

# Chapter 5

## A new perspective on parallel inflection with reference to Old High German and Alemannic

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Stacked adjectives in earlier as well as modern German varieties show so-called parallel inflection. This means that all adjectives must bear an inflectional ending. Inflecting only the left or rightmost adjective or varying the type of inflection (weak/strong) leads to ungrammaticality. Zero-inflected adjectives are also possible, i.e. zero-inflection is iterated with each adjective. Unlike zero-inflected adjectives, truly uninflected adjectives are not possible in stacking in German. This chapter investigates possible variation in the combination of zero- and overt inflection in Old High German and the possible combination of uninflected and inflected adjectives in modern Alemannic. The data reveal that Old High German, assumed to have zero-inflected adjectives, does not seem to allow them in stacking, unlike Old Saxon or modern Scandinavian languages. This reflects a possible difference in the assumed zero-elements in these varieties. Uninflected adjectives in Alemannic are shown to only be possible in DPs with one adjective, but not in stacking. The data are accounted for in an Obligatory Contour Principle-based approach that suggests a double function of adjectival inflection. Adjectival inflection marks certain features, but at the same time it functions as a linking element to prevent an Obligatory Contour Principle violation.

### 1 Introduction

Stacked adjectives in modern German (and beyond) as in (1a) have received quite some attention in the literature (Bildhauer et al. 2019; Eichinger 1991; Münzberg & Bildhauer 2020; Olsen 1991; Roehrs 2009; Scott 2002). The investigation of the



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ordering of stacked adjectives (Eichinger 1991; Scott 2002), variation in the inflectional paradigm<sup>1</sup> in German (cf. (2)) (Bildhauer et al. 2019; Roehrs 2009), and the requirement for all adjectives to inflect (e.g. Olsen 1991) are recurring topics. In addition, the phenomenon has also been investigated based on historical data, e.g. for Old English and Old Norwegian in Bech (2017). In earlier stages of German, stacked adjectives are not very frequent but some examples from Old High German (OHG) can be found, e.g. (1b).

- (1) a. modern Standard German  
ein groß-er schön-er schwarz-er Hund  
INDEF big-M.NOM.SG beautiful-M.NOM.SG black-M.NOM.SG dog  
'a big beautiful black dog'
- b. Old High German  
Sámo sô ételich-es níuu-es tinges  
like so some-GEN.SG new-GEN.SG thing  
'like of some new thing' (N\_DeCon\_I\_13–15, p. 15)

Thus, there is a vast amount of literature on adjectival inflection in German(ic) in general (Gallmann 1996; Kester 1996; Leu 2015; Olsen 1991; Pfaff 2015, 2017; Roehrs 2015; Roehrs & Julien 2014) and stacking in particular (Bildhauer et al. 2019; Münzberg & Bildhauer 2020; Olsen 1991; Roehrs 2009; Scott 2002), but most accounts dealing with stacked adjectives in German either focus on the ordering or the distribution of inflection. While the individual accounts deal with modern German or historical data, this chapter discusses both, aiming at a unified account of parallel inflection. Furthermore, accounts dealing with modern German, mainly (but not exclusively) focus on the standard variety, which may blur the picture, as dialects allow for more variation in adjectival inflection (Baechler 2017; Leu 2015; Rehn 2019). Specifically, German dialects allow for uninflected attributive adjectives (Birlinger 1868; Rehn 2017; Schirmunski 1962; Staedele 1927), unlike modern Standard German, as illustrated in (2) with an Alemannic example. While uninflected adjectives are possible, they are not obligatory, but in those contexts in which uninflected adjectives occur, inflection is also possible, as shown in (2) and (3).

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<sup>1</sup>Most Germanic languages have a strong and a weak adjectival paradigm. The strong paradigm marks phi features and case, so these features are glossed when a strong ending is realized, whereas the weak paradigm is glossed wk for weak.

(2) Alemannic, Swabian variety

- a. a      groß Hood  
INDEF big    dog  
‘a big dog’
- b. dr              groß Hood  
DEF.M.NOM.SG big    dog  
‘the big dog’

(3) Alemannic, Swabian variety

- a. a      groß-er      Hood  
INDEF big-M.NOM.SG dog  
‘a big dog’
- b. dr              groß-e Hood  
DEF.M.NOM.SG big-WK dog  
‘the big dog’

The productive use of uninflected adjectives adds a new perspective on stacking and the requirement on parallel inflection (i.e. the fact that all stacked adjectives must inflect and must bear the same ending, e.g. (4a)). Standard German allows for only one exception in parallel inflection, namely in dative masculine/neuter singular contexts illustrated in (4b). This type of variation is dealt with in several accounts, whereas the option of uninflected adjectives in stacking does not seem to be part of the debate on variation.

(4) modern Standard German

- a. mit gut-**em**              neu-**em**      Wein  
with good-M.DAT.SG neu-M.DAT.SG wine  
‘with good new wine’
- b. mit gut-**em**              neu-**en** Wein  
with good-M.DAT.SG new-WK wine  
‘with good new wine’

This chapter centers on the inflectional properties of stacked adjectives, but the focus is shifted from the distribution and variation regarding strong and weak inflection to realization vs. non-realization of inflection. The issue of possible variation is dealt with from both a historical perspective based on Old High German data, and a synchronic perspective based on dialectal data from Alemannic.

Such a comparison allows one to investigate a possible impact of the different types of distribution of strong and weak adjectives in OHG vs. modern German, as well as a possible impact of the type of declension. It is argued in this chapter that despite the differences in the distribution of adjectival inflection in earlier vs. modern German, as well as differences in the declensional paradigm, the underlying mechanism that drives the requirement for overt parallel inflection is independent of both. In both historical and modern varieties, adjectival inflection is obligatory in stacking even though the ending may be dropped when only one adjective is realized. Obligatory inflection in stacking is argued to serve the purpose of a linking element to prevent an Obligatory Contour Principle (OCP) violation in the sense of Richards (2010: 4). Richards observes that two identical syntactic objects cannot be adjacent when they are linearized. This idea is applied to APs in stacking contexts. Inflection is assumed to be associated with a functional projection that appears above every AP and makes it possible to merge another AP on to top of it.

## 2 Adjectival inflection across Germanic

As mentioned in the introduction, the distribution of adjectival inflection in Germanic languages has attracted a lot of interest in linguistic research from both diachronic and synchronic perspectives (e.g. Demske 2001; Gallmann 1996; Haberland & Heltoft 2008; Leu 2015; Olsen 1991; Pfaff 2017, 2020; Roehrs 2006, 2015). From a synchronic point of view, adjectival inflection is particularly interesting in German as it has retained two adjectival paradigms, traditionally referred to as *strong* and *weak* based on Grimm (1822: 597). Strong inflection marks number, case and in singular also gender, whereas the weak ending is realized as either *-e* or *-en* and does not make any clear feature distinctions in modern German. The distribution of the two paradigms depends on the inflectional properties of the preceding article. In (5a)–(5c), the article bears strong inflection and the adjective inflects weak. In (5d), the article is uninflected, and in (5e) no article is realized; in these cases the adjective bears the strong ending.

- (5) modern Standard German
- a. **d-er**                    frisch-**e** Kaffee  
DEF-M.NOM.SG fresh-WK coffee  
'the fresh coffee'
  - b. **d-em**                    frisch-**en** Kaffee  
DEF-M.DAT.SG fresh-WK coffee  
'the fresh coffee'

- c. ein-**em**            frisch-**en** Kaffee  
       INDEF-M.DAT.SG fresh-WK coffee  
       ‘a fresh coffee’
- d. ein    frisch-**er**            Kaffee  
       INDEF fresh-M.NOM.SG coffee  
       ‘a fresh coffee’
- e.    frisch-**er**            Kaffee  
       fresh-M.NOM.SG coffee  
       ‘fresh coffee’

The interaction of strong or weak adjectival inflection with the inflection of the article, known as *morphosyntactic* distribution, is a property of West Germanic. North Germanic shows the so-called *semantic* distribution of strong and weak inflection. This means that the weak adjectival paradigm is associated with definiteness and is realized in definite DPs, whereas the strong ending appears in indefinite contexts (Haberland & Heltoft 2008; Kester 1993; Lohrmann 2011; Pfaff 2017; Roehrs & Julien 2014). The examples in (6) illustrate the semantic distribution in Mainland Scandinavian. In (6a) an indefinite article is followed by a strong adjective. Strong inflection is realized as zero here but associated with certain features, which is why these adjectives are not considered uninflected. In (6b) a definite article is followed by a weak adjective. In (6c) an uninflected possessive determiner is also followed by a weak adjective, because a possessive determiner provides a definite context. This example illustrates the difference between the semantic and the morphosyntactic distribution. In German, a strong adjective is realized in the very same context due to the absence of inflection as shown in (7).

