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Rhotics, /uː/, and diphthongization in New Braunfels German

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Abstract: This paper investigates the status of rhotics, /uː/, and the diphthongization of /eː/ and /oː/ in New Braunfels German, a variety of Texas German, a set of moribund dialects spoken in Texas. Boas, Hans C. (2009a. *The life and death of Texas German*. Durham: Duke University Press: 158) notes that "retroflex /ɻ/ appears … [mainly] in borrowed words." He further assumes that New Braunfels German "differs from other German American dialects such as Pennsylvania German and Wisconsin German in that English sounds almost never appear in native German words" (160). The results discussed here indicate that this statement no longer holds true. Today, perceptual analysis and phonological measurements of Texas German Dialect Project data reveal that both American English retroflex approximants and diphthongs [eɪ] and [oʊ] appear frequently. Moreover, /uː/ is sometimes centralized/fronted with short/mid-long quality. Language attrition and language death, two mutually reinforcing variables, appear as the driving forces for these phenomena.

Keywords: language attrition; language death; loan phonology; sound change; Texas German

1 Introduction

The first German settlers came to Texas in the 1830s, and the population of German speakers in Texas grew steadily up until about 1940 – from about 8,000 in 1850 to about 159,000 in 1940 (Jordan 1975; Kloss 1977). This resulted in the formation of a set of New World varieties of German, hereafter referred to as Texas German (TxG; ISO [ger]/[deu]).[1] Since about 1940, though, TxG has declined steadily as a result of historical factors, changing demographics, and various economic and social pressures. Today, there are roughly only 5,000 speakers of TxG, all of whom are over the age of 70 and are English-dominant bilinguals. As a result, the dialect is expected to disappear from the linguistic landscape within the next 20–25 years.[2]

TxG has been the subject of considerable research since the pioneering studies of Eikel (1949, 1954) and Clardy (1954). To date, most analyses have focused on either the lexicon (e.g., Boas and Pierce 2011) or the morphosyntax of TxG (e.g., Boas 2009b on the case system), meaning that TxG phonology remains under-researched. This paper takes up a series of striking developments in the moribund dialect's phonology, namely the increased use of American English (AE) retroflex approximants, u-qualities, and diphthongs [eɪ] and [oʊ]. The literature has widely neglected these topics. Further, it has long been assumed that AE sounds only rarely occur in TxG. However, perceptual analysis and phonological measurements of data from the Texas German Dialect Project (TGDP) indicate various patterns of synchronic variation: (a) retroflex [ɻ] frequently appears vis-à-vis Standard German (SG)[3]

1 Since TxG does not have an ISO code, I use the code for Standard German. This is technically not "correct" because of the status of Standard German in the 1840s when TxG began to form (see Boas and Fuchs 2018).

2 For more information on the history of TxG see, e.g., Gilbert (1972), Nicolini (2004), or Boas (2009a).

3 This paper follows the tradition in the study of TxG of using SG as a point of departure. The extent to which the west Germanic koiné was like SG or a rural nonstandard (*landschaftliches Hochdeutsch*) remains debatable. Nevertheless, the historical literature described TxG as fairly close to SG (see Boas 2009a). This does not mean that the earliest stages of TxG were identical to SG, however.

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/ɪ/ variants;[4] (b) SG /uː/ is sometimes centralized/fronted with short/mid-long quality, which is common in some Southern varieties of AE; and (c) diphthongization of SG /oː/ and /eː/ to [eɪ] and [oʊ] appears among many speakers of present-day TxG. The data suggest that these processes are externally motivated, token dependent, speaker dependent, and often occur on an item-by-item basis.

The remainder of the paper is structured as follows. Section 2.1 provides a discussion of literature. Section 2.2 presents the current analysis. First, I discuss my data and methodology. I then present a brief analysis of the phenomena under investigation. Section 3 proposes a multi-causation scenario to account for these developments, one involving contact with AE, lack of exposure to SG, language death, and language attrition. Section 4 concludes the paper.

2 Analysis

2.1 Previous accounts

Earlier research on the topics discussed here is scanty. Eikel (1954, 1966), which is based on data collected from 24 speakers in the 1930s and 1940s in New Braunfels (NB), describes only TxG segments corresponding to SG segments.[5] Clardy (1954) also notes SG /uː/ and diphthongs /au/, /ɔɪ/, and /aɪ/. She however argues that the retroflex rhotic /ɻ/ is phonemic – her study is based on 6 NB speakers. According to Gilbert (1963: 103), German and AE rhotics are "used in free variation." Although Gilbert (1963) focuses on TxG in Fredericksburg, not New Braunfels, his results are representative of TxG of the time, meaning that they can be used in the analysis of the New Braunfels German (NBG) developments. Gilbert (1972) also records SG /uː/ and diphthongs, except for one occurrence of [oʊ] among one of four speakers pronouncing *Kohl* 'cabbage' as [koʊl]. Gilbert (1972) represents a large-scale study that is based on data collected in the 1960s and rooted in a series of 148 translation tasks (maps), with 286 consultants in over 31 counties (48 in NB). Gilbert (1972, map 2) shows that for *rennt* 'runs,' 10 of the 46 realizations contain AE /ɻ/.

More recently, Boas et al. (2004: 54), who investigated the speech of 7 NB and Freyburg speakers, suggest that all speakers "exhibited a predominant use of retroflex [ɻ]". The preliminary report also assumes that diphthongization of /eː/ and /oː/ to [eɪ] and [oʊ] might be a recent development in TxG, yet on a rather small scale: "In contrast to Eikel's and Gilbert's data, the 2002 recordings show a greater number of examples of the diphthong [ou] … and also of the diphthong [ej] …, which was previously unrecorded in earlier notations" (48).[6] The authors, however, observe that the non-diphthongized tense vowels [oː] and [eː] still appear "abundantly" in the speech of their consultants (55).

