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Citation

Audring, J. (2023). Gender systems in Germanic. *Oxford Research Encyclopedia Of Linguistics*. doi:10.1093/acrefore/9780199384655.013.953

Version: Publisher's Version

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Note: To cite this publication please use the final published version (if applicable).

Gender Systems in Germanic

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<https://doi.org/10.1093/acrefore/9780199384655.013.953>

Published online: 23 August 2023

Summary

Grammatical gender is a pervasive property of the Germanic languages. The typical Germanic gender system distinguishes three values: masculine, feminine, and neuter. The gender value of a noun is not expressed on the noun itself, but shows on agreeing words such as articles, adjectives, and a variety of pronouns. In all Germanic languages except for the two most conservative, Icelandic and Faroese, gender is distinguished only in the singular. Some of the languages have reduced the traditional three gender values to two. In most varieties, this involves the conflation of the historical masculine and feminine. In these languages, nouns denoting male or female persons appear with the same form of the article and other agreeing words. However, the personal pronouns often retain the masculine-feminine split. Some agreement targets have lost their ability to mark gender altogether. In the most extreme cases, gender agreement is limited to the personal and the possessive pronouns, such as in English and in Afrikaans.

What gender a noun belongs to is regulated by assignment principles. Germanic shows semantic, morphological, and phonological assignment principles. In the more traditional languages, especially Icelandic, Faroese, and German, the inflectional class of a noun is an important predictor for its gender. The pronominal gender languages Afrikaans and English have purely semantic systems. This appears to be a typical correlation, observable in other languages.

This article describes the gender systems of Germanic comparatively and points out interesting complexities that inform our understanding of this puzzling grammatical feature.

Keywords: Germanic, gender, morphology, agreement, assignment, pronominal gender

Subjects: Language Families/Areas/Contact, Morphology

1. Grammatical Gender in Germanic: An Overview

Grammatical gender is a typical trait of Germanic: All Germanic languages have some type of gender system.¹ This means they have classes of nouns, whereby class membership is reflected in agreeing words such as articles, adjectives, and/or pronouns. In example (1) from German, the neuter gender of *Fahrrad* 'bike' shows on the possessive *mein*, the adjectival suffix *-es*, and the anaphoric pronoun *es* (markers highlighted in boldface). The noun triggers these agreements but is not itself marked for gender. This is the typical situation in Germanic, although there will be more to say about nominal gender marking (see section 2).

(1)

Ich habe mein alt-es Fahrrad verkauft, weil es kaputt war
 I have POSS1SG.N.SG old-N.SG bike(N).SG sold because PRO.N.SG broken was
 ‘I sold my old bike because it was broken’

Gender is a morphosyntactic feature comparable to number and case. The three features intersect in various ways, which will be discussed in section 2. Gender also needs to be distinguished from inflectional class on the one hand and from word-formation on the other, though again, the interaction between these phenomena is interesting and complex, as will be shown in sections 2 and 5. Section 2 will also offer a brief look at the ways gender interacts with person and definiteness.

Because gender is pervasive in Germanic, the family provides an opportunity to study typological variation by comparing closely related languages. From a typological perspective, there are three basic dimensions along which gender systems can be compared (Audring, 2017 based on Corbett, 1991):

- the number of gender values a language distinguishes;
- the nature of the agreement system by which gender manifests itself;
- the principles of assignment, that is, the reasons why a noun belongs to a particular gender.

For the Germanic languages, the best-known sorting criterion is the number of gender values. The typical Germanic gender system—and the system reconstructed for the protolanguage—has three genders, referred to as *masculine*, *feminine*, and *neuter*. This type of system is found in the more conservative languages Icelandic, Faroese, German, Yiddish, Luxembourgish, and Dutch as spoken in Belgium.² Several languages have reduced this system, typically by merging the masculine and feminine to yield a two-way system with a neuter and a non-neuter gender often referred to as *common* or *uter* (note that “common” is a technical term in this context). This situation is found in Danish and Swedish, as well as in Frisian and Standard Dutch, especially in the Netherlands. However, most two-gender languages also have varieties with a three-gender system, and vice versa. For example, Northeastern Yiddish, spoken in Poland, has a two-gender system of masculine and feminine (Jacobs, 1990). Norwegian shows a particularly complex situation, as it has many dialects with different gender systems and seems to be changing rapidly (Lohndal & Westergaard, 2021). The standard varieties of Nynorsk and “radical” Bokmål distinguish the traditional three genders (Opsahl, 2021). The issue of three-way versus two-way systems is taken up again in section 3, embedded in a discussion of gender agreement.

A particular group of languages can be distinguished on the grounds of their agreement system. These are the *pronominal gender* languages, of which Germanic has two: English and Afrikaans, plus varieties such as Scots and the Shetland dialect (Velupillai, 2019). As the name suggests,

pronominal gender systems mark gender only on pronouns. Such configurations are particularly interesting and will be discussed in section 4. This section also addresses the related issue of *overdifferentiation*, which arises when pronouns distinguish more gender values than other agreeing words. This is trivially true for the pronominal gender languages, but overdifferentiated pronouns are also found in other languages, such as Danish, Swedish, and Dutch.

The Germanic gender systems, with the exception of English, are known for their intricate and opaque systems of gender assignment. Learners and linguists alike have concluded that languages such as German provide few straightforward cues on why a certain noun belongs to a particular gender. Yet, recent linguistic research offers a better understanding of the systematicities underlying such systems. Gender assignment is discussed in section 5.

Section 6 summarizes the various observations and provides suggestions for further reading.

Note that the article does not discuss the issue of gender-fair and gender-inclusive language, as the available literature is too vast and varied to do it justice in this format.

2. The Place of Gender in the Grammar

Gender is an *inherent* property of nouns (in the sense of Booij, 1993, 1996) and a *contextual* property of a variety of other words, such as articles, adjectives, participles, (lower) numerals, question words, and various types of pronoun. This means that nouns possess gender independently, while other words depend on the noun for their gender specification. Which parts of speech distinguish gender differs by language, as does the degree of differentiation in the paradigms. Especially when gender intersects with case, complete sets of unique forms are not a matter of course: Even Icelandic, which arguably has the richest paradigms, shows some syncretism (Table 1).

As a nominal feature, gender is orthogonal to number and case. It differs from number in being lexically fixed, as well as in the fact that gender information does not clearly contribute to the semantics of the utterance (but see section 5 on the role of semantics in gender assignment). Hence, speakers are not usually free to choose the gender of a noun or use agreeing forms other than those that are syntactically expected, although variation does occur and can often be linked to semantics or pragmatics (see section 3.3 on hybrid nouns). Within Germanic, gender interacts with number in that almost all modern languages, with the exception of Icelandic and Faroese, have neutralized gender in the plural.³ This has the consequence that pluralia tantum nouns, that is, nouns without a singular, do not have a gender value.

