(*)ABA in Germanic verbs

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Abstract

This paper discusses cases where non-adjacent cells in morphological paradigms are syncretic, commonly called ABA patterns (Bobaljik 2012 et seqq.). Data from verbs in Germanic languages are examined, as earlier work suggests that a *ABA constraint may be active in this domain. It will be shown that there are verbs in several Germanic languages which exhibit genuine ABA patterns, precluding an analysis based on a constraint *ABA. It is suggested that the rarity of ABA patterns should instead be given a diachronic explanation in terms of Proto-Germanic conjugation classes. This approach is independently motivated by frequency asymmetries in modern Germanic languages, and correctly predicts where ABA patterns are more likely to appear. The research reported here adds to a rapidly-growing body of work on extralinguistic explanations for linguistic patterns (Anderson 2016), suggesting a severely reduced explanatory role for formal linguistic constraints.

1 Introduction

In recent years, there has been much interest in so-called ABA patterns, defined as follows in Bobaljik and Sauerland (2018: 1-2): "The term *ABA generalization* refers to morphological patterns in which, given some arrangement of the relevant forms in a structured sequence, the first and third may share some property 'A' only if the middle member shares that property as well." Typologically, ABA syncretisms[1] are unattested in many paradigms, which has led to the postulation of a constraint *ABA. This constraint has been suggested to be active in restricting the possible syncretisms within Germanic verbs, explored for German by Wiese (2004;

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1   Throughout the article, the relevant syncretisms are at the stem level rather than the word level. We will therefore say that **play** and **play**-*ed* show syncretism, since the stem is identical in both forms.

2008). By placing the principal parts of a Germanic verb in the order present – past participle – preterite (simple past), *ABA predicts an absence of present-preterite syncretisms which do not also target the participle. This prediction appears to be correct for Standard German and English (Bobaljik 2012). However, the present paper argues that there are several examples of present-preterite syncretisms, i.e. ABA patterns, in varieties of German and elsewhere in Germanic. Alternative analyses of the data which do not rely on ABA patterns are discussed, but are ultimately excluded. This suggests that the near absence of ABA patterns cannot be explained with the *ABA constraint. However, it is clear that this type of syncretism is underrepresented in Germanic, and this fact must be explained. I propose that the rarity of ABA should be understood diachronically, with reference to the syncretism patterns of Proto-Germanic strong verb classes. It will be argued that the rarity of ABA represents faithful retention of features from the Proto-Germanic conjugation system. Such an approach is independently motivated, as reference to Proto-Germanic verb classes must be used to explain certain type frequency asymmetries in the modern daughter languages. It will be shown that a diachronic approach correctly predicts which classes of verbs are the most likely to develop the exceptional ABA syncretisms. Neither the type frequency facts nor the locus of exceptionality are captured by theories which rely on a *ABA constraint. I also identify an untested prediction for languages beyond Germanic and beyond Indo-European, allowing for verification or falsification of the analysis. The diachronic account presented in this paper fits in well with research on extralinguistic (non-formal) explanations of linguistic patterns, an area which has received increasing attention in recent years, especially in the domain of typological asymmetries (for an overview, see Anderson 2016). Such work provides support for theories of morphology where the explanatory role of the formal linguistic system is severely reduced (Blevins 2016; Andersson 2018a).

The remainder of the paper is structured as follows: sections 2 and 3 introduce the relevant background on (*)ABA, including its relevance to Germanic verbs. Section 4 argues that the Swedish verb 'have' shows an ABA pattern, and identifies further examples of ABA verbs, while section 5 contains the proposed diachronic explanation. Section 6 explores predictions of this approach, and section 7 concludes.

2 Background on (*)ABA

2.1 What is (*)ABA?

Bobaljik (2012) provides a typological overview of the morphological patterns found in comparative and superlative forms of adjectives. The specific focus is on suppletive allomorphy, as found in the English

paradigm *bad, worse, worst*. Bobaljik introduces a notation for suppletion based on variables A, B, C, … standing in for stems. In this notation, the stem *bad* can be called A, while the stem *wors(e)* can be referred to as the B stem. The paradigm of English *bad* is then as follows: A, B, B-*t*. Abstracting away from the endings, the pattern seen in *bad, worse, worst* is referred to simply as an ABB pattern. Examples of other patterns are given in Table 1. The data showing suppletion come from Bobaljik's (2012: 106) list of adjectives meaning 'good,' with the non-suppletive AAA pattern added to illustrate another logical possibility.

Table 1: Patterns of suppletion in adjectives.

Pattern	Positive	Comparative	Superlative	Language
AAA	**god**	**god**-are	**god**-ast	Swedish
ABB	**osda**	**dajehla**	wi-**dajehl**-ãʔi	Cherokee
ABC	**bon**-us	**mel**-ior	**opt**-imus	Latin
*AAB	**good**	**good**-er	**be**-st	Unattested
*ABA	**good**	**bett**-er	**good**-est	Unattested[2]

Two out of five logically possible patterns are unattested in Bobaljik's data, and he proposes that these patterns are ruled out by Universal Grammar.[3] In other words, it is argued that in the domain of comparatives, ABA patterns are not only unattested, but unattestable.

Similar ABA-based restrictions have been observed before and since in other areas of morphology. Examples from Bobaljik and Sauerland (2018) include case (Caha 2009), case and number in pronouns (Smith, Moskal, Kang, Xu, and Bobaljik 2015; Smith, Moskal, Xu, Kang, and Bobaljik 2018), pronoun clusivity (Moskal 2017; in press), spatial deixis (Lander and Haegeman 2016), and Germanic verbs (Wiese 2004; 2008; Starke 2009). Another example comes from work on gender syncretism (Johnston 1997, and the conflicting proposal by Kramer 2015a; b; 2016), but Andersson (2017) argues that there is no evidence for ABA-type restrictions in this domain. Having seen that *ABA appears to be applicable to a wide range of morphological paradigms, we will consider some of the formal explanations that have been proposed for this restriction.

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2   Bobaljik (2012: 106) finds one ABA pattern in varieties of Basque. This problem is left unsolved, but he speculates that Basque might lack a true superlative category (Bobaljik 2012: 112-115). An anonymous reviewer also points out that it is not clear that there are Basque speakers who accept only the ABA pattern, rejecting non-ABA alternatives.

