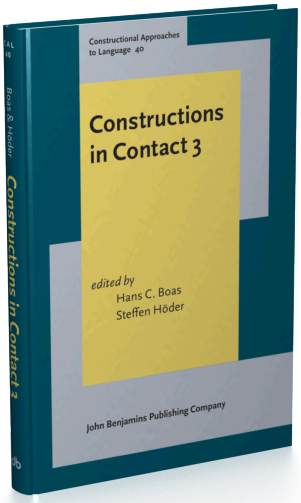
Constructional Approaches to Language
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Construction Grammar and phonology?

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Construction Grammar and phonology?

Diphthongization of /eː/ and /oː/ in New Braunfels German

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This paper provides a constructionist account of the diphthongization of long vowels /eː/ and /oː/ in Texas German (TxG), a set of New World varieties spoken in Texas. Earlier studies on TxG, e.g. Eikel (1966) and Gilbert (1972), generally report long vowels in words such as *geht* 'goes' or *Kohl* 'cabbage.' Today, the presence of a significant amount of diphthongization from /eː/ and /oː/ to [eɪ] and [oʊ] in data collected by the Texas German Dialect Project (TGDP) shows that diphthongization must be acknowledged as a variable phonological feature of present-day TxG. Statistical analysis reveals that age, but not gender, correlates with this phenomenon. The phenomenon marks an example of pro-diasystematic change, i.e. a mechanism that turns language-specific constructions into diaconstructions (Diasystematic Construction Grammar; Höder, 2012; 2014; 2018; 2019). Language attrition and language death appear as the driving forces.

Keywords: Texas German, construction grammar, diphthongization, language contact, language attrition, cognition, language death

1. Introduction

Texas German (TxG) provides a remarkable case for studying the long-term effects of language contact. While most heritage languages in the United States die out by the third generation (Polinsky, 2018), TxG speakers have maintained the use of the dialect in their homes and communities for nearly two centuries, despite numerous cultural and sociohistorical factors, including restrictive language laws and heavy anti-German sentiment during the early and mid-20th century. The first German-speaking settlers arrived in Texas in the 1830s, and many settled in the so-called German Belt across the south-central part of the state.

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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). Since then, changing demographics and various economic and social pressures have taken their toll on the linguistic community. Today, there are only roughly 2,000–3,000 speakers of TxG, all of whom are over the age of 70 and are English-dominant bilinguals. Since intergenerational transmission has ceased, TxG is expected to disappear from the linguistic landscape within the next 15–20 years.[1]

This paper takes up a striking contact phenomenon in the moribund dialect's phonology, namely the increased use of American English (AE) diphthongs [eɪ] and [oʊ] in words such as *geht* 'goes' or *Kohl* 'cabbage.' Perceptual analysis and phonological measurements of Texas German Dialect Project (TGDP) data from New Braunfels reveal that the long monophthongs /e:/ and /o:/ correspond to [eɪ] and [oʊ] appears among many speakers of present-day TxG (Table 1). This finding stands in stark contrast with previous accounts such as Eikel (1954) and Gilbert (1972), who do not observe any diphthongization[2] and describe only Standard German (SG)[3] diphthongs /ai/, /au/, and /ɔɪ/. In fact, it has long been assumed that AE sounds only rarely occurred in New Braunfels German (cf. Boas, 2009a). My analysis suggests that this phenomenon is externally motivated, speaker dependent, and likely occurs on an item-by-item basis. Language attrition and language death, two mutually reinforcing variables, appear to be the driving forces behind this phenomenon.

The goals of this paper are twofold. First, I provide a more detailed and data-based analysis of diphthongization in TxG. Second, the paper addresses the possible causes of diphthongization and presents a Diasystematic Construction Grammar account (DCxG; Höder, 2012; 2014; 2018; 2019). DCxG, which applies ideas of usage-based Construction Grammar (CxG; Goldberg, 1995; 2006; 2019; Croft, 2001) to language contact, assumes that multilingual speakers organize

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1. Several works discuss the history of TxG in varying degrees of detail and focus. Boas et al. (2010) is a handy place to start, while Nicolini (2004) and Boas (2009a) are the most detailed contemporary treatments.

2. In the context of this paper, the term diphthongization refers to the use of diphthongs [eɪ] and [oʊ] instead of monophthongs /e:/ and /o:/. In historical linguistics, however, diphthongization is the process by which a monophthong becomes a diphthong. I hence use the term in a more general sense to describe an outcome, rather than a process.

3. This paper follows the tradition in the study of TxG of using SG as a point of departure. The extent to which the varieties of TxG were like SG or a rural nonstandard variety (landschaftliches Hochdeutsch) remains debatable. Nevertheless, the historical literature, e.g. Eikel (1954), Clardy (1954), described the New Braunfels dialect as fairly close to SG (cf. Boas, 2009a, and Section 3.1). This does not mean that the earliest stages of TxG were identical to SG, however.

Table 1. [eː] vs [eɪ] in *geht* 'goes' in New Braunfels TxG (TGDP translation-task data; modeled after Gilbert, 1972, map 58)

	Informants	**Total (56)**
[eː]	25, 26, 27, 29, 32, 33, 34, 35, 51, 62, 75, 76, 77, 80, 85, 87, 96, 97, 159, 161, 168, 171, 174, 200, 204, 205	26
[eɪ]	24, 28, 30, 60, 79, 138, 139, 153, 155, 156, 157, 160, 162, 163, 165, 167, 169, 170, 172, 173, 188, 189, 190, 201, 206, 207, 245, 388, 389, 448	30

"their grammatical knowledge on the basis of the available input via processes of interterlingual identification, abstraction, generalization, and categorization, regardless of language boundaries" (Höder, 2018, p. 37). This results in a grammar which entails both language-specific idioconstructions as well as diaconstructions unspecified for language. In this system, phonological structures play an important part in the identification of schematic constructions, e.g. as markers of language-specificity, which in DCxG can be interpreted as pragmatic meaning (Höder, 2014; 2019). This paper argues that diphthongization in TxG marks an example of pro-diasystematic change, i.e. a mechanism that turns language-specific constructions into common diaconstructions. In present-day TxG, the segments [eɪ] and [oʊ] have lost their language-specificity, meaning that a difference in form (e.g. geht 'goes' as [geːt] vis-à-vis [geɪt]) does not necessarily preclude a difference in pragmatic meaning.

The following section first provides an overview of DCxG and discusses its applicability to language contact scenarios. Section 3.1 discusses historical data concerning the status of /eː/ and /oː/ in TxG. Section 3.2 presents my data and methodology. I present a detailed analysis of diphthongization in present-day TxG in Section 3.3, which is followed by a summary of my results in Section 3.4. The paper then presents a constructionist approach to the phenomenon. Section 4.1 elaborates on the role of phonology in CxG. Section 4.2. illustrates how sounds are context and community-specific and, as such, may carry pragmatic meaning. Section 4.3 analyzes diphthongization in TxG as an example of pro-diasystematic change and sheds light on possible triggers. Section 5 concludes.

2. Diasystematic Construction Grammar

Although language contact is everywhere, most of the predominant 20th century grammatical frameworks (e.g. structuralism and generativism) do not approach multilingualism[4] as an ordinary aspect of human language (Boas & Höder, 2018a, p. 5). This traditional view is best underlined by Chomsky's (1965, p. 3), who claims that "[l]inguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community." To focus on a rather homogeneous, monolingual speech-community, however, marks a giant abstraction from linguistic reality. It further means that any form of bilingual phenomena can only be accounted for by assuming various coexisting systems (or, in generative terminology, *grammars*), which are then "accessed, processed, and used by multilingual speakers" (Höder, 2018, p. 40). Although this treatment of languages as separate entities (e.g. A and B) allows for the fact that these prototypical systems may interact and that contact-induced change may occur (e.g. transfer; Figure 1), a language system itself is never seen as inherently multilingual or multilectal.

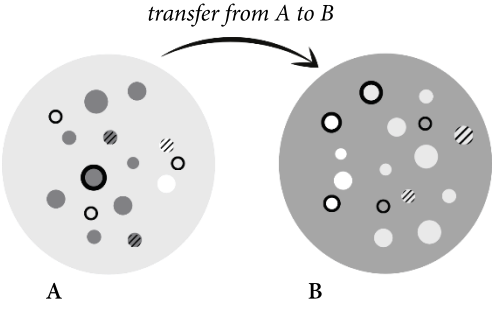


Figure 1. Monolingual view of language contact (cf. Höder, 2018)

Today, however, a variety of research suggests that languages are not processed as separate entities and that certain linguistic representations and processes seem to be shared across languages (e.g. Hartsuiker, 2004; Kroll et al., 2006; Grosjean, 2008; Köpke & Schmid, 2013). Several scholars, such as Matras (2009, p. 208f), even argue that multilinguals essentially make no categorical distinction between different linguistic systems. Instead, they make use of one 'repertoire',[5] which entails a set of structures from which these individuals choose

4. This paper uses the terms bilingualism and multilingualism interchangeably to refer to any form of non-monolingualism.

those they consider appropriate for a communicative setting (for a discussion see Section 4). DCxG (Höder, 2012; 2014; 2018; 2019) subscribes to this view and treats bilingualism as an ordinary aspect of human language. The socio-cognitively descriptive model of language contact proposes "that one can think of language contact phenomena as resulting from situations in which the linguistic knowledge of multilinguals consists of a common 'repertoire' of elements and structures, i.e. constructions, for all of their languages and varieties" (Boas & Höder, 2018a, p. 21). According to DCxG, the multilingual 'repertoire' (or grammar) is conceived of as a *constructicon*, which contains both idioconstructions (language/variety-specific elements) and diaconstructions (elements that are common to multiple languages and not specific to any of the languages or varieties involved). Depending on the communicative setting (e.g. informal situation at home vs. formal meeting at work), multilinguals then choose between constructions that are "appropriate (conventionalized, acceptable, common)" (p. 21). As such, grammar is community-specific and variable, meaning that the way a *language* is represented in the constructicon differs both across and within monolingual and multilingual speakers (inter — and intravariation). The idiosyncratic and common subsets of a multilingual repertoire can be illustrated as follows:

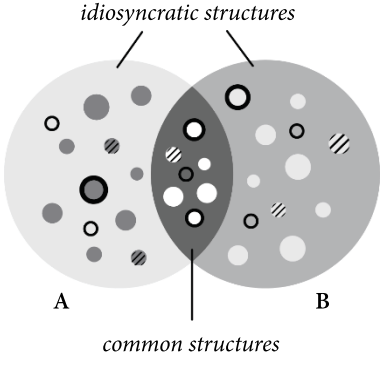


Figure 2. DCxG view on language contact (cf. Höder, 2018)

DCxG is a useful framework in line with both usage-based CxG and with current thinking in contact linguistics. It allows researchers to analyze not only the structural results of language contact, but also the nature (transfer mechanism, triggers, etc.) of contact-induced change (Boas & Höder 2018a, pp. 25–26). First,

5. This term was coined by Gumperz (1982), who proposed a linguistic repertoire as the analytic category that encompasses the totality of linguistic variants employed within a community. For a discussion, see Gal (2013).

