郊外の中南部地域に長く根付いた英語の一方言であり、200年以上前にここに入植したドイツ移民の子孫により用いられるものである。ペンシルバニア地域のドイツ語に関してはこれまでも研究経緯があるが、PDEの研究はほとんどないのが現状である。伝統的なPDEには末尾子音無声化を持つドイツ語に似た阻害音無声化が確かに見受けられるが、このパターンをよくよく検討してみると、ドイツ語とは異なることがわかる。つまり、この阻害音無声化にはドイツ語からの影響が見受けられるものの、実際のパターンはアメリカ英語の音韻をいろいろと反映しているのである。そこでこの論文では、PDEにおける無声化の実態を示すデータを提供し、最適性理論に基づく分析を組み立て、その理論的意味合いをいくつか論じていきたい。

Key words: Pennsylvania Dutchified English, devoicing, foot structure, laryngeal features, Optimality Theory

1. Introduction

This article examines the devoicing patterns in Pennsylvania Dutchified English (PDE), a dialect of English spoken in rural southeastern and south central Pennsylvania. Some speakers of PDE are bilingual in PDE and Pennsylvania German. While Pennsylvania German has been the subject of various linguistics studies, there are no studies on the linguistic characteristics of PDE other than that of the thesis works of Anderson (1995, 2011) and unpublished presentations (Anderson 2001, 2002, Davis and Anderson 2004). Anderson (2011) documents two devoicing patterns in PDE: what we might call a traditional devoicing pattern that is also reflected in the humorous dictionary of Gates (1987) and a more recent innovative devoicing pattern that is characteristic of younger speakers. In this paper we will focus only on the traditional devoicing pattern and we refer the reader to Anderson (2011) for characteristics of the innovative devoicing pattern. In Section 2 of this paper we will present the basic data illustrating the traditional PDE devoicing pattern. Like German, PDE has devoicing in coda position, but we

will show that the devoicing is more extensive than just coda position. In Section 3 we will sketch an optimality-theoretic analysis of the devoicing pattern that will reference foot structure. In Section 4, we will discuss certain complications of the devoicing pattern with respect to some specific phonemes and word-internal onset clusters. Finally, in Section 5 we will conclude by discussing the implications of the data for how laryngeal features may be licensed. The communities where PDE is spoken are typically isolated and poor with very few college-educated members. For various sociolinguistics reasons, it is not possible for someone outside of these communities to do fieldwork on PDE. The first author is from one of the communities and grew up speaking PDE as her first language. Before presenting the devoicing data in Section 2, we give a brief historical background on PDE.

The ancestors of the modern-day Pennsylvania Dutch came to Pennsylvania in the late 1600's and throughout the 1700's at the request of the colony's founder, William Penn. From their home provinces in what is today Germany and Switzerland they brought with them not only their dream of religious freedom,

* Assistant Professor, Department of Education, Concordia University at Nebraska (コンコーディア大学ネブラスカ校教育学科専任講師)

** Professor, Department of Linguistics, Indiana University (インディアナ大学言語学科教授)

but also the various dialects of German which they spoke. Most of these immigrants settled in the southeastern and south central part of the state, and the different dialect groups eventually mingled and intermarried. The linguistic result of this is that a certain amount of dialect leveling took place, and the German variety that eventually emerged from this situation came to be known as Pennsylvania German (or, in more colloquial speech, “Pennsylvania Dutch,” the Anglicized version of the name “Pfenntyslanisch Deutsch”). Even though they lived side by side with British and Scots-Irish English-speaking neighbors (and even though many of them learned English themselves), the descendents of these settlers continued to speak Pennsylvania German up until the 1930’s and 1940’s, when changes in school language policies resulted in a widespread shift to English monolingualism from German-English bilingualism in most non-sectarian communities.

Features that must have been present in the interlanguage of those first Pennsylvania German learners of English continue to live on in the English that is spoken in the area even today, resulting in a dialect called “Pennsylvania Dutchified English” (PDE) which is in many ways neither phonologically exactly like English nor German. As we will show in Section 2, one hallmark of this English dialect is widespread obstruent devoicing. Like German, PDE devoices obstruents in syllable codas; however, PDE devoices obstruents even more widely, any time an obstruent is not in the onset of either a word-initial syllable or a stressed syllable within a word. The data for the analysis presented in this paper were gathered from taped interviews, native speaker intuitions, and spectrographic analysis by the first author and is based on the PDE dialect spoken in northern Lebanon County, Pennsylvania.

