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The rise and fall of a minor category: The case of the Welsh numerative

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Abstract

Some languages use a special form of the noun (a ‘numerative’) after some or all numerals. In such languages, a distinct numerative is typically not available for all nouns, but rather only for a small subset, forming a morphological “minor category” (Corbett 2000). We examine how such a system emerges and disintegrates diachronically, looking in detail at Welsh, a language in which a distinct numerative emerged as the result of the phonological attrition of plural suffixes and analogical extension of new plural suffixes to all relevant syntactic environments except after numerals. Nouns with distinct numeratives tend to be animate and to denote units frequently counted, an association previously noted also for minor duals (Plank 1996). We suggest that this association arose in Welsh via differential analogical extension in two directions: animates resisted analogical extension of the pattern numeral + singular noun; and animates were most receptive to extension of the pattern numeral + numerative. We show that the loss of the numerative proceeded the same way in reverse: numeratives were first reanalysed as special plurals, and this pattern, numeral + plural ~~noun~~, resisted analogical spread of the dominant numeral + singular pattern most robustly with kinship terms and a unit of time, namely ‘year’. These developments show much commonality with other cases where the diachrony of the numerative is known, confirming the observation that numeratives typically emerge from the disintegration of a major category, such as plural or dual, and that they are diachronically unstable, liable ultimately to analogical elimination.

1 Introduction

In languages that distinguish singular and plural in nouns, it is nevertheless quite common for that distinction to be neutralized after numerals higher than ‘one’, with the singular appearing rather than the plural. The numeral already specifies the number value of the noun phrase, so addition of number marking on the noun is in a sense redundant and uneconomical (Corbett 2000: 211). This is the case in such diverse languages as Archi, Georgian, Godoberi, Guaraní, Kayardild, Hungarian, Oromo, Quechua, Tagalog, Turkish and Urarina. Hungarian, for

instance, distinguishes singular from plural: *alma* ‘apple’, *almák* ‘apples’, but after a numeral we find only the singular: *egy alma* ‘one apple’, *négy alma* ‘four apples’ (Rijkhoff 2002: 39–41, Hurford 2003: 582, Ortman 2004: 232).

Modern Welsh adheres to this pattern: singular *siop* ‘shop’ is distinguished from plural *siopau* by addition of a suffix *-au*, confirming that the language has the category ‘plural’, but directly after a numeral we always find the singular: *un siop* ‘one shop’, *dwu siop* ‘two shops’, *tair siop* ‘three shops’, *pedair siop* ‘four shops’ etc. There is only one exception to this rule, involving words for ‘year’. While *blwyddyn* ‘year’ has the (irregular) plural *blynyddoedd* ‘years’,¹ after numerals we find another synchronically irregular form *blynedd*, hence *un flwyddyn* (singular) ‘one year’, but *dwu flynedd* ‘two years’, *tair blynedd* ‘three years’, *pedair blynedd* ‘four years’ etc.²

This exception is, however, the relic of a once more productive system, one which we investigate in this article. In earlier forms of Welsh, the situation is not so simple, and forms other than the singular are sometimes found after numerals. In his grammar of Middle Welsh, D. S. Evans (1964: 47) notes that there are many examples where a plural noun occurs after a numeral and that there are some nouns with variant plural forms that are used almost exclusively with numerals. For instance, in Middle Welsh, we find forms such as *tair gwagedd* ‘three women’, where *gwagedd* is the usual plural of *gwraig* ‘woman’; or *tri meib* ‘three sons’, where *meib* shows a vowel alternation, /a/ > /əɪ/, that suggests it is the plural of *mab* ‘son’, although the usual plural of *mab* is in fact *meibion*, with the same vowel alternation plus a plural suffix.³ This has confused various modern editors who have been

¹ Welsh plurals are formed in a variety of ways: (i) by addition of a variety of suffixes, of which *-au* is the commonest e.g. *siop* ‘shop’, plural *siopau*; (ii) by vowel alternation e.g. *car* ‘car’, plural *ceir*; (iii) as part of a plural–singulative pair, where the singular adds a singulative suffix to a monomorphemic plural base e.g. *moch* ‘pigs’, singular *mochyn* (see Nurmio 2016); or (iv) by some combination of these processes e.g. both addition of a suffix and a vowel alternation in *mab* ‘son’, plural *meibion*. In the current instance, *blynyddoedd* is formed via method (i) with suffix *-oedd* (possibly with irregular vowel alternation and metathesis, *GPC* s.v. *blwyddyn*¹; or else using an unexpected stem *blynydd-* extended from the numerative form *blynedd*). For further details, see Watkins (1961: 145–154), Awbery (2009: 387–389), Willis (2009: 133–136), and the discussion in section 5.1 below.

² When ‘years of age’ is intended, a different unexpected form appears, namely *blwydd*: *dwu flwydd* ‘two years of age’, *tair blwydd* ‘three years of age’. This has slightly different properties: unlike *blynedd*, it appears also after ‘one’ in *un flwydd* ‘one year of age’; also unlike *blynedd*, it can appear in the absence of a numeral:

- (i) *plentyn blwydd oed*
 child year age
 ‘a year-old child’

These properties mean that the simplest analysis of *blwydd* is to treat it as a singular noun ‘year of age’ and a different lexical item from *blwyddyn* ‘year’. This makes *blwydd* entirely unexceptional, assimilating it to the behaviour of a regular (feminine) singular noun, and reduces the extent of exceptionality of *blwyddyn*, since we now need to state only that it has one additional, unexpected form, namely *blynedd*, rather than two. For discussion of how to treat *blynedd* within a formal (LFG) framework, see Mittendorf & Sadler (2005).

³ In giving Middle Welsh citation forms, we follow the convention of the University of Wales Dictionary (*GPC*) and use Modern Welsh orthography even in historical contexts. This is in

reduced merely to noting that sometimes plural forms are used after numerals, and that sometimes the plural forms involved are not found anywhere else (see the editors' notes to *TMC* 2819–20 and to *GR* 1350). These descriptions give the impression of capricious variability in Middle Welsh, yet, in fact, the distributions are quite systematic. In the course of this article, we will see that a small group of nouns regularly appears in a special form, distinct from the singular, and sometimes also distinct from the plural, after numerals. That is, alongside the usual pattern, given in (1), there exists a minor pattern, illustrated in (2).

- | | | |
|---|---|---|
| <p>(1) <i>un saer</i> ‘one carpenter’
 <i>dau saer</i> ‘two carpenters’
 <i>tri saer</i> ‘three carpenters’
 <i>pedwar saer</i> ‘four carpenters’
 <i>pum saer</i> ‘five carpenters’
 <i>seiri</i> ‘carpenters’</p> | <p>(2) <i>un brawd</i> ‘one brother’
 <i>dau froder</i> ‘two brothers’
 <i>tri broder</i> ‘three brothers’
 <i>pedwar broder</i> ‘four brothers’
 <i>pum mroder</i> ‘five brothers’
 <i>brodyr</i> ‘brothers’</p> | <p><i>un ferch</i> ‘one daughter’
 <i>dwy ferched</i> ‘two daughters’
 <i>tair merched</i> ‘three daughters’
 <i>pedair merched</i> ‘four daughters’
 <i>pum merched</i> ‘five daughters’
 <i>merched</i> ‘daughters’</p> |
|---|---|---|

Forms such as *meib* ‘sons’ or *broder* ‘brothers’ are distinct from both singular and plural, and cannot be said to be a variant of either one. Instead, the most economical analysis states that numerals in these cases select for a separate nominal category after them. Following Borsley, Tallerman & Willis (2007: 336), we term this category the “numerative”.⁴ The examples in (2) have numeratives which reflect their historical stem-classes, but numeratives can also arise through analogy (discussed in section 5.2). In the latter instance, the numerative is usually identical in form with the plural. We use the term “numerative” for any form used after numerals which is distinct from the singular, whether this form is historical or analogical, including those items that are syncretic with the plural.

The numerative is distinguished morphologically in relatively few nouns, and,

order to facilitate comparison with Modern Welsh, and also to abstract away from the often confusing orthographic variation found in Middle Welsh, which had competing and often inconsistently applied orthographic standards (see Charles-Edwards & Russell 1994 for further discussion of orthographic practice in medieval Welsh). In some cases where the differences between Middle and Modern Welsh are particularly significant, both are given. When citing from texts, we naturally maintain the orthography of our source.

⁴ Middle Welsh has a formation which is sometimes called “dual” (e.g. Evans 1964: 33), and which might amount to another minor number category in Middle Welsh. The “dual” is formed by compounding the numeral *dau* (masc.) or *dwy* (fem.) ‘two’ and a singular noun, only used with parts of the body which are natural pairs, e.g. *dwyfraich* ‘arms’, lit. ‘two arms’ (sg. *braich* ‘arm’). These forms can be used optionally instead of the plural (*breichiau* ‘arms’) to refer to the arms etc. of one person. In one instance, this formation is a real plural: the form MW *dwylaw*, ModW *dwyllo* ‘hands’ is the standard plural of *llaw* ‘hand’ and there is no other plural form for this basic sense (there is a plural *llawiau* when used in the sense ‘man, person (by synecdoche); workman, (ship’s) hand; expert, master-hand’). Syntactically, Middle Welsh does show reflexes of the dual, see Willis (2014).

otherwise, nouns appear in the singular following a numeral. This property has discouraged others from recognizing the category of “numerative” in Middle Welsh, but it in fact fits the description of a minor category as proposed by Corbett (1996, 2000: 95–101) (cf. also Corbett’s notions of “minor gender” and “minor case”). We can view the historical development of the numerative as the rise and fall of a minor category, opening up the possibility of establishing generalizations about how such categories typically develop.

The outline of the paper is as follows: we introduce the idea of the numerative as a minor category and discuss the diachrony of numeratives cross-linguistically in section 2. An overview of the morphosyntax of Welsh numeral phrases is presented in section 3, followed by a description of the sources of evidence used in this paper (section 4). Section 5 looks at numeral phrases in Middle Welsh, establishing the historical background of the Middle Welsh system (section 5.1), providing an inventory of nouns with numeratives in this period (section 5.2), and considering the role of animacy and frequency in the numerative system (section 5.3), before returning to consider the Middle Welsh system in typological and diachronic context (section 5.4). Section 6 maps out the loss of the numerative through the fifteenth (section 6.1) and sixteenth (section 6.2) centuries down to the later modern period (section 6.3).

2 The numerative in crosslinguistic perspective

2.1 The numerative as a minor category

As defined by Corbett, a minor number is a value for the category of number that is expressed only on a small group of nouns, specifically, a group of nouns that is relatively small in comparison to the set of nouns to which major number, such as plural, applies in the same language. For instance, in Avar, nouns generally distinguish singular and plural (major number), but a small group expresses a distinct paucal to refer to a small number of entities (which would otherwise be expressed using the plural). Thus, alongside the dominant two-term pattern, we find also cases like *nus* ‘daughter-in-law’, paucal *nús-al*, plural *nus-ábi*, or *boróq* ‘snake’, paucal *boróq-al*, plural *bórq-al*. Minor numbers identified by Corbett (1996, 2000) include the Budugh collective plural, the Italian collective plural, the Hebrew dual, the Maltese dual, the Fula general number, the Spanish dialect mass number and the Maltese collective.