DCXG's non-modularity allows capturing various instances of contact-induced lexical, morpho-syntactical, phonological, etc. change in one unified and integrative framework — it may thus provide an analysis that is both theoretically sound and empirically valid. Another key argument in favor of DCxG is that the approach considers the socio-cognitive realities and possible consequences of bilingualism, including language acquisition and attrition/loss.[6]

To date, several authors have applied CxG to the study of language contact, with promising results (cf. collection of papers in Boas & Höder 2018a; 2021; this volume). As for TxG, Boas (2018) discusses the semantics and usage of modal particle 'ja', while Dux (2018) applies CxG to the differences in word order constructions in SG and TxG. Blevins (2018), who provides a constructional analysis of progressives in TxG, argues that given the right context and the proper overlap in form and meaning, speakers may utilize the AE progressive marker — *ing* to mark TxG verbs with progressive aspect. She concludes that, for some speakers, AE idiosyncratic — *ing* has developed into a common structure. This paper presents a similar analysis and argues that diphthongization in TxG marks an example of pro-diasystematic change. My results suggest that for many speakers of the New Braunfels dialect, the phonemes /eɪ/ and /oʊ/ have lost their language-specificity, meaning that these sounds are now found in both English and TxG. The paper not only presents the first constructionist account of TxG phonology but is also one of only few attempts to apply constructionist thinking to segmental phonology[7] — to date, only two authors have applied DCxG to phonology (Höder, 2014; 2019; Namboodiripad, 2021).

6. For more arguments in favor of applying CxG to language contact, see Boas & Höder (2018a, p. 25–26).

7. For a recent collection of papers that applied CxG to suprasegmental phonology, see Imo & Lanwer (2020). Note that there are also several accounts of phonology within the related field of cognitive linguistics (e.g. Langacker, 1987; 2008; 2009; Lakoff, 1993; Bybee, 2001; Välimaa-Blum, 2005; Pierrehumbert, 2002; Vihman & Croft, 2007). Some of them can also be called "constructionist" in a narrow sense (esp. Vihman & Croft, 2007). For a discussion of cognitive linguistics and phonology, see Mompean (2014).

3. Diphthongization in Texas German

3.1 Previous accounts

TxG, which is descended from the varieties brought by German-speaking settlers in the 19th century,[8] has been the subject of considerable research since the pioneering studies of Eikel (1954) and Clardy (1954). Most authors to date have concentrated on the lexicon (e.g. Boas & Pierce, 2011) or morphosyntax (e.g. Boas, 2009b, on the case system), leaving TxG phonology largely under-researched (Eikel, 1954; Pierce et al., 2015; Warmuth, 2022; 2023). A few constructionist studies (e.g. Blevins, 2018; Boas, 2018; Dux, 2018) touch on TxG but similarly neglect its phonological features.

Earlier research on diphthongization is scanty. Eikel (1954; 1966),[9] based on data from 24 speakers in the 1930s–40s, reported that TxG vowels largely correspond to SG vowels, with rare exceptions like unrounding of short /y/ and /ø/. Clardy (1954) and Gilbert (1972)[10] similarly found no evidence of diphthongization of /eː/ or /oː/, though Gilbert notes one occurrence of [oʊ] in *Kohl* 'cabbage' [koul]. These findings suggest that diphthongs like /eɪ/ and /oʊ/ were absent from TxG until at least the 1960s.

The only study to acknowledge that AE diphthongs may have found their way into TxG is Boas et al. (2004): "[i]n 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" (p. 48).[11] Despite these findings, the authors observed that non-diphthongized tense vowels [oː] and [eː] still appear "abundantly" in the speech of their 7 NB and Freyburg speakers, with no systematic usage patterns identified (55). While Boas

8. As for New Braunfels German, the variety under investigation, the majority of the alleged dialectal input variants are likely from Central Hessian, Rhine Franconian, and Mosel Franconian (cf. Boas, 2009a; Jordan, 1975). Nevertheless, as Boas (2009a, pp. 88–95) discusses in some detail, it is difficult, if not impossible to determine the precise donor dialects of TxG since the necessary demographic information is not always available. In some cases, the census data or ship's lists do not list the exact geographic origin of passengers (e.g. Prussia, which at the time of settlement encompassed a variety of different dialects). In other cases, this information is simply missing.

9. Eikel (1966), which is readily available via JSTOR, is based on the same data as Eikel (1954), which was twice defended unsuccessfully as a dissertation at Johns Hopkins University and remains unpublished in its complete form (see Pierce, Boas & Gilbert, 2022, for details).

10. Gilbert (1972) represents a large-scale effort based on data collected in the 1960s, comprising 148 translation tasks (maps) and 286 consultants across 31 counties (48 in NB).

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

et al. concluded that diphthongization marks a recent development in TxG, Boas (2009a) did not pursue this issue further in his more comprehensive study of TxG phonology. Instead, he characterized AE diphthongs as rare in the dialect, leaving diphthongization an unresolved and underexplored aspect of TxG.

3.2 Data and methodology

3.2.1 *The Texas German Dialect Project*

This study provides a current and detailed analysis of diphthongization in TxG using speech data from the Texas German Dialect Project (TGDP), which has been investigating TxG speech communities since 2001. The TGDP has conducted nearly 1,000 interviews, typically including three types of data (cf. Boas et al., 2010): (1) re-sampling of historical data, where informants translate English phrases from the *Linguistic Atlas of Texas German* (Gilbert, 1972) and Eikel (1954) into TxG for real-time comparison; (2) open-ended sociolinguistic interviews based on an eight-page questionnaire about informants' background and activities; and (3) a biographical questionnaire in English, collecting information on age, education, linguistic choices, and language attitude. The biographical data are used to create metadata records for each informant.

3.2.2 *Data*

This study primarily focuses on the TGDP's re-recording/resampling of Gilbert's translation task, allowing for a direct comparison of speakers' realizations. There are 14 lexical items, belonging to different translation tasks (originally depicted as maps in Gilbert's, 1972, atlas), that feature the vowels under investigation.

In addition to these 14 items, I analyzed TGDP recordings of open-ended interviews to see whether informants would also exhibit the same patterns in conversational speech. Given the more relaxed nature of these open-ended interviews, informants are presumably not as aware of their speech as they are during the resampled translation task, which should produce more natural speech. I searched TGDP transcripts for a series of frequent lexical items containing the test-tokens /e:/ and /o:/. Given that 11/14 translation task items included the segment /e:/, I selected six items for /o:/ — (*Fuß)boden* 'floor,' *gewohnt* 'lived (past participle), *Kohl/Kohle* 'cabbage/coal,' *wo* 'where/that,' *Sohn* 'son,' and *Brot* 'bread,' and only four items for /e:/ — *nehmen* 'to take,' *zehn* 'ten,' *gehen* 'to go,' and *sehen* 'to see.'

Table 2. Translation-task items containing test-tokens /eː/ and /oː/

Token	Item / Sentence (Gilbert, 1972, map)
/eː/	*sehen* 'see' in "There's the man who I want to see" (37)
	gesehen 'seen' in "Who did we see" (36)
	geht 'goes' in "he goes into the room" (58)
	nehmen 'taking' in "They're taking it away" (90)
	wen (ACC), *wem* (DAT) 'who' in "Who did we see?" (36)
	den (ACC), *dem* (DAT) 'the' in "He's sitting over there beside the tree" (55)
	zehn 'ten' in "It's ten minutes of six" (112)
	neben 'besides' in "He's sitting over there beside the tree" (55)
	Federn 'feathers' in "This chicken has long feathers" (22)
	Bauchweh 'stomach pain' in "A stomachache" (109)
	Esel 'mule' in "A mule" (126).
/oː/	*Fußboden* 'floor' in "Put it on the floor!" (56)
	Honig 'honey' in "The honey" (74)
	Kohl 'cabbage' in "Cabbage" (102).

3.2.3 *Methodology*

I focused on 57 speakers (29 female; 28 male; DOB: 1908–1959, DOB median 1929) from NB and its surrounding communities in Comal County. Due to various factors (different possible lexical realizations of a token, consultants not recalling a token/no data, etc.), the number of speakers examined per lexical item varies (from 10–56 for translation-task items; 8–40 for the open-ended interview items). Participants were selected based on available data embedded in the TGDP dialect archive viewer for New Braunfels. All data can be accessed through the project's website (www.tgdp.org).

To determine the occurrence of test-tokens [eː] and [oː] vis-à-vis their respective diphthongized variants [eɪ] and [oʊ], I twice performed a perceptual analysis of TGDP data (total: 951 utterances). I recorded (and later coded) each of my informants' utterances for the respective test-test tokens. Speakers' realizations were initially grouped into five categories: (1) SG/long vowel; (2) AE/diphthong; (3) other (e.g. short vowel variant); (4) none (e.g. different lexical item); and (5) uncertain. If tokens were labeled "uncertain" after listening to the recordings for a second time, I utilized phonetic measurements with *Praat* (Boersma & Weenink, 2018). This was the case for 4% (29/727) of all translation-task items and 6% (13/221) for the open-ended interview items. Specifically, I measured F1 and F2 onset/

offset rates.[12] A non-German speaker, a graduate student in linguistics, checked her perceptual judgements with those of mine. Our judgements were identical for 91% (125/137) of the results for *sehen* 'see' (N 51), *den* (ACC)/*dem* (DAT) 'the' (N 37), and *Honig* 'honey' (N 49). This confirms the overall reliability of this study.[13] I also calculated 95% confidence intervals (Wilson scores) for each item.

Lastly, I explored the relationship between N52 speakers' realizations of the sounds and the variables of age (DOB) and gender using a Generalized Linear Mixed Model (GLMM) in R Studio (RStudio Team, 2020).[14]

3.3 Findings

3.3.1 *TGDP Resampling of Gilbert's translation task*

This section presents my analysis of TGDP data. I first address the 13 translation task items. Table 3 illustrates the distribution of [eː] and [oː] vis-à-vis their diphthongized variants in the resampled Gilbert task. The category "None" describes both consultants not recalling a token as well as realizations of lexical variants that do not include the relevant test-token (e.g. /aʊ/ in *schauen* 'watch,' instead of /eː/ in *sehen* 'see').[15] "Other" includes all varying realizations of the actual test tokens, such as the articulation of short/lax variants instead of the target vowel (e.g. *nehmen* 'to take' was articulated by 44 speakers as either **nemm(s)/nämm(s)*

12. For [eː], F2 serves as a more reliable predictor, as F1 transitions are minimal, averaging around 150 Hz (see Lee et al., 2014). A rise of at least +250 Hz was used to classify a vowel as a diphthong (Lee et al., 2014). For [oː], I combined F1-F2 onset and offset rates (measured as positive values). This approach accounts for the variable realizations of Southern American English (SAE) /oʊ/, which can display characteristic lowering in both F1 and F2 (e.g., Stanley et al., 2021), while also exhibiting fronting in many SAE varieties (Renwick & Stanley, 2020, p. 579). A combined shift of +250 Hz was used to identify diphthongal quality.

13. About half (7/13) of the raters' opposing judgements were cases, in which the author relied on formant measurements to ultimately determine whether a diphthong was present.

