



## University of Pennsylvania Working Papers in Linguistics

---

Volume 19

Issue 1 *Proceedings of the 36th Annual Penn  
Linguistics Colloquium*

Article 4

---

1-28-2013

# How Deep is Your Syntax? Heritage Language Filler-Gap Dependencies

Joshua Bousquette

*University of Wisconsin - Madison*, bousquette@wisc.edu

Benjamin Frey

*University of Wisconsin - Madison*, bfrey2@wisc.edu

Nick Henry

*Penn State University*, nah5157@psu.edu

Daniel Nützel

*Indiana University - Purdue University Indianapolis*, dnuetzel@iupui.edu

Michael Putnam

*Penn State University*, mtp12@psu.edu

*See next page for additional authors*

---

# How Deep is Your Syntax? Heritage Language Filler-Gap Dependencies

## Abstract

This paper explores transfer of parasitic gap (p-gap) constructions from English into German by heritage speakers in Wisconsin. Kathol (2001) argues that German lacks ‘true’ p-gap constructions compared to English. Engdahl (1983:73/2001) introduces an accessibility hierarchy of domains in which p-gaps are accepted:

(1) Engdahl’s accessibility hierarchy for occurrence of MGCs (partial)

### most accessible least accessible

manner adv. > temp. adv. > purpose clauses > that, than > when, because > relative clause

[untensed domains] [tensed domains]

The licensing of p-gaps may thus be variable in several regards, including across complement vs. relative vs. adjunct clauses, and more basically between tensed and untensed domains. We probe whether the licensing strategies for p-gaps of a dominant L2 (English) can affect an incompletely-acquired L1 (German) that does not license such gaps and, if so, whether such strategies follow Engdahl’s hierarchy. The presence of p-gaps would support the work of Grosjean (2008), whose view predicts that English syntax may surface (i.e., ‘seep through’) in spoken German if English has become the dominant language for an individual.

Our results support the theory of ‘grammatical seeping’, and our speakers in general behave in accordance with the predictions of Engdahl’s hierarchy. They produce p-gaps in English-to-German translations relatively frequently in manner clauses, often in temporal clauses and rarely in relative clauses. In temporal clauses we find considerable syntactic restructuring. In the least accessible context, relative clauses, speakers restructure more fundamentally, in order to eliminate the gapping environment altogether.

## Authors

Joshua Bousquette, Benjamin Frey, Nick Henry, Daniel Nützel, Michael Putnam, Joseph C. Salmons, and Alyson Sewell

# How deep is your syntax? Heritage language filler-gap dependencies

Joshua Bousquette, Benjamin Frey, Nick Henry, Daniel Nützel,  
Michael Putnam, Joseph Salmons, and Alyson Sewell\*

## 1 Introduction

This paper presents new findings on the extent to which heritage languages can license null elements, the initial part of an ongoing project on heritage grammar. Unlike previous work on the licensing of null elements in heritage grammars that focused exclusively on non-overt subjects (i.e., pro-drop), we report on pilot data involving filler-gap dependencies. In particular, our pilot data focuses on how parasitic gap constructions (hereafter p-gaps) are licensed in heritage languages. We draw data from heritage varieties of German in eastern Wisconsin. Heritage languages are first languages (L1s) spoken predominantly in the home or in limited sociolinguistic domains in a culture where another language is dominant.

Much research treats heritage grammars as structurally limited, in a sense less ‘complex’ than the grammars of monolingual speakers or full bilinguals, whether that is attributed to incomplete acquisition, attrition, or something else (Polinsky and Kagan 2007, Montrul 2008, Rothman 2009).<sup>1</sup> For instance, Polinsky and Kagan (2007:383) present evidence and arguments that heritage language speakers may lack NULL ELEMENTS in their syntax, consistent with the view that overt elements are easier to process and gaps more difficult.<sup>2</sup> Another body of work shows the influence of L2s on L1, which we call ‘seeping’ (Grosjean 2008). This research would suggest that gaps from a dominant L2 grammar that licenses gaps could enter a heritage grammar that doesn’t. These proposals represent two possibilities: Heritage speakers may lack certain kinds of complexity due to the way they have acquired and use a language, on the one hand, while on the other, a speaker’s dominant language may introduce novel kinds of complexity into the heritage variety.