3   The absence of AAB patterns will not concern us here, and the interested reader is referred to Caha (2017) and Graf (2017) for discussion.

2.2 Why *ABA?

Many explanations have been proposed to account for *ABA. The goal of this section is not to provide a comprehensive overview of each, but instead to draw attention to the range of competing hypotheses in this area. It should also be noted that one's choice of explanation will not be relevant in the rest of this paper, as the arguments presented in sections 3-6 are not affected by this choice.

Bobaljik (2012) proposes to account for *ABA in terms of feature containment. For adjectives, the featural representation of the positive is a subset of the representation of the comparative, which is in turn a subset of the representation of the superlative.

(1)   Positive: [ADJECTIVE]

       Comparative: [[ADJECTIVE] COMPARATIVE]

       Superlative: [[[ADJECTIVE] COMPARATIVE] SUPERLATIVE]

Assuming the system in (1), deriving an ABA pattern becomes impossible: if we spell out [[ADJECTIVE] COMPARATIVE] with a suppletive stem, that will automatically affect the superlative, which also contains this structure. This assumption of feature containment is also found in work on *ABA restrictions in Nanosyntax (Caha 2009; Starke 2009; for more nanosyntactic work on *ABA, see De Clercq and Vanden Wyngaerd 2017).

Bobaljik and Sauerland (2018) revise the feature containment hypothesis, and propose that *ABA is a subclass of a general pattern of restrictions on morphological systems. They propose a particular system for notating feature inventories, and a particular way of partitioning inventories into sets. This is applicable to paradigms of any size, but for three-cell paradigms, ABA patterns cannot be generated in their system. For the exact notation used, the reader is referred to Bobaljik and Sauerland (2018). Caha (2017) builds on aspects of Bobaljik and Sauerland's (2018) explanation in order to explain a generalization from Blansitt (1988), who observes an ABA restriction in the case sequence dative-allative-locative. Rather than proposing a feature containment analysis [[[DATIVE] ALLATIVE] LOCATIVE], Caha uses a so-called overlapping decomposition of features. In such a system, the leftmost member of a sequence is marked with some feature X, the rightmost one with some feature Y, and the middle one with the overlapping features XY. Spellout of non-terminal nodes is permitted, and used to derive the *ABA restriction. Consider a form M appearing in both contexts X (dative) and Y (locative). We assume XY (allative) has the structure [Y [X]]. M must be specified for both features, and

so we may write M ↔ [Y [X]]. But to derive an ABA pattern, we now need a different form N which only appears in the context XY (allative). Again the features XY must obviously be included, and again we would write N ↔ [Y [X]]. But now M and N are identical, so we have failed to derive an ABA pattern, where M appears in one set of contexts (X and Y) and N in another (XY).[4]

Kramer's work on gender syncretism (see references in 2.1 above) illustrates a third way of deriving *ABA, although she does not explicitly discuss her generalization as an example of a *ABA pattern. Kramer argues that certain masculine-feminine syncretisms are impossible in three-gender languages without natural gender, while masculine-neuter and feminine-neuter syncretisms are possible. Placing the genders in the order masculine-neuter-feminine (or in the reverse order) captures these patterns (compare Johnston 1997), as the non-adjacent masculine and feminine cannot be syncretic. However, Kramer does not propose feature containment, nor an overlapping decomposition. Instead, she adopts the system in (2).

(2)   Masculine: [-FEMININE]
         Feminine: [+FEMININE]
         Neuter: []

This proposal can be generalized: if an ABA restriction holds when three cells of a paradigm are in the order X-Y-Z, this can be accounted for by leaving Y featurally unmarked, while X and Z differ in specifications for some feature [F]. Two anonymous reviewers point out that Kramer's proposal is, in a sense, the mirror image of Caha's (2017) overlapping decomposition. For Caha, the middle B category has a superset of the features of the A categories, while for Kramer, the middle category has a subset of the A categories' features.

The fourth and final account we will consider is that of Graf (2017), which differs from the above proposals in not referring to features at all. Graf's proposal relies on transductions between graphs, and attempts to provide a unified account for ABA restrictions and the Person-Case Constraint (PCC; Perlmutter 1971; Kayne 1975; Bonet 1991; 1994; Haspelmath 2004; Anagnostopoulou 2017, among many others). Graf relies crucially on an ordering between cells, rather than relationships between features, and shows that *ABA is impossible to derive assuming certain properties hold of transductions between graphs representing relationships between cells of a morphological paradigm. Specifically, transductions must be weakly non-inverting, and such transductions are computationally simple compared to other types of transductions. Both PCC-violating and *ABA-violating patterns are thus more computationally complex in Graf's system, meaning

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4   This demonstration of the failure to derive ABA patterns is based heavily on Caha (2017: 18).

that the restrictions follow from simplicity considerations.

2.3 Why does (*)ABA matter?

The explanations in 2.2 are all designed to rule out ABA patterns as impossible. *ABA, then is not only a descriptive statement about the languages in a given sample; as Bobaljik points out, "no language can undergo a change that yields a genuine […] [ABA pattern], since no learner could posit a grammar that would accommodate such a pattern" (Bobaljik 2012: 40). Such an approach assumes a tight fit between unattested languages and unattestable ones: if a property is unattested in a large database, it is likely that it is universally prohibited. This is usually stated in terms of avoiding overgeneration, or as capturing all and only the attested patterns.

This type of reasoning stands in contrast to theories which assume that there are many unattested patterns which are nevertheless attestable. Such theories regularly overgenerate, and the absence of unattested patterns is explained by factors external to the linguistic system (diachrony, acquisition, usage frequencies, processing, etc.). In recent years, a number of linguists who otherwise provide formal analyses of languages have begun adopting the idea that such extralinguistic explanations have a more important role to play than previously assumed. Examples include Substance-Free Phonology (Hale and Reiss 2008; Samuels 2011; Bale and Reiss 2018; Reiss 2018, and others), and work following the so-called three factors approach within Minimalist syntax (see Biberauer and Roberts 2015 for one example, and Chomsky 2005 for the general theory). In morphology, Anderson (1992) is a famous example of this approach, and recent overviews of morphological theories which make similar assumptions can be found in Haspelmath and Sims (2010) and Blevins (2016).