14. The biographical data (age and gender) were taken from the TGDP questionnaires.

15. There are various such examples in the data (e.g. /ɛr/ in *Bauchschmerzen* 'stomach pain,' instead of /eː/ in *Bauchweh* 'stomachache' or *Pferd* 'horse' and *Mjul-ar/e*, a borrowing of English *mule* with a German-like pronunciation, instead of *Esel* 'mule'). While some of these realizations were common variants found in the German lexicon, others result from dialect variation, language death, and language attrition (see Section 4.3). Specifically with regards to case-sensitive pronouns and determiners, the overall high number of lexical items categorized as "none" is striking. For *wen/wem*, 16 informants used *wer*, the nominative form of the pronoun. Similarly, 13 speakers produced a lexical item other than *den/dem*. Frequently found were either *die*, i.e. nominative/accusative form of the female/plural definite article, *der*, i.e. the nominative form of the masculine definite article, or no article.

Table 3. TGDP Resampling – realizations of test-token /eː/ and /oː/ (absolute numbers)

Item (Gilbert, 1972, map)	SG [eː]	AE [eɪ]	Other	None	NA	N
sehen 'see' (37)	6	45	–	4	2	57
gesehen 'seen' (36)	–	39	1	1	16	57
geht 'goes' (58)	26	30	0	–	1	57
nehmen 'taking' (90)	5	5	44	–	3	57
wen (AKK), *wem* (DAT) 'who' (36)	19	6	–	16	16	57
den (AKK), *dem* (DAT) 'the' (55)	23	14	–	13	7	57
zehn 'ten' (112)	23	29	1	2	2	57
neben 'beside' (55)	19	13	2	20	3	57
Federn 'feathers' (22)	30	20	3	2	2	57
Bauchweh 'stomach pain' (109)	10	31	2	10	4	57
Esel 'mule' (126)	16	28	1	4	8	57
Item (Gilbert, 1972, map)	**SG [oː]**	**AE [oʊ]**	**Other**	**None**	**NA**	**N**
Fußboden 'floor' (56)	23	15	17	1	1	57
Honig 'honey' (74)	34	13	2	6	2	57
Kohl 'cabbage' (102)	25	21	2	5	4	57
Total	**259**	**309**	**75**	**84**	**71**	**798**

with short [e] or [ɛ] or **nimm(s/t)* and **nimmen(s)* with short [ɪ]).[16] "NA" represents the amount of speakers without data.

To compare instances of diphthongization and long vowel retention more closely, Table 4 summarizes their proportional distribution. First, consider the verb forms *sehen* 'see,' *gesehen* 'seen,' *geht* 'goes,' and *nehmen* 'take.'[17] Strikingly, no informants produced the expected long vowel [eː] in *gesehen* 'seen.' For *sehen* 'see,' only 6/51 informants produced [eː]. AE [eɪ] marks the dominant realization for both items. Similarly, *geht* 'goes' and *nehmen* 'take' both show an unexpected

16. Gilbert (1972) already noted such alternative short vowel pronunciations in his atlas (e.g. map 90). This variation probably derives at least in part from some of the donor dialects of TxG (e.g. the Palatinate and Hessian), although language death and language attrition may play a role as well. More examples in the data include, *Esel* 'mule' with [ɛ]; *Federn* 'feathers' with [e] and [ɛ]; *neben* 'beside' with [e]). The variation found for the noun *Fußboden* 'floor' is also striking. Here, 17 speakers produced varying pronunciations. In many cases, [oː] was shortened and lowered to either [o̞] or even [ɔ]. In addition, some speakers also nasalized the vowels [ʊ], [ø], and [aː], a feature that has been reported as early as Gilbert (1963).

17. The items *nehmen* and *sehen* are sometimes pronounced monosyllabically in TxG.

Table 4. TGDP Resampling — realizations of test-token /eː/ and /oː/ (relative numbers)

Item (Gilbert, 1972, map)	**SG [eː]**	**AE [eɪ]**	**[eɪ] Wilson**	**N**
sehen 'see' (37)	22%	88%	0.944 ± 0.766	51
gesehen 'seen' (36)	–	100%	1.000 ± 0.910	39
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 'beside' (55)	59%	41%	0.577 ± 0.255	32
Federn 'feathers' (22)	60%	40%	0.538 ± 0.276	50
Bauchweh 'stomach pain' (109)	24%	76%	0.734 ± 0.128	41
Esel 'mule' (126)	36%	64%	0.625 ± 0.137	44
Item (Gilbert, 1972, map)	**SG [oː]**	**AE [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
Total				**568**

distribution of the diphthong [eɪ]. For *geht*, diphthongization is present in 30/56 instances — for many speakers, the actual phonetic realizations are practically homophonous with English *gate*. The remaining 26 informants all articulated the long vowel [eː]. For *nehmen*, both the long vowel and the diphthongized variant were produced by an equal number of informants, leaving an equal ratio of [eː] and [eɪ].

As for *Bauchweh* 'stomachache,' *Esel* 'donkey,' and *Federn* 'feathers,' For *Bauchweh* 'stomachache,' 31/41 informants produced the diphthong [eɪ]. *Esel* 'mule' also shows high levels of diphthongization. 28/44 informants produced the diphthong [eɪ], whereas 16 utterances exhibit the long vowel [eː]. Interestingly, *Federn* 'feathers' appears as the first lexical item to exhibit a higher retention rate for the long vowel. In 30/50 cases, the plural noun was pronounced with an [eː]. By contrast, a total of 20 informants diphthongized the test-token.[18]

18. Some informants also employed different plural forms, which are left aside here (see e.g. Boas, 2009a, for details on TxG plural formation).

Consider now the results for *wen/wem* 'who/whom' (ACC/DAT), *den/dem* 'the' (ACC/DAT), *zehn* 'ten,' and *neben* 'besides.' First, I discuss the pronouns and articles, i.e. 'who' in "Who did we see?" and 'the' in "He's sitting over there beside the tree." Both items show a much higher retention of [eː] than the items previously investigated, which indicates that these function words could be more resistant to diphthongization. This is presumably a frequency effect and/or could be connected to their monosyllabic nature, as discussed in more detail below. Moreover, the relatively high number of realizations categorized as "none" for "den/dem" and "wen/wem" is probably due to case loss, attrition, and dialectal input variants (see Section 4.3).[19]

Up next are *zehn* 'ten' and the preposition *neben* 'beside(s)/next to.' In *zehn*, the amount of diphthongization and long vowel retention are practically even (23/52 [eː] vs. 29 [eɪ]). *Neben* appears in Gilbert's translation "He's sitting over there beside the tree" (55). Here, 19/32 speakers produced [eː]; diphthongization occurred in only 13 cases.

Finally, consider the lexical items containing test-token [oː]. As noted above, *Kohl* 'cabbage' represents the only example where Gilbert (1972) noted an isolated instance of diphthongization (one of his speakers pronounced the noun as [koʊl]). In the current TGDP data, the distribution of segments [oː] and [oʊ] is practically even. Long vowel retention marks 25/46 cases. By contrast, a total of 21 informants articulated the diphthong [oʊ] in *Kohl*. For both *Honig* 'honey' and *Fußboden* 'floor,' vowel retention is more common than diphthongization. For *Honig* 'honey,' 34/47 speakers articulated a long vowel. Diphthong [oʊ] marks 13 occurrences. For *Fußboden* 'floor,' 23/38 utterances included the test-token [oː], whereas 15 speakers diphthongized the back vowel to [oʊ].

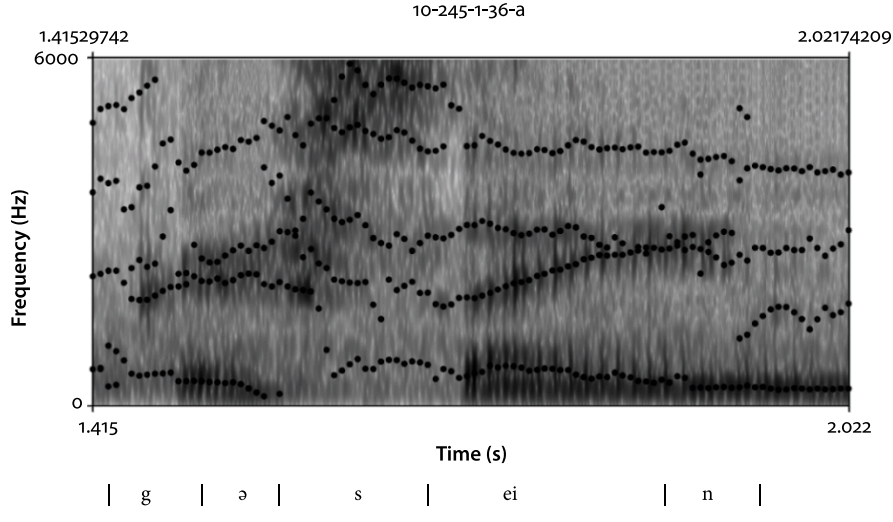
3.3.2 *Diphthongization: A closer look*

The analysis above reveals that the absolute ratio of vowel retention vis-à-vis diphthongized variants appears to be almost equal for the TGDP's resampling of the Gilbert translation task (46% vs. 54%). I recorded 180 utterances with [eː], whereas AE [eɪ] appeared 260 times, meaning that the diphthong occurs 1.4 times more frequently. As for test token /oː/, however, the long vowel appears approximately 1.7 times more frequently, with 49 diphthongs vis-à-vis 82 long vowels in 131 utterances.

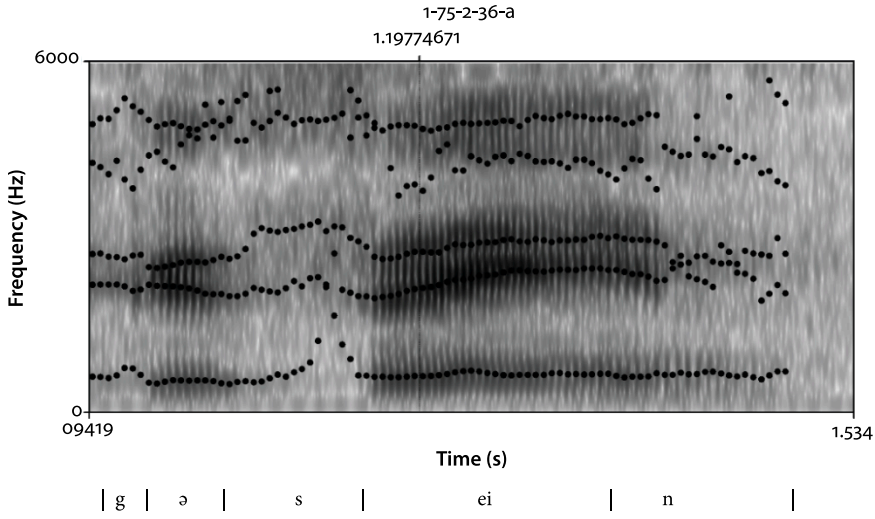
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19. Case loss is widely attested in TxG, which differentiates mainly between a NOM case and an oblique ACC/DAT case (cf. Example 2 below; TxG *…mit die Oma* '…with the grandma' (oblique — or, arguably, also NOM, which is also *die*), instead of SG *…mit der Oma* (DAT)). Further, it can be observed that some speakers apply nonstandard genders to nouns or use NOM forms throughout (e.g. *der*, instead of *den/dem*). For details see Boas (2009b).