We investigate this tension by testing whether p-gap constructions exist in Wisconsin heritage German. German and its dialects overwhelmingly lack ‘true’ p-gaps (Kathol 2001) due to the numerous additional stipulations placed on p-gap licensing in German (e.g., argument structures of the matrix predicate and the verb closest to the p-gap, the fact that the lexical verb of the clause hosting the p-gap must be verb-final, etc.). The null hypothesis is that Wisconsin German speakers should not license them except in very limited environments (if any). The status of these varieties as heritage languages should provide an additional constraint on the appearance of gaps *qua* null element, *à la* Polinsky and Kagan (2007:383). Since English licenses p-gaps in a variety of different domains, they could appear from contact with now-dominant English. This provides a test between the view that heritage speakers will avoid null elements on the one hand versus the view that L2 grammar may seep into L1 on the other: Heritage speakers who consistently lack gaps would support the former view that heritage speakers avoid null elements, while the presence of gaps would support grammatical ‘seeping’.

A more nuanced outcome is also possible, which draws on both accounts. In the ongoing acquisition process, for both the heritage language and the socially dominant language, we must reckon with a finer-grained result than global ‘avoidance of null elements’ or wholesale adoption of patterns from the dominant language in the heritage language. The question may not be whether, for instance, heritage speakers prefer overt elements, but in precisely which contexts and how

---

\*Parts of this paper have been presented in 2012 at the Center for Language Sciences, Penn State (March), the Penn Linguistics Colloquium (PLC 36) (March) and the Germanic Linguistics Annual Conference at Indiana University (April). In addition to those audiences, we thank the following: Rena Cacoullos, Giuli Dussias, John Lipski, and Monica Macaulay. The usual disclaimers apply.

<sup>1</sup>However, as pointed out by Siegel (2008, Chapter 2.2), such a definition heavily depends on the heuristics that are used to measure and determine “simplicity” in linguistic structure and paradigms.

<sup>2</sup>See Clahsen and Felser’s (2006) SHALLOW STRUCTURES HYPOTHESIS (SSH) for L2-language processing, that L2-learners rely more heavily on lexical-semantic information than L1 speakers who have more access to (morpho)syntactic properties.

strongly. Likewise, seepage may not simply mirror large swaths of the dominant-language grammar, but may involve adoption and adaptation of highly specific patterns. From that perspective, if any gaps are allowed, they should occur more often and more robustly in more ‘accessible’ syntactic contexts. That is, if speakers of German begin to allow the licensing of gaps in any environment, we anticipate that they will do so in a structurally differentiated way. Following Engdahl (1983/2001), we interpret that to mean that p-gaps will appear in licensing domains preferably headed, for instance, by manner adjuncts over relative clauses. We present evidence building on her hierarchy of accessibility of p-gaps, a gradient scale of markedness of domains in which p-gaps can be licensed cross-linguistically.

This paper is structured as follows: Section 2 introduces the community and speakers, highlighting how this population differs from other ‘heritage language’ speakers in the recent literature. Section 3 introduces multiple gap constructions and the Accessibility Hierarchy. Section 4 presents methods of data collection, relevant materials elicited and the procedure used for analysis of the material. Section 5 explains the results, while Section 6 concludes.

## 2 Background

Most recent work on heritage languages has been conducted with children of recent immigrants, often children first exposed to the heritage language in the hearth country before moving to North America. Once immersed in an English-dominant society, heritage speakers may have been immersed suddenly in an overwhelmingly English-speaking environment, so that children who had begun acquiring Russian, Spanish or Korean as an L1 also acquire English as a relatively early L2 and English becomes the usual language of day-to-day life. While this burgeoning body of research has treated speakers of many different languages in English-speaking settings, it has to date hardly dealt with German as a heritage language.

Our speakers are 3rd–5th generation Americans who have typically lived their entire lives, aside from military service or education, in the areas where they now reside. Interviews have been conducted with dozens of speakers from eastern Wisconsin. German immigration to the area was heavy for decades after ca. 1840, with a smaller flow of later immigration continuing until about 1930. English had a presence in these communities from the beginning, including by some ‘old stock American’ English-speakers, but German monolingualism—or far more commonly, multilingualism in different ‘Germans’—remained common into the 20th century; 10–24% of some communities reported inability to speak English in the 1910 Census, including Wisconsin-born and third-generation monolinguals (Wilkerson and Salmons 2008).

Our consultants come from the last generation of fluent German speakers, most born 1914–1940, although there are younger individual speakers. Most had spoken German, often only German, until school age, and have since used the language in increasingly limited domains, especially in recent decades. Even speakers with limited proficiency use the language in surprisingly varied ways (Sewell 2011). Our consultants were exposed to local German varieties (the base varieties of which do not, as far as we know, license gaps) until about age six. From then, English, to which they probably had already been exposed, would have become an important source of input for them, with ongoing exposure to German past the critical period. Given differences in their biographies, speakers naturally vary in proficiency, measured informally in terms of fluency in conversation with other speakers. All speakers whose results are included here were able to engage in free conversation and perform general sentence translation tasks.