(*)ABA is relevant to this debate as a proposed linguistic universal which has received much attention in recent years (see references in 2.2). Should it receive a formal, linguistic explanation, or an extralinguistic one? This paper provides arguments that the latter approach is preferable for Germanic verbs, thereby contributing to the growing body of work on extralinguistic, and especially diachronic, morphological explanation (Ackerman, Malouf, and Blevins 2016; Anderson 2016; Andersson 2017; 2018a). A general account of proposed ABA restrictions is well beyond the scope of this paper. However, it is hoped that an explanation in the domain of the Germanic verb will be able to shed some light on (*)ABA, and add to the theoretical debate concerning extralinguistic explanations of linguistic patterns.

3 (*)ABA in Germanic verbs

Bobaljik (2012) cites Wiese's (2004; 2008) work on the German verb as an example of a potential *ABA pattern, noting that similar restrictions appear to hold in English. The cells involved are the principal parts of the verbal paradigm: present tense, preterite (or simple past), and past participle. Deviating from the order presented in traditional grammars, Wiese (2008) puts these categories in the order: present-participle-preterite. Featurally, the present is unmarked, while the participle is [PAST] and the preterite [[PAST] FINITE] (see Wiese 2008: 126). In terms of feature containment, we could write [[[VERB] PAST] FINITE]. Bobaljik (2012: 161) points out that there are Germanic languages which lack the preterite, which he argues follows from its marked status. We may also point to formal containment relations like the ones illustrated in Table 2 for German.

Table 2: Containment in German.

3SG present	3SG past participle	3SG preterite	Translation
verbrenn-t	verbrann-t	verbrann-t-e	burn (TR)

Here the past participle consists of STEM-t, while the preterite contains exactly this structure, plus extra material: [STEM-t]-PERRSON.ENDING. This ordering of cells also captures a semantic intuition (though see Bleotu 2018). There are uses of the past participle in past situations still relevant to the present. In a sense, then, it may share present features with the present, and past features with the preterite. Such an intuition is particularly amenable to an analysis with overlapping decomposition (Caha 2017), which could be represented schematically as [PRESENT], [PRESENT, PAST], [PAST].

With the principal parts placed in this order, there are no ABA patterns in German ablaut patterns, that is, no ABA patterns of vowel changes in the stems of strong verbs. Examples are given in Table 3. Throughout this paper, first-person singular forms will always be used, unless otherwise stated.[5]

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5   Stem alternations within the present tense occur in German, and sometimes cause ABA patterns to appear. In (i) we see the verb *haben* 'to have' with a first-person singular present (AAB), while in (ii) we see it with a third-person singular present (ABA):

    (i)   **hab**-e   ge-**hab**-t   **ha**(t)-te
              /**ha**:**b**-ə/   /gə-**ha**:**b**-t/   /**ha**-tə/

    (ii)   **ha**-t   ge-**hab**-t   **ha**(t)-te
              /**ha**-t/   /gə-**ha**:**b**-t/   /**ha**-tə/

I am not aware of any attempts to explain such ABA patterns.

Table 3: German ablaut patterns.

Pattern	Present	Past participle	Preterite	Translation
AAA	**sag**-e	ge-**sag**-t	**sag**-te	'say'
AAB	**fall**-e	ge-**fall**-en	**fiel**	'fall'
ABB	**beiß**-e	ge-**biss**-en	**biss**	'bite'
ABC	**sing**-e	ge-**sung**-en	**sang**	'sing'

In Table 4 we see similar data from English and Swedish (English examples from Bobaljik 2012: 160).

Table 4: English and Swedish ablaut patterns.

Pattern	Present	Past participle	Preterite	Translation
AAA	**play**	**play**-ed	**play**-ed	-
	spela-r	**spela**-t	**spela**-de	'play'
AAB	**come**	**come**	**came**	-
	sjung-er	**sjung**-it	**sjöng**	'sing'
ABB	**tear**	**tor**-n	**tore**	-
	gö-r	**gjor**-t	**gjor**-de	'do'
ABC	**sing**	**sung**	**sang**	-
	spring-er	**sprung**-it	**sprang**	'run'

However, in German, English, and Swedish, there are verbs which nevertheless appear to show an ABA pattern. Some of these are illustrated in Table 5. The 'milk' and 'shear' examples are from Bobaljik (p.c.). 'swell' is from Bleotu (2018), who also points out the less common *light*, *lit*, *lighted*.

Table 5: Apparent ABA patterns.

Language	Pattern	Present	Past participle	Preterite	Translation
German	ABA	**melk**-e	ge-**molk**-en	**melk**-te	'milk'
	ABA	**wink**-e	ge-**wunk**-en	**wink**-te	'wave'
English	%ABA	**swell**	**swoll**-en	**swell**-ed	-
	%ABA	**shear**	**shor**-n	**shear**-ed	-
Swedish	ABA	**väx**-er	**vux**-it	**väx**-te	'grow (INTR)'
	ABA	**vill**	**vel**-at	**vill**-e	'want'

Bobaljik (2012: 159, fn. 25) simply sets *shear* aside as a counterexample, pointing out the alternative preterite *shore*. Bobaljik (p.c.) notes that in the German and English cases, the past participle looks like a strong verb, ending in *-(e)n*, while the preterite looks like a weak verb, with a dental suffix. (German *-te*, English *-ed*). The same can be said for Swedish 'grow,' and perhaps also for 'want,' though it is unclear which conjugation classes the endings belong to.[6] He suggests that the crucial feature containment relations do not hold if forms differ in conjugation class. No explicit analysis along these lines has been worked out in the literature, and it seems difficult to formulate the relevant rule. If the preterite does not contain the past participle, we would need to delete the [PAST] feature in words like *swelled* and *sheared*. But this deletion needs to be conditioned on facts about the derivation of the preterite. When going through the derivation which produces *sheared*, we need to consider whether another derivation, the one for *shorn*, contains a different conjugation class feature. An anonymous reviewer points out that deletion of [PAST] may not be necessary. Instead, if we use conjugation class features such as [STRONG] and [WEAK], we would have [STRONG, PAST] for the participle, but [WEAK, PAST, FINITE] for the preterite. If these features are visible for the purposes of diagnosing ABA, the relevant containment relations would not hold, and ABA restrictions would be lifted. However, the remainder of this paper will not consider this further, and the search for ABA patterns will be restricted to verbs which unambiguously belong to a single conjugation.