- (6) a. Swedish  
       en    grön            bil  
       INDEF green.N.SG.Ø car  
       ‘a green car’ (Lohrmann 2011: 113)
- b. Swedish  
       den            grön-a    bil-en  
       DEF tall-WK car-DEF  
       ‘the green car’ (Lohrmann 2011: 113)
- c. Norwegian  
       (Per) sin stor-**e**    bil  
       (Per) his big-WK car  
       ‘his big car’ (adapted from Roehrs 2019: 107)

- (7) German  
sein groß-es      Auto  
his big-N.NOM.SG car  
'his big car'

Dutch is generally grouped with West Germanic (Harbert 2007: 15–17); however, it neither shows the morphosyntactic nor the semantic pattern of adjectival inflection. Dutch adjectival inflection is either realized as *-e*, e.g. (8) and (9a), or as zero, e.g. (9b). Zero-inflection is realized in one specific context, namely in neuter indefinite DPs, whereas *-e* is realized elsewhere. Bennis (2015) therefore suggests that zero-inflection carries morphosyntactic information, whereas the ending *-e* does not. In other words *-e* does not agree, whereas zero-inflected adjectives agree (but see Roehrs 2015 for an alternative view).

- (8) Dutch  
a. de aardig-e jongen  
DEF nice-INFL boy  
'the nice boy'  
b. een aardig-e jongen  
INDEF nice-INFL boy  
'a nice boy'

- (9) Dutch  
a. het aardig-e meisje  
DEF nice-INFL girl  
'the nice girl'  
b. een aardig meisje  
INDEF nice.N.SG.Ø girl  
'a nice girl'

Dutch and Norwegian zero-inflected adjectives differ from attributive adjectives that do not bear overt inflection in modern German dialects, as the latter are not paradigmatic. Paradigmatic means that zero-inflection is associated with certain morphosyntactic features, whereas non-paradigmatic uninflected adjectives are not associated with a certain set of features and are thus not restricted to specific contexts. This is relevant as it is expected that paradigmatic zero-inflection behaves like overt strong inflection with respect to the distribution and also realization in stacking contexts. Truly uninflected adjectives, however, differ in their distribution from inflected ones, as they can be realized in definite and indefinite contexts as well as with inflected and uninflected articles, as shown in (10).

(10) Alemannic

- a. e        guet Wii  
     INDEF good wine  
     ‘a good wine’
- b. de                guet Wii  
     DEF.M.NOM.SG good wine  
     ‘the good wine’

In earlier stages of German, the semantic distribution found in North Germanic as illustrated in (6) above is also the common pattern. In OHG, the semantic distribution is the dominant pattern (11), whereas in Middle High German the morphosyntactic distribution is already widely attested with some regional differences (e.g. Demske 2001; Klein 2007; Kovari 1984; Osthoff 1876; Ratkus 2011). In the OHG example in (11a), the definite determiner *diu* is followed by a possessive element and a weakly inflected adjective. In (11b), the DP is interpreted as indefinite and the adjective bears strong inflection. There is no indefinite article realized in this example as the indefinite article is only frequently attested in late OHG texts whereas in earlier works it is often missing (cf. Demske 2020; Oubouzar 1992; Presslich 2000).

(11) Old High German

- a. diu    sîn gotelich-a natura  
     DEF his divine-WK nature  
     ‘his divine nature’  
(BamGB1\_Bamberger\_Glaube\_und\_Beichte, S136, line 35–36)
- b. in himile    fest-er                stein  
     in heaven solid-M.NOM.SG rock  
     ‘in heaven a solid rock’ (C\_CarmenAdDeum, S290, line 4)

West and North Germanic are similar when more than one attributive adjective is realized in a DP, as they show parallel inflection. This means that the inflectional ending is “repeated” on each adjective (cf. Bildhauer et al. 2019; Peter 2013; Roehrs 2009; Sahel 2021). There is no variation regarding the type of inflection, i.e. weak or strong. All attributive adjectives within one DP show the same inflectional ending. In the examples in (12), a definite article bearing strong inflection precedes a sequence of two adjectives, which both bear weak inflection. In (13) an uninflected article precedes a sequence of two attributive adjectives, which both bear strong inflection. The Dutch examples in (14) and (15) are similar in the sense that the expected *e*-inflection or zero-inflection is repeated on

each adjective. In (14a) and (15a) a definite article precedes a sequence of two adjectives, and both inflect. The two adjectives in the non-neuter indefinite DP in (14b) also bear the *e*-inflection. In the indefinite neuter example in (15b), both adjectives occur without overt inflection, as expected.

(12) modern Standard German

- a. d-**er**                nett-**e**    ruhig-**e**    Junge  
DEF-M.NOM.SG nice-WK quiet-WK boy  
'the nice quiet boy'
- b. d-as                nett-**e**    ruhig-**e**    Mädchen  
DEF-N.NOM.SG nice-WK quiet-WK girl  
'the nice quiet girl'

(13) modern Standard German

- a. ein    nett-**er**                ruhig-**er**                Junge  
INDEF nice-M.NOM.SG quiet-M.NOM.SG boy  
'a nice quiet boy'
- b. ein    nett-**es**                ruhig-**es**                Mädchen  
INDEF nice-N.NOM.SG quiet-N.NOM.SG girl  
'a nice quiet girl'

(14) Dutch

- a. de    aardig-**e**    rustig-**e**    jongen  
DEF nice-INFL quiet-INFL boy  
'the nice quiet boy'
- b. een    aardig-**e**    rustig-**e**    jongen  
INDEF nice-INFL quiet-INFL boy  
'a nice quiet boy'

(15) Dutch

- a. het    aardig-**e**    rustig-**e**    meisje  
DEF nice-INFL quiet-INFL girl  
'the nice quiet girl'
- b. een    aardig                rustig                meisje  
INDEF nice.N.SG.Ø quiet.N.SG.Ø girl  
'a nice quiet girl'



One prominent characteristic of adjectival inflection in German is the so-called monoinflection, i.e. strong inflection can only be realized once per category (cf. Helbig & Buscha 2013; Roehrs 2006: 35). Strong inflection either appears on a determiner (16a) or on the adjective (16b) but never on both (16c). However, there is no restriction on having several instances of strong inflection in one DP. When several adjectives are realized all of them must bear the same ending, as already noted. Variation between strong and weak inflection in sequences of attributive adjectives is ungrammatical as shown in (16d) and (16e).

(16) modern Standard German

- a. d-er                      groß-e   schwarz-e Hund  
DEF-M.NOM.SG. big-WK black-WK dog  
'the big black dog'
- b. ein   groß-er           schwarz-er           Hund  
INDEF big-M.NOM.SG black-M.NOM.SG. dog  
'a big black dog'
- c. \*d-er                      groß-er           schwarz-er           Hund  
DEF-M.NOM.SG big-M.NOM.SG black-M.NOM.SG dog  
'the big black dog'
- d. \*ein   groß-er           schwarz-e Hund  
INDEF big-M.NOM.SG black-WK dog  
'a big black dog'
- e. \*d-er                      groß-e   schwarz-er           Hund  
DEF-M.NOM.SG big-WK black-M.NOM.SG dog  
'the big black dog'

There is one exception to the restriction on combining strong and weak inflection in stacking. The combination of strong and weak inflection is possible in examples like (4), repeated here as (17) (cf. Bildhauer et al. 2019; Peter 2013; Sahel 2021). However, this type of variation is restricted to one specific context, namely dative masculine/neuter, which is the only context in which the alternation between strong and weak inflection involves two nasals. It may therefore be a phonological phenomenon, as suggested in the literature (Roehrs 2009; Sahel 2021).