The interplay between gender and case matters to different degrees in the Germanic languages, depending on the richness of their case system. Case is relevant for the visibility of gender, as agreement targets may distinguish gender more clearly in some cases than in others. For example, in the adjectival paradigm of Icelandic (strong declension), the three genders are fully distinct in the nominative singular, while masculine and neuter are syncretic in the genitive singular, and all genders have identical forms in the (genitive and) dative plural (see Table 1 after Neijmann, 2001, p. 274).

Table 1. Icelandic Adjectival Inflection, Partial Paradigm

<i>hvít</i> 'white'	M	F	N
Nominative singular	<i>hvítur</i>	<i>hvít</i>	<i>hvítt</i>
Genitive singular	<i>hvíts</i>	<i>hvítrar</i>	<i>hvíts</i>
Dative plural	<i>hvítum</i>	<i>hvítum</i>	<i>hvítum</i>

Obviously, greater differentiation within the paradigms means that the forms are more informative, which may make the system easier to learn. In particular, fully distinctive forms in the nominative might be beneficial, as this case presumably has the highest text frequency in languages with a nominative-accusative system and obligatory subjects, such as in Modern Germanic. Note that the informativity of individual paradigm cells may not be the only relevant factor. Gender information can also be hidden in *morphomic* patterns, that is, in cells that routinely have the same form. For example, syncretism between nominative and accusative is a hallmark of neuter gender in Germanic (this is already assumed for Proto-Indo-European; McFadden, 2020, p. 285). Whether learners can make use of such correlations in the acquisition of gender is uncertain.

Case can also form an obstacle in learning. It has been shown, for example, by Eichler et al. (2013) for German compared to French, Italian, and Spanish, that gender is acquired slower if case has to be acquired along with it.

Some languages organize their case and number markers in *inflectional classes* defined by the specific form of the markers. Taking again Icelandic as an example, typical members of the so-called strong inflections are the three nouns in Table 2 (singular paradigm after Neijmann, 2001, pp. 272–273). The case markers differ—to some extent—per column. Inflectional classes can be associated with a particular gender. Here, the inflectional class exemplified by *hattur* correlates with masculine gender, while *borg* inflects like a typical feminine, and *glas* like a neuter noun.

Table 2. Icelandic Nominal Inflection, Exemplary Forms in the Singular

	<i>hattur</i> ‘hat’	<i>borg</i> ‘city’	<i>glas</i> ‘glass’
Nominative	<i>hattur</i>	<i>borg</i>	<i>glas</i>
Genitive	<i>hatts</i>	<i>borgar</i>	<i>glass</i>
Dative	<i>hatti</i>	<i>borg</i>	<i>glasi</i>
Accusative	<i>hatt</i>	<i>borg</i>	<i>glas</i>

The relation between gender and inflectional class is a matter of debate; in the context of Germanic the issue is discussed, among others, in Doleschal (2000), Enger (2004a), and Kürschner and Nübling (2011). Inflectional classes will be relevant in section 5 on gender assignment.

Gender further interacts with the feature person. The main generalization here is that gender in Germanic (and in Indo-European generally) is limited to the third person, while other languages may also distinguish gender in the first and/or the second person. Typologically speaking, third-person gender constitutes the unmarked choice, as captured in Greenberg's universal 44: "If a language has gender distinctions in the first person, it always has gender distinctions in the second or third person, or in both" (Greenberg, 1963, p. 96). Germanic conforms to this pattern.⁴

A final grammatical property that gender interacts with is definiteness. Two issues stand out particularly. One is that definite determiners often combine with the so-called weak forms of adjectives, while indefinite determiners are paired with "strong" adjectival forms (see Ringe, 2017, p. 196 for a brief sketch of the origins of this system). The result is a division of labor with respect to gender marking in the noun phrase: More informative determiners often combine with less informative adjectives, and vice versa. Compare, for example, the two pairs of German phrases in (2). They are given here in the nominative; the situation in the other cases (and genders) can differ.

(2)

a.	ein	blau-er	Bus	ein	blau-es	Fahrrad
	INDEF.M/N	blue-M.SG	bus(M).SG	INDEF.M/N	blue-N.SG	bike(N).SG
	'a blue bus'			'a blue bike'		
b.	der	blau-e	Bus	das	blau-e	Fahrrad
	DEF.M.SG	blue-SG	bus(M).SG	DEF.N.SG	blue-SG	bike(N).SG
	'the blue bus'			'the blue bike'		

In (2a), the indefinite article is syncretic for masculine and neuter gender, but the adjectival forms are distinct, so the noun phrase as a whole is unambiguous in terms of gender agreement. Example (2b) shows the reverse situation: The adjectives following a definite article are identical for all three genders, but the determiners have distinct forms. Standard (Netherlandic) Dutch has taken this system to its extreme in that either the determiner, or the adjective distinguish gender, never both.

The second issue of interest is definiteness marking in North Germanic, which can take the form of a suffix on the noun instead of (or in addition to) a free form. The examples in (3) are from Swedish. The indefinite article in (3a) is a free word; the definite article in (3b) is not. In (3c) both strategies are combined.

(3)

a.	en	stol		ett	brev	
	INDF.C	chair(C).SG		INDF.N	letter(N).SG	
	'a chair'			'a letter'		
b.	stol-en			brev-et		
	chair-DEF.C.SG			letter-DEF.N.SG		
	'the chair'			'the letter'		
c.	den	nya	stol-en	det	nya	brev-et
	DEF.C.SG	new	chair-DEF.C.SG	DEF.N.SG	new	letter-DEF.N.SG
	'the new chair'			'the new letter'		

The nature and status of the definiteness marker on the noun, as shown in (3b) and (3c), is contested in the linguistic literature. Specifically, the question arises whether it represents a nominal gender marker (as argued, e.g., for Swedish in Dahl, 2000), a type of element not otherwise found in Germanic. The alternative interpretation (proposed among others in Enger, 2004a; Enger & Corbett, 2012) is that such markers express inflectional class rather than gender.⁵ This view is supported by interesting evidence from heritage Norwegian reported by Lohndal and Westergaard (2016, 2021), who showed that the ability of heritage speakers to retain the nominal suffixes exceeds their ability to retain the gender of the noun. In a heritage context, the nominal suffixes are therefore more stable than the gender system, indicating that the two represent different types of grammatical knowledge. This conclusion is supported by observations about language acquisition: Children master the definite suffixes much earlier than the agreeing forms on free articles and elsewhere (Rodina & Westergaard, 2013, 2015).