Boas (2009a) comes to a different result. His analysis of TGDP data (52 NBG speakers) reveals that NBG has the same patterns of /ɪ/ distribution as SG (see footnote 4), except for trilled [r], which has nearly disappeared (158). The author states that [ɻ] is "almost exclusively limited to English loanwords" (159) and that the status of rhotics "has not changed much" from historical accounts. Interestingly, Boas does not further pursue the issue of diphthongization or mention variable realizations of /uː/.

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4 German /ɪ/ is subject to considerable diatopic variation. Historically, it was mainly a voiced uvular trill [ʁ]. In actual speech, this sound is often devoiced as a fricative [ʁ] or articulated as apical [r] (sometimes [ɾ]). In addition, /ɪ/ is vocalized to a schwa-like vowel [ɐ] in syllable codas after vowels or before consonants: e.g., word-finally in *Haar* 'hair' [haːɐ] or in the prefix *ver-*in *verlaufen* 'get lost' [fɛɐˈlaʊfn̩] (see Mangold 2015: 50–53, 118; König and Gast 2018: 13).

5 SG exhibits a rich inventory of vowel segments: 17 monophthongs and three diphthongs (Wiese 1996; Hall 2011). Although AE has more diphthongs (5), it has fewer monophthongs (Wells 1982; Kortmann and Schneider 2004). The segments under investigation here, SG /ɪ/, /uː/, /eː/, and /oː/, represent important phonetic gaps for speakers of AE (Reetz and Jongman 2009: 32, 59; König and Gast 2018: 24). Conversely, retroflex approximants and diphthongs [eɪ] and [oʊ] do not exist in SG. There are also numerous allophonic differences between segments native to both languages.

6 Boas et al. (2004) use [ej] as an alternative transcription for the diphthong [eɪ].

2.2 Current analysis

2.2.1 Data and methodology

This study draws upon speech data collected by the TGDP, which has been investigating the language of representative TxG speech communities in central Texas since 2001. These data allow for a more current and detailed approach to these segments. To date, the TGDP has interviewed over 800 speakers, which typically include three kinds of data (Boas et al. 2010): (1) the resampling of historical data, in which consultants are asked to translate English words, phrases, and sentences taken from Gilbert (1972) and Eikel (1954) into TxG, allowing for a direct comparison of TGDP data to historical data in real time; (2) open-ended sociolinguistic interviews in TxG, based on an eight-page questionnaire containing questions about things like the origin of ancestors, childhood activities, community life, tourism, hobbies, and current activities; and (3) a biographical questionnaire, which elicits information about characteristics such as age, date of birth, and education, as well as linguistic choices in public and private domains, and seeks to capture the consultants' language attitudes. The biographical data are used to create metadata records for each consultant and interview.

This study focuses on data from NB/Comal County and is based primarily on the TGDP's resampling of historical data. To get an idea of whether consultants would also exhibit the same patterns in conversational speech, I also searched TGDP transcripts of open-ended interviews. All data can be accessed through the project's website.

I twice performed a perceptual analysis of available translation task data for test tokens /r/, /e:/, and /o:/. In cases of discrepancies between these analyses, Praat (Boersma and Weenink 2018) was used as tool for analyzing /e:/ and /o:/. Phonetic measurements were also utilized for /u:/. A non-German speaker, a graduate student in linguistics, checked her judgments with my own. Our judgments were in agreement for 91% (125/138) of the tokens of /e:/ and /o:/ and 97% (101/104) of the tokens of /r/,[7] which confirms the overall reliability of this study. Depending on the method of analysis, my results are presented as formant maps or in tables (absolute values). For the latter, I also calculated 95% confidence intervals (Wilson scores). Due to various factors (e.g., different possible lexical realizations of a token, consultants not recalling a token, etc.), the number of speakers examined per lexical item varies between 8 and 63 (with a median of 38).

2.2.2 Rhotics

For the test token /r/, I investigated 14 items from the TGDP's resampling of both Gilbert's and Eikel's translation tasks. In total, I analyzed 577 utterances to determine the status of SG and AE rhotics in TxG.

The analysis (see Table 1) reveals a significant number of examples of retroflex [ɻ], as seen in Figure 2. Word-initially, the ratio of German to AE rhotics is almost of equal value (46 vs. 54%). At first sight, SG /r/ shows higher retention rates when preceded by a consonant (*trocken* and *drei*, seen in Figure 1). Like Boas (2009a), I was able to identify only few instances of uvular trill [R]. Like in SG, the most common realization of SG /r/ in NBG is apical [r/ɾ] or the uvular fricative. Vocalic /r/, the sound [ɐ] (see footnote 4, often orthographic <er>), appears to be very stable in NBG – I found only nine occurrences of [ɻ] in 286 utterances (3%) Figure 2.

The analysis of the open-ended interviews presents a similar picture. Almost every speaker uses retroflex approximants to a certain extent, in both loanwords and native German words; see example (1). There also appears to be a spectrum, with some speakers showing higher retention of SG rhotics (sound file), some speakers with equal ratios, and some speakers predominately articulating the AE sound. Whether the differences between speakers are systematic needs to be studied in more detail.

7 For the diphthongs, seven of the 13 cases where judgments differed were particular cases, in which the author relied on formant measurements. For /r/, three tokens were labeled "uncertain."

Table 1: TGDP resampling: realizations of test token /r/ in NB TxG (raw data). Sound files and additional data are accessible via individual links (or from this folder).