4 Examples of ABA verbs in Germanic

In this section, it will be argued that the Swedish verb 'have' shows an ABA pattern which cannot be explained in terms of any of the factors discussed in section 3 above. I will argue that 'have' belongs unambiguously to the class known as the third conjugation in the Swedish grammatical tradition. Before we see the data on 'have,' an overview of the properties of the third conjugation is given in section 4.1. After considering Swedish, I also show further examples of ABA patterns in Low German, and in the endangered Germanic language Gammalsvenskbymålet.

4.1 The third conjugation

The third conjugation is a small class of Swedish verbs, whose stems end in long stressed vowels. The stems are generally monosyllabic, but the addition of prefixes can create polysyllabic verbs. There are no subclasses

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6   Specifically, the preterite *-e* of 'want' is not the expected ending for any of the Swedish conjugation classes.

within the third conjugation, and all verbs of the class are conjugated as in Table 6. The suffixes /-r/, /-t/, and /-dɛ/ are used to form the present, past participle, and preterite respectively. The suffix /-dɛ/ changes the pitch accent of the word from first (not indicated) to second (indicated with a superscript [2]). Both /-t/ and /-dɛ/ cause the long vowel of the stem to shorten, and this shortening brings with it changes in vowel quality. Consonants after short stressed vowels lengthen by a phonological rule (Witting 1977; Linell 1978; Andersson 2018b). Andersson (2018b) provides external evidence from L1 acquisition that the vowel shortening is a morphological peculiarity of these and a handful of other suffixes, and the idea that these forms involve shortening is also found within other theories of Swedish quantity (Riad 2014). This means that vowel shortening in the past participle and preterite can be used to diagnose the presence of these suffixes, something which will become relevant in section 4.2. If the underlying form always contains a long vowel, subject to morphological shortening, this also means that third-conjugation verbs generally form an AAA pattern, as shown in Table 6.

Table 6: The third conjugation.

	Present	Past participle	Preterite	Translation
Underlying form	/**bre**:-r/	/**bre**:-t/	/**bre**:-dɛ/	
Surface form	[bre:r]	[brɛtʰ:]	[²brɛd:ɛ]	
Orthography	**bre**-r	**bre**-tt	**bre**-dde	'spread (e.g. of butter)'
Underlying form	/**spo**:-r/	/**spo**:-t/	/**spo**:-dɛ/	
Surface form	[spo:r]	[spɔtʰ:]	[²spɔd:ɛ]	
Orthography	**spå**-r	**spå**-tt	**spå**-dde	'prophesy'

Having seen what the third conjugation looks like, it is time to turn to the verb 'have.'

4.2 'have' in Swedish

In Table 7 we see the forms of the Swedish verb 'have,' presented in the surface form and the orthography, together with the underlying forms I will defend later in this section.

Table 7: 'have' in Swedish.

	Present	Past participle	Preterite	Pattern
Underlying form	/**hɑ**ː-r/	/**haf**-t/	/**hɑ**ː-dɛ/	ABA
Surface form	[hɑːr]	[hafːtʰ]	[²hadːɛ]	
Orthography	**ha**-r	**haf**-t	**ha**-de	

As can be seen from Table 7, I propose that 'have' should be analyzed as an ABA verb, where the stem /hɑː/ is used for the present and the preterite, while the stem /haf/ is used for the past participle. Note that apart from the short vowel /a/ and the /f/ in the past participle, 'have' looks just like other third-conjugation verbs. The preterite triggers vowel shortening and the appearance of the second pitch accent, and all endings are exactly as expected for the third conjugation. However, the ABA analysis is not the only one available. In Table 8 I give seven other possible sets of underlying forms for the data in Table 7, none of which involve an ABA pattern.

Table 8: Alternative analyses.

	Present	Past participle	Preterite	Pattern
Surface forms	[hɑːr]	[hafːtʰ]	[²hadːɛ]	
Analysis 1	/**hɑ**ː-r/	/**haf**-t/	/**ha**-dɛ/	ABC
Analysis 2	/**hɑ**ː-r/	/**ha**-t/	/**ha**-dɛ/	ABB
Analysis 3	/**hɑ**ː-r/	/**hɑ**ː-ft/	/**hɑ**ː-dɛ/	AAA
Analysis 4	/**hɑ**ː-r/	/**hɑ**ː-vt/	/**hɑ**ː-dɛ/	AAA
Analysis 5	/**hɑ**ː-r/	/**hɑ**ː-f-t/	/**hɑ**ː-dɛ/	AAA
Analysis 6	/**hɑ**ː-r/	/**hɑ**ː-v-t/	/**hɑ**ː-dɛ/	AAA
Analysis 7	/**hɑːv**-r/	/**hɑː**v-t/	/**hɑːv**-dɛ/	AAA

Some of these analyses are more plausible than others. For example, analysis 7, where the historical /v/ of this word is synchronically present, is relatively easy to rule out. Deletion of /v/ in the present and preterite is unexpected, especially since there is no such deletion in the participle. There would have to be a lexically-specific rule of /v/ deletion applying to 'have' only. But if we can apply lexically-specific rules to the present and the preterite, independently of the past participle, ABA patterns can be derived, and we would be left with no explanation for why they are so rare. Several more arguments against analysis 7 can be found: why is the imperative of 'have' [hɑː] rather than the predicted *[hɑːv], when no other consonant-final verb in Swedish shows this pattern? Why is the infinitive of 'have' [hɑː] rather than the predicted *[²hɑːva], when no other

consonant-final verb in Swedish shows this pattern?

Also implausible are analyses 1 and 2, where the preterite has an underlying short vowel /a/ rather than a long vowel /ɑː/. In other words, it is assumed that the short vowel in this form is entirely unrelated to the fact that it precedes a suffix which triggers vowel shortening for all other verbs of the conjugation. There is no more reason for thinking that 'have' is unusual with respect to vowel shortening than there is for thinking that any other third-conjugation verb is unusual. Adopting this analysis for 'have' alone is therefore unmotivated.