Minor numbers seem to be fundamentally different from major numbers, although the dividing line between the two may be difficult to define. Where a language has a major number distinction (such as singular vs. plural), it may limit that distinction to certain nominals. For instance, Māori expresses the singular–plural opposition morphologically on pronouns and kinship terms (as well as various other categories in the noun phrase), but not on other nouns (Harlow 2007: 114–115). Such restrictions are subject to the animacy hierarchy, also known as the Smith-Stark hierarchy, after Smith-Stark 1974; see also earlier discussion in Forchheimer 1953: 11–13 where the hierarchy is implied though not yet fully formulated, and discussion of Forchheimer’s work by Plank (2002). The hierarchy is given in (3), where ‘speaker’, ‘addressee’ and ‘third person’ refer to pronominal items.

(3) speaker > addressee > third person > kin > human > animate > inanimate

A major number category must be expressed on a continuous stretch of the hierarchy including the top segment (speaker). Māori thus satisfies the hierarchy by expressing plural on the first four types of referent.

This raises the question of whether minor numbers are also subject to the hierarchy (and also how exactly to define the difference between a major and a minor number, since

neither is required to be expressed morphologically on all nouns in a language). Corbett (1996) shows convincingly that minor numbers are not subject to the animacy hierarchy. Minor numbers are diverse and vary considerably from language to language, but all have in common the fact that they typically apply to nouns that are either scattered through the animacy hierarchy or are low on it. It is also noticeable that minor numbers are almost never expressed on pronouns, a fact which leads to a serious violation of the animacy hierarchy from the outset.

Plank (1996) shows that the dual may be either a major or a minor number. Typically, languages with a dual, if they limit its application, either limit it to personal pronouns or extend it to personal pronouns plus nouns, in both cases respecting the animacy hierarchy. There are, however, a number of languages where some nouns express dual, but pronouns do not. Among these are Maltese, Önge, Gadsup, Awa, Pintupi, Hopi, Biblical Aramaic, Modern Hebrew, Akkadian, Daragözü Arabic and Eastern Libyan Arabic. This pattern violates the animacy hierarchy, and these look to be languages where dual is a minor number. In such languages, the nouns that express dual morphology tend to be drawn from one or more of the following groups: (i) animate nouns; (ii) nouns denoting natural pairs; or (iii) nouns denoting standard units of measure or objects frequently counted (Plank 1996: 126–127). For instance, in Modern Hebrew, nouns that have duals are typically units of measure or paired body parts and other paired items (Corbett 1996: 105, Schwarzwald 2013). In Maltese, the dual is today limited to (iii), including time periods, units of measure, coins and other objects commonly counted (Plank 1996: 126).⁵ The dual then seems to be amenable to some level of generalization, even though, when acting as a minor number, it is not subject to the animacy hierarchy.

The Welsh numerative falls under Corbett's definition of minor category, since it is a morphological feature expressed only on a relatively small number of nouns. While it is clearly related to the category of number, it is not itself a number category under Corbett's (1996, 2000) approach, since it has no independent semantic value: a numerative form on its own does not mean 'some defined number of x'. For this reason, we will term it a minor category, rather than a minor number.⁶ In this sense it is comparable to the associative, as in Hungarian *János-ék* 'János and his associates (friends and/or family)', which Corbett & Mithun (1996) argue is not a minor number, but rather associativity is a category linked to but distinct from number (on the semantics of associatives, see also Moravcsik 2003). This does not present any significant conceptual problem, since minor categories exist within other areas, such as gender and case, for instance, the Russian second locative case (Brown 2007).

If the Middle Welsh numerative is a minor category related to number, we need to orient it with respect to the issues outlined in this section with minor numbers and the animacy hierarchy. As we shall see, at its most developed historical stage, the Middle Welsh numerative shows a partial animacy effect, that is, a large proportion of nouns that express

⁵ Some forms that are formally and historically dual now express singular and plural number values in Maltese. Such nouns include a number denoting paired body parts e.g. *driegħ* 'arm', *dirgħajn* 'arms' (not 'two arms') (Fenech 1996, Camilleri 2015), suggesting that the Maltese dual formerly also encompassed Plank's category (ii).

⁶ Corbett (2000) does, however, treat the Slovene dual as a (minor) number even though a noun must be preceded by 'two' in order to license it. However, dual may be expressed on pronouns in Slovene without a numeral. The Slovene dual is thus intermediate in status between dual number and numerative restricted to use after 'two', since, on pronouns, it has an independent semantic value and could therefore be considered a number, while on nouns, it lacks an independent semantic value, and should be treated as a numerative.

numerative are animate, especially kinship terms; however, it is also found with various nouns denoting standard units of time, and hence involves groups (i) and (iii) of Plank's groupings for minor duals. As we shall see in section 6, the nouns which keep their numerative longest in Welsh are kin terms and time periods. We will argue that this distribution can be understood on the basis of the historical development of the category.

2.2 The diachrony of numeratives

Numeratives of the Middle Welsh type, although rare, are not unique crosslinguistically. They seem to arise from the disintegration of formerly more extensive systems, mostly major numbers. The synchronic distribution can often be understood as the historical, and to some extent arbitrary, debris from this process. Where loss of the earlier system is conditioned by the differential success of other processes of change, such as analogy, the items that remain may be understood as those most resistant to assimilation to the dominant pattern. Such an explanation runs parallel to Plank's (1996) implied explanation for why certain groups of nouns retain the minor dual. We briefly consider two cases, from Slavic languages, especially Bulgarian, and from the Goidelic languages, Scottish Gaelic and Irish, which suggest a certain parallelism with the history of Welsh.

Consider first the Bulgarian numerative (Hauge 1999: 24, Ivanova-Mirčeva & Xaralampiev 1999: 122–125). In Bulgarian, masculine inanimate nouns have a special form in *-a* after numerals (and certain quantifiers): *moliv* 'pencil', *dva moliva* 'two pencils', *tri moliva* 'three pencils', cf. the (regular) plural *molivi* 'pencils'. Historically, this form represents the remains of the dual, although it is now used with other numerals too. The nominative–accusative dual was lost, being reanalysed as the genitive singular, since the two co-incided in form for a large group of nouns. Where the two did not coincide, the genitive singular form was extended in place of the dual (which by this time no longer made sense to speakers). Subsequently, the genitive singular itself was lost (along with all case distinctions on nouns). After numerals, for some nouns (mostly feminines and neuters), it was identical to the (nominative) plural and could be reinterpreted as plural. In some other instances, it differed from the plural only in position of stress, and, in general, the plural stress pattern prevailed. However, this left most masculine nouns (inanimates ending in a consonant) with a form in *-a* after numerals (the nascent numerative), while the singular ended in zero and the plural in *-i*. This numerative is left therefore as a minor category, expressed only in one declensional class. Which items are covered by the numerative is determined partly by historical accident (the original patterns of syncretism, which mean that one particular declensional class is the locus of the new category) and partly by the extent to which a noun or noun class has been resistant to analogical extension of the dominant pattern, cf. the classes identified by Plank (1996) as synchronically likely to express the dual in languages with a minor dual. In the Bulgarian instance, it is noticeable that there are dialects which retain distinctive stress on the numerative of a few feminine nouns. Ivanova-Mirčeva & Xaralampiev (1999: 125) list dialectally end-stressed *dăšteri* 'daughters', but initial-stressed *tri dăšteri* 'three daughters'; *sestri* 'sisters', but *tri séstri*; *momí* 'girls' but *tri mómi*; *čerjásla* 'coulters', but *pet čerjásla* 'five coulters'; and *ralá* 'plough', but *pet rála* 'five ploughs'.⁷

Other Slavonic languages have developed similar special rules for nouns in numeral phrases as a result of the collapse of the dual. Corbett (1983: 13–14, 89–92; 1996: 114–116) considers the count form (effectively a numerative) used with masculine nouns after 'two',

⁷ The distribution across lexical items here is not entirely consistent with the generalizations made for Welsh below about animacy and nouns frequently counted. Clearly, more research into this question in Bulgarian dialects is needed.

‘three’ and ‘four’ in Serbian and Croatian. Ukrainian has unexpected stress patterns on plural nouns after the same numerals e.g. *brat* ‘brother, *dva/tri/čotyry bráti* ‘two/three/four brothers’ but *bratí* ‘brothers (nom. pl.)’ (Akiner 1983, Pugh & Press 1999: 191–192). In Russian, these numerals require a genitive singular of nouns after them, with a handful of nouns showing special stress akin to the more widespread system found in Ukrainian. For synchronic and diachronic discussion of this, as well as many other complexities of the Russian system, see Babby (1987), Franks (1994), Žolobov & Krys’ko (2001), Rappaport (2002) and Žolobov (2002, 2003), among many others.⁸

Scottish Gaelic too (vestigially) retains a numerative dual,⁹ but only for a small group of nouns, all of which are feminine nouns ending in a non-palatalized consonant, for instance, *aon chas* ‘one foot’, *dà chois* ‘two feet’, *tri casan* ‘three feet’, *casan* ‘feet’. In most other cases,¹⁰ we find the singular used after ‘two’ and plural with higher numerals: *aon ghille* ‘one boy’, *dà ghille* ‘two boys’, *tri gillean* ‘three boys’, *gillean* ‘boys’ (Gillies 2009: 262–264). Again, this is the result of the collapse of the dual, which was once a major category, encompassing all nouns of the language, but which survives only with one declensional class (feminine *ā*-stems), and elsewhere fell together with the singular. This vestigial dual is declining today.

Closely related Irish also has a complex picture with nouns after numerals 3–10 which are usually followed by the singular while some nouns use the plural (Christian Brothers 1960: 82), while others have “special” forms found only with numerals. The last group varies between the dialects and includes, for instance, *bliain* ‘year’ (plural *blianta*, form after 3–10 *bliana*, e.g. *tri bliana* ‘three years’), *fiche* ‘twenty’, *pingin* ‘penny’, *seachtain* ‘week’, *scilling* ‘shilling’ and *uair* ‘time, occasion’ (Acquaviva 2006: 1864–1865, 2008: 167). Acquaviva (2006: 1868–1869, 2008: 188) terms the Irish counting forms “transnumeral” and considers them inherently plural forms, arguing that they are “semantically unit counters” which function as classifiers. He compares this to unit nouns in other languages; for example, German regularly uses the plural after numerals but with unit nouns a singular can be used: *drei Mark/Pfund/Kilo* ‘three mark.SG/pound.SG/kilo.SG’; cf. English *three pound/stone* etc. (Acquaviva 2008: 173–174). We have not attempted to adapt the transnumeral/classifier interpretation for Welsh here, since Welsh nouns with numeratives do not consist of unit and measure nouns, apart from the words for ‘year’ and ‘day’. The majority of the Welsh nouns

⁸ Some of the Slavic data might lead one to ask why we should consider numerative to be a category related to number rather than a case. For Russian, the distribution has been analysed in terms of a paucal case for noun in the scope of numerals 2–4, and a quantificational genitive case for nouns in the scope of higher numerals (Rappaport 2002, cf. also Franks 1994: 600). The motivation for treating forms after numerals as case forms comes from syncretisms with genitive forms used elsewhere. This makes sense within a language with a case system (although, even here, one might ask what makes ‘paucal’ a natural case category rather than a category related to number). However, Celtic languages either have limited or no case morphology on nouns, and a case-based analysis makes little sense in such a context.