On a final note, definiteness and gender as coexisting properties can also form a challenge in learning, similar to the coexistence of gender and case. Specific difficulties are reported in Cornips and Hulk (2008), who showed that Dutch children overgeneralize the common gender article *de*, which is a lot more frequent than its neuter counterpart *het*, in definite contexts. In Dutch, they argued, the distinction between definite and indefinite is more salient than the distinction between common and neuter gender. As a consequence, children might interpret *de* as a marker of definiteness rather than of gender in the initial stages of figuring out the system.

3. Gender Agreement

3.1 Agreement Targets

For Germanic, gender agreement is typically found on attributive elements such as articles and adjectives, as well as on a variety of pronouns, especially demonstrative, possessive, and personal, but also relative pronouns. Of the four domains on the Agreement Hierarchy (Figure 1; Corbett, 1979, 1991, 2006), organized from smallest syntactic distance (left) to largest (right), the attributive and the personal pronoun are the most commonly instantiated.

attributive > predicate > relative pronoun > personal pronoun

Figure 1. The Agreement Hierarchy.

By way of illustration, Table 3 shows the attributive and pronominal gender agreement for Faroese (Petersen, 2009; Thráinsson et al., 2004). In order to keep the size of the table manageable, the forms are limited to the nominative singular.⁶ Some elements, such as the indefinite pronouns, can be used both attributively (“some . . .”) and pronominally (“someone”).

Table 3. Attributive and Pronominal Gender Agreement in Faroese

Domain	Target	Translation	M	F	N
Attributive	Definite article	‘the, that’	<i>tann</i>	<i>tann</i>	<i>tað</i>
Attributive	Indefinite article	‘a’	<i>ein</i>	<i>ein</i>	<i>eitt</i>
Attributive	Adjective (definite/weak)	‘big’	<i>stóri</i>	<i>stóra</i>	<i>stóra</i>
Attributive	Adjective (indefinite/strong)	‘big’	<i>stórur</i>	<i>stór</i>	<i>stórt</i>
Attributive	Possessive article	‘my’	<i>mín</i>	<i>mín</i>	<i>mítt</i>
Attributive/pronominal	Demonstrative adjective/pronoun	‘that’	<i>tann</i>	<i>tann</i>	<i>tað</i>
‘this (here)’		<i>hesin</i>	<i>henda(n)</i>	<i>hetta(r)</i>	
‘that (there)’		<i>hasin</i>	<i>hand(a)(n)</i>	<i>hatta(r)</i>	
‘the other’		<i>hin</i>	<i>hin</i>		
Attributive/pronominal	Indefinite adjective/pronoun	‘some(one)’	<i>nakar</i>	<i>nøkur</i>	<i>nakað</i>
Pronominal	Personal pronoun	‘he/she/it’	<i>hann</i>	<i>hon</i>	<i>tað</i>
Pronominal	Possessive pronoun	‘his/her/its’	<i>hansara</i>	<i>hennara</i>	<i>tess</i>
Pronominal	Interrogative pronoun	‘who’	<i>hvør</i>	<i>hvør</i>	<i>hvat</i>

Similar systems are found throughout Germanic, although the patterns of syncretism vary. As shown for Icelandic in Table 1, and again here for Faroese, even highly conservative languages display some syncretism. Other cases sometimes take up the slack by supplying distinctive forms where the nominative doesn't.

With regard to the relative pronoun, Germanic shows diversity in agreement behavior, depending to a large extent on the word class from which the relative marker is recruited. Gender-agreeing relative forms often stem from demonstratives or *wh*-words (e.g., German *der/die/das* 'that.M/F/N' and *welch-er/-e/-es* 'which-M/F/N'), while other languages introduce relative clauses with a non-agreeing particle (e.g., Icelandic *sem*, Thráinsson, 2007, p. 5). Yiddish shows a combination of strategies with the non-agreeing *wh*-word *vos* 'what', sometimes accompanied by a gender-marked resumptive pronoun (Jacobs, 2005, p. 188).

Variation is also found in the domain of the predicate. Verbs in Germanic normally do not agree in gender, unless cliticized pronouns are included, which in some dialects are in the process of grammaticalizing to verbal agreement markers. An example from the Allemanic dialect of Issime (Italy) is given in (4) (Zürcher, 1999, p. 372, glosses added).⁷

(4)

- a. *eer* *tut=er*
PRO.3SG.M does=3SG.M
'he does'
- b. *dschöi* *tut=dsch*
PRO.3SG.F does=3SG.F
'she does'
- c. *is* *tut=s*
PRO.3SG.N does=3SG.N
'it does'

An exception are participial forms, which can pattern with the adjectives and agree where adjectives do. Languages differ in whether predicative adjectives (and participles) can show gender agreement. Generally speaking, modern North Germanic has predicative agreement while West Germanic does not.⁸ Example (5) shows gender agreement in Danish predicative adjectives (Lundskær-Nielsen & Holmes, 2010, p. 81, glosses added; see note 5 for the glossing of the definite marker).

(5)

pig-en	er	ung	hus-et	er	stor-t
girl-DEF.C.SG	is	young.C.SG	house-DEF.N.SG	is	big-N.SG
‘the girl is young’			‘the house is big’		

The remainder of this section focuses on targets of special interest: prepositions and conjunctions. In addition, gender agreement in possessives is briefly addressed.

Prepositions can be targets for gender agreement, but the phenomenon is rare (Corbett, 1991, p. 113). Within Germanic, potentially relevant instances are found in German, where articles can fuse with prepositions, yielding forms that combine the function of (the article and) the preposition with the agreement of the article. Especially convincing are cases such as (6), where the form *im* is functionally nothing but a preposition, as the use of a definite article would yield a different interpretation (*in dem Deutschen* ‘in some specific variety of German’). In addition, (6) is highly similar to the neighboring expression *auf Deutsch* ‘in German’, which contains a preposition and a bare noun.

(6)

im	Deutsch-en
in.N.DAT.SG	German(N)-DAT.SG
‘in German’	

While the formal status of such contracted forms is debated—do they contain a clitic or an inflectional suffix?—cases such as (6) can be analyzed as prepositions agreeing in gender.

Another unusual case of gender agreement is found in West Flemish, where a merger of conjunctions and pronouns has produced forms that appear to be gender-marked conjunctions. Examples are given in (7), from Bennis and Haegeman (1984, p. 41); see also De Vogelaer and Van der Auwera (2010) who discussed the phenomenon in the context of typological *rara*.