At this point, it is also important to note that diphthongized variants generally fall on a spectrum, i.e. there are very clear cases of L2 allophonic lengthening (very slow and audible lengthening of the first vowel element) as well as examples of diphthongs with less pronounced dynamic features. The differences between diphthongs, e.g. [eɪ] in *gesehen* can also be captured in a spectrogram (see below). The spectrograms illustrate two different realizations of diphthong [eɪ] in *gesehen*. As can be seen from the characteristic change of F1 and F2 contours, both speakers articulate a diphthong. The second formant rises in both utterances, which coincides with the raising of the tongue position from /e/ (mid-open) to /ɪ/ (closed). In addition, the first formant (frontness vs. backness) is also slightly lowered; this coincides with a slightly more fronted articulation of the vowel /ɪ/ vis-à-vis /e/. It is evident that informant 245 articulates a more prominent and L2 characteristic diphthong than informant 75. This discovery can be explained when looking at the Spectrograms: 1) Lowering of F1: There is a much more defined lowering in F1 for speaker 245. This lowering is characteristic of a change from /e/ to /ɪ/. 2) Raising of F2: There is a very slow and gradual decline for F2 for speaker 245. This slow raising, specifically of the F2, coincides with what is perceived as allophonic lengthening. In general, a raising of the F2 is expected for a change from /e/ to /ɪ/. 3) The total incline of F2: The incline of the F2 is much greater for speaker 245. The qualitative difference between the onset of the first element and the offset of the diphthong is therefore more audible. Thus, all three circumstances are important factors when explaining why one particular diphthong may sound more salient than another variant.



Spectrogram 1. *gesehen*, informant 245, female speaker



Spectrogram 2. *gesehen*, informant 75, female speaker

3.3.3 *TGDP open-ended interviews*

In addition to the resampled Gilbert data, I also analyzed TGDP transcripts and recordings of open-ended interviews to see whether informants would also exhibit diphthongization in conversational speech (Table 5).

Table 5. TGDP Open-ended — realizations of test-token /eː/ and /oː/ (relative numbers)

Open-ended interviews	**SG [eː]**	**AE [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
Open-ended interviews	**SG [oː]**	**AE [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
Total				**221**

As for [eː], I focused on the items *zehn* 'ten,' *gehen* 'to go,' and *sehen* 'to see' — note that these items were already discussed with regards to the translation task, thus allowing for a direct comparison. There are 24 instances (17 informants) of *zehn* in the New Braunfels data, with 12 diphthongs vis-à-vis 11 segments [eː] (one speaker produced the front mid vowel [ɛ]). For the verbs *gehen* 'to go' and *sehen* 'to see,' I noted a respective total of 39 (22 informants) and 24 instances (17 informants). As for the numeral, the distribution of diphthongization appears to be very similar to the data of the resampled Gilbert task. Again, the lexical item *sehen* 'to see', analyzed above as the past participle *gesehen*, exhibits many more examples of segment [eɪ] (19/24 occurrences). Test-token [eː] was found only three times, along with two short vowels. For the verb *gehen* 'to go,' 25/39 utterances included the diphthong, whereas 11 items showed the retention of the long/tense vowel [eː], and three other realizations that featured the short/lax vowel [ɛ].

Gilbert's translation task only featured three lexical items for /oː/. Therefore, I collected more data on the test-token from the open-ended interviews. Six relatively frequent items were identified: *Sohn* 'son,' *Brot* 'bread,' *Kohl/Kohle* 'cabbage/coal,' (*Fuß)boden* 'floor,' *wo* 'where/that,' and *gewohnt* 'lived.' For *Brot* 'bread,' which occurred 19 times (12 informants), I noted 8 occurrences containing segment [oʊ]. For *Sohn* 'son,' which occurred 25 times (13 informants), 11 diphthongs were recorded. There were no other realizations for both monosyllabic nouns. Here, the distribution of diphthongization appears to be fairly similar.

In the New Braunfels data, there were also 10 instances (7 informants) of (*Fuß)boden* 'floor'– 6/10 contain SG [oː]; 4 have [oʊ] — as well as 9 instances (6 informants) of *Kohl/Kohle* 'cabbage/coal' — 2/9 contain SG [oː]; 6 have [oʊ]; 1 has [o̜]). The past participle *gewohnt* 'lived' occurred 42 times (18 informants). In the data, we find 26 diphthongs vis-à-vis 14 long/tense vowels and 2 short vowel realizations. *Wo* 'where/that' is another frequently used item.[20] There were only 9 diphthongs vis-à-vis 29 long vowels and 6 other realizations out of a total of 44 utterances (18 informants). While this result stands in clear opposition to *gewohnt* 'lived,' there is a striking similarity to the function words containing test-token [eː], i.e. the determiners (*den/dem*) and pronouns (*wen/wem*). That these items show the overall strongest retention of long vowels in the data could point towards their frequency of occurrence.

20. As in many other non-standard German dialects, in TxG *wo* is often used as a relative pronoun, e.g. in constructions like *den Mann, wo ich gesehen habe* 'the man that I have seen,' or to express temporal meaning in much the same way as English *when*. See Boas, Pierce, & Brown (2014) on the uses of *wo* in TxG.

In sum, the analysis of TGDP open-ended interviews corroborates findings from the translation task, where diphthongized variants occur frequently alongside SG-like /e:/ and /o:/.

3.3.4 *Statistical analysis*

To explore whether speaker-related factors explain this variation, I used a generalized linear mixed model (GLMM) in R Studio (RStudio Team, 2020). The response variable (presence/absence of diphthongs) was analyzed with fixed effects for date of birth (DOB) and gender, and speaker ID as a random effect. Due to limited data for /o:/ (three tokens), I focused on /e:/ and excluded 5 of 57 speakers with fewer than six data points, ensuring at least six measurements per speaker (median: 8; range: 6–11).

Table 6. GLMM results (Laplace Approximation; N52; N26 female; N26 male)[21]

Random effects				
Groups	**Name**		**Variance**	**Std.Dev.**
speaker_id	(Intercept)		0.2384	0.4883
Fixed effects				
	Estimate	**Std.Error**	**z value**	**Pr(>|z|)**
(Intercept)	−1.4723	0.8167	−1.8025	0.0715
dob	0.0086	0.0031	2.7742	0.0055 **
gender	−0.2196	0.1574	−1.3946	0.1631

Signif. codes:
'***' 0 '**' 0.001 '*' 0.05 '' 0.1 ' ' 1

Age & gender

The effect for DOB was statistically significant ($\beta = 0.0086$, $z = 2.7742$, $p = 0.0055$), indicating that a one-year increase in birth year slightly raises the likelihood of articulating diphthongs. Specifically, for every 10-year increase in DOB, the likelihood of producing diphthongs rises by approximately 9%. This suggests younger speakers are more likely to produce diphthongs, pointing to a possible generational difference in pronunciation patterns, with older speakers potentially retaining more SG-like forms of speech. Gender, on the other hand, was not a significant predictor ($\beta = -0.2196$, $z = -1.3946$, $p = 0.1631$), indicating no strong evidence for gender-based differences in diphthong use within this sample.

21. AIC (322.348); BIC (336.789); logLik (158.174); deviance (316.348); df.resid (412).

Speaker variation

The random effect of speaker ID was significant (variance = 0.2384), indicating notable individual variation in diphthong production. While DOB predicts diphthong articulation at the group level, substantial inter-speaker variability suggests additional personal or social factors at play. To investigate whether some speakers exhibit greater variation, I ranked the diphthong response data for all 52 speakers and plotted their ratios in a bar chart (see Figure 3). A notable number of speakers (orange) produced diphthongs either consistently (N7) or in most cases (N13; 75–88%). Most speakers (N25; blue) alternated between [eː] and [eɪ] (25–75%), while only a few (N7; grey) primarily used SG-like vowels (0–25%). No speaker exclusively produced SG segments.

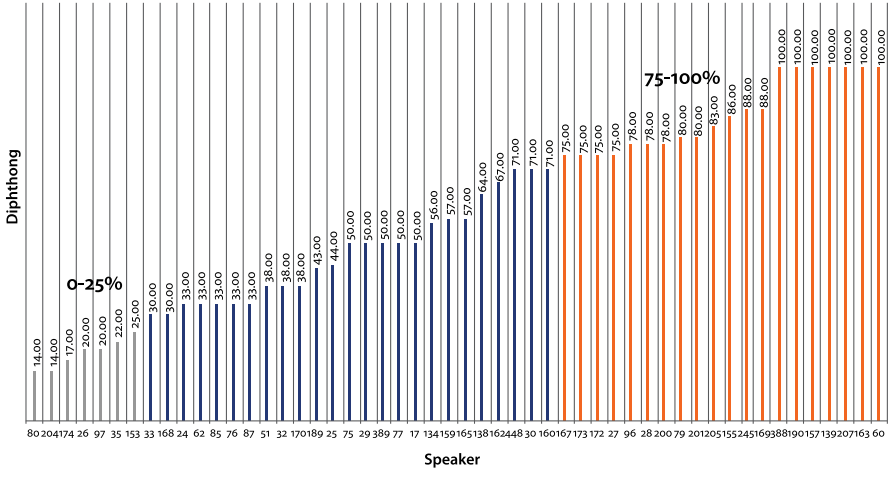


Figure 3. TDGP Resampling — bar chart; diphthongs per speaker in per cent (N52; N26 female; N26 male)

3.3.5 *Summary*

The analysis revealed substantial diphthongization in the dataset, with speakers frequently substituting TxG/SG-like /oː/ and /eː/ with the phonetically similar AE diphthongs [eɪ] and [oʊ]. Statistical results indicate that age, as reflected by DOB, is a significant predictor of diphthong production, with older speakers being more likely to use diphthongs than younger speakers. Gender, however, was not a significant factor, suggesting that any differences in diphthong articulation are not attributable to gender in this sample. The significant random effect for speaker ID highlights the need to account for individual variation, which persists even after age is considered. As noted above, there might be three speaker types: the smallest group, A) those who show higher retention values for long vowels; the largest

group, B) those who alternate between AE and SG-like segments; C) and those who predominantly pronounce diphthongs. A final look at the data in Table 7 yields the following observations:

Table 7. TGDP Resampling — realizations of long vowels vis-à-vis diphthongization (summary)

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
Total			**Total**	**793**

1. The ratio vowel retention vis-à-vis 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%).
3. Function words, i.e. *wo*, the determiners (*den*/*dem*), the pronouns (*wen*/*wem*), and *Honig* show the strongest retention of long vowels in the data (80%, 76%, 62%, 69%).
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 (58% long vowel retention for [oː] vs. 39% for [eː]).

In sum, the AE diphthongs [eɪ] and [oʊ] are richly attested in present-day NBG, in both reading/translation tasks and open speech. This variable, speaker-dependent feature of the dialect appears to be externally motivated and may affect /oː/ to a lesser extent (token dependent). Internal factors such as word frequency, class, or phonetic context also likely play a role.

These findings contrast sharply with earlier reports by Clardy (1954), Eikel (1954), and Gilbert (1963; 1972), where diphthongization was absent or rare. Compared to Boas et al. (2004), who observed only a few instances, diphthongization now appears far more widespread, reflecting a recent and significant development in the dialect.