In analyses 5 and 6, there is an extra formative between the stem and the past participle suffix. Such a formative could be /f/, as seen in the surface form with [f], or /v/ undergoing voicing assimilation (Riad 2014: 102-106). These approaches would have to explain what features are being spelled out by this formative, and argue that its insertion in only this one verb is well-motivated. Even if such arguments could be found, there is a potential locality problem in having the suffix /t/ trigger vowel shortening of the stem across this intervening morpheme (see Embick 2013 and references therein). Phonological vowel shortening in this environment is not predicted by any theory of Swedish phonology (Andersson 2018b).

One way of fixing analyses 5 and 6 is seen in analyses 3 and 4. They treat the /ft/ or /vt/ sequence as a single formative, which could be an allomorph of the /t/ seen in other third-conjugation verbs, or a new suffix altogether. If it is a new suffix, why does it trigger the exact same morpheme-specific process of vowel shortening as the unrelated suffix /t/? If it is an allomorph of the regular third-conjugation participial suffix, we would again have to argue that this allomorphy, limited to this one verb, is well-motivated. The vowel shortening would also have to apply to the V in a VCC sequence. This is only found in two other verb forms in the language, *köp-t* 'bought, past participle' and *behöv-t* 'needed, past participle,' and for both verbs only some speakers allow shortening, and shortening may be register-specific. If the shortening in the participle of 'have' represents the same phenomenon, why is it obligatory for all speakers?

Because of the problems with the alternative analyses in Table 8, I propose that the analysis in Table 7, where 'have' has an ABA pattern, is preferable. If this analysis is correct, it would mean that ABA patterns cannot be prohibited from appearing in Germanic verbs. This means, in turn, that the reason for the rarity of ABA patterns in this domain cannot be a universal restriction, as assumed by the explanations in section 2.2. Below I show that Swedish is not unique in this regard, and that ABA patterns can be found elsewhere in Germanic.

4.3 Further examples of ABA verbs

Swedish is not the only Germanic variety showing ABA patterns in verbs. I give two further cases below, from Low German and Gammalsvenskbymålet, which are not as complicated as the Swedish example in terms of morphophonological alternations. For these languages the convention is to cite the infinitive rather than the present form in paradigms, a convention which I follow here. However, this convention is of little import linguistically. Low German generally has the same stem for the present and the infinitive, with the exception that, as in High German, there are sometimes vowel changes in the 2nd and 3rd person singular (Thies 2007: §2.1.3.3, §2.1.12; for the vowel changes, see footnote 5). The same pattern of the infinitive and present sharing a stem holds for Gammalsvenskbymålet (Karlgren 1953: 26).

We will begin with Low German; the data come from the dictionary of the *Institut für niederdeutsche Sprache* (The Institute for the Low German Language; INS-Lex 2.0), where the verb *nehmen* 'take' shows an ABA pattern. The data below are also confirmed by Thies (2007: §2.1.12.2.3). In Table 9, the AAB verb 'come,' which is of the same conjugation and therefore shows exactly the same endings, is shown for comparison.

Table 9: ABA in Low German.

Infinitive	Past participle	Preterite	Translation	Pattern
nehm-en	**nahm**-en	**nehm**	'take'	ABA
kam-en	**kam**-en	**keem**	'come'	AAB

Another case of an ABA pattern is found in Gammalsvenskbymålet, a critically endangered Germanic variety descended from 18th-century Estonian Swedish and spoken today by a handful of elderly speakers in Zmiivka, Ukraine (see Forsman 2015 for the history of the people and their language). The variety of the last generation of speakers has been documented in a series of articles by Mankov, whose studies of the morphology have been published in several languages (Mankov 2012; 2013 in Russian; Mankov 2015 in English; Mankov 2017 in Swedish). The verb 'sleep' is documented by Mankov with an ABA pattern, as shown in Table 10. Again the identically-conjugated 'come' is shown for comparison.

Table 10: ABA in Gammalsvenskbymålet.

Infinitive	Past participle	Preterite	Translation	Pattern
/**so**:-a/	/**su**:-e/	/**so**:/	'sleep'	ABA
/**kum**-a/	/**kum**-e/	/**kom**:/	'come'	AAB

The three examples of ABA verbs that we have seen are summarized in Table 11.[7]

Table 11: ABA verbs in Germanic.

Infinitive	Past participle	Preterite	Translation	Language	Pattern
/**hɑ**:/	/**haf**-t/	/**hɑ**:-dɛ/	'have'	Swedish	ABA
nehm-en	**nahm**-en	**nehm**	'take'	Low German	ABA
/**so**:-a/	/**su**:-e/	/**so**:/	'sleep'	Gammalsvenskbymålet	ABA

It appears that ABA patterns are not prohibited in Germanic verbs. There are relatively few examples, and it appears that the cases which do exist do not have any particular properties in common. In the next section, we will see a historical explanation for the rarity of ABA, and I will also argue that there is a principled diachronic reason for the appearance of ABA patterns in the verbs in Table 11.

5 Why is ABA rare? A diachronic explanation

In this section I attempt to explain the rarity of ABA patterns in Germanic. I will argue that their near-complete absence can be understood in terms of properties of the verb in Proto-Germanic, and I show that such an approach is independently motivated by facts which are superficially unrelated to ABA. I outline my hypothesis below, providing also the necessary background on Proto-Germanic verbs. Discussion of how this hypothesis explains the Germanic data is also found here, while discussion of the predictions made is left for section 6.

        The data from German, English, and Swedish cited earlier in this article (see Table 3, Table 4) did not come about by speakers flipping coins to decide what their verbal paradigms should look like. All of these paradigms are instead remnants of the verbal system of Proto-Germanic, the reconstructed ancestor of all Germanic languages, spoken not more than approximately 2,500 years ago (Ringe 2017: 84). Many verbs with

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7   An anonymous reviewer points out that it may be suspicious if individual languages only have single examples of ABA verbs, as these could be accidental cases of homophony rather than true syncretism. However, the view in earlier literature on *ABA (Bobaljik 2012) is that ABA patterns are impossible, and not just rare, being accidental when they do appear. The innovation of ABA verbs in multiple Germanic languages also weakens this position considerably. Moreover, we will see in section 5 that there is a principled reason for the rarity of ABA patterns.

vowel changes in their paradigms are strong verbs, descending from one of the seven reconstructed classes of such verbs in Proto-Germanic. I propose that ABA patterns are rare in the modern Germanic languages because none of the seven classes of Proto-Germanic strong verbs showed an ABA pattern. Table 12, with data from Ringe (2017), illustrates the main vowel patterns of the seven classes. In the rightmost column, the first pattern uses the preterite form reserved for singular indicative (SG IND) subjects, while the second uses the elsewhere default preterite. Note that macrons on vowels indicate vowel length, while V is used as a cover symbol for any vowel.