Item (Gilbert 1972, map)	SG /r/	[ɻ]	[ɻ] Wilson	N
Rote 'red' (45)	52%	48%	0.484 ± 0.123	60
Trocken 'dry' (12)	80%	20%	0.221 ± 0.109	50
Runter 'down' (81)	27%	73%	0.708 ± 0.138	37
Ruinieren 'to ruin' (83)	50%	50%	0.500 ± 0.232	14
Drei 'three' (85)	84%	16%	0.181 ± 0.0910	62
Ratte 'rat' (1)	62%	38%	0.393 ± 0.167	29
Reifen/Rad 'tire' (2)	66%	33%	0.374 ± 0.236	12
Karotten/Rüben 'carrots' (6)	33%	66%	0.646 ± 0.168	27
Item (Gilbert 1972, map)	**SG [ɐ]**	**[ɻ]**	**[ɐ] Wilson**	**N**
Kinder 'children' (38)	98%	2%	0.956 ± 0.0409	63
Teller 'plates' (63)	93%	7%	0.893 ± 0.0828	42
Tür 'door' (75)	96%	4%	0.920 ± 0.0680	45
schlimmer/schlechter 'worse' (76)	96%	4%	0.920 ± 0.0680	45
Erkältung 'cold' (91)	97%	3%	0.930 ± 0.0651	38
besser 'better' (121)	100%	–	0.966 ± 0.0338	53

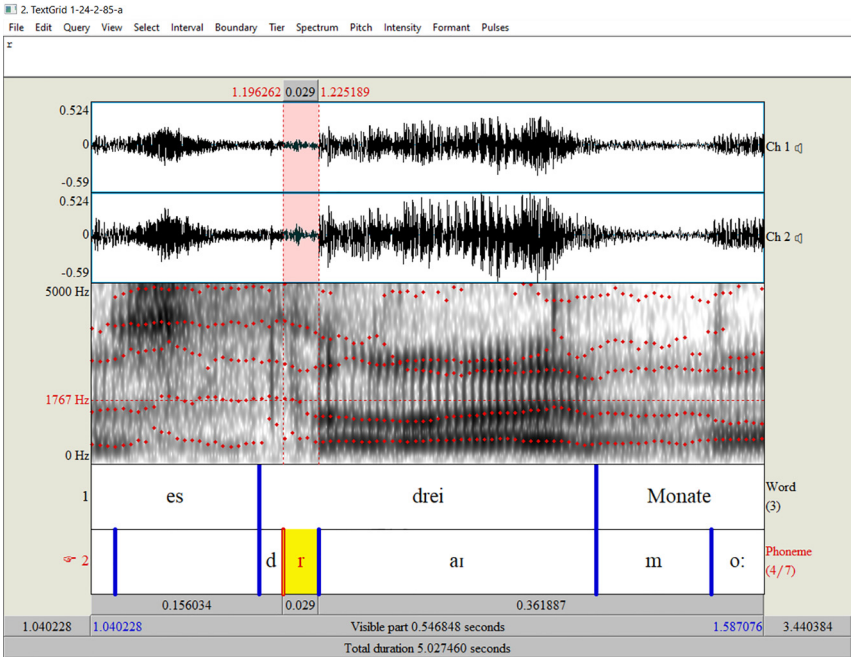

Figure 1: SG trilled /r/ in *drei* 'three' – consultant 24 (sound file).

(1) Consultant 171

[ɻ] *man kocht das Hienafleisch un ah wenn ma Schrimp reindut und des*
one cooks the chicken and ah if one puts in shrimp.
muss ma denn das Braune in des Fett, das tut man reinriehen das alle da Soße.
one has to put the brown into the oil, one stirs it all into the sauce.

In sum, [ɻ] is richly attested in present-day TxG. In both the translation task and the open interviews, the choice of rhotic appears to be speaker- and word-dependent. It appears that the phenomenon is more prevalent today since Boas (2009a) argues that [ɻ] is "almost exclusively limited to English loanwords" (159). While it is

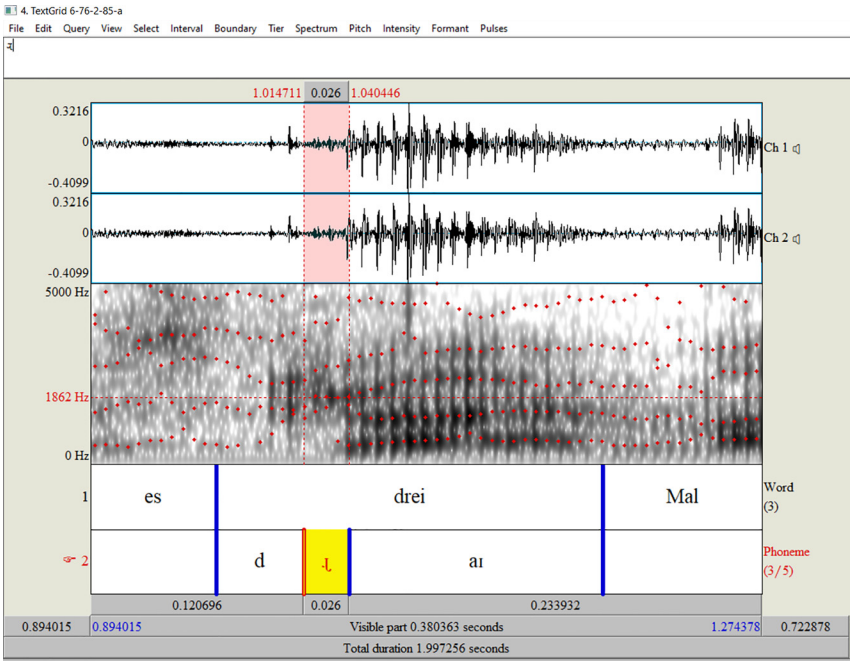

Figure 2: AE retroflex [ɻ] in *drei* 'three' – consultant 76 (sound file).

possible that some speakers of present-day TxG do not meaningfully distinguish between SG and AE rhotics, further research is needed to verify whether these segments are used in free variation, as Gilbert (1963, 1972) suggested.