2. Devoicing in PDE

Obstruent devoicing is characteristic of German, not English. The presence of obstruent devoicing in PDE is no doubt an influence of the German language, which is still spoken by some traditional PDE speakers. Yet when we examine the pattern of obstruent devoicing in PDE it displays a certain characteristic that is more consistent with American English than German. To see this, consider the PDE data in (1) and (2) that show the two main environments where obstruents are devoiced. (Note: the pronunciation of the consonants in bold are indicated by the transcription symbol.)

- (1) Obstruent devoicing in coda position
- a. Word-final
 tug [k] bed [t] leave [f]
- b. Word-internal (. indicates a syllable boundary)
 Ag.nes [k] ad.mission [t] ob.tuse [p]
- c. Coda clusters
 dogs [ks] beds [ts] leaves [fs]
- (2) At the beginning of a (non-initial) stressless syllable following a stressed one
- há.bit [p] dí.zzy [s] bá.gle [k]
 fá.bric [p] Séa.grams [k]

In (1), we observe that obstruents are devoiced in coda position, whether it be in a word-final coda, word-internal coda or in a coda cluster. This no doubt is a German influence. The data in (2), however, show that devoicing can occur in an onset of a stressless syllable (word-internally). This is not an environment where devoicing is observed in German. While one may hypothesize that the target voiced obstruents in (2) are underlyingly voiceless, stressed-based alternations such as *hábit* with devoiced [p] versus *habítual* pronounced with voiced [b] show that a voiced/voiceless alternation can occur in the intervocalic position. Further, it should be noted that since PDE is a dialect of American English, an intervocalic coronal stop after a stressed vowel (and before a stressless one) will undergo flapping rather than devoicing as seen in (3).

- (3) Flapping takes precedence over devoicing in PDE:
- a. bédding [r] b. ríding [r]

In order to understand the devoicing environments in (1) and (2) more clearly, it is worth considering the different environments in PDE where voiced obstruents do surface as such. The specific environments are provided in (4)–(6).

- (4) At the beginning of a syllable with primary stress
- bles**s** [b] ha.**bít**ual [b]
 du**ck** [d] a.**dd**iction [d]
 zoo [z] di.**sé**ase [z]
 go [g] la.**gó**on [g]
- (note: orthographic ‘s’ is underlyingly /z/)
- (5) At the beginning of a syllable with secondary stress
- cá.**ri**.**bò**u [b] Pén.ta.**gòn** [g]
 hó.li.**ðà**y [d] má.ga.**zine** [z]

- (6) At the beginning of a word-initial stressless syllable

be.lów [b] go.rí.lla [g] di.séase [d]

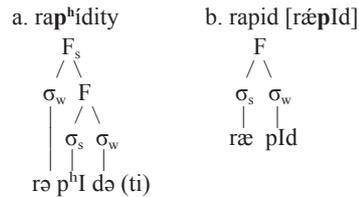
In (4) and (5) we see that voiced obstruents surface faithfully as voiced at the beginning of a stressed syllable whether that syllable has primary stress (4) or secondary (5). Moreover, in word-initial position an underlying voiced obstruent surfaces as such even if that initial syllable is stressless (6). The metrical nature of the devoicing pattern is made clear by the comparison of (2) with the relevant data in (4) (in the right hand column) and (5). In all the pertinent cases, the target voiced obstruent occurs between two vowels, yet the voiced obstruent is devoiced in (2) but voiced in (4) and (5). The comparison of *hábit* [p] with *habítual* [b] mentioned above and *dízzy* [s] with *diséase* [z] makes clear that the realization of voiced obstruents in PDE is sensitive to the metrical environment and is not just a simple case of coda devoicing. In the following section we will offer an analysis of the PDE obstruent voicing/devoicing pattern that references foot structure and frame it within Optimality Theory.