Table 12: Proto-Germanic strong verbs.

	Present	Past participle	Preterite (SG IND)	Preterite (default)	Patterns
Class 1	ī	ii	ai	i	ABC/ABB
Class 2	eu	uu	au	u	ABC/ABB
Class 3	e	u	a	u	ABC/ABB
Class 4	e	u	a	ē	ABC/ABC
Class 5	e	e	a	ē	AAB/AAB
Class 6	a	a	ō	ō	AAB/AAB
Class 7	V	V	V	V	AAA/AAA[8]

As was noted above, no class shows an ABA pattern. Given that the Proto-Germanic classes have generally been faithfully retained in daughter languages (see section 6.1 for discussion), Table 12 tells us that even if there were no constraint *ABA, we would still expect modern Germanic strong verbs to show an ABA gap. The absence of ABA patterns, then, may simply be a diachronic accident: had Proto-Germanic had five classes with ABA patterns, they would likely have been very common in the daughter languages. But since no such classes existed in the past, no such classes exist in the modern languages. However, this does not mean that no Germanic verb could ever undergo changes turning it into an ABA verb, and this is precisely what happened in Swedish 'have.' If the rarity of ABA had been due to a universal constraint, such changes should be impossible (see the Bobaljik quote in section 2.3). The fact that such changes are not blocked suggests that the reason for the rarity of ABA is not a deep universal, but instead the natural outcome of the Proto-Germanic system, which simply did not show the right conditions for large numbers of ABA verbs to arise.

      If there is no bias against ABA patterns, one might ask why so few examples have arisen over the past 2,500 years. The diachronic account has something to say about this. Words with irregular paradigms, such as

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8   Class 7 also shows reduplication in the past participle and preterite (Ringe 2017: 215).

unpredictable stem vowel changes, often go down one of two paths diachronically (Lieberman, Michel, Jackson, Tang, and Nowak 2007; see also Bybee 1985). High-frequency irregulars tend to be retained, as their irregular forms are encountered often enough that speakers remember them. Low-frequency irregulars, on the other hand, tend to become regular over time, because speakers do not encounter the irregular forms often enough. The first path would preserve the non-ABA patterns in Table 12, while the second creates new regulars, i.e. AAA verbs. No ABA patterns are innovated in this way. It is also relatively common for words to be reassigned to new classes based on formal similarities with existing words (for examples in Germanic, see Ball 1968; Lahiri 2000; Durrell 2001, among others). But if none of the existing verbal classes of a language show an ABA pattern, as in Table 12, this process of reassignment is unlikely to create ABA verbs. There is no pre-existing class of ABA verbs to serve as attractors for non-ABA verbs.

The mechanisms of change above presuppose, however, that verbs always change as a class, with all forms undergoing change at the same time. Can one cell of a paradigm not undergo change independently of other cells? Naturally, such changes can and do happen, and it turns out that they can create ABA patterns. We have in fact already seen the data for this in Table 5, with the conjugation-switching ABA verbs. In these cases, the preterites of strong verbs like *swell* and *shear* have regularized (at least for some people), while the past participle has remained strong. The fact that the past participles have not regularized is perhaps because speakers encounter the strong forms like *swollen* and *shorn* elsewhere in the language, as adjectives rather than participles.

These are of course not the only pathways for changes in verbs. Language change is far from deterministic, and we expect sporadic and irregular changes to appear. This is especially the case with high-frequency words, which are more likely to show various types of reduction (Bybee and Hopper 2001, and references therein). It is perhaps not surprising, then, that it is the highly frequent verb 'have' that shows an ABA pattern in Swedish (see also footnote 5 on 'have' in German). Many irregular changes have affected 'have,' which is reconstructed as a weak verb in Proto-Germanic (Ringe 2017: 286). And it is precisely in this verb where we find that speakers have innovated an otherwise unexpected verb pattern. We will have more to say about where counterexamples to *ABA are likely to arise in section 6 below, where predictions of this diachronic explanation are explored.

Before considering these predictions, however, we will look at two criticisms of the account I have given above. First of all, it may be argued that nothing has really been explained: earlier we were wondering why modern Germanic languages lacked ABA patterns, and now we are left wondering why Proto-Germanic lacked ABA patterns. However, this criticism is unfair. We began with observations from multiple different languages

(German, English, Swedish, …), and these have all been accounted for by a single factor (retention from a common ancestor). We have gone from being puzzled by multiple Germanic languages to just being puzzled by Proto-Germanic.[9] Note also that this type of criticism can be employed with any explanation: if ABA patterns are rare because of the feature containment relations in [[[VERB] PAST] FINITE], we are left wondering why the features are structured in this way. A second criticism is that my account is circular: based on properties of attested Germanic languages, we reconstruct Proto-Germanic, which we then use to attempt to explain the attested languages again. Again, however, a theory based on features fares no better: based on attested syncretisms, we construct a hypothesis about feature containment, which we then use to attempt to explain the attested syncretisms again. Note also that the reconstruction of Proto-Germanic was not based on modern languages but on earlier stages from over one millennium ago. The data used for reconstruction and syncretism are not the same, so there is no circularity problem with this reasoning.

6 Predictions of the diachronic explanation

This section considers evidence relevant to evaluating the historical explanation given above. In 6.1 we will see supporting evidence from frequency asymmetries in modern Germanic verb classes, while 6.2 looks at cases where this theory makes correct predictions. 6.3 contains a prediction which has not yet been confirmed, and outlines how it could be tested in future work.

6.1 Supporting evidence

We will begin by noting that there are other patterns in Germanic verb systems which receive a natural explanation in terms of Proto-Germanic, and which are not accounted for by a *ABA constraint. These patterns are important as they provide independent evidence for the approach in section 5. The new data concern the types of vowel alternations found in the modern Germanic languages, and their relative type frequencies. A verb like *sing* will be referred to as having a vowel pattern *i-u-a*, or /ɪ/-/ʌ/-/æ/, based on the vowels found in *sing, sung, sang*. Now consider Table 13, showing asymmetries in the type frequencies of different cognate vowel patterns in modern Germanic.