(17) modern Standard German

- a. mit   gut-em                neu-em                Wein  
with good-M.DAT.SG new-M.DAT.SG wine  
'with good new wine'

- b. mit gut-**em**            neu-**en** Wein  
with good-M.DAT.SG new-WK wine  
'with good new wine'

When adjectives are stacked, they do not only require parallel inflection, but they also show restrictions regarding their ordering, as has been investigated in detail e.g. in Scott (2002) and Eichinger (1991). However, Eichinger (1991: 313), and also Münzberg & Bildhauer (2020: 134), note that it is rather difficult to investigate the actual hierarchy of adjectives, as in natural language there are hardly ever more than two attributive adjectives realized in one DP. The identification of the observed ordering restrictions are also complicated by the fact that it is not ungrammatical if adjectives are not realized in their canonical ordering e.g. when one of them is focused (18).

(18) modern Standard German

- a. d-er            groß-e rot-e Ball  
DEF-M.NOM.SG big-WK red-WK ball  
'the big red ball'
- b. d-er            ROT-E groß-e Ball  
DEF-M.NOM.SG red-WK big-WK ball  
'the RED big ball'

So far, stacking has simply referred to sequences of more than one attributive adjective. However, it is important to distinguish sequences of stacked adjectives, from attributive adjectives realized with comma intonation. Stacking means that the higher adjective modifies the entire complex of the lower A and N as illustrated with the bracketing in (19a), whereas adjectives that are "separated" by comma intonation modify the noun individually as illustrated in (19b). Zifonun et al. (1997: 1992–1994) discuss such examples in more detail, and note that comma intonation is equivalent to coordination, which is why the structure of stacked adjectives differs from those with comma intonation. In this chapter, the term stacking thus always refers to the type of modification in (19a).

- (19) a. a big dog → a [big [black dog]]  
b. a big dog → a [big], [black] dog

### 3 Adjectival inflection from a diachronic and dialectal perspective

It has been shown that across Germanic there are two different distributions of the weak and strong inflection (semantic and morphosyntactic) and that some languages have a paradigmatic zero-morpheme. As already noted, paradigmatic means that zero-inflection is part of the paradigm and marks certain morphosyntactic features (e.g. number and/or gender), whereas uninflected adjectives that are not considered to be paradigmatic are assumed to lack a zero-morpheme. Only the latter group is thus truly uninflected.

Dialectal data from German show that, on the one hand, dialects pattern with Standard German in the distribution of strong and weak inflection when adjectival inflection is realized (20), but that, on the other hand, uninflected attributive adjectives are attested (21) which are ungrammatical in the standard variety.<sup>2</sup> Uninflected adjectives are a well known property of Alemannic (Birlinger 1868: 158; Staedele 1927: 19–20), but uninflected adjectives are also attested in other dialects, e.g. Franconian (Rowley 1991) or Low German varieties (Schirmunski 1962). Uninflected and inflected adjectives can occur in one and the same context in Alemannic, reflecting their non-paradigmatic nature. Such non-paradigmatic uninflected adjectives are also attested for Middle High German (Klein 2007) and Early New High German (Solms & Wegera 1991).

#### (20) Alemannic

- a. e        neu-er        Wage  
      INDEF new-M.NOM.SG car  
      ‘a new car’
- b. de                neu-e        Wage  
      DEF.M.NOM.SG new-WK car  
      ‘the new car’
- c. mit d-em            neu-e        Wage  
      with DEF-M.DAT.SG new-WK car  
      ‘with the new car’ (SynAlm)<sup>3</sup>

<sup>2</sup>There are some exceptional cases in which uninflected adjectives also occur in Standard German. The adjectives *rosa* (‘pink’) and *lila* (‘purple’) generally occur uninflected, and there are some fixed expressions which also contain uninflected adjectives.

<sup>3</sup>SynAlm = Syntax of Alemannic project (cf. Brandner 2015).

(21) Alemannic

- a. e        neu Wage  
     INDEF new car  
     ‘a new car’
- b. de neu Wage  
     DEF new car  
     ‘the new car’
- c. mit d-em        neu Wage  
     with DEF-M.DAT.SG new car  
     ‘with the new car’ (SynAlm)

(22) Low German

- a. grōt  
     ‘big’
- b. grōt-əs  
     big-N.SG  
     ‘big’ (Schirmunski 1962: 464)

(23) Middle High German<sup>4</sup>

- a. der vbel    tivel  
     DEF vicious devil  
     ‘the vicious devil’ (3\_2-bair-V-X > M012-N0 (tok\_dipl 7818–7832))
- b. ein    ehrlig    maget  
     INDEF honest girl  
     ‘an honest girl’ (13\_1-bair-P-X > M160R-N1 (tok\_dipl 10543–10557))

Despite the differences between non-standard and Standard German regarding the realization of inflection, non-standard varieties seem to pattern with modern Standard German with respect to stacking. Stacked adjectives in Alemannic show parallel inflection (24).

(24) Alemannic

- a. e        groß-er        schwarz-er    Hund  
     INDEF big-M.NOM.SG black-M.NOM.SG dog  
     ‘a big black dog’

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<sup>4</sup>Examples from the *Referenzkorpus Mittelhochdeutsch* (Klein et al. 2016).

- b.    de                    groß-e   schwarz-e Hund  
       DEF.M.NOM.SG big-WK black-WK dog  
       ‘the big black dog’

However, Adelung (1781: 213), in his discussion of Upper German adjectival inflection, provides the example in (25), in which three uninflected adjectives precede a noun. This again raises the question whether dialects may allow uninflected adjectives in stacking. This point is discussed in Section 3.2 in some detail, which reveals that despite the option of realizing uninflected adjectives, it is not possible to combine inflected and uninflected forms.

- (25)    ein gut brav ehrlich Mann  
           ‘a good upright honest man’ (Adelung 1781: 213)

Before discussing the OHG and Alemannic data, Section 3.1 provides a brief background to OHG, followed by a discussion of the OHG and Old Saxon (OS) data source in Section 3.2. Section 3.3 gives some background on Alemannic, which is then followed by a discussion of the Alemannic data source in Section 3.4 in more detail.

### 3.1 Old High German

OHG differs in a range of lexical, phonological and syntactic properties from modern German varieties. Regarding the DP structure and adjectival agreement, OHG shares with modern German the feature that adjectives show either weak or strong inflection. However, as already noted in the introduction, OHG shows the semantic distribution of the strong and weak paradigm, which means that the weak ending generally appears in definite DPs preceded by a definite determiner, and the strong ending appears elsewhere (cf. the examples in (11) in Section 1, repeated here as (26a) and (26b)). Furthermore, the strong ending has two variants, namely the pronominal and the nominal<sup>5</sup> form, which is zero, cf. (26c) below (Braune 2018: 298). Another important aspect in relation to the distribution of adjectival inflection in OHG compared to modern German is the fact that the article system is not yet fully in place. While the definite article is already rather frequent, the indefinite article is generally absent in early OHG texts. In the

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<sup>5</sup>I use the term nominal inflection for zero-inflected adjectives in OHG following Braune (2018), as the zero-inflected variants are assumed to reflect the old nominal inflection that was realized on adjectives before the pronominal strong form replaced the nominal endings on adjectives. The weak forms are also nominal in nature, so in order to distinguish the different paradigms, nominal refers to zero-inflection, weak to the *n*-declension and strong to the pronominal forms.

late OHG texts from Notker, it is regularly attested (cf. Oubouzar 1992; Presslich 2000).

(26) Old High German

- a. diu sîn gotelich-a natura  
DEF his divine-WK nature  
'his divine nature'  
(BamGB1\_Bamberger\_Glaube\_und\_Beichte, S136, line 35–36)
- b. in himile fest-er stein  
in heaven solid-M.NOM.SG rock  
'in heaven a solid rock' (C\_CarmenAdDeum, S290, line 4)
- c. so listic man  
such cunning.M.NOM.SG.Ø man  
'such a cunning man' (Muspilli, 88,94 (Presslich 2000: 86))

As OHG has a paradigmatic zero-morpheme just like Dutch or Norwegian, the question remains whether OHG shares with modern Germanic languages the feature that stacked adjectives show parallel inflection, or whether OHG allows for variation in stacking, either in combining strong and weak inflection or in allowing a combination of nominal and pronominal inflection, which are both strong.