3. Analysis

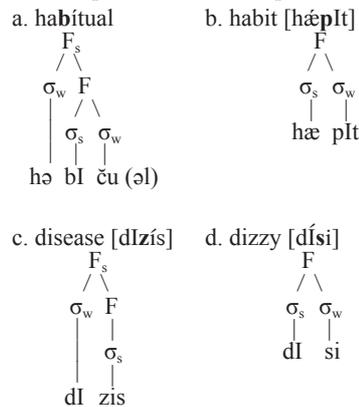
In analyzing the voicing/devoicing of PDE as presented in Section 2, it was shown that voiced obstruents are allowed to surface at the beginning of a stressed syllable and at the beginning of a word but not in other positions. What is striking about the environments where voiced obstruents can surface is that they are identical to the environments where voiceless stops are aspirated. PDE is a dialect of American English and thus has the American English aspiration pattern, which is foot-initial as argued for specifically by Davis & Cho (2003) and Davis (2010). Thus, the key observation is that voiced obstruents in PDE only surface in the environments where aspiration appears on voiceless stops. That is, voiced obstruents only appear in foot-initial position. To see the comparison more closely, consider the alternation between unaspirated [p] and aspirated [p^h] in the pair *rápíd* [p] versus *rapídity* [p^h]; here the aspirated variant in *rapídity* occurs at the beginning of the stressed syllable (i.e. beginning of a foot) while the unaspirated variant in *rápíd* is foot-internal. That is, the marked laryngeal feature [+spread glottis] occurs in foot-initial position. This is exactly identical to the voicing alternation of *hábit* [p] versus *habítual* [b] where the marked laryngeal feature [+voice] occurs in foot-initial position. We

maintain that PDE speakers have generalized the pattern of the foot-initial occurrence of [+spread glottis] to the other marked laryngeal feature ([+voice]) so that in PDE marked laryngeal features can only occur in foot-initial position whether that marked feature is [+spread glottis] or [+voice]. In (7) we show the foot structure for the pair *rapídity/rápíd* and in (8) we show the foot structure for the pairs *habítual/hábit* and *diséase/dízzy*. Independent arguments for the foot structure assumed in (7) and (8) can be found in Davis & Cho (2003) and Davis (2010) and will not be repeated here. However, an important aspect of the English foot structure analysis in these works is that a word-initial stressless syllable is adjoined to a superfoot and so would be considered foot-initial. This is illustrated in (7a), (8a), and (8c).

- (7) Foot structure of *rapídity/rápíd* (transcription reflects standard American English)



- (8) Foot structure of *habítual/hábit* and *diséase/dízzy* (transcription reflects PDE pronunciation)



The foot structure assignment in (8) makes clear that voiced obstruents only surface when foot-initial. In (8b) the underlying /b/ of *hábit* is foot-internal and so surfaces as [p]. Also revealing is the foot structure for the word *diséase* in (8c) which underlyingly has three voiced obstruents. The word-initial obstruent /d/ surfaces as [d] since it is at the beginning of a superfoot. The second obstruent /z/ also surfaces faithfully since

it is at the beginning of the foot that coincides with the stressed syllable. The word-final obstruent /z/ surfaces as devoiced [s] since it is in foot-final position. Given that PDE has the same aspiration pattern that is found in standard American English, we thus conclude that in PDE both marked laryngeal features [+voiced] and [+spread glottis] can only occur in foot-initial position.

Davis and Cho (2003) develop an optimality-theoretic analysis of English aspiration that crucially references a constraint that aligns the beginning of a foot with the feature [spread glottis]. The conception of the analysis is that feet in American English are demarcated with the feature [spread glottis] as long as there is no overriding feature co-occurrence constraint (e.g. *[+voice, +spread glottis]) to prevent the realization of [+spread glottis]. We analyze PDE with an additional high-ranked alignment constraint that requires that the beginning of the foot to be aligned with the feature [+voice]. Crucial in our analysis is that both features [+spread glottis] and [+voice] are present in underlying representations in PDE since both features are active. While we have indicated these features using +, in PDE it is probably best to consider the two laryngeal features as being monovalent. Obstruents in PDE are either underlying [spread glottis] or [voice]. If the former, then the obstruent will surface as aspirated in foot-initial position; if the latter, the obstruent will surface as [voice] in foot-initial position. In metrically weak positions (i.e. in foot-internal or foot-final position) obstruents are devoiced and deaspirated; that is, they lose their marked laryngeal features. For our optimality-theoretic analysis of PDE voicing/devoicing, we reference the constraints in (9).