⁹ By “numerative dual”, we mean a dual that can only be used after the numeral ‘two’, and which is thus unable to express the meaning ‘dual’ in isolation. This means that it is not strictly part of the number system, but more akin to a numerative of the kind found in Middle Welsh.

¹⁰ A very few nouns use singular after numerals e.g. *latha* ‘day’, *dà/tri latha* ‘two/three days’, *lathaichean* or *làithean* ‘days’ (Mark 2004: 706, Acquaviva 2006: 1863). Like Welsh (see section 3 below), Scottish Gaelic has a system of initial-consonant mutations, which we ignore for current purposes.

denote humans and the Welsh system therefore seems to require a different explanation from the Irish one.

These cases demonstrate that, while not common, numeratives and similar phenomena are not unknown crosslinguistically, and, in general, they develop via reanalysis of earlier case–number inflections. It is against this background that we will now investigate the diachronic development of the Welsh numerative. In the Welsh case, we are fortunate in being able to document a complete cycle, showing how a minor category of numerative may emerge (in early Middle Welsh, section 5) and disappear (in Early Modern Welsh, section 6) within the history of a single language. We will argue that the Welsh numerative is the result of precisely these kinds of historical reorganizations, although it is not straightforwardly the residue of an earlier more extensive system. Rather, the Middle Welsh numerative emerges from earlier plural forms, left behind by the emergence of new plural forms. It is subsequently shaped by processes of analogy before ultimately being replaced analogically by the regular pattern of marking.

3 Overview of the morphosyntax of Welsh numeral phrases

Before turning to the historical data, we present an overview of aspects of the morphosyntax of Middle and Modern Welsh numeral phrases as relevant to the current discussion.

In the various examples presented so far, we have seen that, ignoring the numerative system, the usual situation in both Modern and Middle Welsh is for numerals to be followed by a singular noun. However, this does not mean that the noun is entirely unchanged. While no number suffix is added to a noun after a numeral, its initial consonant is often affected by the process of initial-consonant mutation. While ultimately traceable to processes that were once phonologically motivated, numerals (like many other lexical items in Welsh) may trigger one of three possible alternations on the initial segment of the noun, provided it is a consonant of the right type. These are synchronically arbitrary and to some extent stylistically and sociolinguistically variable. For instance, *dau* ‘two (masc.)’ triggers soft mutation, whereby /p t k b d g m l r^h/ (orthographically <p t c b d g m ll rh>) become /b d g v ð ø v l r/ (orthographically <b d g f dd zero <f l r>) respectively, while *tri* ‘three (masc.)’ triggers aspirate mutation, whereby /p t k/ become /f θ x/ (orthographically <ph th ch>) respectively. Hence with singular *tad* ‘father’ after a numeral we find *un tad* ‘one father’ (radical form), *dau dad* ‘two fathers’ (soft mutation), *tri thad* ‘three fathers’ (aspirate mutation), *pedwar tad* ‘four fathers’ (no mutation) etc. The third mutation type, nasal mutation, in which /p t k b d g/ become /m^h n^h ŋ^h m n ŋ/ (orthographically <mh nh ngh m n ng>) respectively, is restricted, in the domain of numerals, to a few specific numeral–noun combinations, such as *pum mlynedd* ‘five years’ (from *blynedd* ‘years’). Fuller details are given in Ball & Müller (1992), Borsley, Tallerman & Willis (2007: 163–165) and Hannahs (2013a, b). The details of mutation patterns with numerals, especially the higher ones, have been unstable in the historical period; for details, see Morgan (1952: 129–146). However, numerals trigger mutations at all attested periods of the language, and since they are not the focus of attention here, we will not comment on them in the examples cited.

Secondly, note that we are concerned only with structures of the general form numeral + noun. Welsh has a second competing pattern, namely numeral + *o* ‘of’ + noun. In this second pattern, the noun is always in the plural at all stages of the language:

- | | | | | |
|-----|----------------|----------------|----------------|---------------|
| (4) | <i>dau</i> | <i>blentyn</i> | <i>dwy</i> | <i>eglwys</i> |
| | two.MASC | child.SG | two.FEM | church.SG |
| | ‘two children’ | | ‘two churches’ | |

(5)	<i>dau</i>	<i>o</i>	<i>blant</i>	<i>dwy</i>	<i>o</i>	<i>eglwysi</i>
	two.MASC	of	child.PL	two.FEM	of	church.PL
	‘two children’			‘two churches’		

While the pattern in (5) is preferred with higher numerals, both patterns are possible even with numerals as low as ‘two’, and there is little discernible difference in meaning; that is, (5) is not interpreted as partitive (an implausible interpretation with an animate noun such as ‘child’ after a low numeral such as ‘two’), despite the impression given by its syntax. For discussion of its possible structure, see Hurford (2003). We will not be concerned with this second pattern in this article, since it never contains a numerative and is diachronically stable. It does, however, sometimes limit the body of data available, since the basic numeral + noun structure in (4) can always be avoided by using this other pattern in cases of uncertainty about the correct form of the noun.

4 Sources of evidence

For the Middle Welsh period, both poetry and prose texts were searched. For poetry the following editions were searched fully: *Llyfr Du Caerfyrddin* (‘Black Book of Carmarthen’, *LIDC*); the seven-volume *Cyfres Beirdd y Tywysogion* (‘Poets of the Princes’) series and *Canu Aneirin (CA)*. These were supplemented by examples collected by Roberts (2012) and examples from Haycock’s editions of the poetry in the Book of Taliesin (*CC* and *LPBT*), and Rowland’s edition of *Early Welsh saga poetry (EWSP)*. The Middle Welsh prose texts searched in full include two groups. The first includes native narrative tales contained in the Welsh Prose 1300–1425 Corpus (henceforth abbreviated as 14c) (Four Branches of the Mabinogi; *Gereint*; *Culhwch ac Olwen*; *Cyfranc Llud a Lleuelys*; *Breudwyt Maxen Wledic*; *Owein/Chwedyl Iarllles y Ffynnawn*; *Historia Peredur vab Efracw*; *Breudwyt Ronabwy*). The second group consists of translations of Geoffrey of Monmouth’s *Historia Regum Britanniae* into Middle Welsh, known as *Brut y Brenhinedd*: National Library of Wales, manuscript Llanstephan 1; National Library of Wales, manuscript Peniarth 44; National Library of Wales, manuscript 5266 (*Brut Dingestow*) (from the 13th-century Welsh prose corpus edited by Isaac et al., henceforth abbreviated as 13c) and British Library manuscript Cotton Cleopatra B.v from J. J. Parry’s 1937 edition. Examples of numeratives with only a few attestations in this sample were also searched in both the 13th-century Welsh prose corpus and in the Welsh Prose 1300–1425 corpus in order to distinguish between nouns which take the numerative consistently with numerals from those which more commonly take the singular but which have one or a few attestations with a numerative. The latter group were left outside the main sample discussed in section 5 but are included in the Appendix.

Although the exact dating of some of these medieval texts is difficult, in terms of manuscript attestations they take us up to around 1400. For the period after 1400, discussed below in section 6, we have used all the Welsh texts in the following collections and corpora: the 15th-century prose corpus *Rhyddiaith y 15eg ganrif* (henceforth abbreviated as 15c), the *Historical Corpus of the Welsh Language 1500–1820*, *Early English Books Online* (1546–1700), *Eighteenth Century Collections Online* (1700–1800). We also made use of Evan John Jones’s edition of *Buchedd Sant Martin* [‘Life of St Martin’] (1488). References to primary sources after 1500 follow the abbreviations of the *Historical Corpus of the Welsh Language* (<http://people.ds.cam.ac.uk/dwew2/hcwl/menu.htm>) and the University of Wales dictionary (<http://www.wales.ac.uk/dictionary/bibliog.htm>), except for items whose abbreviations are given in the List of texts cited.

5 The development of numeral phrases in Middle Welsh

5.1 Historical background

As we saw in the introduction, Middle Welsh has two constructions in numeral phrases: numeral + singular and numeral + numerative. This double system is a result of major changes that occurred between late Brittonic (the ancestor of Welsh, Breton and Cornish) and early Welsh. Brittonic underwent loss of final syllables (apocope), which was complete by the middle of the sixth century, shortly before Welsh, Breton and Cornish are taken to start developing into distinct languages (Jackson 1953: 695–696). Brittonic, like Proto-Celtic, is reconstructed as having five cases (still present in Old Irish, a descendant of the Goidelic branch of the Celtic languages), which had probably been largely lost before apocope.¹¹ The number categories reconstructed for Brittonic are singular, dual and plural. The loss of final syllables threw this system into disarray, resulting in the re-marking of lost singular/plural distinctions and the loss of morphological expression of the dual as a grammatical number.

After apocope and the loss of case and number marking on the final syllable, Welsh had two morphological means to distinguish plurals from singulars: (i) vowel affection caused originally by a final *-ī, for instance, Brittonic *markī ‘horses’ > MW *meirch* with the raising (and regular diphthongization) of /a/ > /əɪ/; and (ii) new plural suffixes resulting from the reinterpretation of old stem markers, for instance, Brittonic *katoues > W *cadau* ‘battles’ where *-ou- of the stem has become a plural suffix *-au* (Evans 1964: 29). Developments (i) and (ii) apply only to certain stem classes in Brittonic, however, while in others apocope would have resulted in the plural (and dual) becoming homophonous with the singular. Old and Middle Welsh have no such homophonous singular–plural pairs and instead vowel affection and the new suffixes spread by analogy. The Middle Welsh nominal system therefore contains some “historically correct” plural forms (that is, ones that can be reconstructed to the correct post-apocope form of their old stem class), but the majority are analogical. This freeing of plural markers from their original stem classes also resulted in a plural system in Middle Welsh where many nouns have more than one plural form, for instance, *cad* ‘battle’, plural *cadau* (historical, see above) but also *cadoedd* (analogical) (GPC, s.v. *cad*).

Although the dual disappeared as a full morphological number category and no new markers arose to re-mark it as they did for plurals, the dual nevertheless left traces in the system of numeral phrases, to which we now turn. The Proto-Celtic and Brittonic numeral system is reconstructed as ‘one’ + singular, ‘two’ + dual and ‘three’ and above + plural (Greene 1992: 505, 544–545). Table 1 summarizes the post-apocope situation for nouns from three different stem classes.¹² We take Common Celtic as a starting point to allow for the inclusion of Old Irish in the comparison.

¹¹ This is much debated, see especially Russell (2011: 144–147) and Koch (1983).

¹² The Middle Welsh reflex of ‘brother’ would regularly have been ***brawd(y)r* rather than the actually attested form *brawd*, but the final /r/ was lost in Welsh while it was retained in the sister languages, as Breton *breuzr* and Cornish *broder* ‘brother’, see Schrijver (1995: 365–368).