## 3 P-gaps, the Accessibility Hierarchy, and the Implications

A stark contrast between the basic syntax of English and German, in their standard varieties and regional dialects, is that the former licenses p-gaps in a variety of different environments in which the latter does only in very limited contexts (if at all).<sup>3</sup> There are, however, conflicting definitions of p-gaps in the current literature. For example, Culicover (2001:3) observes that a p-gap “appears

---

<sup>3</sup>See Kathol (2001) for the argument that German does not license ‘true’ p-gaps in the sense of Postal (1994).

in a location that normally does not permit extraction.” This is only half of the story, say some scholars: the existence of a p-gap is dependent (hence, parasitic) upon the presence of another ‘true’ gap (i.e., one that licenses ‘normal’ movement/a filler-gap dependency); this is, they maintain, the defining trait of p-gaps. For present purposes, we accept both classes of filler-gap dependencies introduced above as subsets of ‘p-gaps’, recognizing that the existence of a ‘true’ gap in most instances is commonplace, but not necessary.

Consider the following English examples, using Engdahl’s (1983/2001) notation of ‘pg’ to mark the parasitic gap:

- (1) Parasitic gaps.
  - a. [Which book]<sub>1</sub> did you sell t<sub>1</sub> without reading pg<sub>1</sub>?
  - b. Is that the girl<sub>1</sub> (that) he kissed t<sub>1</sub> without looking at pg<sub>1</sub>?
  - c. Sheboygan<sub>1</sub> is a city that people like t<sub>1</sub> when they visit pg<sub>1</sub>.

German can license the ‘true’ gap (t<sub>1</sub>), but not the parasitic gap:

- (2) Absence of parasitic gapping in German.
  - a. Welches Buch hast Du verkauft, ohne **es/\*pg** gelesen zu haben / zu lesen?  
Which book did you sell, without **it** read having / reading  
“Which book did you sell t<sub>1</sub>, without having read / reading **it**?”
  - b. Ist das das Mädchen<sub>1</sub>, das er geküßt hat, ohne **sie/es/\*pg** anzugucken?  
Is that the girl, who he kissed has without **her** looking at  
“Is that the girl<sub>1</sub> who he kissed t<sub>1</sub> without looking at **her**?”
  - c. Sheboygan ist eine Stadt, die Leute gern haben, wenn sie **sie/\*pg** besuchen.  
Sheboygan is a city, that people like, when they **it** visit.  
“Sheboygan<sub>1</sub> is a city that people like t<sub>1</sub> when they visit **it**.”

The ABSENCE of p-gaps in sentences like (2) should reflect a direct continuation of German syntactic structures brought by settlers to Wisconsin and handed down to successive generations of learners. It would also be consistent with the lack of null elements claimed for heritage language speakers. The OCCURRENCE of p-gaps here, in contrast, signals a major innovation vis-à-vis the earlier syntax of these varieties. It would mean that L1 German speakers have developed a grammar that licenses new kinds of p-gaps, presumably driven by their native or native-like competence in English, which does allow these gaps. Such a development would, more importantly, run directly counter to claims that “heritage speakers ... have difficulty maintaining syntactic dependencies pertaining to a more abstract level of syntactic representation, what was traditionally termed ‘deep structure’,” as Polinsky and Kagan (2007:382) put it. They specifically argue that “low-proficiency” heritage speakers “have significant difficulties producing null elements” (Polinsky and Kagan 2007:383). The example below is from a heritage Russian speaker, 23 years old, whose acquisition of Russian as L1 had been “interrupted” at about age 5 (as they put it), so this speaker is roughly comparable with our speakers. The pronouns (bold) create “an impression of extreme redundancy, with pronouns commonly appearing where the baseline language does not show any” (2007:383).

- (3) Overuse of overt elements in the speech of a Russian heritage speaker (Polinsky and Kagan 2007:383).
 

mal’cik	#	<b>on</b>	imel	sobaka	i	ljaguška.	#	<b>on</b>	ljubit	ego	ljaguška	
boy			3sg	had	dog.dc	and	frog.dc		3sg	likes	his	frog.dc

Example (3) from Polinsky and Kagan (2007) represents an often-treated topic in heritage grammar and bilingualism generally, subject pro-drop (e.g., Otheguy et al. 2007, Montrul 2008:117ff., 228ff., Nagy et al. 2011, Sorace 2011). However, heritage speakers of pro-drop languages, like Slavic and Romance, live in an English-dominant society. English is not a pro-drop language, and contact may provide motivation for increased pronominal usage (but see Nagy et al. 2011), so that heritage status alone is not easily tested.