(7)

dat-je	da-se	da-t
that-3SG.M	that-3SG.F	that-3SG.N
‘that (he)’	‘that (she)’	‘that (it)’

As in the case of the German preposition–article combinations, the right-hand segment of the forms in (7) can be analyzed as a clitic or as an inflectional suffix. It is worth noting that a full pronoun can be added after the complex conjunction, which suggests that the pronominal status of the merged element is weakened.

A final agreement target worth discussing briefly is the possessive, which in some Germanic languages has the special property of agreeing in gender twice: with the possessor and with the possessum. The partial paradigm in Table 4 is from Luxembourgish (after Schanen, 2004, p. 161). The stem indicates the gender of the possessor, the suffix the gender of the possessum.

Table 4. Possessive Articles in the Third Person Singular, Luxembourgish

Possessor >		3M/N 'his/its'	3F 'her'
Case V	Possessum V		
NOM/ACC	M	<i>säin</i>	<i>hir-en</i>
	F	<i>seng</i>	<i>hir</i>
	N	<i>säin</i>	<i>hier-t</i>
GEN	M	<i>seng-es</i>	<i>hir-es</i>
	F	<i>seng-er</i>	<i>hir-er</i>
	N	<i>seng-es</i>	<i>hir-es</i>
DAT	M	<i>seng-em</i>	<i>hir-em</i>
	F	<i>seng-er</i>	<i>hir-er</i>
	N	<i>seng-em</i>	<i>hir-en</i>

There is systematic syncretism in this paradigm: The same form is used for masculine and neuter possessors ('his/its'). This type of syncretism is typical of West-Germanic (English is an exception), while North-Germanic has distinct forms for the masculine and the neuter, for example, *hans* 'his' versus *dets* 'its' in Danish (Lundskær-Nielsen & Holmes, 2010, p. 193; see also Table 3 for the same distinction in Faroese). Luxembourgish additionally shows masculine–neuter syncretism with respect to the possessum, except in combination with a feminine possessor in the nominative/accusative and dative case, as can be seen in the rightmost column of the table.

Returning to the Agreement Hierarchy mentioned at the beginning of this section, it is interesting to note that double-agreeing possessives represent two different agreement domains: agreement with the possessor belongs to the pronominal domain, agreement with the possessum represents attributive agreement.

3.2 Reduction and Loss of Agreement

All across Germanic there are tendencies of reduction and loss of agreeing forms, and gender agreement is no exception. If markers of two genders become syncretic throughout—as the masculine and neuter possessors shown in Table 4, but extended to all relevant paradigms—individual gender values can be lost. As mentioned in section 1, the typical development in Germanic is a merger of masculine and feminine (a pattern that is otherwise unusual for Indo-European; Priestly, 1983, p. 345). The result is a two-gender system with the values *common*, sometimes also referred to as *uter*, and *neuter* gender. Exceptions to this trend are Northeastern Yiddish (Jacobs, 1990) and the North-Frisian dialect of Föhring-Amring (Hoekstra, 1996; Wahrig-Burfeind, 1989), both of which display a two-gender system of masculine and feminine. For both varieties, the former neuter gender is said to have merged with the feminine, but this is a simplification, as the development probably involves complex patterns of restructuring (see, e.g., Jacobs, 1990).

Particularly interesting is the observation that gender reduction appears to follow certain diachronic pathways from one target to the next. The general order for Indo-European is summarized by Priestly (1983) as noun > adjective > pronoun. In other words, nominal exponents of gender (and other grammatical features) are affected first, followed by other elements within the noun phrase. Pronouns are known to retain distinctions the longest, a point that will be taken up shortly. Priestly's hierarchy can be refined with more detailed accounts such as Wahrig-Burfeind (1989), an areal study of the Germanic dialects around the southern North Sea, specifically varieties of Low German, Frisian, Dutch/Flemish, and Danish/Jutish. Her compilation of dialect data shows that personal pronouns, definite articles, strong adjectives, and relative pronouns⁹ are likely to encode more gender distinctions than indefinite articles, weak adjectives, ordinal numbers, and attributive possessives (possessum marking). Possessive pronouns agreeing with the possessor likewise often retain the masculine–feminine split, although, as shown in section 3.1, they often collapse the masculine and the neuter and hence show two rather than three gender values after all.

The effect of such differences is that more conservative targets, in particular pronouns, can end up being *overdifferentiated* (Corbett, 2007, p. 31) by distinguishing gender values that are absent elsewhere in the system. The nature of pronominal genders and the consequences of overdifferentiation in the pronouns will be discussed in more detail in section 4.

3.3 Agreement Variation and Hybrid Nouns

Canonically, agreement is consistent, not offering any choice in values (Corbett, 2006, p. 9). In practice, gender agreement can vary under certain circumstances. The best-known case is German *Mädchen* ‘girl’, which takes neuter agreements like all German diminutives, but also feminine agreements because it denotes a female. Nouns such as *Mädchen* are known as *hybrids* (Corbett, 1991, p. 225). Hybrid nouns are found all across Germanic.

The agreement behavior of hybrids is constrained by the Agreement Hierarchy (Corbett, 1979, 1991, 2006) given as Figure 1 in section 3.1. The constraint is formulated as follows:

For any controller that permits alternative agreements, as we move rightwards along the Agreement Hierarchy, the likelihood of agreement with greater semantic justification will increase monotonically (that is, with no intervening decrease).

(Corbett, 2006, p. 207)

Thus, for *Mädchen*, neuter agreements are found on words such as articles and adjectives, which agree attributively, while the pronouns can be feminine, with a greater likelihood of feminine agreement in the personal than in the relative pronouns.

Occasionally, semantically motivated agreement takes hold to such an extent that syntactic agreement becomes ungrammatical. Example (8) illustrates the situation in Norwegian (Enger, 2004b, p. 23): Although following a neuter noun, the personal pronoun has to be masculine to match the male referent.

(8)

Postbud-et er sjuk. Derfor kommer **han** (*det) ikke i dag.
 postman-DEF.N.SG is ill.C.SG therefore comes PRO.M.SG (*PRO.N.SG) not today
 ‘The postman is ill. Therefore he’s not coming today.’

In addition, mainland Scandinavian has expanded its repertoire of personal pronouns to a four-way distinction: masculine, feminine, common, and neuter. In reference to persons, masculine and feminine pronouns are used. As Danish, Swedish, and some varieties of Norwegian no longer distinguish masculine and feminine in the noun phrase, the combination of a common gender

noun and a masculine or feminine pronoun also constitutes a case of semantic agreement. A Swedish example is given in (9) (from Holmes & Hinchliffe, 2013, p. 148). All words agreeing with *mor* ‘mother’ are marked in bold. The possessive and the predicative adjectives mark common gender, while the subject and the object pronouns are feminine, matching the female referent.