(9) Constraints:

- a. AlignL(Ft, [voice])
— Align the left edge of the foot with the feature [voice]
- b. *[voice] — The feature [voice] is prohibited
- c. MAX-voice
— An input feature [voice] must have a correspondent in the output

The constraint in (9a) aligns the beginning of the foot with the feature [voice]. The constraint in (9b) militates against the feature [voice] to keep it from surfacing. While we state *[voice] as a general constraint, its effect is that it will only be applicable to obstruents given a high-ranked constraint that requires sonorant

sounds to surface as [+voice]. To keep our presentation simple, we will only evaluate the *[voice] constraint with respect to obstruents, not sonorants. The faithfulness constraint in (9c) requires an input [voice] feature to be realized in the output. We assume a high-ranked DEP-voice constraint so that the feature [voice] cannot be arbitrarily inserted. The three constraints in (9) have the critical ranking shown in (10).

(10) Ranking: AlignL(Ft, [voice]) >> *[voice]
>> MAX-voice

The ranking *[voice] over MAX-voice is necessary in an analysis of a word like *habit* so that the underlying /b/ will not surface as *[voice] even though it is underlyingly [voice]. On the other hand, the ranking of AlignL(Ft, [voice]) over *[voice] is needed so that an underlying [voice] obstruent can surface as such in foot-initial position, as in the word *habitual*. The evaluation tableaux for these two words are given in (11) and (12), respectively, where we focus only on the voicing alternation (and not the feature [spread glottis]). (We do not show the last syllable of *habitual*, which is extrametrical.)

(11) “habit” /hæbIt/ — [hæpIt] (parentheses indicate foot structure)

/hæbIt/	AlignL (Ft, [voice])	*[voice]	MAX- voice
a. (hæ.bIt)	*	*!	
☞ b. (hæ.pIt)	*		*

(12) “habitual” /hæ.bÍ.čũ.əl/ — [hæ.bÍ.čũ.əl] (brackets demarcate a superfoot)

/hæbÍčũəl/	AlignL (Ft, [voice])	*[voice]	MAX- voice
☞ a. {hæ(bÍčũ)}	*	*	
b. {hæ(pÍčũ)}	**!		*

Both proposed candidates for *habit* in (11) violate the alignment constraint because the /h/ is not underlyingly specified for [voice] (and the highly ranked DEP-voice keeps it from surfacing with a feature not specified in the underlying representation); *[voice], however, creates a fatal violation for candidate (11a) because of the word’s faithful mapping of the /b/ to the surface representation. For *habitual* in (12), the alignment constraint is the deciding factor in the choice of

(12a) as the optimal candidate; even though (12a) violates *[voice], it does not have an extra violation of the more highly ranked alignment constraint, as (12b) does since the foot with primary stress does not begin with a voiced consonant. In this manner, then, this simple ranking of a few constraints is thus able to account for almost all of the obstruent devoicing that occurs in the phonology of PDE.

In (13) and (14) we provide the evaluation tableaux of the words *dizzy* and *disease* in which all the obstruents underlyingly have the feature [voice]. The ranking in (10) accounts for the correct output forms.

(13) “dizzy” /dIzi/ — [dÍsi]

/dÍzi/	AlignL (Ft, [voice])	*[voice]	MAX- voice
a. (dÍ.zi)		**!	
b. (dÍ.si)		*	*

(14) “disease” /dIzíz/ — [dÍzís]

/dÍzíz/	AlignL (Ft, [voice])	*[voice]	MAX- voice
a. {dÍ(zís)}		**	*
b. {dÍ(sís)}	*!	*	**
c. {dÍ(zíz)}		***!	

The losing candidates in (13a) and (14c) make clear that voiced obstruents can only occur in foot-initial position. In standard American English (13a) and (14c) would be the winning candidates with the underlying voiced obstruents surfacing faithfully; the alignment constraint on the feature [voice] in such dialects would either be low-ranked or not existing given a view that the specifics of alignment constraints may be language- (or dialect-) specific.

To sum up this section, we have offered a foot-alignment account of the distribution of [voice] in PDE observing that the feature [voice] on obstruents only occurs in foot-initial position. We have observed that the distribution of [voice] in PDE parallels that of [spread glottis]. (That is, aspirated stops and /h/ in American English occur only in foot-initial position as shown by Davis and Cho (2003) and Davis (2009).) While we do not give the details of the analysis of [spread glottis] distribution here, we note that we can account for its distribution with constraints like those in (9) and the ranking in (10), but where the laryngeal

feature of the constraints is [spread glottis] rather than [voice]. This, in fact, is the analysis of Davis (2009) for the distribution of aspirated stops and /h/ in American English. Essentially, PDE has taken German coda devoicing and has given it an American twist by making the surfacing of [voice] on obstruents sensitive to foot structure in a way that exactly parallels the surfacing of [spread glottis]. The three constraints in (10) then are sufficient to capture almost all of the PDE voicing/devoicing pattern. In the following section, we will briefly consider some minor aspects of PDE devoicing that do not quite fit the metrical pattern presented so far.