4. Towards a constructional analysis of diphthongization in Texas German

This section presents a DCxG account of diphthongization and proceeds as follows: Section 4.1 briefly discusses the role of phonology in cognitive linguistics and in CxG. Section 4.2. illustrates how sounds are context and community-specific and, as such, may carry pragmatic meaning. Section 4.3 provides a DCxG analysis and argues that diphthongization in TxG marks an example of prodiasystematic change.

4.1 Phonology, cognitive linguistics, and CxG

As previously mentioned, few authors in CxG (e.g. Langacker 1987; 2008; Vihman & Croft 2007) have systematically investigated phonology. According to Boas (2013, p. 239), there are two main reasons for this: First, CxG has historically not been concerned with phonology, as the framework originally aimed to demonstrate that there are no clear-cut boundaries between the lexicon, morphology,

and syntax, i.e. focused on lexical, morphological, and syntactic issues. Second, phonological elements are traditionally thought of as something formal and non-meaning bearing. This idea rests on the assumption "that phonology is concerned with distinctive elements within the language system, whereas grammar is concerned with the combination of meaningful elements into complex utterances" (Höder, 2014, p. 205).

Phonology, however, is "in no way less amenable to a cognitive treatment than the study of word meaning or grammatical constructions" (Mompean, 2014, p. 253). Both cognitive linguistics and CxG share the view that language, including phonology, marks the outcome of general properties of cognition, i.e. perception, categorization, and conceptual combination.[22] Under this view, phonemes and allophones are perceived of as mental categories of sounds and not "as discrete entities characterized by a set of necessary and sufficient properties shared by all entities classified as category members" (p. 254). Rather than positing a set of defining features for phonemes (or phoneme categories), cognitive approaches, including usage-based phonology (Bybee, 1994; 1999; 2001), the instance-schema network view and the earlier 'radial' view of category structure (Nathan, 1996; 2008) claim that phonemes are stored entities that may "have a prototype, or central member as well as context-induced extensions" (Mompean, 2014, p. 255)[23] — specifically in scenarios of bi-/multilingualism this idea plays an important role, as discussed below. Cognitively realistic approaches further share the assumption that language and its organization are "rooted or grounded in the people's concrete physical, social, and cultural experiences and under the constraints imposed by their bodies" (p. 261). As such, all segmental and suprasegmental aspects of speech are grounded in and motivated by people's experience as well as their encounters with language (p. 265).[24]

That CxG has "steered clear" of phonology (Boas, 2013, p. 239) is not a question of compatibility with the theory itself, as Höder (2014) remarks. One of CxG's basic principles is that grammatical knowledge, including all kinds of meaningful structures on and beyond the "lexicon-syntax continuum" (Hoffmann & Trousdale, 2013, p. 1), can be represented in terms of uniform, interlinked constructions. In this view, as Goldberg (2006, p. 18) claims, "it's constructions all the

22. CxG reflects a grammar approach that shares many basis assumptions with cognitive linguistics. For a long list of tenets that CxG and Cognitive Grammar share see Langacker (2005a; 2005b).

23. It is noteworthy that authors like Nathan and Bybee share slightly different views when it comes to the term 'usage-based.' For a discussion, see Nathan (2008).

24. Phonetic features are, as such, "regarded as basic image schemas directly derived from everyday bodily experience in articulating and/or perceiving speech" (p. 263).

way down." Constructions (cxns) are pairings of (possibly various) form(s) with meaning(s) (Figure 4). Polar questions such as *Can you help me?* can be thought of as being licensed by a specific type of Question Cxn, among other cxns. This Question Cxn couples one particular meaning, a request, with at least two different types of form: a specific word order and a rising intonation at the end of the sentence.

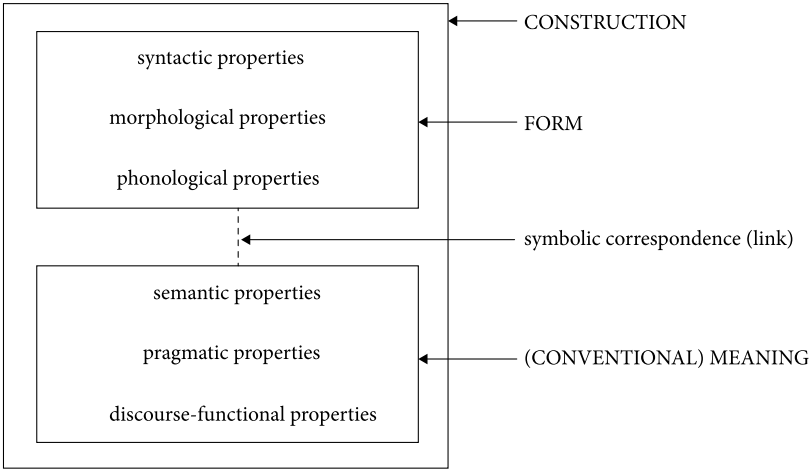


Figure 4. The symbolic structure of a construction (Croft, 2001, p. 18)

Looking at a bilingual speaker of English (*Can you help me?)* and German (*Kannst du mir helfen?*), the Question Cxn discussed above may be analyzed as a common diacxn (see Section 2). This Question DiaCxn couples the same meaning, a request, with a language-unspecific word order (V1 verb order)[25] and sentence-final rising intonation — both English and German share verb-initial word order (V1) and rising intonation as a common formal feature to mark this type of illocutionary force, i.e. so-called yes/no questions. Additional language-specific features are, then, specified by other cxns, in German for example the Helfen IdioCxn (*helfen*, 'to help', transitive verb, dative). These idiocxns are coupled to diaxns via so-called inheritance links (Figure 5).

25. In SG, verbs occur mostly in second position, typically following the subject or an adverbial construction, and/or in clause final position (e.g. in periphrastic constructions with an auxiliary verb in second position and one or more verbs in final position, or in subordinate clauses introduced by a relative pronoun or subordinating conjunction (e.g. *dass* 'that,' *weil* 'because'), which move both verbs to the end. Verb-initial word order occurs in so-called yes/no questions or commands/ imperative constructions.

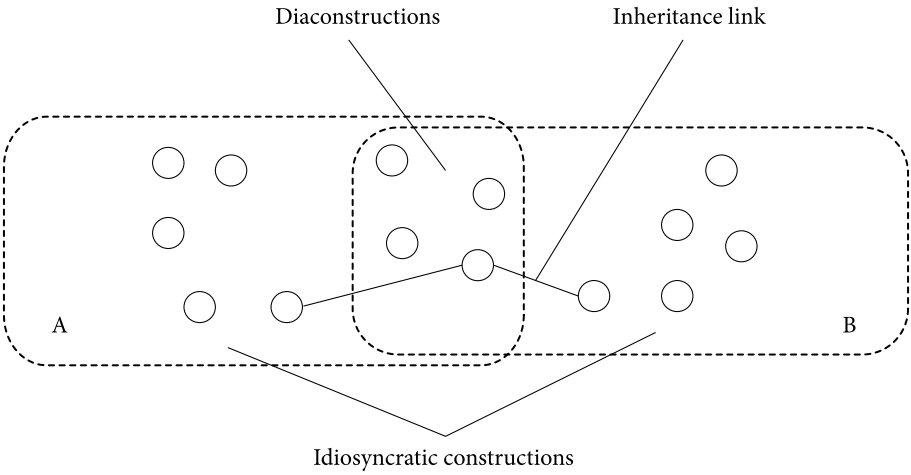


Figure 5. Inheritance links (Höder, 2014, p. 219)

As pointed out above, phonology is traditionally thought of as formal and non-meaning bearing, at least when addressed in isolation. While phonological properties (e.g. rising intonation) can be part of a cxns form — CxG assumes a phonological form for all specific, i.e. filled, constructions or constructional components such as lexemes or morphemes, phonological elements themselves are normally not conceived of as cxns or included in constructional analysis (Höder, 2014). However, as Höder (2014, p. 207) posits, "phonological elements do not disqualify *a priori* as constructional units. Rather, the status of phonological elements depends on their constructional (i.e. phonological, grammatical, pragmatic, lexical) context, and hence any such context deserves individual scrutiny."

Phonological details need to be carefully considered. Both in scenarios of monolingualism and bilingualism, there are various cases suggesting that phonological form needs to be specified, specifically "when we move from phonologically filled to more schematic constructions" (Höder, 2014, p. 208).[26] One example

26. Schematicity marks a central aspect of cxns in CxG. CxG is described as a non-modular approach, meaning that CxG does not make a categorical distinction between different structural levels as long as there are identifiable cxns. The key to this unified understanding of linguistic structures, as Höder (2019, p. 337) points out, is "the idea that form and meaning do not always have to be fully specified, but can also be more or less schematic." Although "there are lots of formalizable generalizations which can be described as some kind of (schematic) form associated with some kind of meaning" (p. 338), its limits as well as the division of labor between higher-order schemas and filled cxns are, however, discussed quite controversially. Due to space limitations, I do not pursue this issue further here. For a discussion, see e.g. Hilpert (2014; 2019).

marks instances of schematic phonological intensification, such as iconic vowel lengthening in phrases such as *This apartment is huuuge* (cf. Guerrini, 2020). Here, a speaker may express surprise or excitement (whether positive or negative), paired with further intensification on the suprasegmental level (meaning: positive OR negative intensification + form: vowel lengthening AND intonation).[27] A similar analysis of phonological schematicity within lexical or morphological elements can be presented for phonestemes[28] or stress assignment in English noun-verb pairs (e.g. *address, permit*, or *record*), where the noun has initial-stress, whereas the verb has final stress.[29] German contrastive focus (1) or intonational questions in French (2) mark another example (cf. Höder, 2014). In both cases, meaning is expressed solely by intonational patterns. In (2), a declarative statement is transformed into a question, whereas in (1) an affective component is added by assigning contrastive stress on a particular lexical item.

(1) German contrastive focus
[stress on contrastive element]
Er hat da'nach angerufen
3SG.M have-IND.PRS-3SG after call-PAST.PART
'He has called after an event happened, instead of calling before or during'

(2) French Intonational Question
[intonational patterns]
Tu parles anglais?
2SG speak-IND.PRS.2PL English
'Do you speak English?'

There are, in fact, also segments that qualify as meaning-bearing (and as cxns). Sound objects, including clicks or the affricate /pf/, mark one example (cf. Reber, 2012; Baldauf-Quilliatre & Imo, 2020). The dental click [ǀ], which is not part of the English phoneme inventory, may be used to express a negative affective meaning in English. In Turkish or Hebrew, by contrast, this segment has an affirmative logical meaning (cf. Gil, 2011). In DCxG terms, one may argue that for a Turkish-English bilingual there is a common Click DiaCxn [ǀ]. This diacxn is paired with

27. Note that iconic prosodic modulation is considered to be a suprasegmental feature, although it can affect both single segments as well as syllables. For a discussion, see e.g. Fuchs et al. (2019) or Guerrini (2020).

28. It would be compelling to think of phonestemes "as phonologically schematic cxns that are instantiated along with the lexical ones" (Höder, 2019, p. 339). Under this view, English *glitter*, for example, simultaneously instantiates a Vision Phonaestheme Cxn [[gl]-…] and a Glitter Cxn [glitter]. For more information see Höder (2014, pp. 206–207).