### 3.2 Old High German and Old Saxon data source

The data stem from the *Referenzkorpus Altddeutsch* 1.2 (Zeige et al. 2022), which is available online and can be searched via ANNIS (Krause & Zeldes 2016). The corpus comprises texts from different OHG periods and various dialects, as well as Old Saxon texts. A summary of the texts that are part of the corpus is given in Table 1 (OHG) and Table 2 (OS). The genre and dialect are given as provided in the corpus. The time period specification is based on the summary provided in Mittmann & Plate (2019: 177–178). As stacking is not very frequent (cf. the discussion in Bech 2017; Eichinger 1991), all texts were included in the corpus search, which means that the examples stem from different dialects and different periods of OHG.

The strategy used to filter out stacked adjectives was similar to the one used in Bech (2017), as I searched for the linear order of two or more adjectives. This rather broad search of course includes a number of false positives. After extracting all sentences containing two adjacent adjectives, the examples were checked

Table 1: Old High German texts in the *Referenzkorpus Altdeutsch*

Text	Dialect	Genre	Date
Benediktinerregel	Alemannic	Religion	ca 800
Isidor	Franconian	Religion	ca 770–810
Tatian	–	–	–
kleinere AHD Denkmäler <sup>a</sup>	–	–	ca 750–1100
Monseer Fragmente	Bavarian	Religion	ca 810
Murbacher Hymnen	Alemannic	Religion	ca 800–825
Otfrid	Franconian	Religion	863–871
Physiologus	Alemannic	Science	11th cent.
Notker	Alemannic	Science	10th/11th cent.

<sup>a</sup>The Bamberger Glaube und Beichte, and Carmen ad Deum belong here.

Table 2: Old Saxon texts in the *Referenzkorpus Altdeutsch*

Text	Genre	Date
Genesis	Religion	ca 840
Heliand	Religion	ca 830
kleinere AS Denkmäler	–	ca 750–1100

manually and those were discarded in which the adjectives did not clearly modify the noun, i.e. if e.g. one of the adjectives is interpreted adverbially as in (27a)<sup>6</sup> or (27b). In these examples, the first adjective can be interpreted as modifying the second adjective rather than the noun. Examples in which one of the adjectives was given in Latin and the other one in OHG were also excluded (27c).

(27) Old High German

- a. álde ételih úngeuuândiu geskiht  
or some unexpected event  
‘or some unexpected event’ (N\_DeCon\_II\_54–59, p. 59)
- b. duruhnoht drisca ruaua  
perfect triple number  
‘perfect triple number’ (MH\_Murb.H.XIII, ch. 1, verse 1)

<sup>6</sup>The irregularity of *ételih* may also be a reason for the non-parallel behavior, as a reviewer points out.

- c. ewiga sancta Maria  
eternal holy Mary  
'eternal holy Mary'  
(BamGB1\_Bamberger\_Glaube\_und\_Beichte, S137, line 4)

Of the remaining examples, there were 31 DPs with two attributive adjectives modifying the same noun. All of them precede the noun they modify despite the option of postnominal attributive adjectives in OHG. However, among these 31 noun phrases, four contained the exact same sequence of adjectives in the same text. Counting these examples only once reduced the total number of examples to 28. The number of examples was further reduced to 26, for the following reasons: The example in (28a) was not included, as the sequence of adjectives repeats the word 'holy'. The example in (28b) was included, but as the same sequence of the identical adjective and noun combination occurred twice in the same text, it was only counted once.

- (28) a. uuiho uuiho uuiho truhtin  
holy holy holy Lord  
'holy holy holy Lord' (MH\_Murb.H.VII, ch. 8, verse 1)  
b. mâri mahtig Crist  
famous mighty Christ  
'the famous mighty Christ' (Hel\_31, ch. XXXI verse 2581)

The number of examples may be further reduced by semantic factors, as in several cases the modified noun is 'God' or 'Christ', often preceded by adjectives like 'powerful' or 'mighty'. Whether or not the examples with two (or more) modifying adjectives are further reduced by such semantic factors does not have an impact on the overall picture: OHG shows parallel inflection. This means that both adjectives inflect either weak or strong, and when they bear strong inflection they either bear nominal or pronominal inflection. There seems to be little variation regarding the paradigm chosen<sup>7</sup> (cf. the overview in Table 4). The examples in (29a) and (29b) illustrate parallel inflection in OHG with weak inflection (29a) and pronominal inflection (29b). Example (29c) shows a sequence of zero-inflected adjectives. However, this example stems from the *Heliand* and is thus Old Saxon and not OHG – I could not find more than one nominally inflected attributive adjective modifying the same noun in the OHG texts.

<sup>7</sup>It must be noted, however, that the low absolute number of stacked adjectives does not really allow one to draw any conclusions regarding the possibility of variation, as there are simply not enough data available. The one non-canonical example could be an exception but it may also reflect the possibility of variation.



- (29) a. an der éin-un gotelich-un ebenselbewig-un  
in DEF.DAT one-WK divine-WK eternal-WK  
éinselbwesendi glóub ich  
self.establishing.entity believe I  
‘I believe in the one divine eternal self-establishing entity.’  
(BamGB1\_Bamberger\_Glaube\_und\_Beichte, S135, line 21–22)
- b. Sámo sô ételich-es níuu-es tíng-es  
like so some-GEN.SG new-GEN.SG thing  
‘like of some new things’ (N\_DeCon\_I\_13–15, p. 15)
- c. hêlag himilisc uuord  
holy.N.ACC.SG.Ø heavenly.N.ACC.SG.Ø word  
‘holy heavenly word’ (Hel\_01, ch. I, verse 14)

The numbers in Tables 3 and 4 are based on the 25 examples as explained above, i.e., identical sequences of adjectives with identical inflection were excluded, but identical sequences when appearing with different types of inflection (weak or strong) were counted. Table 3 lists the number of examples found in the individual texts of the corpus, including the Old Saxon *Heliand*, and Table 4 lists the number of examples based on the type of inflection. All sequences of two nominally inflected adjectives stem from the Old Saxon *Heliand*, cf. Table 4. In all other texts, the inflection is either weak or pronominal. Hence, almost all examples follow the principle of parallel inflection.

Table 3: The number of examples with adjectival stacking in the different OHG and OS texts

Source	Examples
Benediktinnerregel	1
kleinere AHD Denkmäler	8
Isidor	1
Murbacher Hymnen	3
Notker	4
Otfrid	1
Heliand (OS)	7

Table 4: The number of examples showing weak, strong (pronominal, nominal) or varying inflection

Type of inflection	Examples
pronominal	12
weak	8
varying	1
nominal (=zero)	4

There is one Old Saxon example that is an exception to this pattern, given in (30). In this example, the first adjective bears the weak ending as expected after a definite determiner. The second adjective, on the other hand, bears the strong ending, which is unexpected in a definite DP. However, phrases with God and Christ are very frequent, and it might thus be the case that they are fixed expressions in some sense, which could be a possible explanation for the exception to parallel inflection in (30).<sup>8</sup> In the OHG examples, all adjectives do indeed show parallel inflection.

- (30)    *thene mâre-on    mahtig-ne            god*  
         DEF   famous-WK   powerful-M.ACC.SG   god  
         ‘the famous powerful god’ (OS, Hel\_58, ch. LVIII, verse 4886)

As noted above, in OHG, all dialects were included in the search. Three of the texts in which examples with stacked adjectives were found, are Alemannic sources: the *Benediktinerregel*, the *Murbacher Hymnen* and the two texts from Notker. This means that eight of the examples from the search are Alemannic examples, hence Alemannic follows the pattern that is generally identified for OHG. Based on the examples found, there does not seem to be any influence of either dialect, genre or the OHG period on the realization of parallel inflection in stacking. However, as the number of examples found is rather small, it cannot be excluded that possible variation is simply not detected. While there is no variation in stacking within the OHG data, it is interesting that OHG and OS differ with respect to zero-inflection in stacking. The fact that OS allows for stacked zero-inflected adjectives while OHG does not may point to a difference in the status of zero-inflected adjectives in these two varieties.