(9)

Min **mor** **är gammal.**
 POSS.1SG.C mother(C) is old.C
Hon **är sjuk** så jag hälsar på **henne** ofta.
 PRO.3SG.F is ill.C so I visit on PRO.3S.F.OBJ often
 ‘My mother is old. She is ill, so I often visit her.’

Dutch shows a similar pattern, but with an interesting complication. In colloquial speech, semantic agreement is sensitive not only to the biological or social gender of human referents, but also to the countability of inanimates (more on this system in section 4). Example (10) (from the Dutch national newspaper NRC) shows this use: The mass noun *dessertwijn* is taken up by a neuter pronoun although it lexically has common gender.

(10)

De vaste gemene deler van **dessertwijn:** **het** is zoet
 the fixed common denominator of dessert.wine(C) PRO.SG.N is sweet
 ‘The common denominator of dessert wine: it is sweet’

Nouns such as *dessertwijn* in (10) can be used both in count and in mass contexts (see section 4.2 for a related example). As a consequence, agreement variation as a reflex of (un)countability considerably expands the number of potentially hybrid nouns, to the point where the notion “hybrid” might become unhelpful (see Audring, 2013 for discussion).

A related phenomenon can be seen in the so-called pancake sentences in Norwegian (Bokmål and Nynorsk); see the eponymous example in (11) (Enger, 2004b, p. 6; glosses slightly modified).

(11)

Pannekak-er er god-t.
Pancake-PL be.3.PRS good-N.SG
'Pancakes is/are good.' (Eating pancakes is good)

The unusual neuter singular predicative adjective after plural or otherwise non-neuter nouns is discussed in Enger (2004b, 2013) and analyzed as a case of semantic agreement for elements at the lower end of the Animacy Hierarchy: inanimates, masses, and processes (see also Haugen & Enger, 2019).

4. Pronominal Genders

4.1 Pronominal Gender Languages

The fact that pronouns retain gender distinctions the longest can lead to a situation where gender is marked exclusively on pronouns. As mentioned in section 1, languages with this type of system are known as *pronominal gender languages*. Among the standard languages in Germanic, English and Afrikaans match this pattern. Both languages distinguish gender only in the personal and the possessive pronouns.

Such systems are interesting because the reduction of gender marking to the pronominal domain goes hand in hand with other changes. In particular, pronominal genders appear to be organized around semantic rather than formal principles (Audring, 2009). If the gender system is not primarily semantic to begin with, then new semantic associations are forged, or existing ones expanded. This development is amply documented for English (see, e.g., Curzan, 2003; Dolberg, 2019; Kastovsky, 2000; Lass, 1992). Old English started out with a fairly rich agreement system and mixed gender assignment: Nouns could belong to a certain gender for their meaning, but also for their form, especially their morphology. With the loss of the agreement markers, between Late Old English and Early Middle English, the assignment system also collapsed, giving way to the semantic principles that govern English pronoun usage today: By and large, *he* and *she* are used for male and female persons, and *it* for all other referents (see Siemund, 2008 for different patterns in varieties of English). While such pronoun use was not unprecedented, it certainly took flight when the pronouns were left alone with the task of sustaining the gender system. It has been suggested that this correlation has to do with learnability: non-semantic genders require support from the agreement system (Audring, 2009, 2014). When this support fails, the system needs to reorganize itself, or collapse.

Afrikaans shows the same link between agreement loss and resemanticization, though with a puzzling twist: The distribution of the pronouns, though certainly based on semantics and perhaps pragmatics, has not yet settled on a consistent system. Especially the masculine *hy* and the neuter *dit* are used interchangeably, occasionally within the same sentence, as example (12) shows (from NWU-Kommentaarkorpus 1.4.1; CTextT, 2020).

(12)

Wettig die nuwe SA **boemerang**, as **hy** kom
 Legitimate DEF new SA boomerang when PRO.3SG.M comes
 is **dit** n klip, en as **dit** terug gaan
 is PRO.3SG.N INDF stone and when PRO.3SG.N back goes
 is **dit** n rubber koeël.
 is PRO.3SG.N INDF rubber bullet

‘Legitimate the new SA boomerang, when it comes it’s a stone and when it returns it’s a rubber bullet’

The general tendencies identified in the literature (Audring, 2021; Kirsten, 2016; van der Merwe, 1997) are that the masculine is associated with informal registers, emotional contexts, and animate, moving, or agentive referents, while the neuter is used in neutral or formal registers and is the preferred gender for inanimates, especially abstracts or mass nouns, as well as for events and activities (and, perhaps surprisingly, plural referents). Apparently, “orphaned” genders can acquire new semantic and pragmatic associations. This may be considered a case of exaptation (Lass, 1990). There are interesting parallels in Norwegian dialects in the process of losing the feminine, but these put remaining feminine markers to new uses, for example to mark a multiethnolectal speech style (Opsahl, 2021, p. 131).

4.2 Pronominal Genders

“Extra” gender values in pronouns are not only found in pronominal gender languages. All languages listed as two-gender languages in section 1, that is, Danish, Swedish, Frisian, Dutch, and varieties of Norwegian, have retained the original three genders in (some of) the pronouns or even expanded the set to four (recall section 3.3). The result is that there are more pronominal genders than nominal genders, a situation known as *overdifferentiation*. The interesting observation in the context of the present topic is that the distribution of such overdifferentiated pronouns is semantic in the same way that pronominal gender systems are semantic. In particular, two basic patterns can be seen.

Scandinavian displays a division of labor among the pronouns. One set matches the nouns in gender and agrees syntactically. Hence, in Danish, common gender nouns take the common gender pronoun *den* and neuter gender nouns the neuter pronoun *det* (Lundskær-Nielsen & Holmes, 2010, pp. 173–174; both pronouns were originally demonstratives). In addition, there is another set of pronouns, *han* and *hun* in Danish, which agree semantically: They are used for humans and highly individuated animals such as (one’s own) pets (Lundskær-Nielsen & Holmes, 2010, pp. 171–172). This is a neat solution, as masculine *han* and feminine *hun* have no equivalent in the nominal domain, which distinguishes only common and neuter gender.

A different strategy can be seen in Standard Dutch as spoken in the Netherlands (the rest of this section draws on Audring, 2009). A simplified overview of the available forms is given in Table 5.