29. On the diachronic origins of this phenomenon, see e.g. Jespersen (1954) or Halle & Vergnaud (1987). '

context and language-specific meaning, namely affirmative logical in Turkish and negative affect in English (cf. Höder, 2014) — the idea of language-specificity will be discussed in the next section. The use of the affricate /pf/ in German marks a similar example. The segment may express relief, irrelevance (3), non-preference (4) and other affective components (Baldauf-Quilliatre & Imo, 2020, p. 227). As such, one can assume a PF Cxn, which is composed of ONE particular phonological form with various context-specific affective meanings.

(3) /pf/ in German
[irrelevance/lack of care]
Pfff das ist nicht so wichtig
that-PRON be-IND.PRS-3SG not so important
'Well, that's not really important'

(4) /pf/ in German
[non-preference]
Pfff lieber nicht
rather not
'Well, (I'd) rather not'

In sum, the examples discussed here illustrate that both segmental and suprasegmental features can play an important and *meaning*ful role in and across languages. There are various cases in which at least parts of a cxns phonological form can carry contextual or language-specific information that is communicatively relevant (e.g. dental click or rising intonation vs. /pf/ in German). Since the association of certain sound segments with meaning can be arbitrary, the examples further suggest that cxns underlie certain conventions that need to be learned during the process of language acquisition (cf. Höder, 2014; 2019; Höder et al., 2021). As such, it often becomes necessary to specify both phonological form and meaning.

4.2 Sounds are context and community-specific

One of the basic principles of DCxG is that 'grammar' is community-specific, meaning that the same language may be organized quite differently for individual speakers. As such, both mono — and multilinguals will choose cxns according to the communicative setting and certain conventions (see Section 2). This idea is inspired by the field of interactional sociolinguistics, in particular the work of Gumperz (1982; 2001), whose work also dealt with pragmatic values of phonological markers concerning conversational inferences. The author suggested that "most groups of any permanence, and of whatever size, can be 'treated as' a speech community, if the linguistic activities warrant study: groups bounded by face-to-

face contact like gangs, committees, and work groups, but also occupational associations, whole geographical regions and entire nation-states" (Gal, 2013, p. 120).[30]

In DCxG, speaking one variety — e.g. a slang, technical jargon, social dialect, regional dialect, or standard language — instead of the other, may also fulfil a socio-pragmatic function, i.e. to mark an utterance as belonging to one setting ⟨ $C_{Setting1}$⟩ , instead of another ⟨ $C_{Setting2}$⟩ .[31] Höder (2014) illustrates this particular scenario, showing how bilingual speakers of SG and Low German (LG) choose *specific* phonological elements from their common repertoire according to community-specific conventions to mark an utterance as belonging to a *specific* communicative setting that is either ⟨ $C_{StandardGerman}$⟩ or ⟨ $C_{LowGerman}$⟩ . SG and LG share many cxns, due to the languages' common origin, meaning that there is a considerable amount of functional and formal similarities (diasystematicity) for these languages. Consider, for example, the SG and LG words for *house* (SG: 'Haus'/haʊs/; LG: 'Hus' /hus/), which differ only in that the vowel slot is filled with either /aʊ/ or /u/ (cf. Höder, 2014).[32] The House DiaCxn describes a semantically identical concept (referential meaning: *house*) and specifies a phonological form that can be expressed by means of a lexical template [h_$V_{[aʊ, u]}$s].[33] The idiocxns, then, specify the nucleus vowel (Figure 6).

The example above illustrates that phonological schemas may represent both language-specific (idiocxn) and language-unspecific (diacxn) components of a word. Language-specific phonological structures may further have a function of their own, namely to mark language specificity. Höder (2014; 2019) also calls these idiocxns Phonological Language Markers (PLMs). Simply put, a SG/LG bilingual speaker will use the form [h_$V_{[aʊ, u]}$-s] to refer to the concept of a *house*, but in conventionally LG settings they will fill the vocalic slot with [u], whereas the diphthong is found in (Standard) German contexts. In DCxG, this function can be

30. Interactional sociolinguistics has also found its way into CxG (cf. Deppermann 2006; 2011; Imo, 2015).

31. In DCxG, chevrons/angle brackets ⟨ $C_{Glottonym}$⟩ are typically used to mark a cxns context-specificity. This context could be either speaking in a certain language, dialect, or register (e.g. German vs. English; at home vs. at a professional setting; rural hometown vs. urbanized city).

32. The sound correspondences between SG and LG arise from the common origins of these languages; the difference in phonemes, however, marks a result of the High German Diphthongization (/uː/ > /aʊ/), which has not affected LG (Salmons, 2018, pp. 208–211). Note at this point, however, that these two segments are phonetically very similar, which will be important for the further discussion of TxG.

33. The most influential way of analyzing phonology in CxG, which is non-derivational, is inspired by Autosegmental Phonology (Goldsmith, 1976), specifically 'root-and-pattern morphology' (McCarthy, 1981) and 'radical templatic phonology (Vihman & Croft, 2007). For a discussion and practical examples see Höder (2014, pp. 212–215).

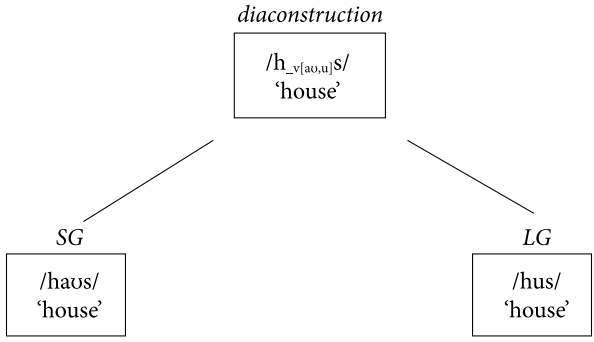


Figure 6. Phonologically schematic diaconstruction (Höder, 2014, p. 224)

analyzed as pragmatic meaning, which is congruent with "the general idea that in principle all kinds of conventionalized meaning should be included on the functional side of cxns" (Höder, 2019, p. 340).

Evidence for the existence of PLMs also comes from typologically different languages. In Malayalam, where increased contact with English has led to a variety of lexical loans, a particular type of variation in the degree of phonological adaptation of English-origin vocabulary has led to word-final schwa as a PLM of Malayalam. According to Namboodiripad (2021, p. 227), there appears a sort of "informal comparative method" that leads speakers "to label English-origin words ending in schwa as being 'Malayalam' (or adapted)," whereas English-origin words not ending in schwa are perceived as 'English' (or non-adapted). As such, language-specific /-ə/ carries pragmatic meaning.

(5) PLMs in Malayalam (Namboodiripad, 2021, p. 226)
   a. [braʃːə]
      '(tooth)brush' (labeled by speakers as "Malayalam")
   b. [braʃ]
      '(tooth)brush' (labeled by speakers as "English")

That sounds can have different community-specific meanings is clear from the phonological variation surrounding the fricatives in words such as *the, they*, and *that*. Orthographic *th* is represented by two different phonemes in AE, i.e. voiceless /θ/ and voiced /ð/ (cf. Kretzschmar, 2004; Labov, Ash, & Boberg, 2006). In African America English varieties (AAE) however, the word-initial voiced fricative is often pronounced as the stop [d] so 'the', 'they' and 'that' are pronounced as *de, dey*, and *da*t. AAE shares this feature with many other non-standard dialects in the US, most prominently those of the East Coast (Bailey & Thomas, 1998; Green, 2002; Edwards, 2004; Bailey et al., 2013). From a sociolinguistic perspective, one could argue that a pronunciation such as *dat* carries pragmatic meaning

for both dialect groups. While the nature and motivation behind this variation differs vastly for these groups, both East Coast and AAE pronunciations serve as identity markers. Further, these pronunciations are more commonly found within in-group communication that is ⟨ C_{AAE}⟩ or ⟨ $C_{EastCoast}$⟩ (Green, 2002; Rahman, 2008; Scanlon & Wassink, 2010; Britt & Weldon, 2015). This also reflects what Grosjean (2008, p. 22–34) refers to as the Complementarity Principle: different languages are used for different purposes in multilingual communities.[34] Much like in the Malayalam example above, dialect speakers can identify *dat* as belonging to their dialect, whereas *that* is perceived as "standard-like."[35] In DCxG terms, the relationship between 'standard' (or mainstream) and dialect can be expressed as follows (Figure 7). Here, /d/ is used to mark dialect/language-specificity.

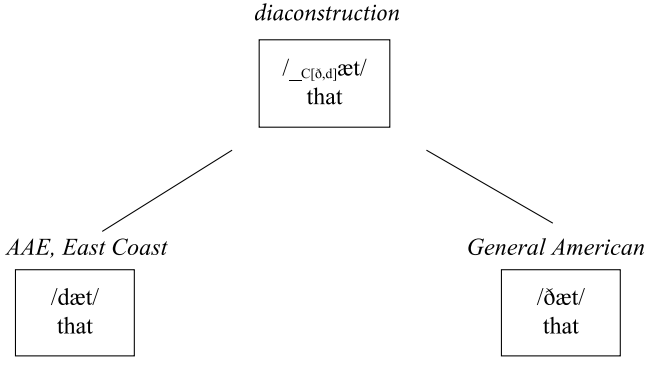


Figure 7. Phonologically schematic diaconstruction *that*

The analysis presented above can be applied not only to various ethnolects, such as *Kiezdeutsch* in Germany,[36] but to essentially any dialect. Most speakers in Germany, for example, can switch between their local dialect and their regional approximation of SG (DGfS, 2012; Kehrein & Fischer, 2016; Kehrein, 2019; Lameli, 2019) — the German Society for Linguistics even states "we are all able to adequately express ourselves in different contexts. We all speak multiple varieties of German."[37] While the constellation of regional/national standard varieties

34. That multilingual speakers may use different languages for different communicative purposes was pointed out as early as Oksaar (1980, p. 43).

35. This perception might also be identified as a process of enregisterment (cf. Agha, 2005).

36. The multi-ethnolect *Kiezdeutsch*, which shows various signs of structural influence from languages such as Turkish, Arabic, and Farsi, among others, is spoken particularly in Germany's urban centers. It also shares certain phonetic features with other German dialects, most prominently *isch*, instead of *ich* 'I' with Swabian. For more information on *Kiezdeutsch* see Wiese (2012) and Huenlich (2016).

in German speaking countries is a difficult issue (cf. Schmidt & Herrgen, 2011; Lameli, 2019),[38] "variative linguistic behavior" is "relatively predictable," at least in some situations (Kehrein & Fischer, 2016, p. 251).[39] A speaker of East Franconian spoken in the Würzburg area — like the author of this paper — may thus be capable of switching between their dialect (*des* 'that') and SG (*das* 'that') (Figure 8), and use this variable pronunciation to delineate one communicative setting from another. As such, they may use SG *das* in a more professional context, for example while teaching at the university $\langle C_{SG_TeachingGermanUniversity}\rangle$ or while giving a presentation $\langle C_{SG_AcademicPresentation}\rangle$. Dialectal *des*, on the other hand, may be found when addressing other speakers of East Franconian $\langle C_{EF_If\ SpeakerEF}\rangle$.