### 3.3 Properties of Alemannic

Alemannic is an Upper German dialect that covers areas in four countries: Germany, Switzerland, France (Alsace) and Austria (Vorarlberg). The dialect is subdivided into five Alemannic varieties: Highest, High, Middle, Low Alemannic and Swabian. In the following, I will not distinguish between the different Alemannic varieties, since for the topic of this chapter, there are no considerable differences with respect to the data. Alemannic covers a rather large area and thus provides an ideal basis for investigating (morpho)syntactic variation. In addition, Alemannic is well documented, and Alemannic texts from OHG to Early New High German are available allowing an investigation of language change.

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<sup>8</sup>I thank a reviewer for this point.

There are also a number of dialect grammars that provide detailed descriptions of Alemannic or certain Alemannic varieties (e.g. Birlinger 1868; Fischer 1960; Staedele 1927). The area in which Alemannic is spoken is displayed in Figure 1, which shows a snippet of the classical dialect map from Wiesinger (1983), created with the REDE SprachGIS (Bock et al. 2008). The black dots mark the places that were part of the empirical study that will be introduced in more detail below.

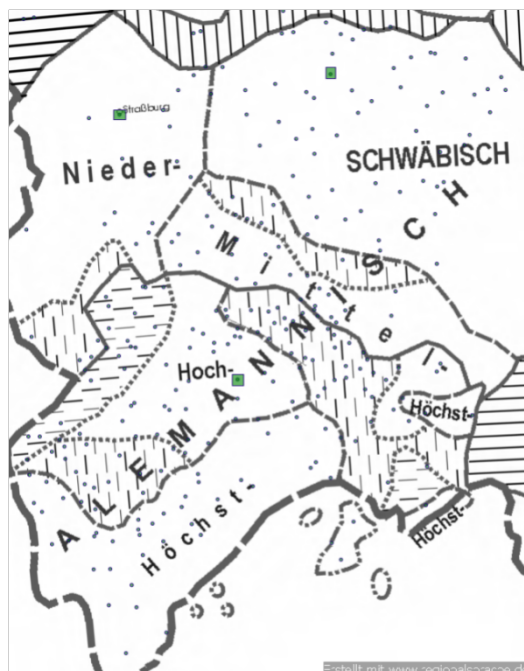


Figure 1: The Alemannic area

Alemannic has a number of characteristic lexical, phonetic and morphosyntactic properties (see Rehn 2021 for a short discussion), including variation in adjectival inflection, as already noted in Birlinger (1868: 158). He points out that the realization of uninflected attributive adjectives is one of the core characteristics of the Alemannic dialect (cf. also Staedele 1927; Rehn 2019; Leu 2015 for a Swiss Alemannic variety).

In the literature, several morphosyntactic restrictions are noted regarding the distribution of uninflected adjectives. Staedele (1927: 19) points out that uninflected adjectives are generally possible with neuter DPs and in nominative and accusative definite DPs with all genders. Solms & Wegera (1991: 55, 110) note that in Early New High German, uninflected adjectives are realized in several

contexts, but are very frequent with neuter singular nouns so they may even be regarded as marking neuter. Rehn (2019) investigates the impact of different morphosyntactic variables on the realization of uninflected attributive adjectives in modern Alemannic in detail and shows that they can appear in all contexts that were tested: definite, indefinite, singular, plural and oblique (cf. (21) above). There is only one restriction: uninflected adjectives must be preceded by an article, otherwise they are ungrammatical (31). The inflectional properties of the article are not relevant, i.e., uninflected adjectives are also possible after uninflected determiners (cf. (21a)) and their distribution cannot be explained within the morphosyntactic or the semantic distribution.

(31) Alemannic

- a. \* *gued Wii*  
    *good wine*  
    ‘good wine’
- b. *gued-r                Wii*  
    *good-M.NOM.SG wine*  
    ‘good wine’

The restriction of uninflected adjectives in DPs with an overt determiner is connected to requirements on overt feature marking in German DPs in Rehn (2019: 122–123). The main idea is that the data reflect that two features require overt marking: number and oblique case. The Alemannic and modern Standard German article paradigms (Tables 5–7) show that nominative and accusative are syncretic in both varieties in the indefinite and the definite paradigm. The only exception is *M.ACC* in the standard variety. Furthermore, gender is not consistently marked either, neither in the definite nor in the indefinite paradigm. In the definite plural paradigm, gender specification is entirely absent. As only number and oblique case seem to receive consistent marking across the indefinite and the definite paradigm, Rehn (2019) argues that once these features are realized via an article, the adjective can remain uninflected. In the absence of an article, the requirement on morphological marking of number and oblique case is responsible for obligatory adjectival inflection.

## 5 Parallel inflection in Old High German and Alemannic

Table 5: The definite singular and plural paradigm (modern Standard German)

	M.SG	N.SG	F.SG	M.PL	N.PL	F.PL
NOM	<i>der</i>	<i>das</i>	<i>die</i>	<i>die</i>	<i>die</i>	<i>die</i>
ACC	<i>den</i>	<i>das</i>	<i>die</i>	<i>die</i>	<i>die</i>	<i>die</i>
DAT	<i>dem</i>	<i>dem</i>	<i>der</i>	<i>den</i>	<i>den</i>	<i>den</i>
GEN	<i>des</i>	<i>des</i>	<i>der</i>	<i>der</i>	<i>der</i>	<i>der</i>

Table 6: The definite singular and plural paradigm (Alemannic)

	M.SG	N.SG	F.SG	M.PL	N.PL	F.PL
NOM	<i>dr</i>	<i>(d)s</i>	<i>d'</i>	<i>d'</i>	<i>d'</i>	<i>d'</i>
ACC	<i>de</i>	<i>(d)s</i>	<i>d'</i>	<i>d'</i>	<i>d'</i>	<i>d'</i>
DAT	<i>em</i>	<i>em</i>	<i>dr</i>	<i>de</i>	<i>de</i>	<i>de</i>

Table 7: The indefinite paradigms of modern Standard German and Alemannic

	mod. Standard German			Alemannic		
	M	N	F	M	N	F
NOM	<i>ein</i>	<i>ein</i>	<i>eine</i>	<i>a</i>	<i>a</i>	<i>a</i>
ACC	<i>einen</i>	<i>ein</i>	<i>eine</i>	<i>a(n)</i>	<i>a</i>	<i>a</i>
DAT	<i>einem</i>	<i>einem</i>	<i>einer</i>	<i>am/ma</i>	<i>am/ma</i>	<i>ra</i>
GEN	<i>eines</i>	<i>eines</i>	<i>einer</i>	–	–	–

### 3.4 Alemannic data source

All Alemannic data were collected as part of the Syntax of Alemannic (SynAlm) project (cf. Brandner 2015). SynAlm investigated morphosyntactic properties and morphosyntactic variation in Alemannic by sending out detailed questionnaires that contained different task types. The area and places to which questionnaires were sent is shown in Figure 1 above. In total, seven questionnaires were sent out over a period of four years. As expected, the number of participants declined over time. In the first round, around 1,000 participants returned the questionnaire, whereas about 500 returned the questionnaire in the last round. This means that despite the decline in participants, the overall number remained rather high allowing the investigations of areal patterns across the SynAlm area.

In the questionnaires, all sentences were given in the local Alemannic variety in judgement or choice tasks. These tasks included the following variants:

- rating sentences on a scale from 1 (natural) to 5 (not possible)
- stating whether:
  - a. one knows the construction and uses it
  - b. one knows the construction but does not use it
  - c. one does not know the construction
- stating whether the construction exists in the variety (yes or no)

Translation tasks were also part of the questionnaire. In this case, a Standard German sentence was given and the participants were asked to translate the sentence into their dialect. The data on stacked adjectives only include judgement data, however. 591 participants took part in the questionnaire and rated sentences with the DP in (32) on a scale from 1 (natural) to 5 (not possible). The DP contains two monosyllabic adjectives preceding a masculine noun. The reason for this restriction is twofold: i) avoiding a clash of an adjective ending in *-s* and the strong neuter ending also ending in *-s* which may lead to a phonological reduction (*ein leis-es Geräusch* – ‘a soft sound’) and ii) the impact of gender on the acceptance of uninflected adjectives. The latter is particularly important as it is noted in Staedele (1927) that uninflected adjectives are generally possible with neuter, whereas masculine and feminine nouns show restrictions. In Rehn (2019) it was shown that masculine and feminine nouns also allow uninflected adjectives; nevertheless, a preference for neuter was also reflected in the data, because neuter received a higher acceptance compared to masculine or feminine nouns

with uninflected adjectives. In order to reduce the effect of gender, a masculine head noun was therefore chosen. Furthermore, the DP was provided without a comma between the two adjectives and the context did not involve a contrast in order to avoid a possible comma intonation.