In fact, multiple lines of research find evidence against conceiving of the L1 as an

impenetrable system and the effects of an L2 on an L1 are well established in a variety of settings. Specifically among bilinguals for whom one language is clearly dominant, Grosjean (2008:63–64) argues that:

Bilinguals who are highly dominant in one language may simply not be able to control language mode in the same way as less dominant or balanced bilinguals. Although they may deactivate their stronger language in a monolingual environment that requires only the weaker language, it will simply not be developed enough or active enough to allow them to stay in a monolingual mode. Future research will have to investigate the underlying mechanisms that make a stronger language **‘seep through’** despite the fact that it has been deactivated.

We adapt his notion of ‘seeping through’ here for the particular situation of the possible English-like licensing of null elements in heritage German, as described above.

For heritage speakers of pro-drop languages, two different pressures may be pushing in the same direction: avoidance of null elements and the lack of pro-drop in the socially dominant language. If such speakers use more overt elements, it could be attributable to either factor. A more direct test of the avoidance hypothesis would be patterns where the heritage language does not license null elements but the society’s dominant language does. Parasitic gapping in heritage German provides such a test. In fact, the test is considerably sharper still: Subject pro-drop represents a kind of minimal null element in terms of the ‘abstractness’ of the syntactic relations involved. Parasitic gapping involves more complexity, including distance between the null element and the element it refers to. Also, pro-drop in languages like Spanish is not mandatory, though pragmatically and syntactically conditioned, so that subject pronouns are not ungrammatical.

The fieldwork results presented below concern the licensing of a particular kind of empty category which German generally does not allow, so that English-to-German translations should lead to the presence of an overt (pro)nominal element. That is, our speakers should be expected to fill the gap in certain environments. In this regard, our fieldwork on p-gaps pertains to “a more abstract level of syntactic representation” than Polinsky and Kagan’s example, so that the presence of null elements would be less expected with p-gaps than in the relatively simple Russian example above. Moreover, since the heritage language does not license the relevant null elements and the dominant language does, we have a direct test of the role of the proposed avoidance of null elements: Unlike with pro-drop, the heritage language does not license null elements where the dominant language does.

If there are p-gaps among our speakers, previous research leads us moreover to expect that p-gaps will be licensed or not variably according to the syntactic context. Engdahl (2001:72–73) proposed an implicational hierarchy of p-gaps, similar to the noun phrase Accessibility Hierarchy developed by Keenan (1975) and Keenan and Comrie (1977).

While English speakers’ intuitions about the viability of p-gapping are variable, European German speakers we have worked with emphatically reject the particular parasitic gap constructions investigated in this paper. We take p-gaps in our test sentences to be foreign to varieties of German, including those imported to Wisconsin. A growing literature—based on Berwick and Weinberg (1983), Crain and Fodor (1985), Frazier, Clifton, and Randall (1983), etc.—interprets the primary burden for the gradience of acceptability with respect to p-gaps in terms of processing effects. This makes sense in light of Gibson’s (1998) proposals on the effect of distance in processing, where he shows that structures licensed by the grammar can essentially be ‘unlicensed’ by the processor. In other words, the processing cost of building structural interpretations for complex sentences (which is heavily influenced by the ordering of constituents and the number of discourse referents to be held in memory) can lead to gradience in acceptability. Engdahl’s Accessibility Hierarchy (Table 1) addresses this gradience. Our hypothesis is that heritage German speakers who produce any p-gaps will produce them more readily at the most accessible end of the hierarchy (the top in this table) and less at the less accessible end of the scale.

In Example (1a) above, we have a prototypical example of a p-gap licensed in an untensed adjunct clause headed by a manner adverbial, which, according to Engdahl’s hierarchy, should appear in the majority of languages that license p-gap constructions (at least to some degree).

Manner adverbs	Untensed domains
↓	
Temporal adverbs	
↓	Tensed domains
Purpose clauses	
↓	Tensed domains
That/that clauses	
↓	Tensed domains
When/Because/cond. If clauses	
↓	Tensed domains
Relative clauses	
Indirect questions	

Table 1: Engdahl's Accessibility Hierarchy.<sup>4</sup>

Examples (1b) and (1c) are similar to the first example, with the p-gap residing in an adjunct clause headed by a manner adverbial and a temporal adverbial respectively.