4. Other instances of devoicing

For completeness of the data presentation, we want to briefly touch on some other cases of devoicing in PDE that are not accounted for by the general pattern discussed in Section 2. These involve the pronunciation of the palato-alveolar affricate in PDE, the labiodental fricative, and a matter concerning word-internal onset clusters. With respect to the palato-alveolar affricate, PDE only has the voiceless variant /tʃ/. There is no voiced variant. Consequently, English words like *jump* and *adjust* where there is a voiced obstruent in foot-initial position in standard American English are nonetheless pronounced as [tʃʌmp] and [ə.tʃʌst], respectively, in PDE. While this seems to be an exceptional environment for devoicing, we analyze PDE as not having a voiced palato-alveolar affricate in its phoneme inventory. In this way it resembles German, which also lacks such a phoneme.

With respect to the phoneme /v/, as detailed in Anderson (2011), PDE lacks the pronunciation of the voiced interdental fricative. Rather, as shown in (15), where standard American English has /v/, PDE has [w]. However, as shown by the comparison of (15a–c) with (15d–e), [w] only surfaces in foot-initial position; when not in foot-initial position, it is realized as voiceless [f].

(15) Pronunciation of standard American English /v/ in PDE

- a. victory [wÍk.tri]
- b. Vicki [wÍ.ki]
- c. advíce [æ.t.wáís]
- d. héavy [hé.fí]
- e. léaves [lífs]

It is interesting that even though standard American

English /v/ is pronounced as [w] in foot-initial position, it behaves as an obstruent since it undergoes devoicing when not in foot-initial position as seen in (15d–e). (Sonorants do not normally devoice in PDE.) Further, it is of note that in PDE the labiovelar glide /w/ as in words like *away* and *why* is often pronounced as the bilabial fricative [β] so that it is kept distinct from standard American English /v/. See Anderson (2011) for discussion.

Given the presentation and analysis of the PDE obstruent devoicing data presented so far, there is one environment in which obstruent devoicing is unexpected. This is shown by the data in (16) and should be compared with (17).

(16) Unexpected devoicing in word-internal onset clusters

- a. Sa.bri.na [p^h]
- b. o.blíge [p^h]
- c. re.grét [k^h]
- d. i.guá.na [k^h] [I.k^hwá.na]

(17) Word-initial onset clusters

- a. Brianna [b]
- b. blender [b]
- c. guano [g] [gwano]

The data in (16) show that in a word-internal onset cluster that begins with a voiced non-coronal obstruent (i.e. /b/ or /g/), the obstruent devoices even when it is at the beginning of the stressed syllable, that is, even when it is foot-initial. Not only does it devoice, but because it is foot-initial it becomes aspirated. However, this only happens with the noncoronal voiced obstruents. There is no devoicing of /d/ in the PDE pronunciation of words like *adréss* and *Madriá* where /d/ is pronounced as voiced. The data in (17) make clear that the exceptional devoicing in clusters does not occur at the beginning of a word, but only word-internally. There are two matters that need to be explained: first, why devoicing occurs in (16) and second, why /d/ does not participate in the exceptional devoicing. Here we will only offer suggestions rather than present a detailed analysis. With respect to the exceptional devoicing witnessed word-internally in (16), we suggest two possibilities. One possibility is that in a historically earlier form of PDE word-internal onset clusters were not syllabified in accordance with the maximal onset principle. That is, a word like *Sabrina* or *regret* was syllabified with the voiced obstruent in the coda of the first syllable and thus