Singular			Dual			('Three' +) plural			New plural
CC	MW	OIr	CC	MW	OIr	CC	MW	Oir	MW
*bra:te:r 'brother' (r-stem)	brawd	bráthair	*bra:tere	dau froder	dá bráthair	*bra:teres	tri broder	trí bráithir	brodyr
*mak ^w (k ^w)os 'boy, son' (o-stem)	mab	macc	*mak ^w (k ^w)o:(u)	dau fab	dá macc	*mak ^w (k ^w)i:	tri meib	trí m(a)icc	meibion
*donijos 'man' (io-stem)	dyn	duine	*donijo:(u)	dau ddyn	dá duine	*doniji:	tri dyn	trí doini	dynion

Table 1. Paradigms showing the development of Common Celtic (CC) consonant-stem, o-stem and io-stem nouns in Middle Welsh (MW) and Old Irish (OIr).

The final column of Table 1 shows the plural form used outside of numeral phrases in Middle Welsh; note that these are different from the form after numerals: *meib-ion* and *dyn-ion* add the productive plural suffix *-ion* and *broder* becomes *brodyr* (Schrijver 1995: 370).¹³

The origin of the Middle Welsh double system therefore lies in the differing outcomes of apocope in numeral phrases. With *brawd* 'brother', the loss of the final syllable in both the dual and plural gives the form *broder* and this is the form after all numerals above 'one' in Middle Welsh, while a new plural *brodyr* is used elsewhere. *Mab* 'boy, son' had, after apocope, a dual which was homophonous with the singular and a plural *meib* with vowel affection from a now-lost *-ī; hence the variation in *dau fab* 'two sons' while *meib* is used with 'three' and higher numbers. The development of the io-stem noun *dyn* 'man' shows a different pattern, since after apocope its singular, dual and plural would all have been homophonous. This would have been the case with a large number of Welsh nouns which could not show vowel affection and which did not have distinctive stem markers (specifically those nouns in the two major classes, feminine ā-stems and masculine o-stems that lacked a vowel amenable to vowel affection). While new plurals were formed analogically to recreate the singular–plural distinction, it seems that, in numeral phrases, the "historically correct" plurals like *dyn* 'man' in *tri dyn* 'three men' were reinterpreted as singular and consequently a new selection rule arose which specified that the singular should be used after numerals above 'one' (as suggested by Greene 1992: 544–545). This rule was extended even to cases where regular sound change would yield a distinct plural form. For instance, since the inherited plural of *cad* 'battle' is *cadau* (see above) and this form survives to the present day, we would expect the Middle Welsh for 'four battles' to be ***pedeir cadeu*. The actually attested form *pedeyr cat* (Cardiff 1.363, p. 179v, 14c) demonstrates the outcome of an active process of extension of the singular.

Furthermore, the occurrence of *dau fab* 'two sons' (vs. *tri meib* 'three sons'), where the old dual has left behind a form used with 'two' which is identical with the singular, would have reinforced the rule of singular after numerals. Some nouns with historically distinctive dual and/or plural forms such as *mab* and *brawd*, however, preserved these distinctions in

¹³ There is some debate (Schrijver 1995: 370–371) as to whether *brodyr* reflects an analogical addition of an o-stem masculine plural ending in Brittonic (*bräter- + -ī) or whether it was formed from *broder* in early Welsh. Schrijver (1995: 368, 370) also notes occasional examples of *broder* used as a true plural.

Middle Welsh. Resistance to analogical extension of the singular was most robust with animate, particularly human, nouns, and this formed the basis for the subsequent further role of animacy in the development of the numerative. Most Middle Welsh nouns, therefore, display the regular numeral + singular syntax which we also find in Modern Welsh, while some preserve an older pattern which remained very consistent until its dissolution in the Early Modern Welsh period (discussed in section 6 below).

5.2 Nouns with a numerative in Middle Welsh

The Middle Welsh numeral phrase cannot, however, be explained simply as a retained archaism on the one hand and a new innovative (numeral + singular) system on the other. Not all nouns are like *brawd* ‘brother’ with their historically expected dual and plural used with numerals. Some nouns which would be expected to be in the numeral + singular group are in fact found in a form identical to the plural after numerals. This seems to be due to analogy: some of the inherited nouns have numerative forms identical to the plural (e.g. *gŵr* ‘man’ and *gwraig* ‘woman’) and it is this pattern which spreads analogically to nouns where it has no historical basis. The nouns that we found in our corpus are divided between nouns preserving numeral + numerative as a historical archaism (marked in **bold**)¹⁴ and those which enter this system through analogy. The nouns in Table 2 have several attestations; these are not listed due to space limitations, but examples can readily be found in the 13th-century Welsh Prose corpus [13c] and in Welsh Prose 1300–1425 [14c]. Some of these nouns have a different form after ‘two’ and after ‘three’ and above. ‘Ø’ indicates that the relevant numeral phrase is not attested in the texts examined, in the two corpora, or listed in the University of Wales Dictionary (*GPC*).¹⁵

¹⁴ This division is of course dependent on establishing agreed etymologies for the nouns in question; uncertain etymologies are discussed below the table. Latin loanwords are never marked in bold, although, with *abostol* ‘apostle’, *esgob* ‘bishop’ and *sant* ‘saint’, it could be argued that, since they are borrowed from second declension masculine nouns (Latin *apostolus*, *episcopus* and *san(c)tus*), and, since they are likely to have been borrowed early (before the loss of final syllables in Brittonic), the plurals with vowel affection could be historically warranted.

¹⁵ *Carant* is attested as the numerative of *câr* ‘relative’ only once (*dwyr garant* ‘two relatives’), but the singular is never attested after a numeral, and it is tentatively included here.

Singular	Gloss	Numerative (with ‘two’)	Numerative (with ‘three’ and above)	Plural (if different)
abostol	‘apostle’	Ø	ebystyl	
amws	‘steed’	Ø	emys	
arf	‘weapon, arm(s)’	arfau	arfau	
bardd	‘poet’	Ø	beirdd	
blwyddyn	‘year’	blynedd	blynedd	blwyddynedd, (later) blynnyddoedd
brawd	‘brother’	broder	broder	brodyr
bu(w)ch	‘cow’	bu, buw	bu, buw	[buchod]
câr	‘relative’	carant	Ø	
chwaer	‘sister’	chwioredd	chwioredd	chworydd
dydd	‘day’	dydd	diau	dyddiau (also diau)
esgob	‘bishop’	esgob	esgyb	
gwas	‘boy; servant’	gwas	gwais	gweis(i)on
gŵr	‘man’	gŵr	gwŷr	
gwraig	‘woman’	gwragedd	gwragedd	
hwch	‘pig’	?hych	hych	hychod / moch
iarll	‘earl’	iarll, ieirll	ieirll	
llwdn	‘young animal’	Ø	llydn	llydnod
mab	‘boy, son’	mab	meib	meib(i)on
march	‘horse’	march	meirch	
merch	‘girl; daughter’	merched	merched	
morwyn	‘maid; girl’	morwynion	morwynion	
nai	‘nephew’	neiaint	Ø	
nant	‘river, stream’	neint	neint	
sant	‘saint’	sant	seint	
tŷ	‘house’	tŷ	tai	
ych	‘ox’	ychen	ychen	

Table 2. Nouns whose numerative is identical with the plural in Middle Welsh.

A note on the treatment of a few nouns in the table is necessary here. For *amws* ‘steed’, note that *emys* is in fact the old singular (< Late Latin (*equus*) *ammissus* ‘galloping (horse)’ < *admissus*) and singular *amws* is a back-formation, see Jenkins (1997: 71) and *GPC*, s.v.

amws; *emys*. Arguably *emys* after numerals could simply be regarded as an old singular. For *buwch* ‘cow’, there are two different nouns, older sg. *bu/buw*, pl. *bu/buw* and sg. *buwch*, *buch*, pl. *buchod*. The latter noun takes over in Middle Welsh but the plural of the former survives after numerals; the plural *buchod* is therefore given in brackets. The noun *chwaer* ‘sister’ is unique in having a numerative which differs from the plural while neither form is historical; historically, the expected plural is ****chwior** (Schrijver 1995: 281). The etymology of *gwraig* ‘woman’ is uncertain: *GPC* reconstructs it as Celtic **urakō*, in which case the expected historical plural would probably be ****gwrakon**. However, this could be an *ī*-stem noun in which case the pl. **urakijās* would regularly give Welsh *gwragedd*, which is indeed the most common plural for this noun. *Gwraig* is therefore assumed to be an *ī*-stem and marked in bold in the table. For *mab* ‘boy, son’, there is one example where the plural *meibion* is used instead of the numerative: *try meybyon* is found in two manuscript versions of *Brut y Brenhinedd* (Llanstephan 1, p. 154 (13c) and Cardiff 1.363, p. 153r (14c)). The reading is uncertain in the former but the editors amend it to *meybyon* presumably on the model of the other manuscript attestation. The noun *nant* ‘river, stream’ is marked in bold here but there is some uncertainty over its etymology: if it is in origin masculine, *neint* is indeed the historically expected plural; if feminine, however, plural ****nant** would be expected historically.

Adjectives occurring without a nominal head after numerals are excluded from Table 2. These regularly occur in the plural, for instance, *hael(i)on* (*dau haelion* ‘two generous [people]’, *seith ugain haelion* ‘one hundred and forty generous [people]’), from *hael* ‘generous; generous person; nobleman’ and *doeth(i)on* (*dau doethon* ‘two wise [people]’, *saith doeth(i)on* ‘seven wise [people]’) from *doeth* ‘wise; wise man, sage’ (see also fn. 25 below). As the glosses suggest, these could be interpreted either as adjectives modifying a null nominal head or as having developed into nouns in their own right. The former interpretation certainly reflects their historical origin, and would account for the use of a plural form, since adjectives modifying numeral phrases in Middle Welsh regularly appear in the plural. Whether this is the correct synchronic analysis for them in Middle Welsh is less clear. If these are synchronically nouns, then they have been adopted into the numerative system.

The eight forms in Table 2 whose numerative forms differ from their plural, for instance, *mab* ‘son’ (numerative *meib*, plural *meibion*), go back to the historical stem-classes for these nouns (*gwas*, *mab* and probably *hwch* and *llwdn* are o-stem masculines; *blwyddyn* is *ī*-stem feminine; *brawd* is r-stem masculine; *buwch* and *dydd* are treated together under ‘stems in a w-diphthong’ in Lewis & Pedersen 1937: 171; more specifically, *buwch* goes back to a consonant-stem, while *dydd* is an io-stem). There is one exception: *chwaer* ‘sister’ whose numerative *chwioredd* and plural *chwiorydd* are analogical, and may have been modelled on *broder* (numerative) and *brodyr* (plural) ‘brothers’. With each of these nouns a new regular plural form arises and the old dual and plural forms are petrified as numeratives. Table 2 also shows that analogy is responsible for a fair number of numeratives: ten (those not in bold in the table) out of twenty-six. Furthermore, some of the “historically correct” nouns are occasionally found with a pattern that confuses the old dual and plural: we occasionally find *dau wŷr* ‘two men’ and *dau feirch* ‘two horses’ (*de6/deu gwyr*: Peniarth 44, Cotton Caligula A.iii [13c] and Peniarth 33 [14c], *deu wŷr*: Cotton Titus D.ii [13c] and Peniarth 5, Peniarth 33, Boston ms. 24049 [14c]; *deu veirch*: Peniarth 33 [14c]) which are old o-stem masculine nouns (like *mab*), more commonly attested with the historically expected forms *dau wr* (also found as a compound *deuwr*) and *dau farch*. The fact that these nouns are sometimes attested with the “correct” dual confirms that, with these two items, analogy was working in favour of a basic numeral + numerative rule, while the pattern of having a

different form after ‘two’ and other numerals was being lost. *Gwraig* ‘female human being, adult woman’ may be another example if we accept that *gwragedd* is the historically correct plural. In that case the form after *dwy* ‘two’ should be identical with the singular, reflecting the old dual, but instead we always find *dwy wragedd* with the plural. *Blwyddyn* ‘year’ shows such confusion as well: ‘two years’ would be expected to be ***dwy flyyddyn*, however we find *dwy flynedd* (see section 5.3 for discussion).