2.2.3 /u:/

The TGDP's resampling of the Gilbert and Eikel data contains only four lexical items that contain the target vowel. As such, the analysis of /u:/ remains more preliminary. I analyzed a total of 136 utterances and plotted each speakers' F1 and F2 means (raw data) in the figures below (orange dots). F2 values mark a striking difference between SG and AE. Typically, SG /u:/ exhibits F2 values below or around 1,000 Hz (mean); F1 is around 350 Hz (mean) (Ramers 1988; Keil 2017; Kohler 1995).[8] By contrast, Grieve et al. (2013: 36) note the following formant frequencies (mean) for AE /u/: (1) word-internally, F1: 456 Hz; F2: 1,373 Hz; (2) word-finally, F1: 452 Hz; F2: 1787 Hz. To illustrate these differences and to visualize the closeness of each speaker's utterance to these vowel spaces, Figures 3, 4, 5, and 6 contain both blue and red circles.[9] The blue circles reflect a ±150 Hz (F1) and ±250 Hz (F2) ideal-typical vowel space for SG. Red circles represent the AE /u/ vowel space.

As the data reveal, the back vowel is sometimes fronted; that is, F2 shows values that are characteristic of central/front vowels. In fact, TxG /u:/ often falls into the AE vowel space for /u/. A handful of speakers moreover produce shorter vowels, which is partly responsible for higher F2 values in the data (sound file). Both auditorily and spectrally, these alternative realizations are quite noticeable. Looking at cases from the open-ended interviews, one can also find instances of /u:/-fronting. Figure 7 shows high F2 values of around 1,950 Hz. The utterance *tut* 'do' thus sounds much like AE *do*.

U-fronting is common in White Southern English, where words such as *good* can be articulated with central vowels, front vowels, or a combination thereof [ʊu~ɵu~ʊ̈y~ʏy~ʉ̟ʉ̟] (Thomas 2004: 303, 308; see Koops

8 Given that we are dealing with older speakers, formants should be slightly lower than what the literature suggests for adults.
9 Vowel distributions are generally not symmetric. Due to the scaling of the plots, however, the vowel space looks much like a circle.

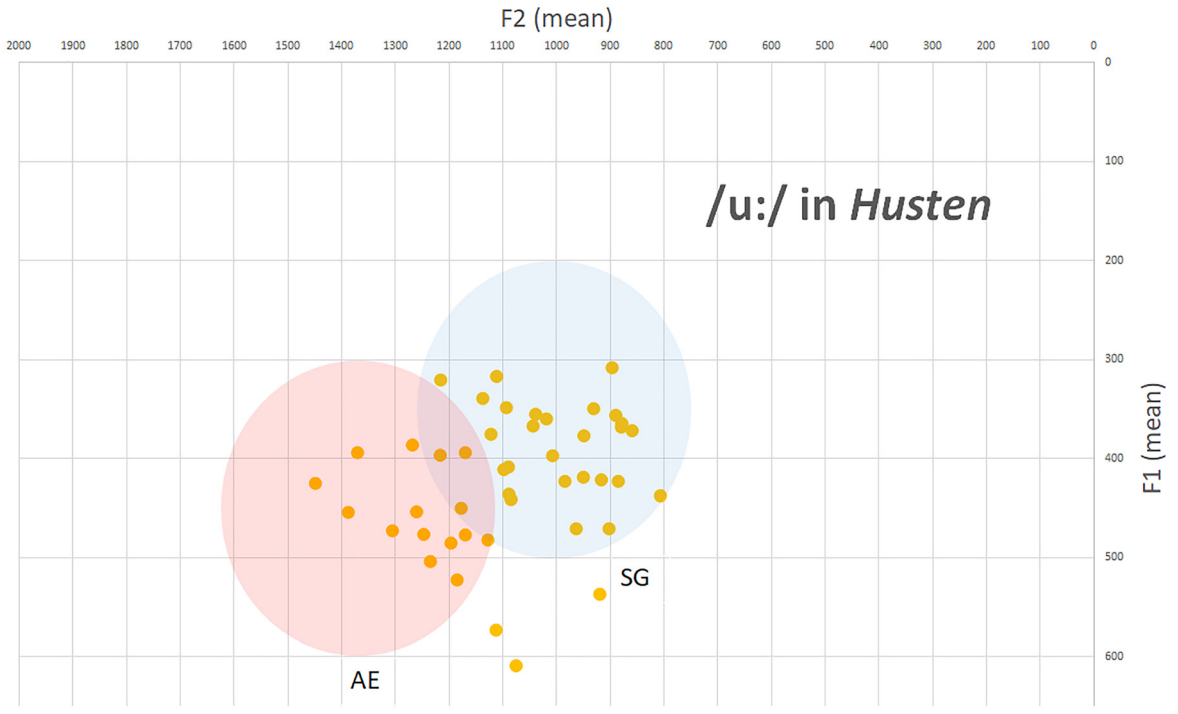

Figure 3: TGDP resampling of *Husten* 'cough' (Gilbert 1972, map 76, N45). The orange dots reflect speakers' F1/F2 means. The blue circle indicates the SG vowel space. The red circle indicates the AE vowel space.