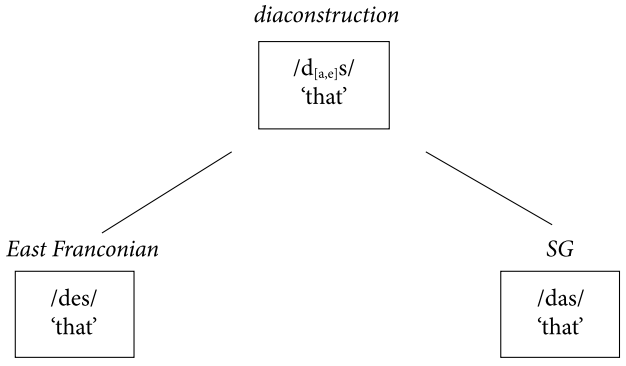


Figure 8. *das* 'that' in East Franconian and SG

The discussion so far has shown that sounds can be used to delineate communicative settings (context-specificity). My final example, the advanced loss of front rounded vowels in TxG, now demonstrates that sounds may play a community-specific role, suggesting that the same "language" may be organized into quite

37. "Die meisten Sprecher können zwischen ihrem lokalen Dialekt und dem Hochdeutschen wechseln. Wir alle können uns in verschiedenen Kontexten differenziert angepasst ausdrücken — wir alle sprechen mehrere Varianten des Deutschen."

38. Modern German dialectology mostly distinguishes between Standard, Regiolect, and Dialect. These manifest themselves in different so-called *Sprechlagen*. For an introduction see Schmidt & Herrgen (2011).

39. Both variety and Sprechlagen switching, which is also important in terms of socio-cultural identity, is further bound to various factors, including speakers' actual register and variety competence and their knowledge and beliefs about their respective communication partners' register and variety competence. For more information see Kehrein & Fischer (2016) and Kehrein (2019).

different grammars across and within different monolingual or multilingual communities.

The loss of front rounded vowels is well documented and has been discussed as early as Eikel (1954) and Gilbert (1963). Today, only a few TxG speakers pronounce front rounded vowels. As a result, lexical items such as SG *Tür* 'door' (/tyːɐ/) are often pronounced as [tiːɐ], meaning that *Tür* may either be realized as SG-like rounded [tyːɐ] or (more commonly) as unrounded [tiːɐ] (cf. Boas, 2009a; Pierce et al., 2015). In SG and most German dialects, however, unrounded [tiːɐ] refers exclusively to the concept of *Tier* 'animal.' And because the lexical item *Tier* 'animal' also exists in TxG, the phonological form [tiːɐ] may refer to two different semantic concepts (Figure 9), an 'animal' (like in SG) and a 'door' (community-specific). In this context, a difference in form /t$_{_V[iː,yː]}$ɐ/ does not necessarily indicate a difference in referential function. Speakers of TxG, here, know to rely on context and determiner use — in TxG, neuter (*das Tier* [tiːɐ]) refers to the *animal*, whereas feminine *die Tier* [tiːɐ] refers to the *door*.[40] To listeners unaware of these cues and unfamiliar with this community-specific sound variation — this includes most L1 German speakers (except for those speaking a dialect that shares this feature with TxG), it would be safe to assume that the form [tiːɐ], at least in isolation, would be associated with the SG meaning of 'animal.'

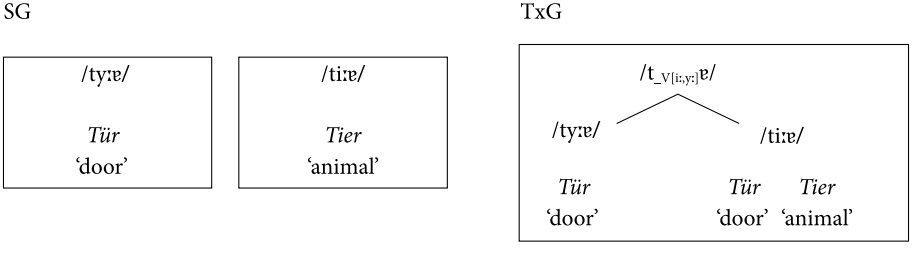


Figure 9. *Tür* 'door' [tyːɐ] and *Tier* [tiːɐ] in SG and TxG

In sum, the discussion revealed that sounds may carry context and community-specific meanings and that the same "language" may be organized into quite different grammars across and within different monolingual or multilingual communities. Particular sounds may serve as PLMs to mark language-specificity, which can be interpreted as pragmatic meaning (e.g. LG, Malayalam, EF). Moreover, developments, such as the loss of front rounded vowels, may also result in community-specific cxns. The examples presented in this chapter further

40. SG distinguishes three genders and four cases for determiners. In TxG, however, only the nominative case (*der, die, das* 'the') is stable since case-syncretism is far advanced in the dialect (cf. Boas, 2009a).

suggest that the constructional knowledge of speakers and listeners is important to interpret meaning (cf. also Boas, 2021). The next section now discusses diphthongization as an instance of pro-diasystematic change and argues that the AE diphthongs [eɪ] and [oʊ] have lost much of their language-specificity in present day TxG.

4.3 Diphthongization in TxG: Pro-diasystematic change

As previously discussed, traditional analyses share the view that linguistic convergence stems from the interaction between two separate language systems (see 2).[41] In this view, diphthongization in TxG could be analyzed as instance of phonetic substitution, a form of transfer from the source language upon the recipient language (cf. Van Coetsem, 1988). Specifically, one may argue that two phonetic segments from TxG have been (partially) replaced by two other phonetically similar segments from AE. A constructionist approach, however, accounts for contact-induced change in a different way.

In DCxG, linguistic knowledge is represented as a unified, interconnected system of cxns. This system comprises both language-specific and common cxns. As such, both synchronic alternations and diachronic changes must be modelled in terms of constructional innovation and reorganization. Most innovations, including loans, interlingual productivity, etc. occur *ad hoc*. In the long run, these innovations may be conventionalized, resulting in constructional reorganization, or simply put, language change (Höder, 2011; 2014; 2018; Höder et al., 2021). The progressive reorganization process associated with structural convergence, the most relevant and frequently observed form of change involved in language contact, is called pro-diasystematic change.[42] In this process, language-specific cxns are turned into common cxns. More specifically, pro-diasystematic change entails "a reorganisation of the constructional network and a reduced amount of constructional knowledge within the system as a whole," as language-specific idiocxns "are replaced by newly emerging diaconstructions containing fewer pragmatic restrictions and, hence, carrying less information" (Höder, 2018, p. 60). As such, this process both refines and simplifies the multilingual's constructional network, instead of complexifying the grammar of one language, as a traditional approach would imply (Boas & Höder, 2021, p. 3f).

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41. This also applies to the more recent usage-based approaches proposed by authors such as Johanson (2005; 2008) or Heine & Kuteva (2003; 2005).

42. While pro-diasystematic change corresponds to the traditional notion of 'convergence,' it is conceptually different. As such, it may even include some types of divergence. For an extensive discussion with examples see Höder (2012; 2014; 2018).

As for TxG, a variety of examples suggest the presence of newly emerging diacxns (cf. also Boas & Höder, 2018a, p. 22–26). I have already discussed Blevins (2018), who demonstrates that some speakers may utilize the idiosyncratic AE progressive marker – *ing* to mark TxG verbs with progressive aspect. At least in certain structural contexts, the AE progressive form "seems no longer to be idiosyncratic, but to have developed into a common structure within their bilingual repertoire," as Boas & Höder (2018a, p. 22) point out. Contact-induced adaptations such as *Gestern ich bin gegang zum Store* ('Yesterday I went to the store') further bear witness to pro-diasystematic change in TxG. Here, the English Declarative Clause Cxn [ADVP NP V PP] appears to have developed into a common syntactic structure shared by both languages. In consequence, the traditional German-type verb-second positioning of the finite verb in declarative main clauses is no longer required for some speakers of TxG (Boas & Höder, 2018a, p. 24). We can also find various instances of semantic transference such as *Meine Grossmutter ist in die zweite Grad gegang* ('My grandmother went to second grade'). Here, the word *Grad* coincides, in terms of form and meaning, with the English word *grade*, which is no longer language-specific and is often found instead of German *die Klasse* ('the class/grade').[43]

Considering the examples discussed above, I argue that diphthongization in TxG marks yet another example of pro-diasystematic change. First and foremost, my results confirm that /eɪ/ and /oʊ/ are no longer idiosyncratic and have lost much of their language-specificity. They are now found both in English and more increasingly also in present-day TxG. As such, a difference in form ([eː] and [oː] vis-à-vis [eɪ] and [oʊ]) does not automatically preclude a difference in function – this is also referred to as pragmatic bleaching. As previously discussed, sounds can carry meaning and, hence, qualify as cxns. This is especially the case if a sounds (form) can be used to delineate one communicative setting from another (pragmatic function). As we can see in (1), this has certainly been the case in TxG, where vowels /eː/ and /oː/ were found exclusively in $\langle C_{TxG} \rangle$. Diphthongs /eɪ/ and /oʊ/, on the other hand, defined a setting that was $\langle C_{AE} \rangle$. The contact-induced emergence of the diaphonemes [eɪ] and [oʊ] can be described (in a somewhat idealized manner) as follows – the darker/lighter shading indicates a change in psycholinguistic dominance; the increase of circles in the overlapping are illustrates higher levels of diasystematicity:

1. *TxG ca. 1920 (separate idiocxns, diglossia).*[44] Although English emerged as the new high variety, the linguistic situation for TxG was stable at the time (cf.

43. Note that this Grade DiaCxn would have two specified phonological forms (German *Grad* vs. AE *grade*).

Boas, 2009a). TxG, the low variety, was frequently used and served as the sole within-group vernacular. The influence of SG on TxG was already limited at the time (Boas & Fuchs, 2018).[45] Both TxG and AE have two mutually exclusive vocalic segments, /eː/ and /oː/ ⟨ C_{TxG}⟩ and diphthongs /eɪ/ and /oʊ/ ⟨ C_{AE}⟩ . As such, form /geɪt/ refers to AE *gate*, whereas /geːt/ refers to TxG *geht* 'goes.'

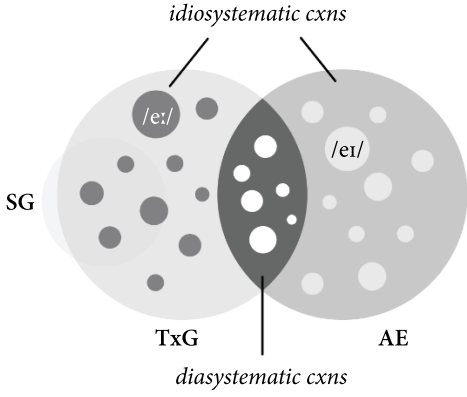


Figure 10. TxG ca. 1920 (separate idionconstructions, diglossia)

2. *TxG ca. 1960 (Gilbert, 1972, data, restructuring, language shift)*. Texas Germans have become increasingly dominant in AE, which is now acquired as the

44. The term diglossia describes a situation in which two varieties of the same language (Ferguson, 1959), or two non-genetically related languages (Fishman, 1967) coexist within a language community. The high (H) variety is used as a standardized, formal, and out-of-group medium (often connected to prestige), whereas the low (L) variety refers to a more colloquial and, in terms of its domain-use, more restricted variety (often for within-group communication). Around 1900, TxG served as the L and SG (primarily in written form) as the H, which was later replaced by English. For a discussion see Boas (2009a, pp. 40–61).