- (32) a. d-er                    groß-e   schwarz-e Hund  
DEF-M.NOM.SG big-WK black-WK dog  
‘the big black dog’
- b. ein   groß-er            schwarz-er        Hund  
INDEF big-M.NOM.SG black-M.NOM.SG dog  
‘a big black dog’

In the questionnaire, the DP in (32) was tested for several combinations of inflection and non-inflection as given in (33)–(37). As the examples show, for each combination a definite and an indefinite nominative DP was tested. All combinations were also tested in a dative DP (37). Testing nominative as well as dative examples allows one to investigate a possible impact of case as well as possible differences between strong and weak inflection. In the definite DPs in general, and also in indefinite dative DPs, the article bears the strong ending and the adjective shows weak inflection. In indefinite nominative DPs the article is uninflected and the adjectives bear strong inflection, whereas in indefinite dative DPs the article bears the strong ending and the adjective inflects weakly just like in the definite DPs. There is an inflectional difference between nominative and dative in the weak ending, however. In the nominative case, the weak inflection is realized as *-e* (33b), whereas in dative it is realized as *-en* (37b).

- (33) a. Both adjectives are inflected (nominative):  
ein   groß-er            schwarz-er        Hund  
INDEF big-M.NOM.SG black-M.NOM.SG dog  
‘a big black dog’
- b. d-er                    groß-e   schwarz-e Hund  
DEF-M.NOM.SG big-WK black-WK dog  
‘the big black dog’
- (34) a. Both adjectives are uninflected:  
ein   groß schwarz Hund  
INDEF big black dog  
‘a big black dog’

- b. d-er                    groß schwarz Hund  
 DEF-M.NOM.SG big   black   dog  
 ‘the big black dog’
- (35) a. The first adjective is inflected, the second is uninflected:  
 ein   groß-er            schwarz Hund  
 INDEF big-M.NOM.SG black   dog  
 ‘a big black dog’
- b. d-er                    groß-e   schwarz Hund  
 DEF-M.NOM.SG big-WK black   dog  
 ‘the big black dog’
- (36) a. The first adjective is uninflected, the second is inflected:  
 ein   groß schwarz-er   Hund  
 INDEF big   black-M.NOM.SG dog  
 ‘a big black dog’
- b. d-er                    groß schwarz-e Hund  
 DEF-M.NOM.SG big   black-WK dog  
 ‘the big black dog’
- (37) a. Both adjectives are inflected (dative):  
 ein-em                    groß-en schwarz-en Hund  
 INDEF-M.DAT.SG big-WK   black-WK   dog  
 ‘a big black dog’
- b. d-em                    groß-en schwarz-e Hund  
 DEF-M.DAT.SG big-WK   black-WK dog  
 ‘the big black dog’

The results of the judgement tasks provide a rather clear pattern: there is a very strong preference for parallel inflection in almost all contexts with only one exception, namely the definite nominative DP. The results of the questionnaire task are summarized in the diagrams in Figures 2–5, in which the colours show the different combinations of inflected and uninflected adjectives:

- *red*: parallel inflection (Standard German pattern) as in (33)
- *orange*: inflected A uninflected A as in (35)
- *light blue*: uninflected A inflected A as in (36)
- *dark blue*: both adjectives are uninflected as in (34)



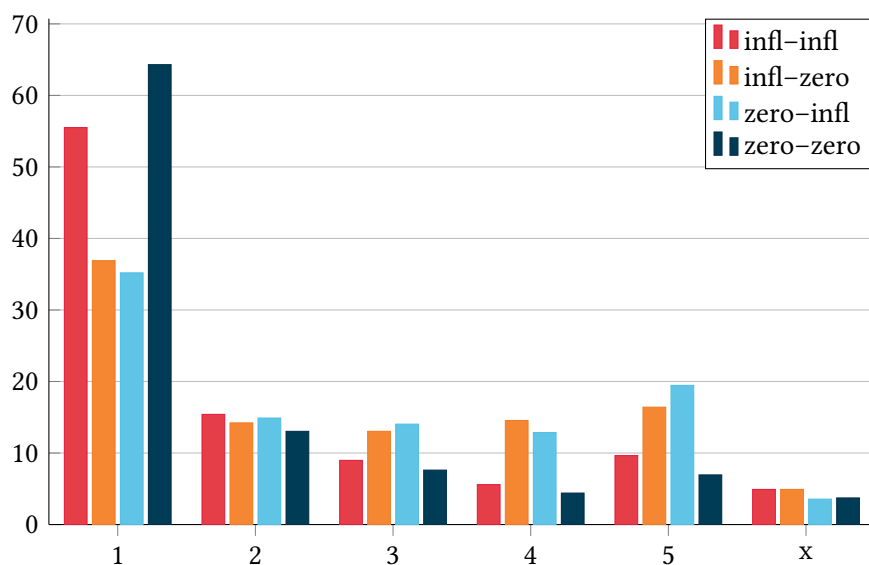


Figure 2: Results of the judgement task on realization of inflection in stacking: Definite nominative

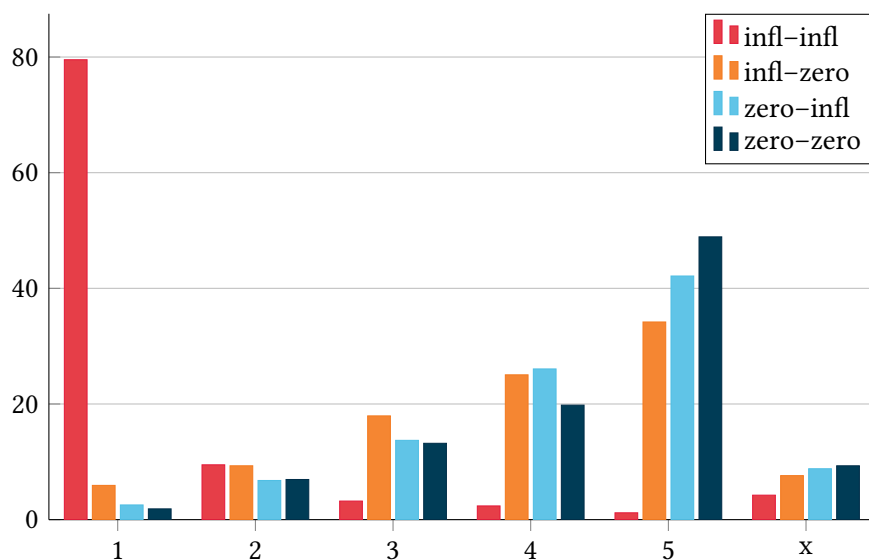


Figure 3: Results of the judgement task on realization of inflection in stacking: Definite dative