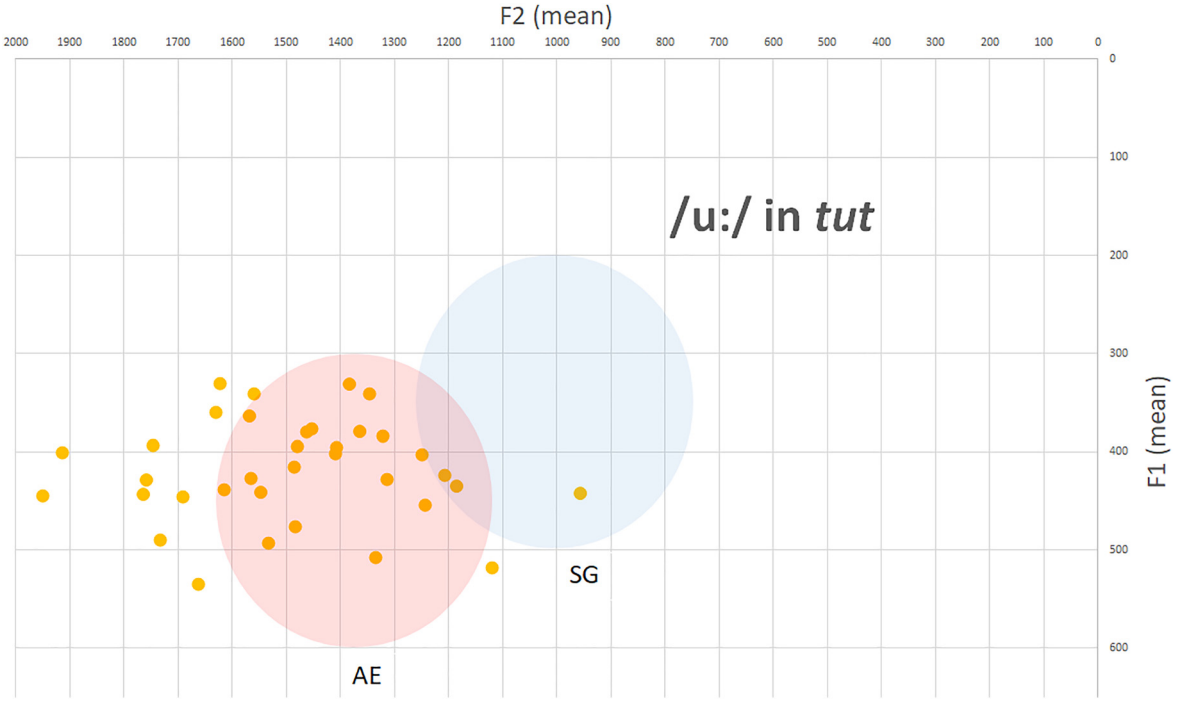

Figure 4: TGDP resampling of *tut* 'do' (Gilbert 1972, map 52, N35). The orange dots reflect speakers' F1/F2 means. The blue circle indicates the SG vowel space. The red circle indicates the AE vowel space.

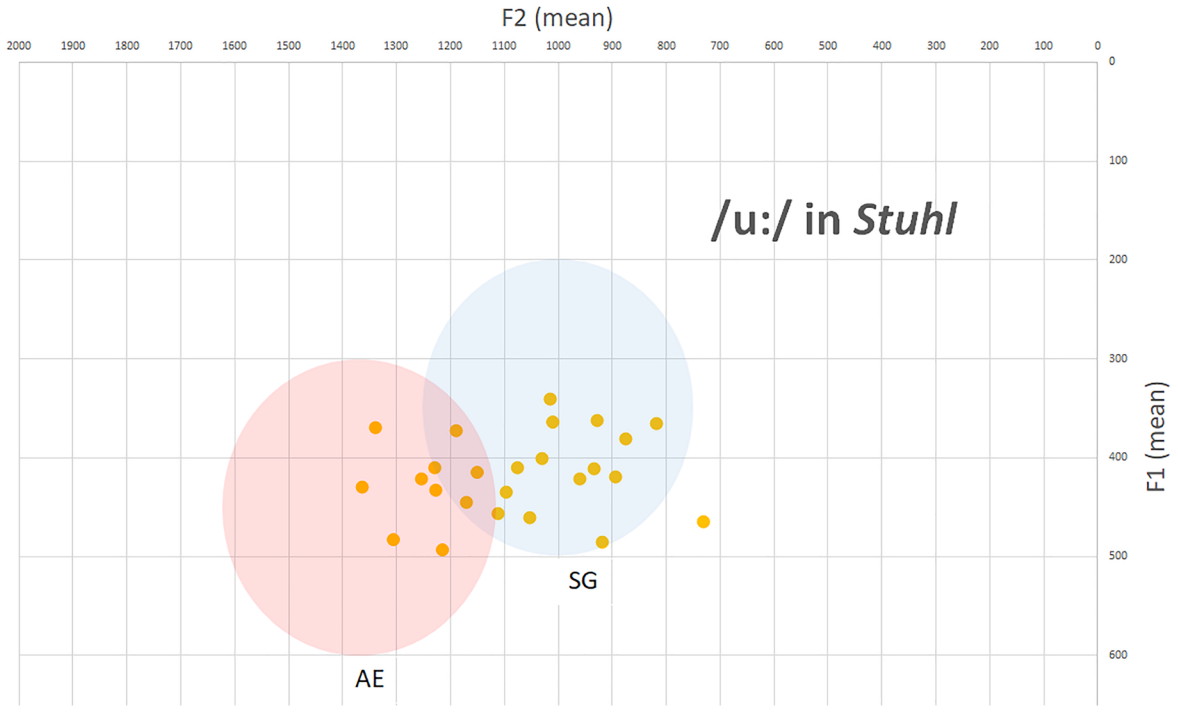

Figure 5: TGDP resampling of *Stuhl* 'chair' (Gilbert 1972, map 52, N26). The orange dots reflect speakers' F1/F2 means. The blue circle indicates the SG vowel space. The red circle indicates the AE vowel space.