## 4 Methods

To test licensing domains within which p-gaps may occur in heritage grammars, we constructed test sentences drawing Engdahl's (1983/2001) Accessibility Hierarchy for the occurrence of p-gaps. We report results from 24 speakers from longer interviews. A team of investigators conducted sessions usually lasting 2–3 hours with individuals or small groups. Speakers were given at least 22 sentences to translate from English into German, of which five contained a p-gap, shown in the table below. Additional sentences included numerous distractors, as well as sentences aimed at eliciting other syntactic patterns.

Manner 1	Which book did you sell without reading?
Manner 2	Is that the girl he kissed without looking at?
Temporal 1	Sheboygan is a city that people like when they visit.
Temporal 2	This is the food that you have to cook before eating.
Relative	This is the book that people who read really like.

Table 2: Test sentences for p-gaps.

In terms of Engdahl's hierarchy, the first two sentences contain p-gaps in manner adjuncts, the most accessible category, while the third and fourth have them in temporal domains. While Manner and Temporal adverbials appear next to each other in the original Accessibility Hierarchy, we have reasons to expect them to be different in the context of German speakers. The last sentence represents the least accessible end of the hierarchy, with a gap in a relative clause.

Our heritage speakers vary in how they react to translation tasks generally, and especially sentences with p-gap constructions. One common strategy is to restructure or reformulate the sentence syntactically, especially when the basic syntactic structures of English and German do not match closely. That is, they often translate the gist of the sentence rather than providing a narrow rendition following the original syntax. As a result, our analysis must consider not only whether speakers produce a German-like p-gap-less sentence or an English-like sentence with p-gaps, but also whether they have produced a syntactically different sentence. We have developed a flowchart, below, to map the relationship between the original sentence containing a p-gap and the

<sup>4</sup>We are unaware of work testing this hierarchy with typologically diverse data. Nonetheless, the hierarchy allows us to make testable predictions.

translations produced by our speakers.

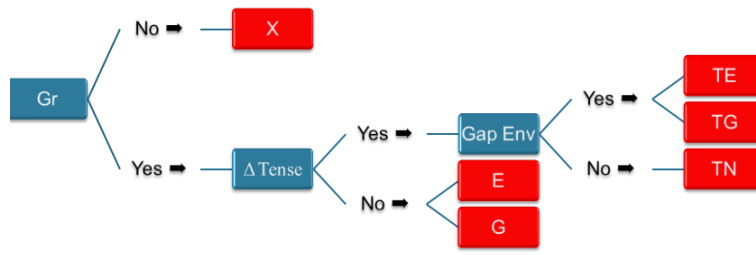


Figure 1: Flowchart for analysis.

This flowchart is designed to evaluate translations of the English prompt.

Evaluative boxes are coded blue; terminal nodes with their designation are given in red. The first evaluative box is Gr, where we ask whether the utterance produced by our consultant is grammatical in (their) German. If not, then that is marked with an X. If it is grammatical in (their) German, we progress to the next box, delta-Tense.

The delta-Tense ( $\Delta$ Tense) evaluative box asks whether or not there has been a syntactic restructuring, defined here as a change in the tense domain. Employing the change in tense domain as a diagnostic for syntactic restructuring draws the analysis of the data in line with Engdahl's hierarchy.<sup>5,6</sup> If there has been no change in the tense domain, we consider the German utterance syntactically equal to English prompt, and we can evaluate whether the speaker produces a translation with either English-like gapping (E) or a German-like filled gap (G).

If the tense domain has changed, we need to capture the ways in which the utterance produced by the speaker differs from the English prompt and to evaluate the syntax in terms of how speakers negotiate gapping structures in the English prompt. The GapEnv box is the first stage in evaluating utterances that are grammatical but do not replicate the tense domain and gapping environment of the English prompt. The GapEnv box asks whether a gapping environment still exists in the utterance, despite a change in tense domain. If the gapping environment has been removed by a change in tense domain, then we label this TN, where T = change in tense domain, and N = elimination of gapping environment. One particularly common type of TN examples are relative clauses (including caseless relatives), where the relative pronoun serves as both a referent and a piece of clausal structure that cannot be 'gapped'.

If the tense domain has been changed but the gapping environment remains, then we mark the utterance with a T, and then evaluate whether the utterance has English-like gapping or a German-like lack of gapping. These outputs would be designated either TE or TG, differentiating both of them from E/G and TN data. Common types of TE and TG structures involve coordination.

In summary, the various output varieties include six outputs in three main categories:

(4) Overview of categorization of responses.

Category X (crash):

X = Interviewee failed to produce grammatical utterance.

Category E/G (maintenance of tense domain):

E = Interviewee produced grammatical utterance with English-like gapping.

G = Interviewee produced grammatical utterance with German-like lack of gapping.