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9   And perhaps there is not much reason to be puzzled: Proto-Germanic descends from Proto-Indo-European, whose ablaut system generally uses *e or *Ø (no vowel) in the present, but *o in the source of Germanic preterite (the perfect; Fortson 2010). There might therefore be a diachronic explanation for why Proto-Germanic looks the way it does, although the time depth involved makes this option difficult to explore further.

Table 13: A frequency asymmetry.

Language	Pattern	Number of verbs	Source/Examples
German	*i-u-a* (/ɪ/-/ʊ/-/a/)	19	Wiese (2008: 101)
	e-u-a (/ɛ/-/ʊ/-/a/)	9	Wiese (2008: 101)
Swedish[10]	*i-u-a* (/ɪ/-/ɵ/-/a/)	17	binda, brinna, brista, dimpa, dricka, finna, finnas, försvinna, hinna, rinna, sitta, slippa, spinna, springa, spritta, sticka, vinna
	e/ä-u-a (/ɛ/-/ɵ/-/a/)	0	-
Gammalsvenskbymålet	*i-u-a* (/i/-/u/-/a/)	13	
	ä-u-a (/ɛ/-/u/-/a/)	2	

Why are there consistently more verbs with a pattern *i-u-a* than with a pattern *e/ä-u-a*? This fact, which bears no obvious relationship to ABA patterns, can be understood with reference to Proto-Germanic. Both of these patterns are the continuations of Proto-Germanic class 3 strong verbs, and this class was split into two by a phonological rule raising *e to *i before tautosyllabic nasals (Ringe 2017: 269). The *i-u-a* pattern is the outcome of the *i subclass (earlier *e + nasal), while *e/ä-u-a* is the outcome of the *e subclass (earlier *e + non-nasal). In Proto-Germanic, the *i subclass contained more verbs than the *e subclass (Ringe 2017: 269-270). It seems that the frequency asymmetry between these two subclasses has been faithfully retained into the modern languages over a period of approximately 2,500 years. Faithful retention from Proto-Germanic can be used to explain the rarity of ABA patterns, as well as the frequency asymmetries. Even if one wants to defend a constraint-based analysis of ABA, the frequency facts must be explained somehow. If one uses retention from Proto-Germanic, the need for a constraint *ABA in this domain is significantly reduced: we would be accounting for the same data twice if we use both a synchronic constraint and a diachronic explanation. There is no need to duplicate the history of Germanic languages synchronically in this way, especially since the proposed synchronic constraint is not universal (see sections 4 and 6.2). In other words, since a diachronic explanation appears to be necessary to account for the facts in Table 13, I propose that we also use it for the rarity of ABA patterns. In this way, seemingly unrelated facts about Germanic verbs receive a unified explanation.

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10 Many of the relevant verbs show regional and idiolectal variation. I have included the forms which follow this pattern in my idiolect.

6.2 Where ABA patterns are found

In this section I will argue that diachrony can tell us where ABA verbs are more likely to be found, in the rare cases where they have been innovated. Based on the Proto-Germanic forms given in Table 12, some classes will be more likely than others to develop into ABA patterns. Consider classes 4 and 6, repeated for convenience in Table 14 with only the default preterite.

Table 14: Proto-Germanic classes 4 and 6.

	Present	Past participle	Preterite (default)	Patterns
Class 4	e	u	ē	ABC
Class 6	a	a	ō	AAB

It would be surprising if class 6 developed into an ABA pattern, since this would require the *a of the present changing to *ō, with the past participle *a being completely unaffected. By contrast, in class 4 we see that the present and (default) preterite differ only in length, and that both cells differ from the past participle in terms of height, backness, and rounding. This suggests that if we want to look for further ABA patterns in Germanic verbs, we would be wise to begin our search in class 4.

No Germanic language has undergone the right set of sound changes to neutralize *e and *ē regularly. In East Germanic, *e and *ē are kept distinct, represented as orthographic *ai* and *ē* respectively in transcriptions of Gothic. The former can be seen in **bai**rand 'they bring forth' (Wulfila Project, The Gothic Bible, Luke 8:15), and the latter in b**ē**run 'they brought forth' (Wulfila Project, The Gothic Bible, Luke 18:15). In the remaining branches, North and West Germanic, *ē differs from *e in undergoing lowering to *ā (Antonsen 1965). But despite the absence of merging of the length contrast, there are cases where ABA patterns have been created in class 4 verbs. Both the Low German and Gammalsvenskbymålet examples of ABA verbs are in fact from class 4.[11] The data from Gammalsvenskbymålet are of special interest because they represent a case where a subclass of class 4 verbs *regularly* developed ABA patterns. In the variety of Gammalsvenskbymålet used by speakers born in the late 19th century, 'sleep' showed the ABC pattern in Table 15, with the infinitive and the preterite distinguished by the tenseness of the vowel (Karlgren 1953: 29).[12]

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11 Ringe (2017) mentions that it is unclear whether 'sleep' was class 4 or 5 in Proto-Germanic, but the sources on Gammalsvensk-bymålet treat it as class 4 (Karlgren 1953; Mankov 2012; 2013; 2015; 2017).

12 Karlgren's (1953) transcriptions in *landsmålsalfabetet* have been converted into approximate IPA equivalents.

Table 15: 19th-century Gammalsvenskbymålet.

Infinitive	Past participle	Preterite	Translation	Pattern
/**so**-a/[13]	/**su**-e/	/**sɔ**ː/	'sleep'	ABC

In the modern variety, however, Mankov (2012; 2013; 2015; 2017) finds no /ɔː/ vowel at all, and the data in Table 16 show that this vowel has become tense /oː/. Table 16 shows all forms from Mankov (2015) which Karlgren (1953) recorded with /ɔː/, making it clear that this is a completely exceptionless generalization.

Table 16: A regular sound change.