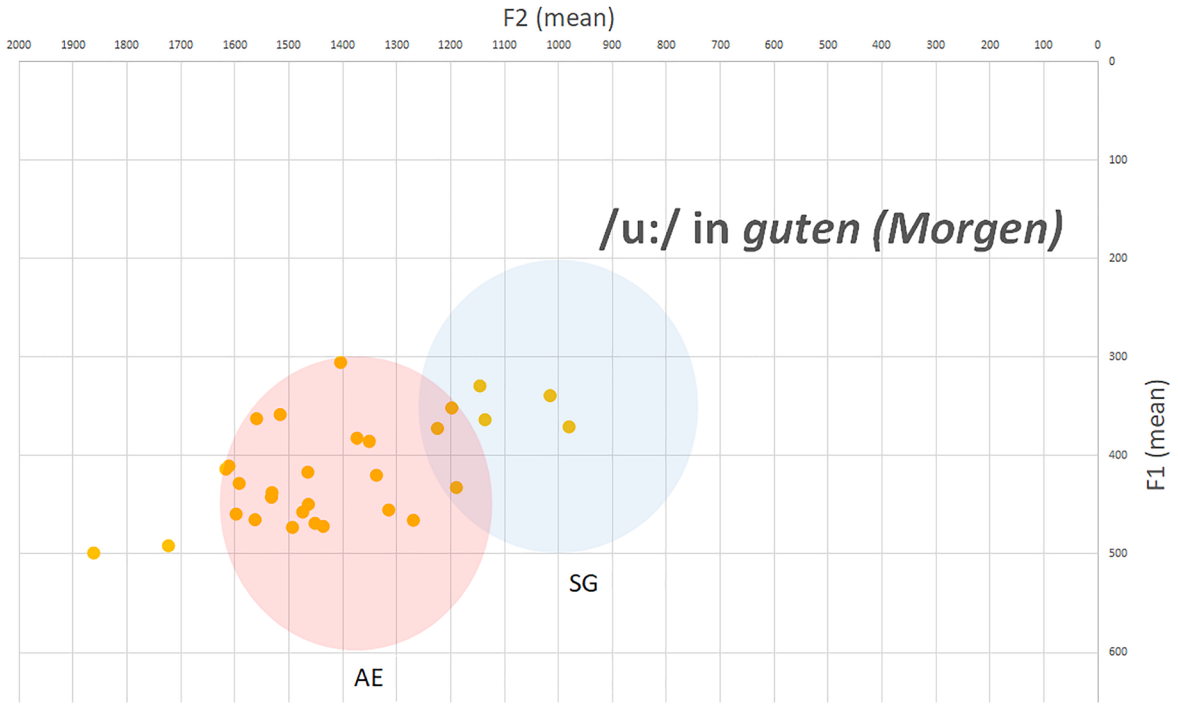

Figure 6: TGDP resampling of *guten* 'good' (Eikel 1954, sheet 1, N30). The orange dots reflect speakers' F1/F2 means. The blue circle indicates the SG vowel space. The red circle indicates the AE vowel space.

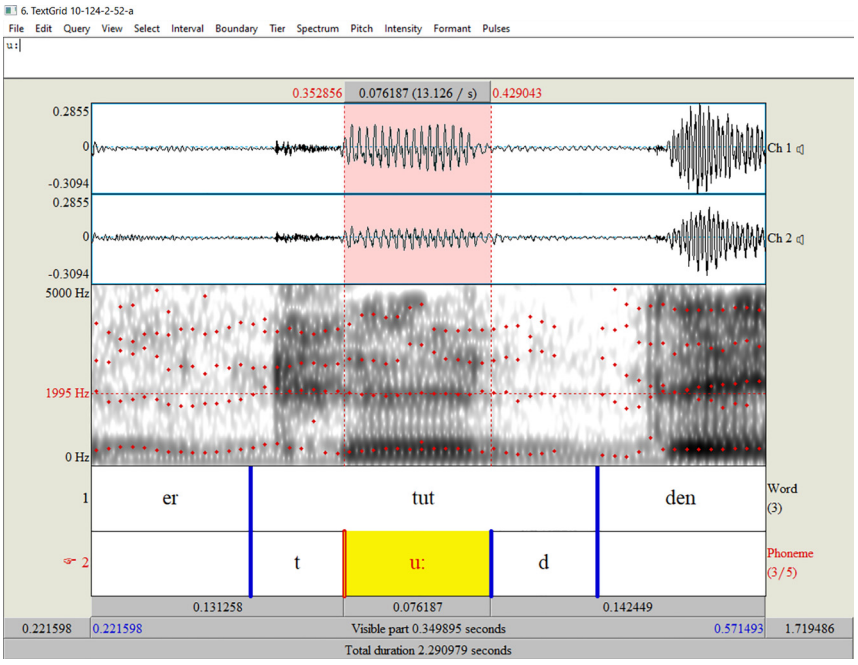

Figure 7: U-fronting of /u:/ in *tut* 'do' – consultant 124 (sound file).

2010 for Texas English).[10] It appears that some NBG speakers utilize such pronunciation, specifically when items in TxG resemble those of English, that is, that the source of this vowel in NBG is contact with English. Speaker 575 provides a great example of this, presented here as example (2). That /u:/ is always described as SG-like in the literature suggests that the phenomenon might be a recent development, one that is speaker dependent and possibly item-based. The majority of nouns show fairly SG-like values, whereas this is not the case for *tut* 'do' and *guten* 'good.'

(2) **Consultant 575**

u-front.	a. *Nach die Schul bin* I went to school	b. *Kannst du…* Can you…
u-front.	c. *Besuch* Visit (n)	d. *Bin ich nicht gut mit* I'm not good at it

2.2.4 Diphthongization

There are 14 different lexical items containing the test tokens /e:/ and /o:/ in the TGDP's resampling of the Gilbert task. I also analyzed another nine items from the open-ended interviews. This makes a total of 730 utterances. If tokens were labeled "uncertain" after listening to the recordings for a second time, as was the case for 4% (29/730) of them, I utilized Praat to determine whether a characteristic change in formant structure occurred. Specifically, I measured F2 onset and offset rates. A rise of at least 250 Hz was marked as a diphthong (Lee et al. 2014).[11]

The analysis (see Table 2) reveals a considerable amount of diphthongization. In many cases, speakers articulate /o:/ and /e:/ with phonetically similar AE diphthongs [eɪ] and [oʊ] (sound file, spectrogram). Considering the data, a number of comments can be made:

10 Koops (2010), who investigated 10 speakers (mean age 45) from Houston, found advanced degrees of /u/-fronting. Word-finally, he marked formant values of F2 1,700–1,800 Hz (mean) and F1 320–350 Hz (mean). Before coronals, which often cause higher degrees of fronting (see Flemming 2003), formant values of F2 1,550–1,900 Hz (mean) and F1 320–350 Hz (mean) were noted.
11 F2 marks the more accurate predictor as F1 transitions are only around –150 Hz (mean) (see Lee et al. 2014).

Table 2: Realizations of test tokens /e:/ and /o:/ in NBG (raw data).