Category T (change in tense domain):

TN = Interviewee produced grammatical utterance, but changed the tense domain and eliminated the gapping environment(s).

<sup>5</sup>Examples of syntactic restructuring typically involve change in tense, such as change from infinitive clauses to present tense, or the addition of modal verbs.

<sup>6</sup>Future work on this topic will expand the definition of syntactic restructuring.



TE = Interviewee produced grammatical utterance albeit with a change in tense domain that nevertheless maintained gapping environments, and produced English-like gapping.  
 TG = Interviewee produced grammatical utterance albeit with a change in tense domain that nevertheless maintained gapping environments, and produced a German-like lack of gapping.

This flowchart aims to capture whether speakers produce German-like or English-like structures along with the range of translation strategies.

## 5 Results

We will not present results on individual differences here, but speakers cover a broad range.<sup>7</sup> Some speakers had crashes on all five sentences (speaker 12), while others gave German-like translations on three of the five (speaker 22). Many speakers consistently restructured their translation. Results in Table 2 are labeled for each sentence, A through E, in accordance with the flowchart laid out above. Results from 24 speakers show that no speaker produced all German-like structures, and most speakers provided at least one p-gap.

	M1 (A)	M2 (B)	T1 (C)	T2 (D)	R (E)
X	9	13	15	1	8
E	9	7	1	3	1
G	0	1	3	1	1
TE	3	2	2	6	1
TG	1	3	3	13	0
TN	4	1	5	3	16

Table 3: Overall results by sentence (Most common (non-crash) responses highlighted).

Clear differences appear across the test sentences. Both sentences with manner adverbial adjuncts show large numbers of ‘E’ responses, while the temporal adjunct sentences range across ‘G’, ‘TN’, and ‘TE’. The sentence with a gap in a relative clause is overwhelmingly restructured to eliminate the gapping environment. We consider now two questions about these results:

Q1: Do speakers tolerate p-gaps and, if so, are gaps systematic, and specifically, produced in accordance with the predictions of Engdahl’s hierarchy?

Q2: Is there a correlation between accessibility of domains and the tendency of speakers to restructure? That is, are speakers more prone to reformulate sentences as the contexts become less accessible?

We leave aside crashes, marked ‘X’, because they are not immediately informative.<sup>8</sup> We do not undertake statistical analysis, pending results from more recent interviews and refinement of the categories and analysis employed.

To the first question, gaps do occur. German translations with English-like p-gaps, those marked ‘E’, appear most frequently for translations with p-gaps in untensed clauses headed by manner adverbials, which appear at the lowest end of the Accessibility Hierarchy; half of the non-crash responses for both sentences with Manner adverbials are English-like, while few English-like responses are found for the other three sentences. For a broader comparison, combining E and TE as the categories containing p-gaps on the one hand, and G, TN, and TG as the three categories in which p-gapping is not present, we find the following pattern:

<sup>7</sup>Later work should be able to correlate this variation with other syntactic patterns produced by the same speakers.

<sup>8</sup>Grammatical utterances that are not semantically reflective of the English prompt are here grouped with X, but will later be evaluated separately.

	Gapping	No gapping	% gapping
Manner 1	12	5	70.6%
Manner 2	9	5	64.3%
Temporal 1	3	11	21.4%
Temporal 2	9	17	39.1%
Relative clause	2	17	10.5%

Table 4: Productions with p-gaps versus no p-gaps.

As for the second question, we find different rates of syntactic restructuring in the translations produced for all five test sentences by category, with the frequency of restructuring increasing as we move away from the more accessible end of the hierarchy. Here, sentences analyzed as ‘E’ or ‘G’ are considered not restructured, but those analyzed as ‘TN’, ‘TE’, or ‘TG’ are treated as restructured.

	Restructuring	No restructuring	% restructuring
Manner 1	9	8	52.9%
Manner 2	6	8	42.9%
Temporal 1	10	4	71.4%
Temporal 2	22	4	84.6%
Relative clause	17	2	89.5%

Table 5: Productions with restructuring versus without restructuring.

These results suggest that speakers are more prone to restructure as the syntactic relationships become less accessible according to the hierarchy. The sentence containing a p-gap in a relative clause was most consistently restructured to ‘TN’, that is, to eliminate the difficult p-gapping environment.<sup>9</sup>

Overall, then, our speakers behave in accordance with the predictions of Engdahl’s hierarchy. They produce p-gaps in English-to-German translations relatively frequently in manner clauses, often in temporal clauses and rarely in relative clauses. In temporal clauses we find considerable syntactic restructuring, typically to a changed tense domain with a German-like filled gap. In the least accessible context, relative clauses, they restructure more fundamentally, to eliminate the gapping environment altogether.