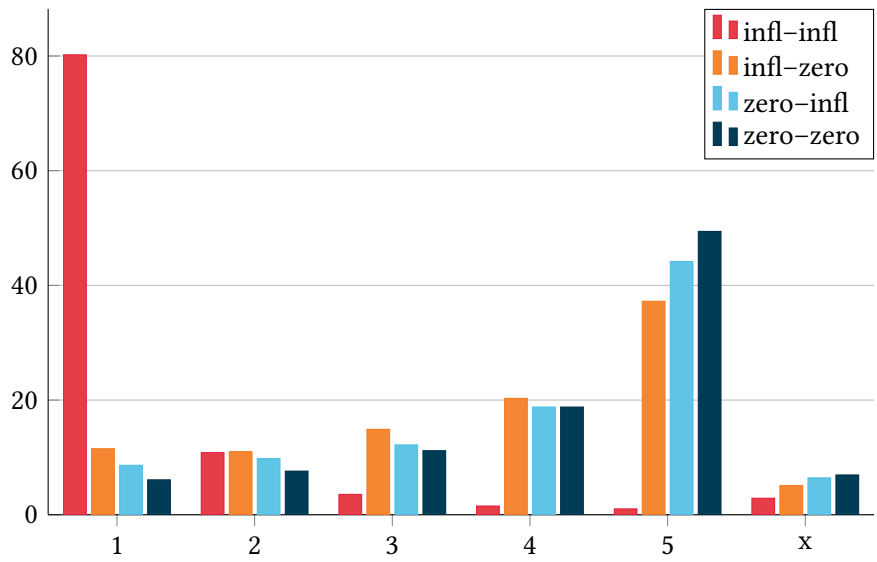


Figure 4: Results of the judgement task on realization of inflection in stacking: Indefinite nominative

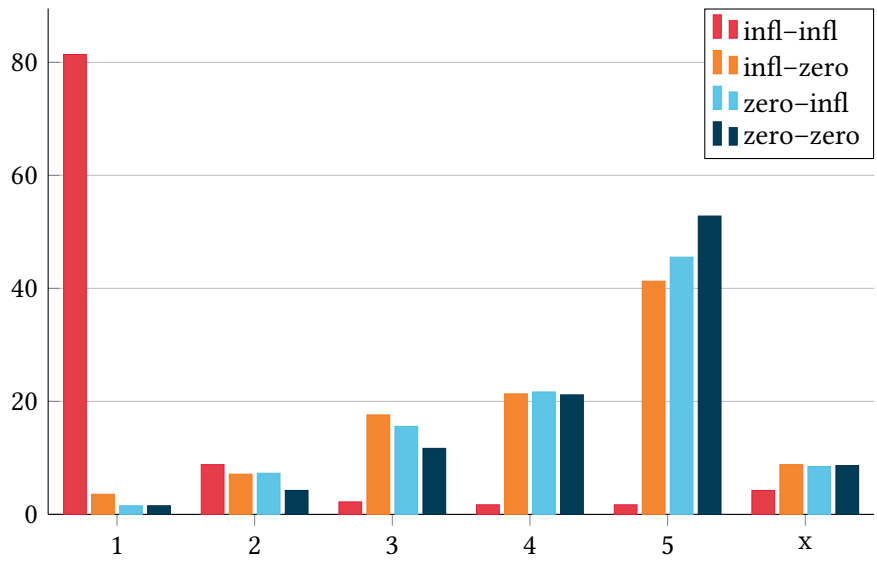


Figure 5: Results of the judgement task on realization of inflection in stacking: Indefinite dative

As the results given in Figures 2–5 show, the rating with 1 (natural) of parallel inflection is very similar for the dative DPs and the indefinite nominative context. In these cases, between 79.5% and 81.3% assign a rating of 1 and about 10% assign a rating of 2 to the same sentences. This means that about 90% accept the standard version with parallel inflection. At the same time, the acceptance for the dative DPs is quite low for any version of non-parallel inflection. The highest percentage of ratings with 1 is 5.9% for the sequence inflection–zero in the definite dative DP. The rating with 2 is chosen a bit more often and is 9.3% for the same context. The nominative indefinite context seems to allow a bit more variation, as the rating with 1 for any combination of inflection and non-inflection ranges from 6% (zero–zero) to 11.5% for the sequence inflection–zero. The most striking result, however, comes from the definite nominative DP: acceptance of any combination is rather high compared to all other tested contexts. Zero–zero is assigned a rating of 1 by 64.3% of the participants, and the other combinations still receive a rather high rating with 1 (35% to 36%). The fact that in the definite nominative the inflectional ending is realized as schwa may have an impact here, as the weak ending in dative is *-en* as noted above.

The overall picture thus shows that Alemannic patterns with Standard German in most contexts, with parallel inflection being highly preferred, and any deviance from this pattern receives considerably low acceptance rates compared to parallel inflection, and at the same time rather high rejection rates. The only exception, as pointed out above, is the definite nominative DP.

## 4 Discussion

The OHG and the Alemannic data show that irrespective of the declensional paradigm (strong or weak) or the type of distribution (semantic or morphosyntactic) OHG, Alemannic and Standard German require overt parallel inflection in stacking. This is interesting, because OHG nominal inflection, which is realized as zero, is not attested in stacking contexts whereas paradigmatic zero inflection in modern North Germanic behaves like overt inflection and is possible in stacking. The data are also interesting because Alemannic requires overt inflection but only in DPs with more than one adjective. As discussed in Section 3.1, in DPs with only one adjective, the inflection can be dropped when an article is realized. Just like OHG nominally (i.e. zero-inflected) adjectives, truly uninflected adjectives in modern dialects are excluded from stacking contexts. As the data show, this is different in Old Saxon, as sequences of nominally inflected adjectives are attested, so Old Saxon differs from OHG in this respect, which may point to differences in the properties of zero-inflection in OHG vs. OS.

In this section, I will suggest a tentative analysis of parallel inflection, which is based on two assumptions: i) certain features (i.e. number and oblique case) require overt marking on a determiner, an adjective or the noun and ii) identical adjacent phrases require a linking element to prevent an OCP violation. The first claim rests on observations from Alemannic, which does not require adjectives to bear strong inflection even when preceded by an uninflected article. The second claim refers to crosslinguistic observations in relation to adjacent identical syntactic objects, which often trigger an OCP violation (cf. Neeleman & van de Koot 2017; Nevins 2012; Richards 2010).

In Alemannic, uninflected adjectives are possible when only one adjective is realized. This is illustrated with the example in (38).

- (38) Alemannic
- a. e guet Wii  
    ‘a good wine’
  - b. de guet Wii  
    ‘the good wine’
  - c. \* guet Wii  
    ‘good wine’

According to Rehn (2019), the optionality of adjectival inflection in DPs with one attributive adjective is related to the requirements of overt feature specification in the German DP. Number and oblique case must always be overtly marked. When an article is realized, this requirement is always met. The indefinite article is generally associated with a singular interpretation, hence the requirement on number marking is met. Number is also overtly marked when a definite article is realized, as the definite article always bears strong inflection (cf. the article paradigms in Table 5 to Table 7 in Section 3.3). Oblique case is inflectionally realized in both definite and indefinite DPs with strong inflection, e.g. (39).

- (39) d-**em**                    / ein-**em**  
      DEF-M.DAT.SG    INDEF-M.DAT.SG

Following Borer (2005), I assume that the requirement on overt number specification is tied to the mass–count distinction, which is manifested in the syntax by the presence or absence of a CIP (Classifier Phrase) above the NP. When CIP is absent, the interpretation is mass (40a); when CIP is projected, the interpretation is count (40b) and number must be specified. Number specification can be realized with an article (40c) or in the absence of an article with number morphology in the head of CIP (40b) or on an adjective above CIP that inflects (40d) as argued in Rehn (2019).

- (40) a. wine: [DP [NP Wein ]]  
b. wines: [DP [CIP -e [NP Wein ]]]  
c. a wine: [DP ein [CIP [NP Wein ]]]  
d. good wine: [DP [AP guter<sub>sg</sub> [CIP [NP Wein ]]]]

Let us now turn to DPs with more than one adjective. The requirements for overt feature specification are the same as in DPs with only one adjective: number and oblique case must receive overt marking. However, it no longer seems to be sufficient when these features are marked on the article – in addition, overt inflection on each adjective is obligatory. When comparing DPs with only one adjective and DPs with more than one adjective, one difference is that in the former all phrases between N and D are distinct (41a). In DPs with several identical phrases, i.e. the APs, these APs are generally adjacent as in (41b).<sup>9</sup>

- (41) a. [DP [AP [CIP [NP ]]]]  
b. [DP [AP [AP [AP [CIP [NP ]]]]]]

This does not seem to pose a problem at first sight. However, Richards (2010: 5) argues that two identical syntactic objects that must be linearized need to be distinct, otherwise the construction is ungrammatical. This explains the ungrammatical vs. the grammatical phrase in (42). In (42a) two DPs are adjacent to each other and the construction is ruled out; in (42b) a DP and a PP are adjacent and the construction is grammatical.