Not all instances of numeral + numerative are equal in Middle Welsh; while the numeratives in Table 2 are attested in more than one text, there is a group of instances of numeral + numerative which are only attested once. These are listed in the Appendix and left out of the main discussion as they are unlikely to reflect spoken usage. These instances are of interest in showing the kind of morphological variation which medieval poets perceived to be at their disposal; many of the examples listed are in rhyming position in poetry. For some of these, numeral + singular is used elsewhere, in which case the one numeral + numerative example could perhaps be treated as either a scribal error or an instance of *ad hoc* creation. For example, *brenin* (MW *brenhin*) ‘king’ has only one attested numeral + plural phrase (*deu ardyrchawc urenhined* ‘two excellent kings’, Peniarth 18, f. 24v) compared to several examples with the singular. Similarly *angel* ‘angel’ has one numeral + numerative example, namely *can mil engylion* ‘a hundred thousand angels’ (CC p. 186, l. 145).¹⁶

With the analogical numeratives in Table 2 as well as the examples listed in the Appendix, the question arises why analogy is so widespread and what factors determine why some nouns end up taking plural forms after numerals even though they would be expected to stay in the numeral + singular system. In the following sections, we argue that both animacy and frequency play a role in Middle Welsh numeral phrases which analogically take plural forms after numerals.

5.3 Animacy and frequency

The majority of the nouns with a distinct numerative form that reflects the historically expected post-apocope outcome of the old dual and plural forms (i.e. those in **bold** in Table 2) have animate referents. The items are categorized according to humanness and animacy in Table 3.

Out of twenty-six nouns, fifteen denote humans, six denote non-human animates and the remaining five denote inanimates. It is noteworthy that the nouns of the -human, +animate column all denote domestic animals which were likely to have been regarded as important for agricultural or other reasons.¹⁷ As regards the nouns in the -animate column, we will suggest that *blwyddyn* ‘year’ and *dydd* ‘day’ should be treated as part of a wider pattern of the morphology of time expressions where frequency is likely to play a more significant role than animacy.

¹⁶ This phrase is in a poem (‘Armes Dydd Brawd’), which has a complex transmission history with many different versions: two of the earliest manuscript witnesses (Book of Taliesin and Peniarth 27, as well as Peniarth 113 which is a copy of Peniarth 27) have *can mil engylion* while the rest have *can mil o engylion* with the pattern numeral + *o* ‘of’ + plural noun, as described above in section 3; see Callander (2015) for discussion of this poem.

¹⁷ Note that there are languages that treat words for ‘dog’, and sometimes other domestic animals, as belonging to the human category, see Corbett (2000: 57–58).

+human	+animate	-animate
abostol ‘apostle’	amws ‘steed’	arf ‘weapon, arm; pl. armour’
bardd ‘poet’	buwch ‘cow’	blwyddyn ‘year’
brawd ‘brother’	hwch ‘pig, swine’	dydd ‘day’
câr ‘kinsman, relative’	llwdn ‘young animal’	nant ‘river’
chwaer ‘sister’	march ‘horse’	tŷ ‘house’
esgob ‘bishop’	ych ‘ox’	
gwas ‘boy; servant’		
gŵr ‘man’		
gwraig ‘woman’		
iarll ‘earl’		
mab ‘boy, son’		
merch ‘girl; daughter’		
morwyn ‘maid’		
nai ‘nephew’		
sant ‘saint’		

Table 3. Nouns with numeratives in Middle Welsh, arranged according to the animacy hierarchy.

It is striking that +human nouns are in a clear majority in Table 3, and this suggests that the preservation as well as analogical extension of numeratives in Middle Welsh was conditioned by the animacy hierarchy.

Some feminine human terms may have been taken into the numeral + plural system to complement their masculine counterparts: compare *brawd* ‘brother’ and *chwaer* ‘sister’;¹⁸ *mab* ‘boy, son’ and *merch* ‘girl, daughter’ and *gwas* ‘boy; servant’ and *morwyn* ‘(female) servant; girl’ where the masculine nouns have their “historically correct” forms in numeral phrases while the feminine nouns have adopted the numeral + numerative pattern through analogy.¹⁹ With *morwyn* ‘maid’ this process is visible within Middle Welsh. *Tair morwyn* ‘three maidservants’, with the singular, is attested in a number of *Brut y Brenhinedd* manuscripts dated to the fourteenth century, as well as in the prose tales *Peredur* and *Culhwch ac Olwen*, found in the White Book of Rhydderch (mid-fourteenth century) and the Red Book of Hergest (dated 1382) [14c].²⁰ Cardiff ms. 1.362, dated to the mid-fourteenth century (p. 10v, 14c) has both *tair morwyn* with the singular and *tair morwynion* with the numerative. Compare the same passage in Cardiff ms. 1.363 (p. 19r), which is slightly earlier (first half of the fourteenth century), and which has the singular in both instances. Attestations of *tair morwynion*, with the numerative, begin in the first half of the fourteenth century, overlapping with the singular, but crucially the numerative wins out by the beginning of the fifteenth century.

The only inanimate noun to be taken into the numerative system is *arf* ‘weapon’. This is probably because its plural is effectively a plurale tantum, lacking a direct semantic

¹⁸ As stated above, *chwaer* is the only noun that analogically creates a dual/plural distinction *chwioredd/chwiorydd*, most likely modelled on *broder/brodyr*.

¹⁹ Another pair might be *gŵr* ‘man’ and *gwraig* ‘woman’ if one does not accept the suggestion that *gwraig* is an *ī*-stem noun, in which case the plural *gwragedd* is not historical; see above.

²⁰ The dating of the composition of *Peredur* and *Culhwch ac Olwen* is debated and is likely to be earlier than the manuscript attestation; however we confine ourselves to the latter here.

relationship with the singular: *tri arfau* means ‘three sets of armour’ not simply ‘three weapons’ as would be expected from the meaning of the singular *arf* ‘weapon’. Pluralia tantum behave rather oddly with respect to the numerative system at all periods of Welsh and, lacking a singular, have to use a plural after a numeral, cf. the later (eighteenth-century) use of *dau rieni* ‘two parents’ when *rhieni* ‘parents’ lacks a singular.²¹

Some languages display a further split of the +human category into ±kin (Corbett 2000: 60). While many nouns in Table 3 are kin terms, these are not in the overwhelming majority, and note also that many of these nouns can refer to both +kin and -kin referents; for instance, *mab* is used for both ‘son’ and ‘boy’ in general.

Frequency is also likely to be significant to maintaining the numeral + numerative system, which was under pressure from the new and larger numeral + singular system that later became the norm and levelled out the split we find in Middle Welsh. Those nouns in Table 2 with historically warranted distinct numeratives and plurals are also extremely frequent. For example, in the Welsh Prose 1300–1425 corpus, *mab* ‘boy, son’ has a frequency of 4065 tokens per million words whereas the frequency of *aber* ‘estuary; river’ is 158 per million words (142 singular and 16 plural) and that of animate *dyn* ‘man; human being’ is 2541 (2073 singular and 469 plural).

noun	frequency per million words				relative freq. of numerative
	singular	numerative	plural	total for lexeme	
<i>blwyddyn</i> ‘year’	1125	574	3	1702	0.34
<i>dydd</i> ‘day’	1307	178	108	1592	0.11
<i>mab</i> ‘boy, son’	4065	67	596	4728	0.01

Table 4. Frequency of forms of selected nouns with numeratives.

The nouns *blwyddyn* ‘year’ and *dydd* ‘day’ are also extremely frequent.²² The frequency of their forms in the Welsh Prose 1300–1425 corpus is given in Table 4. A comparison to the figures for *mab*, *aber* and *dyn* above shows that these nouns have a token frequency in the singular similar to nouns denoting humans. The token frequencies of the numeratives are in fact higher than that of *meib*, the numerative of *mab* ‘boy, son’. It may well be that a number of kinds of frequencies play a role here (cf. Corbett et al. 2001): the absolute frequency of the singular (which is the most commonly occurring form for all these nouns) is high with both nouns denoting humans and time expressions. However, the absolute frequency of the numerative form of time expressions ‘day’ and ‘year’ with numerals is higher than that of nouns like *mab* ‘boy, son’; the relative frequency of the numerative (compared to all instance of the lexeme) is also high. We leave the precise nature of the correlation between these different measures of frequency and the availability of numerative morphology to future research.

In Modern Welsh *blwyddyn* has a new ordinary plural *blynyddoedd* and the numerative *blynedd* survives in numeral constructions after ‘two’ and above, being the only

²¹ This issue has been resolved in Present-day Welsh by the creation of a singular form, *rhiant* ‘parent’, via back-formation; hence ‘two parents’ can now be expressed using the regular system as *dau riant*.

²² These items are also found in time adverbials with petrified oblique case forms, e.g. *eleni* ‘this year’ and *heddiw* ‘today’ which reflect Proto-Celtic *se ‘this’ followed by the fossilized dative of ‘year’ and ‘day’ respectively (*GPC*, s.v. *eleni*, *heddiw*).

noun to retain a numerative into Present-day Welsh. In Middle Welsh *blynedd* displays more irregularity: in poetry, it also occurs after *un* ‘one’ in *ar un blyned* ‘for one year’ (*The poems of Taliesin*, p. 5) and after an adjective in *byrr vlyned en hed* ‘for a short year in peace’ (*CA* 3, l. 59).²³ It is also used in Middle Welsh in composite numerals (*un mlynedd ar ddeg* ‘eleven years’, Lewis & Pedersen 1937: 190) and with ordinals (*yr wythfed mlynedd* ‘the eighth year’, *GPC* s.v. *blynedd*). This led Hamp (1980: 166) and Koch (1991: 113) to suggest that *blynedd* was an oblique case form, ‘a reflex of a dative–locative sg.’, agreeing with Pedersen (1913: 132), who suggested that *blynedd* and *diau* ‘days’ were partly analysed as singular. A further irregularity is that we have *dwy flynedd* ‘two years’ where, historically, we would expect **dwy flwyddyn* (vs. *tair blynedd* ‘three years’) since *blwyddyn* is an *i*-stem noun and the dual of these was identical in form with the singular (cf. OIr nom./acc. sg. and dual *bliadain* ‘year’) (Thurneysen 1946: 185). The fact that we have no examples of **dwy flwyddyn* might in fact suggest that the reinterpretation of *blynedd* as singular was very early.