45. For a different view of the role of SG in Texas, see Salmons & Lucht (2006), who argue that in the 19th century "active control of Standard German was commonplace" (p. 198). Moreover, many newspapers, churches, and schools hired individuals from Germany, who were supposedly speakers of SG. This paper, however, subscribes to the view of Boas (2009a) and Boas & Fuchs (2018), who argue that Salmons & Lucht (2006) have overstated the importance of SG in Texas. German orthography had not been standardized until the turn of the 20th century. Moreover, the first to adopt a more standardized pronunciation were the urban, well-educated upper and upper middle class (cf. Elspaß, 2002). Boas (2009a) shows that most Texas Germans were farmers and craftsmen with only limited education in Germany. These individuals went through only 4–6 years of schooling and had "at best passive knowledge of the written standard when coming to Texas" (Boas, 2009a, p. 53).

sole L1. TxG is used only in restricted contexts. This development occurred due to historical factors, changing demographics, and various economic and social pressures (Boas, 2009a). As speakers progressively lose proficiency in TxG, the heritage language becomes subject to language attrition. The consequences of the overwhelming competition from the more frequently used and dominant language system promotes the restructuring process (indicated by dotted line).

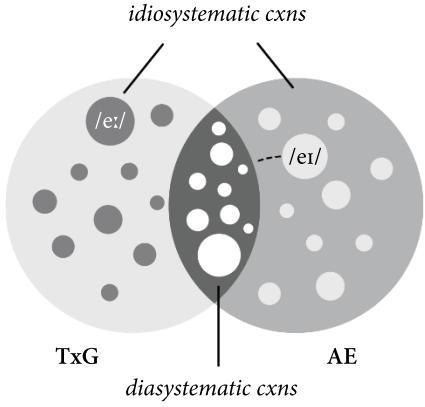


Figure 11. TxG ca. 1960 (Gilbert, 1972, data, restructuring, language shift)

3. *TxG ca. 2010 (TGDP data, reorganization, language death)*. The status of TxG today is best described as a scenario of gradual language death. Today, there are no monolingual speakers of TxG, which has become secondary in dominance and frequency of use and AE is now the dominant language for the linguistic community. Some speakers apply their dominant language pronunciation /eɪ/ and /oʊ/ to phonetically similar segments in TxG. This means (a) segments /eɪ/ and /oʊ/ are no longer idiosyncratic – they can be found in both ⟨ C_{TxG}⟩ and ⟨ C_{AE}⟩ ; and (b) the pragmatic distinction between /eː/ and /oː/ and /eɪ/ and /oʊ/ gets lost. Hence, a difference in form (*geht* 'goes' as /g$_{_V(eɪ,eː)}$t/ or *Kohl* 'cabbage' as /k$_{_V(oʊ,\ oː)}$l/) does not necessarily preclude a difference in function (pragmatic bleaching). The variation found in the TGDP data points to the fact that reorganization has not been completed (indicated by dotted inheritance links). As discussed above, other instances of pro-diasystematic change occur as well (more circles in intersection), whereas TxG idiosyncrasies are reduced (fewer circles in 2 and 3).

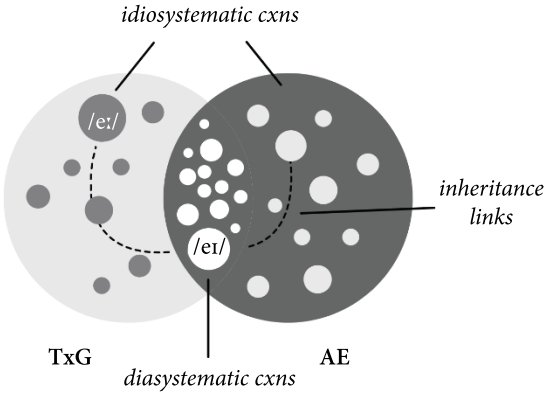


Figure 12. TxG ca. 2010 (TGDP data, reorganization, language death)

In summary, the sociohistorical realities, increasing contact with AE speakers, and the resulting influence of AE on TxG from the 1940s to the 1960s to the present day, have promoted language shift and, along with it, language attrition. Consequently, speakers of the heritage language express signs of natural and contact-induced attrition, which has benefited a restructuring process, in which idiosyncratic phonetic segments from AE (idiophonemes) become increasingly conventionalized and are now commonly found in TxG speech (for more examples of AE sounds in TxG see Warmuth, 2022). From a cognitive perspective, both psycholinguistic dominance and the phonetic similarity between /eː/ and /oː/ vis-à-vis /eɪ/ and /oʊ/ play a major role here, as pointed out above. It is, as such, no coincidence that language co-activation might lead speakers to increasingly disregard an idiophonemic contrast. In a multilingual context, language choice and specificity are highly functional and conventional as they serve an individual's and a community's communicative needs (see above). Under the influence of the more dominant language (AE), speakers started to apply their articulatory habits on acoustically similar segments in their psycholinguistically weaker language (TxG) — note that from a functional, typological, and psychomotor/mechanical perspective, both /eɪ/ and /eː/ and /oʊ/ and /oː/ share a variety of commonalities (e.g. starting point, i.e. the first element is qualitatively similar, vowel quantity, i.e. tense vowels and diphthongs are longer than short vowels, tense vowels and diphthongs are found in open syllables). Considering this, the process of restructuring is also highly economical. As Höder (2011, p. 120) puts it: "For speakers, the immediate benefit of such change lies in its reduced cognitive load."[46] Unlike language-

46. "Der unmittelbare Vorteil eines solchen Wandels für die Sprecher liegt in der verringerten kognitiven Belastung."

specific segments, the newly emerging diaphonemes, segments /eɪ/ and /oʊ/ have *de facto* no pragmatic restrictions – they can be used in ⟨ C_{TxG}⟩ and ⟨ C_{AE}⟩ to convey the same meaning. I conclude that diphthongization in TxG marks an instance of pro-diasystematic change. This change is triggered by at least four factors that work in conjunction (multi-causation): language contact with AE, lack of exposure to SG,[47] and most strikingly language attrition and language death (for a more detailed discussion, see Warmuth, 2022).

5. Concluding remarks

This paper provided a constructionist approach to the increased use of AE diphthongs in present-day TxG. Perceptual analysis and phonetic measurements of TGDP data revealed that diphthongization of SG /oː/ and /eː/ to [eɪ] and [oʊ] appears among many speakers. The phenomenon, which marks an instance of synchronic variation, appears to be variable, externally motivated, and speaker dependent. In addition, it may also be bound to certain language-internal factors, such as frequency or syllable structure (see below). Diphthongized variants generally fall on a spectrum, i.e. there are very clear cases of allophonic lengthening as well as examples of diphthongs with less pronounced dynamic features. Statistical analysis suggested that age correlates with this phenomenon, but not gender – there is also no differential age effect for the gender variable. There are possibly three different speaker types: the smallest group, (A) those who show higher retention values for long vowels; the largest group, (B) those who alternate between AE and SG segments; (C) and those who predominantly pronounce diphthongs. 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.

After an introduction to DCxG (Section 2), the paper first provided a detailed analysis of diphthongization (Section 3). I then discussed the phenomenon from a DCxG perspective (Section 4). Due to its focus on the multilingual constructicon, DCxG offers the possibility to analyze language contact phenomena in an inherently multilingual and innovative way. Rather than conceptualizing contact-induced change (or convergence) in terms of interaction/conflict between different languages, loans, interferences, and impositions from one language upon the other can be modelled as processes that are located within a unified system of

47. The implications are straightforward: exposure to SG would have presumably upheld a more standard-like pronunciation/register, and with it, the use of /eː/ and /oː/.

constructional knowledge, rather than between separate linguistic systems (Boas & Höder, 2021, p. 3).

Section 4.1 first discussed the role of phonology in CxG and cognitive linguistics. Although phonology represents a field that CxG has traditionally steered clear of, the discussion has shown that phonological elements are not automatically disqualified as constructional units. In fact, a variety of examples illustrate that segmental and suprasegmental elements may carry contextual information that is communicatively important — they can mark an utterance as belonging to different communicative settings. From a constructionist perspective, this qualifies as a cxns pragmatic meaning, specifically if these elements "form part of socially conventionalized and cognitively embedded interlingual correspondences" (Höder, 2014, p. 227).

Section 4.2 then went into more detail on how language choice and specificity is both context and community-specific. I provided a variety of examples from the domain of phonology to illustrate this claim (e.g. LG, Malayalam, AAE, EF, and TxG) and arrived at the conclusion that (a) sounds may depend on sociopragmatic context and (b) that even the same "language" may be organized into quite different grammars across and within different multdialectal/multilingual communities. The section also discussed the importance of specific sounds as Phonological Language Markers (PLMs). PLMs, as Höder (2014; 2019) points out, may serve as a tool mark language-specificity.

Section 4.3 analyzed diphthongization in TxG as an example of prodiasystematic change, i.e. a mechanism that turns language-specific cxns into common cxns. Language attrition and language death appear as the major driving forces behind this restructuring process, which from a cognitive perspective is also highly economical. I argued that the AE diphthongs [eɪ] and [oʊ] are no longer idiosyncratic and that these segments have become increasingly conventionalized — the change in pyscholinguistic dominance (AE is the dominant language for all speakers of TxG today) and acoustical similarity play an important role here. Since [eɪ] and [oʊ] can be found in both $\langle C_{TxG} \rangle$ and $\langle C_{AE} \rangle$, a difference in form (/e:/ and /o:/ vis-à-vis [eɪ] and [oʊ]) does not *per-se* preclude a difference in function in present-day TxG (pragmatic bleaching).

Ultimately, the application of DCxG to language contact offers a radically new perspective on cross-linguistic grammatical research compared to traditional analyses. Although DCxG establishes specific formalization routines, e.g. the notation of language-specificity as ⟨Cglottonym⟩, linguistic analyses do not "require any theoretical or formal machinery in addition to the key concepts and assumptions that are shared by usage-based constructionist approaches in general" (Boas & Höder, 2021, p. 4). In fact, its non-modularity allows capturing various instances of linguistic change in one unified and integrative framework.

DCxG also considers the socio-cognitive realities and possible consequences of bilingualism, including language acquisition and attrition/loss. As such, the theory provides a cognitively more realistic view on the phenomenon of diphthongization and may even account for "the fact that the way individuals process their linguistic input and organize their linguistic knowledge is not homogeneous across speaker groups using the same language, and some speakers may rely more heavily on structural patterns than others" (Dabrowska, 2015, p. 662).

The observations made in this paper provide a valuable insight into a restructuring process affecting the linguistic system of TxG. In order to arrive at a full and empirically valid account, however, the present analysis must account more systematically for additional sociolinguistic variables, such as English and German language use over time, education, fluency levels, L2 onset, etc. Open questions also surround the phenomenon's potential connection to the phonological environment, frequency of occurrence, phonological or orthographical similarities. Finally, my results also raise questions that are beyond the scope of this paper. For example: Why do certain sound segments stay language-specific? In these regards, the present analysis must be applied to a much wider range of phenomena. Further study of language attrition is also needed, particularly with regards to inter — and intraspeaker variation.

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