Item (Gilbert 1972, map)	[eː]	[eɪ]	[eɪ] Wilson	N
sehen 'see' (37)	11%	89%	0.858 ± 0.0879	52
gesehen 'seen' (36)	–	100%	0.954 ± 0.0459	38
geht 'goes' (58)	46%	54%	0.533 ± 0.126	56
nehmen 'taking' (90)	50%	50%	0.500 ± 0.263	10
wen (AKK), *wem* (DAT) 'who' (36)	76%	24%	0.275 ± 0.160	25
den (AKK), *dem* (DAT) 'the' (55)	62%	38%	0.390 ± 0.149	37
zehn 'ten' (112)	44%	56%	0.554 ± 0.130	52
neben 'besides' (55)	62%	38%	0.394 ± 0.155	34
Federn 'feathers' (22)	61%	39%	0.400 ± 0.129	51
Bauchweh 'stomach pain' (109)	24%	76%	0.734 ± 0.128	41
Esel 'mule' (126)	36%	64%	0.625 ± 0.137	44
Open-ended interviews	**[eː]**	**[eɪ]**	**[eɪ] Wilson**	**N**
gehen 'go'	31%	69%	0.676 ± 0.144	36
sehen 'see'	14%	86%	0.810 ± 0.143	22
zehn 'ten'	48%	52%	0.519 ± 0.189	23
Item (Gilbert 1972, map)	**[oː]**	**[oʊ]**	**[oʊ] Wilson**	**N**
Fußboden 'floor' (56)	61%	39%	0.404 ± 0.148	38
Honig 'honey' (74)	72%	28%	0.293 ± 0.124	47
Kohl 'cabbage' (102)	54%	46%	0.460 ± 0.138	46
Open-ended interviews	**[oː]**	**[oʊ]**	**[oʊ] Wilson**	**N**
Fußboden 'floor'	60%	40%	0.428 ± 0.260	10
Brot 'bread'	58%	42%	0.434 ± 0.203	19
Sohn 'son'	56%	44%	0.448 ± 0.181	25
Kohl(e) 'cabbage/coal'	25%	75%	0.669 ± 0.260	8
gewohnt 'lived'	35%	65%	0.637 ± 0.142	40
wo 'where/that'	80%	20%	0.261 ± 0.131	38

(1) The overall ratio of vowel retention to the diphthongized variants appears to be almost equal (46 vs. 54%).
(2) The verbs *sehen* and *gesehen*, along with the nouns *Bauchweh* and *Esel*, mark predominant cases of diphthongization (89, 100, 76, and 64% for the resampling task).
(3) Function words – *wo*, the determiners (*den*/*dem*), and the pronouns (*wen*/*wem*) – and *Honig* show the strongest retention of long vowels in the data (80, 62, 76, 72%).
(4) Despite the comparatively lower number of analyzed items for test token [oː] (9/23), a first look at the data suggests that the back vowel could be more resistant to diphthongization.
(5) There appears to be a fair amount of inter- and intra-speaker variation. As noted above for the test token /ɪ/, there might be three speaker types: (a) those who show higher retention values for long vowels; (b) those who alternate between AE and SG segments – the largest group; (c) and those who predominantly pronounce diphthongs (sound files).

In sum, the AE diphthongs [eɪ] and [oʊ] are richly attested in present-day NBG, in both reading/translation tasks and open speech. It appears to be speaker dependent, token dependent, and to occur on an item-by-item basis. Given that these findings stand in stark contrast to Clardy's (1954), Eikel's (1954), and Gilbert's (1963, 1972) observations, diphthongization is clearly a more recent development. When compared to Boas et al. (2004), who noted only a few instances of diphthongization, it appears that the phenomenon is more prevalent today.

3 Discussion

This section briefly explores several factors that may have driven the phenomena discussed in this paper. Section 5, then, concludes and provides an outlook for further research.

3.1 Language contact

At first sight, the most obvious cause of change is language contact, since (1) AE contains /ɻ/, /eɪ/, and /oʊ/, and (2) u-fronting is common in Southern varieties of AE (as noted above). The exact role of English in changes to the linguistic structure of contact languages like TxG remains nevertheless debatable. In some areas – for example, the lexicon – the influence of a source language (SL) upon a recipient language (RL) is clear, and there are numerous English loanwords in TxG (see Boas and Pierce 2011). In other areas, however, its influence is less clear, since internal factors may also be at work. Consider, for example, the advanced loss of the dative case in TxG, which has merged into an oblique case that takes on the accusative marking. Contact with English is presumably only one factor involved (see Boas 2009b).

In the case of TxG phonology, interference from AE appears, nonetheless, as a likely scenario. Interference, as Wilkerson et al. (2014: 287) write, can lead "to the imposition of the SL phonology and grammar upon the RL, while the RL's grammar is reduced and structural elements originate from both the RL and the SL." Indeed, Boas (2009a) observes that AE loan phonemes like /æ/, /ɻ/, [ɾ], and the velarized lateral /ɬ/ have found their way into TxG. On the other hand, with regards to the unrounding of front rounded vowels, Pierce et al. (2015: 129) state that language contact and the more dominant role of English in TxG society reinforced the loss of these highly marked segments in TxG, but was only part of a multi-causation scenario. In other words, there are a variety of factors that need to be considered.

3.2 Language attrition

Due to the massive loss in prestige, stigmatization, migration, loss of group vitality, and other sociocultural factors, since about the time of World War I, TxG has gradually disappeared from the linguistic landscape, first from the public, then from the private domain. Limited exposure to SG helped motivate this development, since German-language instruction, church services, newspapers, and so on had been gradually abandoned over the 1920s, 1930s, and 1940s (Boas and Fuchs 2018; Salmons and Lucht 2006).[12]

In light of these developments, the population of TxG speakers has declined strongly since about the 1940s. Gradually, the community shifted their linguistic allegiance from TxG toward their L2. English became the primary language, the "language that is used most often and may be psycholinguistically *dominant*" (Montrul 2012: 160; italics in original), whereas TxG, L1, gradually became the secondary and weaker language. Conclusively, the dialect becomes subject to language attrition, that is, speakers are progressively losing proficiency in their heritage language. Hamers and Blanc (2000: 301) note that, "at the linguistic level, language attrition begins with strong interference from the dominant language on the subordinate one and convergence of the latter towards the former." The consequences of the overwhelming competition from the more frequently used and dominant language system, along with language internal/typological developments, may thus affect domains such as the lexicon, semantics, syntax, morphology, and phonology (see, e.g., Schmid 2011; Köpke and Schmid 2013; Polinsky 2018).