For *dydd* ‘day’, the numerative *diau* is likewise restricted to numeral phrases while new plurals are used elsewhere: *dieuoedd* (first attested in the mid-thirteenth century Black Book of Chirk) and *diewedd* (thirteenth century), both based on the numerative *diau* (*GPC*, s.v. *diau*). Another plural form, *dyddiau* (first attested 1346), was built on the singular using the commonest plural suffix *-iau*, and this is the form that becomes standard in Modern Welsh (*GPC*, s.v. *dydd*). The fact that the earlier plural forms are based on *diau* supports the observation that *diau* could have been understood as singular in Middle Welsh. While not nouns denoting animate entities, time expressions could have retained their numeratives into Middle Welsh by virtue of both absolute frequency of all tokens and both absolute and relative frequency of the numeratives, since ‘days’ and ‘years’ are often counted.

5.4 Middle Welsh numeral phrases in typological and diachronic context

This section has demonstrated that Middle Welsh numeral phrases had two possible systems which existed in parallel. The numeral + singular option was the result of the loss of final syllables in late Brittonic and the reinterpretation of old dual and plural forms as singulars when they occurred with numerals. New plurals were adopted analogically elsewhere, while with numerals the singular generalized to become the regular option. Some nouns whose plural (and sometimes dual) remained distinct from the singular after apocope preserved those distinctions after numerals, resisting the spread of the singular. This group of nouns consists mostly of +animate nouns and their pattern of using the former plural (now interpreted as “numerative”) with numerals also spread analogically to a small group of nouns consisting almost solely of +human nouns.

This new numerative constitutes a minor category, since it is distinct from the singular only for a small minority of nouns. As we saw in section 2.1, minor numbers often manifest a distribution which does not follow the animacy hierarchy, as shown by Corbett (1996). The Middle Welsh numerative, however, shows a partial preference for nouns at the top end of the hierarchy, a fact that suggests that minor numbers can develop in a way conditioned by the hierarchy. As with other cases of the emergence of numeratives (section 2.2), the Middle Welsh numerative begins as a historical accident via the erosion of case and number morphology: those items that have been spared change form the core of items expressing the

²³ Contrast the following example, where *blwyddyn* alone is used in the sense ‘for a year’:

- (i) *blwydyn bu llewyn llawer kerdawr*
 year be.PAST.3SG merry.PL many musician
 ‘for a year many a musician was merry’ (*CA* l. 93)

new category. Consistency with the other diachronic cases confirms this as the standard pathway for the emergence of numeratives. Importantly, they do not seem to emerge via grammaticalization and are therefore exceptions to the hypothesis (Hopper & Traugott 1993: 128–129) that all grammatical items in natural languages derive ultimately from lexical items (Lass 2000: 209). Indeed, it is possible that minor categories are fairly systematic exceptions to this claim. Welsh differs from the other cases discussed above in that the numerative becomes a productive morphological category for a time, with its analogical extension in scope guided by the animacy hierarchy.

In section 2.1, we also discussed Plank's (1996) finding that the dual often functions as a minor number and, when it does, the nouns showing it often fall into certain groups. The first of these is animate nouns and such minor numbers conform to the animacy hierarchy. The third consists of nouns denoting standard units of measure or objects frequently counted. Two of some of the most common Welsh nouns with numeratives fall into this latter category, namely, *blwyddyn* 'year' and *dydd* 'day' (section 5.3 above). Plank's generalizations therefore appear to apply in the current instance.

More specifically we have demonstrated that traces of the Brittonic singular/dual/plural distinction survived into Middle Welsh, since some nouns distinguish between the forms used after 'two' in contrast to 'three' and above. However, this distinction was vulnerable to erosion, as demonstrated in section 5.2, with some nouns extending the plural to the context after 'two'. It was argued that Middle Welsh only has singular and plural as full number categories, with any traces of the dual being highly lexicalized (but see Willis 2014, where it is argued that the dual is nevertheless present syntactically).

6 The loss of the numerative system

The numerative system is largely absent from Present-day Welsh, so Welsh allows us to examine the full cycle of development of the numerative system in a language, including its demise. It is this aspect of its history to which we now turn. We will argue that, initially, numerative forms were maintained, where possible, by being re-interpreted as plurals, so that numerals exceptionally selected for plural with complements headed by certain nouns. The set of contexts that selected for plural was then eroded over time, with nouns at the top of the animacy hierarchy, namely kinship terms, most resistant to analogical regularization.

6.1 The fifteenth century

The first line of development towards the loss of the numerative system is the disappearance of those morphological forms that are uniquely numerative, that is, not syncretic with the usual plural form of the noun. This involves the items listed in Table 2 above. There are a number of possible ways for these items to develop. We have already seen extension of the numerative system via morphological analogy. In its later phase, these analogies only produce numerative forms that are identical with the plural and which are used with all numerals. For instance, *morwyn* 'maid, girl' enters the numerative system during the course of Middle Welsh: later Middle Welsh texts adopt the plural *morwynion* in place of singular *morwyn* after all numerals (cf. discussion, section 5.3 above).

This process continues in the fifteenth century, but in a way that serves to weaken the distinctiveness of the numerative: regular plural forms begin to be used with nouns in the numerative system that had distinctive numerative forms. For instance, in the version of the chronicle *Brut y Brenhinedd* found in the Peniarth 23 manuscript, dated to the second half of the fifteenth century (Huws 2000: 61), we find the plural form *meibion* 'sons' in place of the historically expected *mab* 'son' (identical with the singular) after 'two' on three occasions

(Peniarth 23 16r.10 *y ddev veibion* ‘his two sons’, 17v.1, 17v.17).²⁴ This shows insecurity of usage of the forms and suggests obsolescence of the numerative system, although analogical extension (or perhaps hypercorrection) of this kind turns out to be largely a historical dead-end and is not repeated on a large scale.

A related, and ultimately more important, process is the reinterpretation and re-formation of numerative forms as ordinary plurals: *broder*, the numerative of *brawd* ‘brother’, is phonologically similar to the plural *brodyr*, and the latter begins to take its place. The earliest evidence for this comes from two cases in *Kedymdeithyas Amlyn ac Amic* found in the Red Book of Hergest (dated 1382 to first quarter of the fifteenth century), namely *a’e wyth mrodyr maeth* ‘and his eight foster brothers’ (KAA 184–5) and *y deudeng mrodyr maeth* ‘the twelve foster brothers’ (KAA 124–5). In both cases we find the usual plural *brodyr* (with nasal mutation to *mrodyr* in both cases) in place of expected *broder*. While the canonical text of the Arthurian romance *Ystoryaeu Seint Greal* from the end of the fourteenth century conforms to the usual Middle Welsh system, the NLW ms. 3063E version, a copy dated to the end of the fifteenth or start of the sixteenth century, introduces at least one historically unexpected form, namely, *seith mrodyr* ‘seven brothers’ (YSG 1153), replacing the numerative form *broder* (which again undergoes nasal mutation to *mroder* after ‘seven’) by the regular plural form *brodyr*.

A third possibility is that the numerative form is simply replaced by the singular. Again, sporadic examples of this are attested in the late fifteenth century. *Fford y Brawt Odric*, a translation of Odoric of Pordenone’s *Itinerarium* made in the second half of the fifteenth century, has *y petwar brawt* ‘the four brothers’ (for expected *broder*) (FfBO 39.7).

These developments are fairly isolated in the fifteenth century, but it is perhaps significant that most of the examples of non-traditional practice date to the final third of the century, prefiguring subsequent change. In other, typically earlier, fifteenth century materials, the traditional pattern is faithfully maintained.

The second major direction is the extension of the use of plurals after numerals. Nouns with no historical connection to the numerative system continue to be found sporadically in the plural after numerals:

- (6) a. *seith gwithredoyd y drugareth*
 seven act.PL the mercy
 ‘the seven acts of mercy’ (Description of the Day of Judgment, BL Cotton Titus D.xxii 14r.1–2 (15c))
- b. *seith rinwethe yr ecglōys*
 seven virtue.PL the church
 ‘the seven virtues of the church’ (Description of the Day of Judgment, BL Cotton Titus D.xxii 13v.12 (15c))

This is concentrated in certain texts, and seems likely to be the result of overliteral translation from Latin and, as we shall see, increasingly, English.²⁵

²⁴ An earlier copy of the same text (Peniarth 21 9r, 10r [14c]) has *y dev dovyon* ‘his two sons-in-law’, with the expected numerative form *dofion*, in each of these cases. Incomplete scribal alteration of this may be responsible for the unexpected form *meibion*, rather than *mab*, here.

²⁵ In Middle Welsh, attributive adjectives are normally postnominal, although a handful regularly precede the head noun and others occasionally precede it. We have relatively few examples therefore of the sequence numeral + adjective + noun. This sequence does occur a number of times in *Ymborth yr Enaid*, and in these cases both the adjective and the noun

6.2 The sixteenth century

By the sixteenth century, some of these developments have advanced substantially. Where nouns have distinctive numerative forms, these forms are, with the exception of *blynedd* ‘years’ and *blwydd* ‘years of age’, all abandoned rapidly in the sixteenth century. Of the other nouns of this type listed in Table 2 above, seven are attested in the sixteenth-century texts considered. Where the numerative form resembles the plural of the same noun phonologically, it is replaced after numerals by the plural. Everywhere else, the numerative is replaced by the singular. The one exception is *tri diau* ‘three days’, which lexicalizes as a fixed item (normally spelled as one word). We consider the evidence for each of these nouns now in turn.

Consider first *brawd* ‘brother’ and *chwaer* ‘sister’. Here numerative and plural are rather similar, differing only in the vowel in the suffix (numerative *broder* vs. plural *brodyr* and numerative *chwioredd* vs. plural *chwiorydd*). With *brawd*, we find occasional examples of *broder*:

- (7) a. *a 'i ddau vroder*
and his two.MASC brother.NUM
‘and his two brothers’ (DEG 331.39–40, before 1552)
- b. *pemp broder*
five brother.NUM
‘five brothers’ (1588 Bible, Luke 16:28)
- c. *ar ddau vroder derfysgol*
and.the two.MASC brother.NUM tumultuous
‘and the two tumultuous brothers’ (Peniarth 218, p. 89, l. 13, 1605–10).

show plural agreement, even if the noun involved does not normally participate in the numerative system, hence:

- (i) *deu berffeithloyw gochyon rudyeu*
two.MASC perfectly.bright red.PL cheek.PL
‘two perfectly bright, red cheeks’ (*Ymborth* 18.48, Llanstephan 27, 35v.8–9)
- (ii) *deu rudellyon lygeit bompaeid dremwalcheid*
two.MASC brown.PL eye.PL pompous hawkish
‘two brown pompous hawkish eyes’ (*Ymborth*, Llanstephan 27, 35r.13–14)
- (iii) *y deu rudellyon lygeit*
the two.MASC brown.PL eye.PL
‘the two brown eyes’ (*Ymborth*, Llanstephan 27, 35r.21–22)
- (iv) *dôy burloewduon hirueinyon aeleu*
two.FEM pure.bright.black.PL long.fine.PL eyebrow.PL
‘two pure-bright-black long-fine eyebrows’ (*Ymborth*, Llanstephan 27, 35r.5)

Another possible case of this structure is from the Description of the Day of Judgment, BL Cotton Titus D.xxii 6r.7 *dôy anfythedolyon genethlaeid* ‘two faithless nations’, where *genethlaeid* probably represents some plural form of *ened(d)l* ‘nation’, cf. ModW *cenhedloedd*. This construction, whatever its status, seems to be independent of the numerative system itself, and we do not treat the nouns in these cases as having numerative forms.