Table 5. Dutch Definite Articles and Personal Pronouns (Nominative Singular)

Definite article	Personal pronoun
<i>de</i> (common)	<i>hij</i> (masculine)
	<i>zij</i> (feminine)
<i>het</i> (neuter)	<i>het</i> (neuter)

Here the masculine and feminine pronouns *hij* and *zij* are likewise left without a counterpart in the nominal domain, but the masculine form is not only used for humans: In the spoken language, it refers to countable entities such as animals, objects, and even abstracts if they have clear conceptual boundaries (see example (13)). This use upsets the syntactic correspondence between neuter nouns and neuter pronouns, as neuter countables can also get paired with a masculine pronoun. Example (13) provides an example (personal data collection).

(13)

kun jij **het** formulier, als je **hem** ondertekend hebt, doorsturen
 can you DEF.N.SG form(N) when you PRO.3SG.M.OBL signed have, forward
 ‘can you forward the form when you’ve signed it’

A peculiarity of countability is that many nouns can be used in a countable or an uncountable frame (example (10) in section 3.3 shows a relevant case). This introduces agreement variation: A noun such as *vis* ‘fish’ can refer to an animal or an ingredient of a meal; in the first case it takes masculine pronouns, in the second it takes neuter pronouns. In Dutch, the confusion is acerbated by regional varieties, register differences, prescriptive expectations of correctness, and other factors, leading to a puzzling and potentially unstable system.¹⁰

An interesting general insight from pronominal gender languages and overdifferentiated pronouns in Germanic is that the semantics of the patterns of pronoun usage globally aligns with the Animacy Hierarchy (Comrie, 1989; Silverstein, 1976), extended on the right to include countable and uncountable entities. A variant of this hierarchy is given in Figure 2.

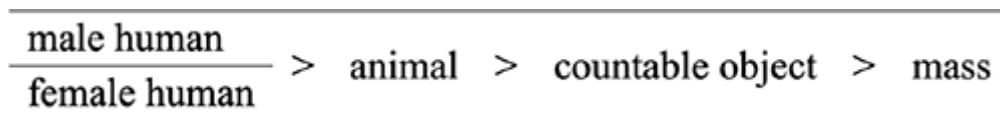


Figure 2. A hierarchy of animacy/individuation.

This hierarchy sorts referents according to the degree to which they are perceived as individuals, with the most individuated entities on the left and the least individuated on the right. Generally, masculine and feminine pronouns tend to align with the left side of the hierarchy and neuter pronouns with the right. The precise domain of each gender value varies: English extends the neuter all the way up into the (less individuated) animals, while Dutch has a larger domain for the masculine: anything from male humans to countable objects can be referred to by a masculine pronoun. Even Afrikaans, despite considerable variation, generally matches the hierarchy. There is some disagreement in the literature as to whether this pattern is inherent in the Germanic, perhaps even the IE gender system (Kraaikamp, 2017), or reflects basic conceptual notions that language users resort to when the syntactic scaffolding of gender crumbles.

5. Gender Assignment

While section 3 deals with the formal exponents of gender agreement, section 4 extends the discussion to the distribution and use of gender. The current section focuses on this issue entirely and discusses gender assignment: the principles that determine what gender a certain noun belongs to and why. Gender assignment in Germanic is an issue with many pitfalls, as the literature is colored by preconceptions (and indeed prejudices), and different methodologies lead to different results. This section briefly introduces the gender assignment principles found in the languages of the world as well as in Germanic, before discussing new work on the interaction of such rules. The focus is on German, as the most interesting literature is available on this language (though see, e.g., Petersen, 2009 for a book-length treatment of gender assignment in Faroese).

5.1 Types of Assignment Principle

In his typology of grammatical gender, Corbett (1991, Chapter 2) identified three basic types of assignment principle: semantic principles, morphological principles, and phonological principles. Germanic shows all three types, though the first two are more salient and easier to observe, as many phonological regularities require computational analyses to discover.

5.1.1 Semantic Assignment

The best-known semantic assignment rule is the one that inspired the traditional labels “masculine” and “feminine”: Nouns denoting males are usually masculine; nouns denoting females are feminine. This correlation is certainly widespread across Germanic. It is therefore interesting to recall that gender reduction tends to jeopardize this very distinction. In languages such as Danish, Swedish, Frisian, and Dutch, the nouns meaning ‘man’ and ‘woman’ take the same article—witness Frisian *de man* versus *de frou*. This preserves the link between animate referents and common gender, but the relation is weak, as the class of common gender nouns is very large and the majority of nouns denote inanimates.

The basic split between countable and uncountable entities, discussed in section 4, is less clearly instantiated (see Siemund, 2008 for an overview of relevant cases). A famous example is West Jutish, spoken in Denmark, where [+/- count] is the major organizing principle of the gender system. As shown for Dutch (section 4.2), variation can result from the use of the same noun in a count and in a mass context. In West Jutish, this also affects the distribution of the articles; see example (14) (Ringgaard, 1973, p. 31, glosses added).¹¹

(14)

- | | | | | | |
|----|--------------------------------|------|----------|-----|---------|
| a. | Den | fisk | a fanget | i | søndags |
| | DEF.SG.C | fish | I caught | on | Sunday |
| | ‘I caught that fish on Sunday’ | | | | |
| b. | al det | fisk | a | ku | spis |
| | all DEF.SG.N | fish | I | can | eat |
| | ‘all the fish I can eat’ | | | | |

In addition to the general principles related to animacy and countability, a variety of smaller rules are proposed for various Germanic languages, often in pedagogical grammars. Enger (2009) summarizes a number of them; those on his list that pertain to Germanic are the following (see Enger, 2009, p. 1289 for examples, references and further discussion):

- Nouns denoting dairy products are masculine in Norwegian.
- Nouns denoting domestic trees are feminine in Scandinavian.
- Nouns denoting alcoholic drinks are masculine in German.
- Nouns denoting phenomena that naturally occur pair-wise are feminine in Norwegian.

The psychological relevance of such rules is debated, as they are of little generality, and the vocabulary and world knowledge they require is too advanced for them to be of use in child language acquisition. However, rules of any generality can help to motivate the distribution of genders in specific sections of the nominal lexicon. In diachrony, local clusters of nouns may change or reject change together. Recent evidence on the importance of neighborhood effects in gender assignment will be discussed in section 5.1.3.

5.1.2 Morphological Assignment

Morphological assignment rules come in two types, one referring to inflectional, the other to derivational properties.