## 6 Conclusions

We have presented evidence on the licensing of null elements, specifically p-gap constructions, in a population of heritage speakers quite different from those widely discussed to date in the heritage language literature. That work has often investigated subject pro-drop by heritage

<sup>9</sup>As noted, translating these five sentences was the toughest challenge for many, as reflected in the many ‘crashes’ in our results, far more than in, e.g., sentences with relative clauses but no p-gaps. P-gaps are not frequent in spoken English and we expect them to be rare, even if grammatical, in heritage German. Nonetheless, the free conversation portions of our interviews have yielded examples of p-gaps that are distinctly un-German. Here is an example from free conversation:

Wir haben ein *e*, und er hat *t*<sub>1</sub> nicht.

we have an *e* and he has not.

‘We have an *e* [in spelling] and he doesn’t.’

speakers of pro-drop languages in an English-dominant, that is non-pro-drop, environment. Both avoidance of null elements and seepage from the dominant language would both be consistent with the observed lack of pro-drop in such speakers. The setting we are investigating, in contrast, provides a direct test between those two accounts: German does not license null elements in contexts where English does, so that avoidance of null elements would reinforce the native constraint, while seepage would lead to the presence of null elements in the heritage variety where the base variety lacked them.

Speakers of several distinct varieties of heritage German in Wisconsin show patterns of parasitic gapping. Such gaps were absent in the base varieties of German, as far as is known, and even the input to learners of English for these constructions is relatively limited, making these patterns all the more surprising in German. While we are still early in this research project, these findings point to important conclusions:

First, our results so far strongly support grammatical ‘seeping’ and suggest that not all heritage speakers are unable to produce utterances with null elements, even vastly more difficult null elements than in the case with pro-drop. This contrasts with the views of Polinsky and Kagan (2007), but does it count as evidence against their underlying claims? Based on our general understanding of Wisconsin heritage German speakers to date, we believe that the answer is ‘no’. Our speakers acquired and used their heritage language under circumstances dramatically different from the speakers who are the subjects of many other studies. If this is true, our notion of ‘heritage speaker’ needs further refinement and differentiation, according to how the language has been acquired and used over the lifespan, setting the table, we hope, for future discussion of the implications our findings have for claims about incomplete acquisition, attrition and so on in heritage speakers, along with how this kind of ‘seeping through’ takes place within the grammar.

Consider this in the context of ‘complexity’ in heritage language grammar. The level of complexity in these speakers’ grammar is very high beyond the example of licensing of null elements. Our consultants show V2 patterns and verb-final syntax generally in line with patterns of baseline varieties imported by their ancestors. A tradition of research on German-American dialects sees these varieties as morphologically impoverished, in particular by loss of dative case marking, vis-à-vis base varieties (Gilbert 1972, Huffines 1987, Rosenberg 1994). This is consistent with claims in the heritage language literature (e.g., Polinsky and Kagan 2007:382). Many differences in case marking, though, clearly reflect loss of education in Standard German and continuation of colloquial patterns found in those communities (Salmons 1994, Bousquette and Rohmann 2011). In fact, much more in line with the findings of Nützel (2009) for a heritage community in Indiana, our speakers retain even complex and highly marked morphological patterns very foreign to the standard language, like complementizer agreement.

Second, where p-gaps do and don’t appear is consistent with Engdahl’s Accessibility Hierarchy, preferably licensed in untensed domains over tensed ones, and speakers often restructure in translation tasks to change the former into the latter. In our data, English-like p-gaps are found very clearly at the most accessible end of the hierarchy, namely in the context of clauses headed by manner adverbials. Some English-like patterns occur with temporal adverbs, but speakers overwhelmingly avoid English-like p-gapping in the context of a relative clause. Yet speakers also restructure the English sentences during their translations into German more often as they move toward the less accessible end of Engdahl’s hierarchy. In this context, Engdahl’s Accessibility Hierarchy appears to describe a robust and important generalization that seems to hold even for heritage language varieties.

## References

- Berwick, R. and A. Weinberg. 1983. The Role of Grammars in Models of Language Use. *Cognition* 13.1-66.
- Bousquette, Joshua and Guido Rohmann. 2011. Standard German Case-Marking in Rural Wisconsin: Evidence from Lester W. J. “Smoky” Seifert’s Recordings. Paper presented for the Center for the Study of Upper Midwestern Cultures / Max Kade Institute. University of Wisconsin–Madison.
- Clahsen, Harald and C. Felser. 2006. Grammatical processing in language learners. *Applied Psycholinguistics* 27.3-42.