In William Salesbury's early translations of parts of the Bible, namely the selections in *Kynniver Llith a Bann* (1551) and the 1567 New Testament, we find the form *broder* after numerals, but this is used as the spelling for the usual plural of *brawd*, hence there is no reason to believe that Salesbury made any distinction. The overwhelming pattern in the sixteenth century is to use the plural *brodyr* after all numerals:

- (8) *dau vrodyr* 'two brothers' (RhY 1r.6, 1543), *y ddau frodyr* 'the two brothers' (YK 25.19–20, 1567–1609), *ai ddaü vrodür* (Cronicl Hywel ap Syr Mathew 199v. 20–1, 1568 (ms. 1589–90));
tri brodyr 'three brothers' (RhG ii.80.29);
a'r chwe brodyr hyn 'and these six brothers' (1588 Bible, Acts 11:12);
saith mrodyr (1588 Bible, 2 Macabees 7:1) etc.

In the 1588 Bible translation, two instances of the singular are, exceptionally, found:

- (9) *ai bedwar brawd*
and.his four.MASC brother.SG
'and his four brothers' (1 Macabees 13:28)
- (10) *ei ddêc brawd a thrugain*
his ten brother.SG and sixty
'his seventy brothers' (Judges 9:56)

With *chwaer*, the development is less well documented, but essentially the same. Apart from two examples of *chwioredd* after numerals from the same text at the start of the seventeenth century (*y tair chwioredd* 'the three sisters' TCh 1203 and *dair chwioredd* TCh 1911), we find only the plural *chwiorydd* after numerals:

- (11) *dwy chwiorydd* (YK 17.15, 1567–1609), *ddwy chwiorydd* (E. James: Hom. ii.294, 1606);
eu tair chwiorydd 'their three sisters' (1588 Bible, Job 1:4).

Of the other numerative forms, *maib* 'sons' and *diau* 'days' survive best.²⁶ *Maib* is well attested in the sixteenth century across a range of texts:

- (12) *i drimaib* 'his three sons' (RhY 7.3), *y trimaib* 'the three sons' (DFf 106.10), *a'y dri maib* 'and his three sons' (TMC l. 392), *tri maib* 'three sons' (CHSS 115.15), *tri maib o vaibon* 'three sons of sons' (GR l. 1350),²⁷ *i dri maib* 'his three sons' (GR l. 1353).

However, we find one hypercorrect use in the 1567 New Testament, namely *vy-deu vaip* 'my two sons' (TN p. 32a–b, Matthew 20:21), where, after 'two', Middle Welsh had required the singular of *mab*, not the numerative. Majority sixteenth-century usage has singular of *mab* after all numerals:

²⁶ The form *maib* is the development via regular sound change of the Middle Welsh numerative *meib*.

²⁷ This expression refers to three sons, not three grandsons, which could be evidence that *tri maib* was lexicalized to mean 'trio (of sons)', cf. *tridiau* 'three days' below.

- (13) *a'i drimab* 'and his three sons' (E. James: Hom. i.168.32–3), *dri mab* 'three sons' (YK 80.25), *o dri mab Cystenyn* 'of the three sons of Constantine' (YK 81.16); *pedwar mab* 'four sons' (CHSM 210v. 17).

There is overwhelming use of this pattern in the 1588 Bible:

- (14) *drî mâb* 'three sons' (Genesis 29:34);
ai pedwar mab 'and his four sons' (1 Chronicles 21:20);
pum mab 'five sons' (1 Macabees 2:2);
iw saith mab 'to his seven sons' (1 Samuel 16:1);
deng-mab Haman 'the ten sons of Haman' (Esther 9:12) etc.

Together with the instance of hypercorrection, these examples demonstrate that *maib* was well on its way to being replaced by a singular at this time, and that the logic of the numerative system was no longer fully understood.

With *diau*, the numerative of *dydd*, we find a high degree of differentiation by numeral. With 'two', the Middle Welsh system required the singular here, and, as would be expected, this rule is maintained in the sixteenth century. With 'three', numerative *diau* is used consistently, frequently and in historically expected fashion:

- (15) *tri diau* 'three days' (1588 Bible, Exodus 8:27, 2 Kings 2:17, 2 Chronicles 20:25 etc.), *tri die* (W. Salesbury: KLI pp. 23a, 72a), *tri-diau* (1588 Bible, Joshua 1.11, Luke 2:46, John 2:19, Revelation 11:9 etc.), *tri-die* (W. Salesbury: KLI 10a, 38a), *trydieu* (G. Robert: DC 33r.10–11, 1585), *tridie* (G. Robert: DC 69r.3, 74r.17), *tridiau* (YE 43r.9, 1552; YK 153.6, 118.12–13, 1567–1609; 1588 Bible, Exodus 5:3, 1 Samuel 30:13, Mark 14:58 etc.; Egl Ph 23, 1595).

As can be seen from these examples, it is often spelled as one word or hyphenated, to a greater extent than other numeral–noun combinations. With higher numerals, both numerative *diau* and singular *dydd* are found:

- (16) *wyth die* 'eight days' (W. Salesbury: KLI 71b, 1551);
y dec die 'the ten days' (W. Salesbury: KLI 48b, 1551).
(17) *saith dydd* 'seven days' (NT 205a, Acts 20:6).

More remarkable, however, is the scarcity of any evidence and the extent of avoidance of the context altogether. With higher numerals, *dydd* tends to be replaced by its near synonym *diwrnod* 'day', which does not form part of the numerative system. The result is that we move close to a system where *tridiau* is lexicalized as an item meaning 'continuous period of three days', thereby eliminating *diau* from the productive grammar. This is the situation found today.

Nouns with numerative forms identical to the plural maintain the older system more faithfully, but some nevertheless undergo significant change, with feminine nouns retaining the older system best. The picture is rather complicated for *gŵr* 'man'. The historically expected singular is found after 'two'. After other numerals, there is variation with both singular *gŵr* and numerative–plural *gwŷr* being found. With 'three', the singular occurs only once in the data examined, namely in *y tri gŵr ymma* 'these three men' (1588 Bible, Job 32:1). In the more usual case, *trywyr* seems to lexicalize as a fixed item for 'three men':

- (18) *truwyr da eraill*
 three.men good other.PL
 ‘three other good men’ (YK 131.6) (also *try-wŷyr*, 1588 Bible, Genesis 18:2; *try-wŷyr*, 1 Samuel 10:3; Ezekiel 14:14; Acts 11:11 etc.; *trywyr*, 2 Macabees 4:44)

Higher numerals also have similar lexicalizations incorporating the historically expected numerative–plural form *gwŷr*, spelled as a single word.²⁸

- (19) *pedwar-gwŷr* ‘four men’ (1 Chronicles 7:3, Daniel 3:25), *pedwar-gwyr* (1567 New Testament and 1588 Bible, Acts 21:23);
seith-wyr ‘seven men’ (1567 New Testament p. 179a, Acts 6:3);
wyth-wyr ‘eight men’ (1588 Bible, 3 Esdras 8:38).

However, numeral and noun may also be found as separate words, in which case the noun is generally singular:

- (20) *pedwar gwŷr* ‘four men’ (2 Samuel 2:30);
bum gwŷr ‘five men’ (2 Macabees 10. heading, 10.26, 4 Esdras 14:37, 14.42);
chwe gwr ‘six men’ (YK 135.24–5);
saith gwr ‘seven men’ (GR 3357, 3520).

The historically expected plural is attested, but rare:

- (21) *bemp gwyr* ‘five men’ (1567 New Testament, John 4:18);
chwe gwyr ‘six men’ (YK 149.18).

In the 1588 Bible, other similar compounds for multiples of five use a singular form:

- (22) *pum-wr* ‘five men’ (Judges 18:7, 18.14, 18.17, 2 Kings 25:19, Ezekiel 8:16, 11.01);
deng-wr (Judges 6:27, 2 Kings 2:7, Jeremiah 38:10, Luke 9:14 etc.), *deng-wŷr* ‘ten men’ (Numbers 26:10, 2 Samuel 15:1, Jeremiah 41.1 etc.);
vgain-wr (1 Samuel 9:14, 2 Samuel 3:20, 2 Kings 10:24), *vgain-wŷr* ‘twenty men’ (2 Samuel 2:31, 3 Esdras 8:47).

Presumably these are modelled on *cannwr* ‘a hundred men, warriors’ (< *cant* ‘a hundred’ + *gwŷr* ‘man’). To summarize this complexity, *gwŷr* productively mostly uses a singular after numerals at this period, but there is a parallel set of lexicalized compound numerals, many of which fossilize a plural.

Middle Welsh patterns are generally maintained with *gwraig* ‘woman’ and *merch* ‘girl, daughter’. In both cases, the plural, *gwragedd* and *merched* respectively, predominates after numerals:

- (23) *dwyr wragedd* ‘two women’ (1588 Bible Genesis 4:19, 1 Kings 3:16, Zechariah 5:9 etc., Dff 184/8.11, 185.16, 186.7–8);
tair gwragedd ‘three women’ (Genesis 7:12, 7:13, Dff 106.8, 106.10);
pedair gwragedd ‘four women’ (YK 117.9–10);

²⁸ For discussion of *-wr/-wyr* as the second element of compounds in general, see Russell (1996).

- vgain gwragedd* ‘twenty women’ (YK 13.4).
 (24) *dwy ferched* ‘two girls, daughters’ (1588 Bible Genesis 19:8, 19.15, 1 Samuel 14:49 etc., YK 18.15, 21.11 etc., CHSS 120.3, Dff 131.15, GR 1266, 1790 etc., E. James: Hom ii.301, R. Smyth: GB 27, 57);
tair merched ‘three girls’ (YK 16.25, 17.1, CHSM 220v. 31, NLW 13075B: YLIF 106r. 8–9);
pedair merched (1588 Bible Acts 21:9, NLW 13075B: YLIF 104v.6), *pedeir merchet* (TN 207b Acts 21:9), *pedair merchet* ‘four girls’ (TN 206b, Acts 21.heading);
saith merched ‘seven girls’ (1588 Bible Exodus 2:16, TMC 2819–20, 2974);
naw merched ‘nine girls’ (YK 24.9);
deng-mherched ‘ten girls’ (1588 Bible Judges 12:9).

Against this substantial evidence for retention of the inherited system at this time, the instances of singular use after a numeral with these nouns are relatively small in number:

- (25) *dwy wraig* ‘two women’ (Ezekiel 23:2, R. Smyth: GB 164);
dwy ferch ‘two girls’ (Proverbs 30:15, NLW 13075B: YLIF 106r. 23–4).