The relation between gender and inflectional class was already pointed out in section 2: inflectional class membership often correlates with a particular gender value (or excludes one of the possible gender values). The historical literature suggests that Germanic used to have a much tighter connection between inflectional class and gender than can be seen in the modern languages (a useful overview of the genders and inflections in Germanic is provided in Duke, 2009, p. 90). For the more conservative languages, however, case and plural forms can still help to figure out the gender of a noun. In German, five inflectional classes indicate a particular gender with good reliability (Eisenberg, 2013; Fedden & Corbett, 2020):

- genitive singular in *-s* and nominative plural with umlaut + *-e* > masculine (type *Anzug* ‘suit’);
- both genitive singular and nominative plural in *-(e)n* > masculine (type *Zeuge* ‘witness’);
- zero genitive singular and zero nominative plural with umlaut > feminine (type *Mutter* ‘mother’);
- zero genitive singular and nominative plural in *-(e)n* > feminine (type *Biene* ‘bee’); and
- zero genitive singular and nominative plural with umlaut + *-e* > feminine (type *Sau* ‘sow’).

Strong and complex connections between inflectional class and gender are also described for Icelandic (Björnsdóttir, 2021) and Faroese (Petersen, 2009; Thráinsson et al., 2004, pp. 78–91).

Derivation, or word-formation, can be confused with gender, as languages show specific strategies for deriving nouns referring to male or female referents, respectively. As a consequence, the German suffixes in example (15), *-in* and *-er*, are sometimes called feminine or masculine suffixes, which is true only in the sense that they are associated with feminine or masculine gender, not that they are themselves exponents of grammatical gender.

(15)

der Professor ‘the professor’ > *die Professor-in* ‘the female professor’
der Löwe ‘the lion’ > *die Löw-in* ‘the lioness’
die Witwe ‘the widow’ > *der Witw-er* ‘the widower’

The link between suffixes and gender extends beyond such cases. Due to the *last-member principle* (see, e.g., Köpcke & Zubin, 1984 for German), the final component of a complex word determines its gender. A well-known illustration of this principle is the West-Germanic diminutives, which are neuter even when denoting humans,¹² as in Frisian *mantsje* ‘little man’, Dutch *oompje* ‘(dear) uncle’, German *Schwesterchen* ‘(dear) little sister’, and Yiddish *meydl* ‘girl’.¹³ Suffixes differ in the

closeness of their association with a particular gender value. For example, German has the suffix *-heit* (cognate of English *-hood*) which always assigns feminine gender, while the neighboring suffix *-nis* (English *-ness*) goes with feminine or neuter gender: *die Finsternis* ‘the.F darkness’ but *das Bedürfnis* ‘the.N need’. Of course, the last-member principle also holds in compounds. For example, the Dutch noun *keukenzout* ‘kitchen salt’ is neuter because *zout* is neuter and despite the common gender of *keuken*.

In addition, individual word-formation patterns can be associated with a particular gender value, even if they involve prefixes or no affix at all. Looking again at German, the nominal prefix *Ge-* typically results in neuter nouns such as *das Geschrei* ‘the shouting’ or *das Gebäck* ‘the pastry’. Conversions, in turn, can produce masculines when they are based on verbal stems (*der Sprung* ‘the jump’), but neuters when they involve infinitives (*das Essen* ‘the food, the meal’). Such regularities show that the link between word-formation and gender cannot always be attributed to the last-member principle.

On a side note, derivational patterns can attract new members that do not actually contain the affix in question but look as if they do. This has been observed for Yiddish, where “many speakers have reinterpreted historical neuter *dos ojər* ‘ear’, feminine *di mojər* ‘wall’ as masculines, based on the surface similarity of root-final [ər] with the masculine agentive suffix *-ər*” (Jacobs, 2005, p. 155). Jacobs (1990, p. 78) also mentions *fencter* ‘window’ as a relevant case; others might be *tsimer* ‘room’ and *veter* ‘weather’; all of these are neuter in German but masculine in Yiddish.

5.1.3 Phonological Assignment

Finally, correlations can sometimes be found between the phonological shape of a noun and the gender it belongs to. Table 6 shows a number of such patterns identified for monosyllabic nouns in German by Köpcke (1982) and Köpcke and Zubin (1984).

Table 6. Phonological Patterns and Gender in German

	M	F	N	Example
a. Rules assigning masculine				
[kn_]	93%	0%	7%	<i>Knopf</i> ‘button’
[dr_], [tr_]	89%	0%	2%	<i>Dreck</i> ‘dirt’
[ʃC_]	86%	1%	5%	<i>Stern</i> ‘star’
[CC_CC]	75%	5%	5%	<i>Frost</i> ‘frost’
[_NC]	70%	4%	10%	<i>Dank</i> ‘gratitude’
b. Rules assigning feminine				
[_(C)ft], [_(C)xt], [_(C)çt]	7%	64%	0%	<i>Schlucht</i> ‘ravine’
[_ur] or [_yr]	6%	71%	0%	<i>Tür</i> ‘door’
c. Rules assigning neuter				
[_ɛt]	14%	0%	86%	<i>Bett</i> ‘bed’

Note: Where the percentages do not add up to 100, additional rules are involved.

Source: After Köpcke and Zubin (1984, p. 29).

Similar rules are proposed in other sources, for example, in Trosterud (2006, pp. 1453–1457) for Old Norse.

Novel research by Fedden et al. (forthcoming) offered a more sophisticated account of German gender assignment involving a maximally complete set of German nouns. In their model, the influence of phonological structure is not captured in terms of individual properties of isolated words (e.g., “starts with [kn_]”), but via the degree of similarity between a noun and its nearest masculine, feminine, and neuter neighbors, whereby similarity on the right edge of the words is given more importance than similarity on the left edge. The greater the overlap between a word and a particular neighbor, the greater the influence of this neighbor and its gender. The result of this calculation is not a list of phonological assignment rules, but a model that predicts the gender of a given noun, using phonological properties as one of the cues.

5.1.4 The Interaction of Assignment Rules

A major obstacle in the way of progress in understanding gender assignment is the fact that assignment rules can reinforce or contradict each other, and they might be of different strength or importance. New computational methods, such as the “Boosting Tree” model used in Fedden et al. (forthcoming), provide better leverage here, as they target the assignment system in its entirety, with phonological, morphological, and semantic rules combined. In addition, the individual share of each rule type can be accessed computationally.

The model of German gender assignment presented in Fedden et al. (forthcoming) considers phonological and semantic distance to the nearest neighbors as well as inflectional class, derivational structure, and the four semantic categories animacy, sex, concreteness, and mass. The model reaches an overall accuracy of 96% in predicting the gender of German nouns. Considering that gender assignment in German is widely thought to be opaque, this is a truly impressive result.

Two observations stand out. First, phonological neighborhood alone yields an accuracy of more than 90%, which confirms the value of a “neighborhood approach” to gender assignment: The gender of a noun may be based on its place in the lexicon, that is, its relations to phonological and semantic neighbors.¹⁴ This moves the spotlight of interest from global gender rules to local analogies, an issue briefly touched on in section 5.1.1.