12 The implications are straightforward: exposure to SG would have presumably uphold a more standard-like pronunciation/register, and with it, the use of SG rhotics, and tense vowels /u:/, /e:/, and /o:/.

3.3 Language death

The status of TxG today is best described as a scenario of gradual language death, that is, language shift which will inevitably conclude with the dialect's disappearance from the linguistic landscape. Scholars such as Nettle and Romaine (2000: 53) point out that this can have profound linguistic consequences: "When a dying language declines gradually over a period of generations, it … is not used for all the functions and purposes it was previously. Like a limb not used, it atrophies." Dorian (1981, 1989) also observes that languages used less and less undergo structural reductions. As fluency declines, speakers often tend to abandon marked, complex, or less frequent linguistic structures (e.g., front rounded vowels, case markings, tense vowels, trilled rhotics) in favor of less complex, less marked, more frequent, or structures that are more like those of the dominant language (see Pierce et al. (2015) on this point as it pertains to front rounded vowels in TxG).

There are, however, situations in which marked structures are preserved. Bullock and Gerfen (2004) discuss the retention of marked French /ʁ/ in Frenchville French, while Wolfram and Schilling-Estes (1999) observe an unexpected phonetic patterning of /aw/ and /ay/ in Ocracoke and Smith Island English. The preservation of marked (and highly salient) fricatives [ç] and [x] in German American dialects may serve as another example. Here, authors often turn toward acoustic salience, specifically the function of particular salient sounds as identity markers. In a sense, then, the effects of language death are not clearly predictable due to the inherently complex and diverse nature of the factors involved (see Thomason and Kaufman 1988; Seliger and Vago 1991; Thomason 2010).

3.4 Language change in TxG

When it comes to the gradual substitution of German /ʁ/, /uː/, /eː/, and /oː/ in TxG, it appears that both language attrition and language death, two mutually reinforcing variables, play a crucial role. AE, which lacks these segments, has become the dominant language for practically all present-day speakers of TxG. In fact, there are only a few who can be defined as fluent in the dialect, and the clear majority fall on a continuum leaning toward a more restricted language competence for both receptive and productive tasks. For some speakers, the use of TxG is even restricted to casual conversation, bound to certain high-frequency phrases and expressions, and deals with only a very limited variety of topics. As there are no monolingual Texas-Germans left today, language co-activation might lead speakers to eliminate a phonemic contrast under the influence of the more dominant language. Without significant information loss, some speakers seem impose their articulatory habits ([ɻ], u-fronting, [eɪ], [oʊ]) on phonetically similar segments in their weaker language, TxG.[13] As such, I find both natural (age, limited usage and exposure, etc.) and contact-induced attrition to be the major driving forces behind these developments.

In summary, the sociohistorical realities, increasing contact with speakers of AE, and the resulting influence of English on TxG from the 1940s to the 1960s to the present day, have promoted language shift and, along with it, language attrition. Today, there are no monolingual speakers of TxG, which has become secondary in dominance and frequency of use. Consequently, speakers of the heritage language show signs of natural and contact-induced attrition, which has benefited the eventual transfer of phonetic material from AE to TxG.

4 Conclusion and outlook

Boas (2009a: 160) writes that NBG "differs from other German American dialects such as Pennsylvania German and Wisconsin German in that English sounds almost never appear in native German words." The results discussed here indicate that this statement no longer holds true. Both retroflex approximants and the AE

13 See also van Coetsem (1988: 84), who discusses this particular scenario in his work on loan phonology.

diphthongs [eɪ] and [oʊ] are richly attested in present-day TxG. Moreover, some speakers appear to replace SG /uː/ with segments characteristic of their local variety of AE, especially when they resemble dominant language vocabulary (*ich tu* 'I do,' *gut* 'good,' etc.). Language attrition and language death, two mutually reinforcing variables, appear as the driving forces for these phenomena. These instances of synchronic variation are most likely recent developments, largely because the literature suggests that previously (a) retroflex approximants were used less frequently, (b) there was only SG /uː/, and (c) diphthongs [eɪ] and [oʊ] did not exist in TxG, with the exception of one occurrence in Gilbert (1972).

The TxG situation pertains to the important question surrounding the organization of a bilingual's phonology. While current linguistic evidence points to the existence of two separate language systems (De Houwer 1996; Polinsky 2018), a variety of research, including this contribution, nonetheless suggests that certain linguistic representations and processes seem to be shared across languages (e.g., Hartsuiker et al. 2004; Kroll et al. 2006; Köpke and Schmid 2013).

My results also raise questions that are beyond the scope of this paper. Future research needs to address potential similarities and differences between speakers' vowels spaces in AE and TxG. Further study of language attrition (e.g., its assessment and potential connection to factors such as age, status, and education) is also needed to develop a more holistic understanding of the process and its peculiarities, particularly with regards to inter- and intra-speaker variation. In this regard, one also needs to closely investigate the highly variable output of a subset of consultants, ideally those who are representative of certain profiles: for example, speakers who show (a) more retention of SG segments; (b) an equal ratio; and (c) more substitution. Open questions also surround the different degrees of manifestation (retention vs. AE sound) in different test tokens and lexical items. Specifically, the precise distribution of the change and its potential connection to the phonological environment, frequency of occurrence, and phonological or orthographical similarities remains to be examined. Finally, there is still a lack of studies specifically addressing phonological attrition/imposition in moribund languages. This paper therefore represents another step toward filling this gap in the scholarly literature.

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