Karlgren (1953)	Mankov (2015)	Translation
/lɔːmb/	/loːmb/	lamb
/lɔːg/	/loːg/	low
/lɔːŋ(g)/	/loːŋ/	long, tall (feminine)
/bļɔː/ (stem)	/bɽoː/ (stem)	blue
/vɔːr/	/voːr/ (stem)	our
/nɔːat/	/noːat/	something
/lɔːn/	/loːn/	borrow
/hɔːld/	/hoːld/	hold
/sɔː/	/soː/	slept (preterite)
/lɔː/	/loː/	lay (preterite)
/sɔː/	/soː/	saw (preterite)
/ɔːt/	/oːt/	ate (preterite)
/smɔːd̪/	/smoːd̪/	rubbed, smeared (preterite and past participle)
/ɔːd̪/	/oːd̪/	ploughed (preterite and past participle)
/slɔː/	/sloː/	hit
/stɔː/	/stoː/	stand
/fɔː/	/foː/	get, receive
/gɔː/	/goː/	go, walk
/grɔːt/	/groːt/	cry

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13 The stem vowel is also short here. This seems to be due to the infinitive ending /-a/: Karlgren (1953) has /hɔ-a/ for 'have,' while Mankov (2015) reports /hoː-a/. Similar facts hold for /tɔ-a/ (Karlgren 1953) and /toː-a/ (Mankov 2015) 'take.'

The data in Table 17 show that original /oː/ has remained unchanged. In other words, the change ɔː > oː neutralized the historical tenseness distinction in favor of /oː/.

Table 17: Neutralization.

Karlgren (1953)	Mankov (2015)	Translation
/stoː-e/	/stoː-e/	stood (past participle)
/foː-e/	/foː-e/	gotten, received (past participle)
/goː-e/	/goː-e/	gone, walked (past participle)
/loːŋ(g)-ɛr/	/loːŋ-ɛr/	long, tall (masculine)

Given this neutralization, an ABA pattern should be found in all verbs which previously distinguished the infinitive and preterite only by the tenseness in /ɔː/ versus /oː/. Unfortunately, 'sleep' is the only verb patterning this way in Karlgren (1953), and in the modern variety, only five verbs of class 4 are known (Mankov 2012; 2013; 2015; 2017). As Gammalsvenskbymålet is moribund and underdocumented, we are unlikely to ever find out whether there are other ABA verbs in the language. Nevertheless, this case shows us that such verbs can arise through regular sound change.

6.3 Beyond Germanic verbs?

The analysis developed so far has only been concerned with Germanic. The general approach of extralinguistic explanation can, however, be extended to family-independent universals (see Ackerman, Malouf and Blevins 2016 for a learning-based explanation of Greenberg's Universal 34, for example). An obvious extension of the work pursued here would be to consider whether ABA patterns in other domains can receive extralinguistic explanations, whether they are based on diachrony, usage frequency, language acquisition, or something else entirely. But staying with ABA patterns in verbs, I wish to point out another prediction of the explanation in this paper, which has not yet been tested. If there is no universal constraint against ABA verbs, it is predicted that in languages unrelated to Germanic, ABA verbs might be very common, or they might be neither common nor rare. Testing this prediction lies far beyond the scope of the present paper, which has not even attempted a systematic survey of Germanic itself. However, it is relatively easy to find out whether ABA verbs differ in frequency across families, and others who wish to confirm or disconfirm my analysis are encouraged to explore this question further. If ABA verbs are found to be systematically disfavored crosslinguistically, it is clear that the Proto-Germanic explanation would not be sufficient to account for the data. Other explanations to be

considered in such a scenario might include asymmetries in usage frequency (Bybee and Hopper 2001; Haspelmath, Calude, Spagnol, Narrog, and Bamyacı 2014), semantic factors (see Cristofaro 2010 for extralinguistic explanations in semantic typology), or indeed a universal markedness constraint, relativized somehow so as to allow ABA in Germanic.

Two anonymous reviewers point out that it may be difficult to find other languages and families whose verbal systems exactly parallel what we find in Germanic. Here we can distinguish two main approaches for exploring ABA beyond Germanic. One could relax the formal and meaning-based requirements for what constitutes a Germanic-like system, allowing for easier crosslinguistic comparison. This in turn makes the predictions outlined above easier to test. Alternatively, one could maintain that once we carefully consider other verbal systems in detail, there is not really a parallel to Germanic verbs elsewhere. This is not an unreasonable position, but it does seem to call universal *ABA-based theories in this domain into question. If only Germanic exhibits the relevant verbal system, a theory based on UG seems like far too strong a hypothesis, since the only evidence we could ever hope to adduce would be from Germanic. In practice, this option becomes very similar to my approach, which is explicitly family-specific, and which also predicts that systems outside of Germanic may look very different.

7 Conclusions

This article has considered the proposed *ABA restriction in Germanic verbs, forbidding syncretism between the present and the preterite to the exclusion of the past participle. I have argued that this restriction is not absolute, and that ABA verbs exist in Swedish, Low German, and Gammalsvenskbymålet. The Swedish case can be analyzed in multiple ways due to morphophonological changes, but an ABA treatment is preferable. Cases from other languages are more straightforward examples of ABA. I have suggested that the absence of ABA verbs in the strong verb classes of Proto-Germanic can be used to understand their rarity in modern Germanic languages. This explanation is independently motivated by type frequency asymmetries in the outcomes of Proto-Germanic strong class 3 verbs, as these asymmetries have also been faithfully retained from the proto-language into modern times. A prediction is made about where ABA verbs are more likely to arise. I identified the Proto-Germanic strong class 4 verbs as a likely source of ABA patterns, due to formal similarities between the present and the preterite forms. Indeed, two of three known ABA verbs come from this class. In the case of Gammalsvenskbymålet, an ABA verb has been created by regular sound change, although few verbal paradigms from this critically endangered variety are available. The claim that there may be other language

families where ABA verbs are common has been left untested, but represents a relatively easy way for others working on ABA patterns to validate or falsify this analysis. The work pursued here adds to existing research on the importance of extralinguistic factors in morphology, providing yet another case of a proposed universal which is best explained extralinguistically. This is part of the larger theoretical debate about explanations of linguistic patterns, and I hope to have made a positive contribution in favor of the extralinguistic side. However, ABA patterns are of interest to linguists from all areas, so it is my hope that this article will provoke more discussion from all sides of how they should be explained, both in Germanic and beyond.

Abbreviations

3 = 3rd person, IND = indicative, INTR = intransitive, SG = singular, TR = transitive

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Competing interests

The author has no competing interests to declare.

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