Second, Fedden et al. (forthcoming) show that their model achieves 87% accuracy when trained with only the most frequent 100 nouns in their data set. Increasing the training set to 1,000 nouns brings the accuracy to 94%, which comes close to the performance of the full model. These results suggest that a small set of frequent nouns can provide an efficient entry into the system, which can help explain the relative ease with which children acquire gender, despite their smaller vocabularies.

6. Gender in Germanic: Summary and Further Reading

In this article, gender in Germanic is discussed from a comparative perspective and with the help of typological tools. The individual gender systems are characterized by the number of gender values they distinguish, the word classes that make the feature visible in agreement (section 3), and the assignment system that allocates nouns to genders (section 5). On the way, a variety of interesting complications are pointed out. Section 2 briefly discusses the interaction of gender with number, case, inflectional class, person, and definiteness. Section 4 focuses on a special situation in which individual gender values, or the entire gender system, is only expressed in pronouns.

The resulting overall picture shows that the individual Germanic languages can be characterized by their place on the cline of agreement reduction. More conservative varieties such as Icelandic, Faroese, and German have retained many of the formal distinctions and, along with them, more traditional assignment principles such as those related to inflectional class. More innovative systems such as Dutch, Afrikaans, and English have lost a great deal of the agreements but have (partly) restructured the gender system along semantic lines. These general observations confirm Dahl's (2004) characterization of gender as a stable phenomenon of language, involving "long evolutionary chains" (p. 112) but having the tendency to remain in place once established (pp. 199–200). This stability is noteworthy, as there is considerable doubt about the usefulness of grammatical gender as a category. Yet, the gender systems in the languages of the world, and in Germanic, are rich, varied, and linguistically interesting.

A number of relevant topics could not be covered due to restrictions on length. The following selection of references provides a starting point for further reading.

6.1 Gender in Heritage Germanic

Heritage languages provide insights into the vulnerability or stability of individual types of linguistic knowledge. A recent overview of research on Danish, German, Icelandic, Norwegian, and Swedish is presented in Westergaard and Kupisch (2021). Gender is discussed there and in the following sources:

- Håkansson (1995; Heritage Swedish)
- Johannessen and Larsson (2015; Heritage Scandinavian)
- Lohndal and Westergaard (2016, 2021; Heritage Norwegian)
- Kühl and Petersen (2021; Heritage Danish)
- Björnsdóttir et al. (2020; Heritage Icelandic)

6.2 Gender Assignment to Proper Names

Proper names, especially in the geographic domain (cities, countries, rivers, etc.) but also including entities such as cars or ships, might be allocated to a gender by different ways than common nouns are. The following works discuss these ways:

- Fraurud (2000; Swedish)
- Köpcke and Zubin (2005; German)
- Fahlbusch and Nübling (2014; German)

6.3 Gender Resolution in Conjoined Noun Phrases

Icelandic and Faroese, the two Germanic languages that have preserved gender in the plural, face interesting complications when predicative adjectives or pronouns agree with conjoined noun phrases of different gender. Thorvaldssdóttir (2019) is a recent account based on novel data from Icelandic.

6.4 General

Three more general sources deserve special mention. Kürschner (2020) is similar in scope to the present article. Duke (2009) discusses gender in German, Dutch, English, Mainland Scandinavian, and Afrikaans at much greater length, providing extensive details on the history of reduction and reconstruction. An older source with an almost encyclopedic coverage of the pronouns in Germanic, both past and present, and including gender, is Howe (1996).

A related article within the Oxford Research Encyclopedia of Linguistics is Audring (2016), a general overview of gender as a grammatical category.

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Notes

1. This holds for all the standard languages. Also, I am not aware of any variety of Germanic that has lost gender altogether, although some Swedish varieties spoken in Finland might come close (Sandström, 2000, pp. 802–803). The West Jutish and North Frisian dialects that are sometimes said to have given up gender (Wahrig-Burfeind, 1989, p. 291) show an unusual distribution of the gender markers, not a lack of them (cf. section 5.1.1).
2. For ease of exposition, general observations are formulated for the standard or national languages. Individual varieties are discussed for nuances and more specific points.

3. This is a change that happened in attested history. Most older Germanic languages distinguished gender in the plural forms of adjectives and pronouns (Fleischer et al., 2015, p. 16).
4. By a combination of restrictions, Germanic did not have gender in the dual, as gender was limited to the third person and the dual to the first and the second person (see Ringe, 2017, p. 322 for the reconstructed dual pronouns).
5. Throughout this article the relevant markers are glossed as DEF.C or DEF.N, as there is no conventional way to notate the gender associated with a particular inflectional class, though see Enger and Corbett (2012) for a solution.
6. Only one indefinite pronoun is given as illustration. The numerals inflect as follows: the cardinal “one” is identical to the indefinite article; “two” and “three” also differentiate gender (Thráinsson et al., 2004, pp. 61, 113). The ordinals inflect like weak adjectives (Thráinsson et al., 2004, p. 115).
7. Zürrer noted that this “microsystem” of gender in the third-person singular verb is a recent innovation, but already in decline, as the neuter form gets overgeneralized, obliterating the gender distinction (Zürrer, 1999, p. 373).
8. Earlier varieties of West Germanic also had predicative agreement, and some show it to this day. For example, Fleischer (2007) observed agreeing predicative adjectives in a variety cluster of German known as Highest Alemannic.
9. Incidentally, the same top three is also mentioned in Lass (1992, p. 106) on Old-English: “the richest and most distinctive marking for nominal categories is on determiners, in the strong adjective declension [. . .] and in pronouns.”
10. Southern Dutch (as spoken in Belgium) is in the process of losing its three-gender system as well, providing real-time evidence that the rise of semantically motivated uses does not wait before the merger of the agreeing forms is complete: The Belgian pronouns show clear signs of variation and beginning redistribution (De Vogelaer & De Sutter, 2011; De Vos, 2014; De Vos & De Vogelaer, 2011).
11. Note that West Jutish also has preserved the pronominal masculine and feminine, which are used in reference to animates (Wahrig-Burfeind, 1989, p. 258).
12. Surprisingly, Luxembourgish does not follow this pattern: Diminutive nouns retain the gender of their stem (Gilles, 2015, p. 266).
13. More precisely, all of these nouns are hybrids (section 3.3): In pronominalization they take masculine or feminine agreements, depending on the referent.
14. The fact that semantic neighborhood performs less well in Fedden et al.’s model could mean that semantic relations matter less in gender assignment. However, semantic neighborhood calculations are only as good as the semantic vectors they are based on, and the methods available for vector extraction from corpora may have imperfections.

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