- Crain, Stephen and Janet Dean Fodor. 1985. How can grammars help parsers? In *Natural Language Parsing: Psycholinguistic, Computational, and Theoretical Perspectives*, ed. by David R. Dowty, Lauri Karttunen and Arnold M. Zwicky, 94-128. Cambridge: Cambridge University Press.
- Engdahl, Elisabet. 1983/2001. Parasitic gaps. Peter Culicover and Paul Postal (eds.), *Parasitic Gaps*, 69-98. Cambridge, MA: MIT Press.
- Frazier, Clifton, and Randall. 1983. Filling gaps: Decision principles and structure in sentence comprehension. *Cognition*, 13, 187-222.
- Gibson, Edward. 1998. Linguistic complexity: Locality of syntactic dependencies. *Cognition* 68.1-76.
- Gilbert, Glenn. 1972. *Linguistic atlas of Texas German*. Austin: University of Texas Press.
- Grosjean, François. 2008. *Studying bilinguals*. Oxford: Oxford University Press.
- Huffines, Marion Lois. 1987. The Dative Case in Pennsylvania German: Diverging norms in language maintenance and loss. *Yearbook of German-American Studies*. 22: 173-82.
- Kathol, Andreas. 2001. On the nonexistence of true parasitic gaps in standard German. In: P. Culicover and P. Postal (eds.), *Parasitic Gaps*, 315-338. Cambridge, MA: MIT Press.
- Keenan, Edward. 1975. Variation in universal grammar. *Analyzing variation in language*, ed. by Ralph Fasold and Roger Shuy. 136-148. Washington, DC: Georgetown University Press.
- Keenan, Edward and Bernard Comrie. 1977. Noun Phrase Accessibility and universal grammar. *Linguistic Inquiry* 8.63-99.
- Montrul, Silvia. 2008. *Incomplete acquisition in bilingualism: Re-examining the age factor*. Amsterdam: John Benjamins.
- Nagy, N., N. Aghdasi, D. Denis, and A. Motut. 2011. Pro-drop in heritage languages: A cross-linguistic study of contact-induced change. *Penn Working Papers in Linguistics* 17.2, Article 16.
- Nützel, Daniel. 2009. *The East Franconian Dialect of Haysville, Indiana: A Study in Language Death / Die ostfränkische Mundart von Haysville, Indiana: Eine Untersuchung mit ausgewählten morphologischen und syntaktischen Phänomenen*. Regensburger Dialektforum, vol. 15, ed. by Rupert Hochholzer and Ludwig Zehetner. Regensburg: Edition Vulpes.
- Otheguy, Ricardo, Ana Celia Zentella, and David Livert. 2007. Language and dialect contact in Spanish in New York: Toward the formation of a speech community. *Language* 83:770-802.
- Polinsky, Maria, and Olga Kagan. 2007. Heritage languages: In the 'wild' and in the classroom. *Language and Linguistics Compass* 1.368-395.
- Postal, Paul. 1994. Parasitic and Pseudo-Parasitic Gaps. *Linguistic Inquiry* 25.63-117.
- Rosenberg, Peter 1994. Varietätenkontakt und Varietätenausgleich bei den Rußlanddeutschen: Orientierungen für eine moderne Sprachinselforschung. *Sprachinselforschung: Eine Gedenkschrift für Hugo Jedig*, ed. by Nina Berend and Klaus J. Mattheier, 123-164. Frankfurt: Peter Lang.
- Rothman, Jason. 2009. Understanding the nature and outcomes of early bilingualism: Romance languages as heritage languages. *The International Journal of Bilingualism* 13(2). 155-163.
- Salmons, Joseph. 1994. Naturalness and Morphological Change in Texas German. *Deutsche Sprachinselforschung: Eine Gedenkschrift für Hugo Jedig*, ed. by Nina Berend and Klaus J. Mattheier, 59-72. Bern: Peter Lang.
- Sewell, Alyson. 2011. Code-switching in Bilingual Interactions: Language Alternation to Report Speech in German. Paper presented at the Midwest American Dialect Society, St. Louis.
- Sorace, Antonella. 2011. Pinning down the concept of "interface" in bilingualism. *Linguistic Approaches to Bilingualism* 1.1, 1-33.
- Wilkerson, Miranda E. and Joseph Salmons. 2008. 'Good old immigrants of yesteryear' who didn't learn English: Germans in Wisconsin. *American Speech* 83.259-283.

Daniel Nützel  
 Indiana University-Purdue University Indianapolis  
 Dept. of World Languages and Cultures  
 Indianapolis, IN 46202  
 dnuetzel@iupui.edu