- (42) a. \* the book John  
b. the book of John

The problematic phrase in (42a) shows an Obligatory Contour Principle (OCP) violation. The OCP was originally a phonological constraint and first discussed in Leben (1973), who shows that two adjacent identical tones are not possible. When two identical tones happen to be adjacent, one of them is deleted, as in (43).

- (43) a. \* HH  
b. H

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<sup>9</sup>In most accounts of adjectival modification, adjectives are realized in the specifier of a designated functional projection, but this assumption does not affect the idea put forth in this chapter. The only difference in this case is, that it is not the APs that are adjacent but the FPs in which Spec they are realized.

Since then, the OCP has been applied to various morphosyntactic phenomena (see Neeleman & van de Koot 2017; Nevins 2012 for an overview). There are two main strategies to circumvent an OCP violation: it can be repaired (e.g. via movement or suppletion) or avoided (“preemption strategy” in Nevins 2012). The example in (42b) is a preemption strategy as the projection of an additional PP above the DP avoids an OCP violation (\*DP DP vs. DP PP). With this brief background on the OCP, we can now return to adjective stacking. As said before, the realization of several APs should be problematic in light of the OCP. The order of adjectives is not arbitrary and therefore APs must be linearized, hence they should cause an OCP violation. The question thus is, why are sequences of adjectives even possible? The assumption I want to put forth here is that the answer to this question is connected to the obligatory inflection in stacking. As shown in Section 3, in both OHG and Alemannic adjectival inflection must be overt when more than one adjective is realized. When only one adjective modifies a noun, overt inflection is not obligatory (cf. (38) above). In the latter case, no OCP violation arises.

As noted before, both the definite and the indefinite article always provide some sort of number specification. Consequently, a CIP is always projected when an article is merged (cf. (40c) above). In DPs with stacked adjectives preceded by an article a CIP is also always projected. In addition, the higher adjective(s) always modify(ies) the entire sequence of A and N below (or the combination of several As and N). This is illustrated again with (19a) repeated here as (44). In this example *black* modifies *dog* and *big* modifies *black dog*.

(44) a big dog → a [big [black dog]]

This means that the lower A and the N form some sort of unit. This has been suggested in Sproat & Shih (1987: 10–11) based on English and Mandarin data. Sproat & Shih (1987) argue that A and N form a nominal unit that can then be modified with another adjective that again forms a nominal unit with the already existing sequence of A and N. This process is iterated with each adjective that is merged. Let us assume that this is on the right track. Two questions then need to be answered: i) what makes a sequence of A and N a nominal unit and ii) in what way is this connected to parallel inflection?

Recall that in Borer’s (2005) system, N enters the derivation as mass and CIP must be projected to make it count. This sequence of CIP-NP can be modified by an adjective, which optionally inflects and is preceded by an article. Merging another adjective that modifies the sequence below it requires this sequence to form some sort of nominal unit. At the same time the next phrase should be distinct from the one it is merged with in order to avoid an OCP violation.

(45) [AP [? [AP NP]]]

I therefore suggest that creating a unit of A and N and avoiding an identity violation is achieved by projecting a second CIP on top of the first A-N sequence. The projection of a CIP is on the one hand associated with a nominal interpretation of the lexical element below it. This is because nouns can receive an interpretation as mass or count but not verbs or adjectives. Secondly, CIP is related to the (overt) marking of number. The iteration of CIP between sequences of attributive adjectives can thus explain: i) the interpretation of A-N as a (nominal) unit and ii) the avoidance of an OCP violation reflected in the iteration of inflection.

(46) a. \* [AP [AP]]  
 b. [CIP [AP [CIP [AP]]]]

To summarize the above claim: the CIP between the two As makes the two phrases distinct. In other words obligatory adjectival inflection in stacking fulfills a double function: on the one hand it reflects the required number specification; on the other hand it functions as a linking element. As briefly discussed above, an OCP violation can be avoided when additional structure is projected, cf. (42). I suggest that in sequences with several adjectives, this strategy is reflected via obligatory inflection, as an additional functional projection is required between the adjectives. Connecting inflectional material and linking is not a new idea, but has also been discussed in Franco et al. (2015). In their paper, agreeing linkers are discussed and the parallel between linkers and agreement is illustrated with different languages including German. In many Persian languages, an element must be inserted between a head and its modifier(s). This element is known as *ezafe* and is generally assumed to be a linking element. However, while there is an invariant *ezafe*-element, there are also linkers that agree in certain features, which makes their status as a mere linker questionable, as illustrated in (47).

(47) Kurmanji Kurdish, Bahdîni dialect  
 a. kurk-(ak)-e: mazən jet het  
 boy-(one)-EZ.M big M.SG come.3SG  
 ‘a/the big boy is coming’  
 b. ketjk-(ak)-a: mazən jat het  
 girl-(one)-EZ.F big F.SG come.3SG  
 ‘a/the big girl is coming’ (Franco et al. 2015: 279)

I suggest that it is not either one or the other, but that inflection can serve as a linking element, just like determiners in determiner spreading, or *of* in English

possessive constructions. In this light, obligatory overt adjectival inflection in stacking is based on an OCP effect.

- (48) [DP ein [CIP SG [AP groß-er<sub>SG</sub> [CIP SG [AP schwarz-er<sub>SG</sub> [CIP SG [NP Hund]]]]]]]]]

As the data have shown, in German, both modern and earlier German, an overt inflectional element on adjectives is required in stacking. However, in North Germanic and also in Old Saxon, zero-morphemes are possible as agreeing elements that also serve the purpose of a linker. In these languages, the element is not required to be overt; rather the relevant aspect seems to be that the zero-element is associated with a certain feature specification. In the literature, zero-inflected adjectives in OHG are assumed to be nominally inflected, which is a version of the strong inflection (Braune 2018: 298). Zero-inflected adjectives in OHG should thus also be associated with certain features, and it is therefore surprising that in OHG, zero-inflection is not attested in stacking while in OS it is. It may thus be the case that zero-inflection in OHG is not associated with agreeing features even though zero-inflected adjectives have their origin in nominally inflected ones. This aspect requires a more thorough investigation, however, as the data set is too small to allow any conclusions in this direction. Another unexplained fact is the observed variation in realization and non-realization of inflection in Alemannic in definite nominative DPs. One possible reason for the observed variation may lie in the fact that the definite nominative context was the only one in which inflection is realized as schwa. However, in order to confirm a possible impact of schwa vs. non-schwa, other contexts must be tested, e.g. strong feminine inflection, which is also realized as schwa. Besides the element itself, the type of inflection may also have an impact here. The ending on the adjective in the definite nominative context is weak, and weak adjectives are identical in their inflectional paradigm to weak masculine nouns. There is only one difference: weak masculine nouns do not have an overt ending in the nominative, whereas the inflectional ending is *-en* in all other cases. The weak adjectival paradigm has an overt schwa-ending in nominative and *-en* in all other cases. The weak paradigm itself, with an option of non-inflection in nominative, may thus have an impact, but again, in order to confirm this, a more thorough investigation in this direction is needed.

## 5 Open questions and outlook

There are of course some remaining questions to be answered. First of all, the suggested OCP-based account may provide an answer to obligatory stacking



of inflection. However, it does not explain the observed variation in the nominative in Alemannic. Another open question is how languages like English are dealt with, in which adjectival inflection is entirely absent. In addition to these questions, the account must be worked out in more detail, as agreement and the distribution of weak and strong inflection must also be accounted for. Further room for future research regarding the diachronic data lies in the difference between Old High German and Old Saxon. As Old High German does not allow zero-inflected adjectives in stacking, whereas Old Saxon does, this may point towards a difference in the status of zero-inflected adjectives in the two languages.

## Abbreviations

ACC	accusative	N	neuter
DAT	dative	NOM	nominative
DEF	definite	OCP	Obligatory Contour Principle
EZ	ezafe	OHG	Old High German
F	feminine	OS	Old Saxon
GEN	genitive	PL	plural
INDEF	indefinite	SG	singular
INFL	inflection	WK	weak
M	masculine		

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