underwent devoicing. A later generation of PDE speakers then maximized the word-internal cluster in accordance with American English syllabification that maximizes onsets. Since the now voiceless consonant became foot-initial after resyllabification into the onset, it came to be pronounced as aspirated. An alternative account is to view this as a case of maximizing the sonority distance of onset clusters in foot-initial position. The devoicing of the /b/ in “Sabrina” to [p^h] is a way of maximizing the sonority distance in the onset cluster given that voiceless obstruents have less sonority than their voiced counterparts. Green (2003) documents a number of cases such as Munster Irish and Icelandic where permissible onsets word-internally require greater sonority distance than the permissible onset clusters word-initially. The failure to maximize sonority distance word-initially can be viewed as a type of positional faithfulness (i.e. faithfulness to word-initial position) along the lines of Beckman (1997). With respect to why the phoneme /d/ does not devoice in environments like (16) where /b/ and /g/ do undergo devoicing, we suggest that given the high frequency of occurrence of the voiced alveolar stop (recall that PDE witnesses flapping of /d/ rather than devoicing in foot internal position) it only undergoes devoicing when in coda position. In this way, /d/ is different from the other voiced obstruents. We leave formal analysis of the issues discussed in this section to future research.

5. Implications

To conclude the paper we briefly touch upon two theoretical implications of the PDE devoicing pattern with respect to the licensing of laryngeal features. A first implication is that PDE, unlike standard American English, licenses both [spread glottis] and [voice]. Iverson & Salmons maintain that it is only [spread glottis] that is specified underlyingly on English obstruents. This is supported by the pattern of aspiration on voiceless obstruents in American English. PDE is an unusual dialect in that, as shown, voicing on obstruents occurs in the same environments where voiceless stops are aspirated, namely in foot-initial position. This suggests that PDE is a variety of English where both [spread glottis] and [voice] are underlying present in the phonology and that such marked laryngeal features only are realized in foot-initial position.

A second implication concerns the licensing by cue approach to phonotactics as set forth by Steriade (1999) and Blevins (2003). In their view, phonotactic constraints are string-based and do not refer to prosody.

For example, the common phenomenon of intervocalic stop voicing is related to the cue-rich environment that the intervocalic position provides that is favorable to the maintenance of voicing: prosodic constructs such as syllables or feet have no role. The analysis of PDE devoicing as exemplified in (10)–(14) is expressed in terms of a prosodic alignment approach to laryngeal features (e.g. AlignL(Ft, voice)) and not in terms of a licensing by cue approach. The argument in favor of the prosodic approach comes from intervocalic devoicing in words like *dizzy* [s] and *hábit* [p] (compare with *habitual* [b]). On the prosodically-based analysis presented here, devoicing of the intervocalic obstruent occurs because the obstruent is not in foot-initial position as exemplified by the tableau in (11). The obstruent surfaces as neither voiced nor aspirated, truly without any marked laryngeal features. Devoicing in such an environment is highly problematic for the licensing by cue approach. In the licensing by cue approach (Steriade 1999), the cue-rich intervocalic position is the most favorable environment to maintain the voicing contrast. Moreover, as Kingston and Diehl (1994:428) note, “...intervocalically, it is turning voicing off that’s more difficult...” Thus under the licensing by cue approach the pattern of PDE devoicing is unexpected. We would contend instead that the PDE devoicing pattern can be understood simply as the generalization of the prosodic alignment constraint with respect to the laryngeal feature [spread glottis], i.e. AlignL(Ft, [spread glottis], to the other laryngeal feature [voice]. This is supported by the similarity in alternation environments of aspiration in such pairs as *rápíd-rápí*idity with the voicing alternation in *hábit-habitual* and, henceforth, strongly argues for the prosodic approach to American English laryngeal features and to the importance of foot-based phonology in American English as maintained in Harris (2006) and Davis (2010). PDE devoicing can be understood as the imposition of American English phonology (with the importance of foot-initial position) to German devoicing. Thus, under the prosodic alignment approach, the pattern of PDE intervocalic devoicing is not surprising; however, it is completely unexpected on a cue-based approach.

To conclude, the feature [voice] (on obstruents) in PDE has a distribution that is quite parallel to the feature [spread glottis] in that they both only occur in foot-initial position. When an underlying voiced obstruent does not occur in foot-initial position, it devoices (with the understanding that flapping overrides devoicing). We do not expect there to be any

continental German dialect that has the devoicing pattern of PDE. This is because the PDE devoicing pattern is heavily influenced by the ambient American English phonology. PDE has essentially taken the foot-based pattern of the laryngeal feature [spread glottis] and has generalized it to the other laryngeal feature [voice]. This provides additional evidence for the importance of the foot for the understanding of American English phonology.

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