It is also notable that these exceptions are only found with ‘two’, which raises the possibility that they are the result of extension of the pattern where a singular is used after ‘two’ while a plural is used after other numerals, rather than an actual abandonment of the numerative system. The 1620 Bible generally retains whatever forms are found after numerals, but it adds various headings, and in these headings it introduces *dwy wraig* ‘two women’ with singular (Genesis 4, 1 Samuel 1) but *tair gwragedd* ‘three women’ with numerative/plural (Genesis 36).

The remaining items in Table 2 are rather sparsely attested after numerals in the sixteenth century, but what evidence we have shows complete loss of the numerative:

- (26) *dwy fuwch* ‘two cows’ (1588 Bible, 1 Samuel 6:7, 6:10), *y saith muwch* ‘the seven cows’ (Genesis 41:20, 41:27) (singular *buwch* in place of numerative *bu* ‘cows’);
y dec gwâs ‘the ten servants’ (Luke 19: heading), *ei ddêc gwâs* ‘his ten servants’ (Luke 19:13), *ai vgain gwâs* ‘and his twenty servants’ (2 Samuel 19:17), *dy ddêc gwâs a deugain hyn* ‘these your fifty servants’ (2 Kings 1:13) (singular *gwas* in place of numerative *gweis*);²⁹
trugainllwdwn or deuaid ‘sixty young of the sheep’ (YE 53r.22) (singular *llwdn* ‘young (animal)’ in place of numerative *llydn*);
y deudeg Abostol ‘the twelve apostles’ (Morys Clynnog: AG 14), *o r deudheg abostol dewisol* ‘of the twelve chosen apostles’ (G. Robert: DC 24v);
dwy forwyn ‘two maids’ (1588 Bible, Susanna 1:15, YK 9.13, 9.16), *y dêc morwyn* ‘the ten maids’ (Matthew 25:heading);
dau nai ‘two nephews’ (YK 21.26, 56.16, 157.1), *dai nai* (YK 157.15) ‘two nephews’.

²⁹ A more complex case is <ei ddec gwasion> ‘his ten servants’ (Luke 19:13), where, following a convention that words and morphemes not present in the original Greek but added to produce good Welsh are placed in italics (cf. Thomas 1980: 505), the ending *-ion* is italicized, while the root is not. On the face of it, this seems to mean that singular *gwas* was considered ungrammatical in this context. However, this is inconsistent with all the other evidence and is perhaps best disregarded in the wider context.

These processes lead to the complete elimination of distinctly numerative forms. The only exception to this general pattern is *blwyddyn* ‘year’, whose numerative forms *blynedd* ‘years’ and *blwydd* ‘years of age’ survive robustly, as mentioned above (presumably as a result of their very high frequency, far in excess of any of the other numerative forms).

Evidently, the function of the numerative had ceased to be understood by the sixteenth century. We witness two ways of dealing with this obsolescence:

- (i) where it could be made sense of as a plural, it could be treated as such;
- (ii) elsewhere, it could simply be ignored and eliminated.

The result is that, with the one exception of ‘year’, the system can be reinterpreted as one where morphologically plural nouns are used with some nouns after numerals, while most nouns require a singular. A semantic basis of the system remains even in this recast form: the essence of the early modern system is that a small group of nouns denoting humans (essentially just the kinship terms *brawd* ‘brother’, *chwaer* ‘sister’, *gwraig* ‘woman, wife’ and *merch* ‘girl, daughter’) require a plural, while all other nouns appear in the singular.

6.3 The modern period (1650–1800)

In the later modern period, the rump group of nouns that uses a plural after numerals continues to contract. From the mid-seventeenth century, use of the singular of these nouns with all numerals is the overwhelmingly most frequent option chosen. The relevant data from the second half of the seventeenth century are given below, uniformly singular:

- (27) *brawd*: *dau frawd* ‘two brothers’ (R. Jones: PC 6, 1655; C. Edwards: FfDd 13, 1667);
tri brawd ‘three brothers’ (S. Hughes: TSP 245, 1688);
chwaer: *dwyr chwaer* ‘two sisters’ (T. Baddy: DDG 13);
gwraig: *dwyr wraig* ‘two women’ (R. Jones: PC 1, 6, 55, C. Edwards: FfDd 53, R. Davies: PY 58, T. Baddy: DDG 72).

The plural survives longest with *merch* ‘girl, daughter’, with the plural in *dwyr ferched* ‘two girls’ still dominant up to the end of the seventeenth century (E. Lewis: Drex 196; C. Edwards: FfDd 54; CDD 93). It is still found in some literary usage in the first half of the eighteenth century (*ai ddwyr Ferched* ‘and his two daughters’ YGDB 12; *ei phedair merched* ‘her four daughters’ Taith C 140, 150) and perhaps even colloquially in *pedair merched* ‘four daughters’ (W Ballads 48.title page), but colloquial usage later in the century shows only the singular: *dwyr ferch* ‘two daughters’ (BLI 2.17, 19.28, 37.11, 57.23, 64.2), *tair merch* ‘three daughters’ (BLI 2.10, 10.17).

More generally in the eighteenth century, plurals in fact become somewhat more frequent:

- (28) *dau frodyr* ‘two brothers’ (E. Samuel: BA 161, T. Evans: DPO 99.5, AADdG 49, PYAG 89, J. Thomas: HB 7), *tri brodyr* ‘three brothers’ (PYAG 6, 8)
dwyr chwiorydd ‘two sisters’ (T. Williams: HHO 110), *tair chwiorydd* ‘three sisters’ (T. Williams: HHO 110)
tair gwagedd ‘three wives’ (D. Jones: HN 23, R. Jones: DA 58, EDP 105)
dwyr ferched ‘two daughters’ (J. Jenkin: P 11, H. Jones: T 163), *deigain Merched* ‘forty girls’ (T. Williams: AD 6)

These must be interpreted as reflecting an archaizing, literary phenomenon. This conclusion is based partly on the fact that plurals had all but disappeared after numerals in the second half of the seventeenth century. Furthermore, it is based on the observation that those eighteenth-century texts where plurals are found include a number of very consciously literary works and some cases which appear to be conscious references to the Bible translation. By this point, plurals after numerals were simply understood as a way to lend an archaic, Biblical flavour to writing.

This view is further reinforced by another eighteenth century phenomenon, namely, the appearance of plurals after numerals in contexts which have little or no basis in Middle Welsh:

- (29) *dau Epistolau* ‘two epistles’ (T. Williams: CDdG 359), *dau wirioneddau* ‘two truths’ (W. Williams: HTS 36), *dau leoedd* ‘two places’ (Gw. ab Ierwerth: SB 12); *tri Israeliaid* ‘three Israelites’ (T. Evans: PS 40, M. ab Robert: CC 60), *tri llangcia* ‘three youths’ (T. Williams: HHO 140), *tri meibion* ‘three sons’ (T. Williams: AD 56, T. Williams: HHO 76, 84, Gw. Mechain: Rh 59, S. Thomas: HB 61, T. William: OL 8), *tair oesau* ‘three ages’ (T. Williams: CDdG 174), *tair pennodau* ‘three headings’ (T. Jones: TGEL 14), *tri phersonau* ‘three persons’ (T. Williams: CDdG 316, 318, 318, E. Samuel: AE 203, H. Jones: EN 20, Cat BB 6), and *tair swyddau* ‘three roles’ (T. Jones: TGEL 62); *pedair Oesoedd* ‘four ages’ (T. Evans: DPO 271).

Here, a misunderstanding of the numerative system as exemplified by the Bible translation may well have been reinforced by the influence of written English, as many of the texts in question (T. Williams: CDdG, T. Jones: TGEL, T. Evans: PS, Gw. ab Ierwerth: SB, E. Samuel: AE, and H. Jones: EN) are translations from English, and all writers would have been familiar with the style of English literary (particularly theological) writing and sought in some sense to imitate it.

6.4 Interpreting the developments in the modern period

The numerative as a category was lost some time in the fifteenth or early sixteenth centuries. Distinctively numerative morphological forms were not understood, and were rapidly re-interpreted as ordinary plurals, were lost entirely or were lexicalized as fossilized remains of the earlier system. For a while a system emerged in which plurals were used (variably) for a few nouns after numerals. The nouns in question all denoted human kin relations, thereby respecting the animacy hierarchy. This system was also unstable and lasted only until the mid-seventeenth century, by which time the numerative system had disappeared, apart from the single relic of the words for ‘year’.

7 Conclusion

We have traced the rise and fall of the Welsh numerative from late Brittonic to the eighteenth century. The stages of its development are schematized in Table 5.

Brittonic (pre-6th c. AD)	Initially the dual is used after ‘two’ and the plural after ‘three’ and above; with loss of final syllables, the dual mostly merges in form with the singular, but, for some nouns, with the plural; analogical extension of surviving plural suffixes leaves some old plurals as distinctive numerative forms; some numerative patterns spread analogically
Primitive and Old Welsh (6th to mid-12th c.)	continued analogical spread of new plurals and numeratives
Middle Welsh (mid-12th to end 14th c.)	Two patterns are now firmly established in noun phrases containing numerals: (a) numeral + singular (the most common pattern), (b) numeral + numerative (with a small group of nouns); numeratives can either be unique in form or syncretic with the plural of the noun; some further minor extension of numerative forms occurs.
15th c.	The loss of the numerative category begins. The distinction between the numerative and the plural is lost, reflected in (a) unique numeratives being replaced by the plural; (b) unique forms being reinterpreted and treated as plural. Two developments in numeral phrases compared to Middle Welsh: (a) singular replaces the numerative and (b) the use of plurals after numerals is extended.
16th c.	The above processes continue: loss of unique numerative forms completed (except for <i>blwyddyn</i> ‘year’ which retains its numerative)
1650–1800	numeral + singular is the rule (except for <i>blwyddyn</i> ‘year’); examples of archaizing use of plurals after numerals in the 18th century

Table 5. Summary of the historical development of the Welsh numerative.

The Welsh numerative is a minor category in the sense that, even at its height, it applied only to a small subset of Welsh nouns. We have seen that these nouns are either high on the animacy hierarchy or denote units of time frequently counted. This distribution is not present in the input system of late Brittonic. Loss of final syllables in Brittonic left some nouns with distinct plurals, and others with a plural that had merged with the singular and/or dual; the choice was determined by declension class and thus originally had little semantic basis. The animacy constraint evidently emerged via differential application of analogical extension: animates and units of time resisted extension of the new numeral + singular pattern more robustly than other nouns; and, once an association with animacy became established, animates were more receptive to analogical creation of new numerative morphology. This case gives us an example therefore of how animacy constraints may be established and how they may, in effect, be historically contingent. Our sketch of other cases of numeratives (section 2.2) suggested that they too emerged in rather similar ways. The loss of the numerative is conditioned by two factors: distinctive numerative morphology (not syncretic with the plural) is lost first, and the system survives longest with kinship terms high

on the animacy hierarchy, and the high-frequency count item ‘year’. Thus, once the link to animacy is established, it guides the further historical development of the category.

Abbreviations

GPC	<i>Geiriadur Prifysgol Cymru: A Dictionary of the Welsh Language</i>
l.	line
OIr	Old Irish
ModW	Modern Welsh
MW	Middle Welsh

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Appendix. Numeratives attested once or rarely (for nouns which otherwise have the singular with numerals).

Singular	Plural	Text
aber ‘river mouth’	ebyr (deu ebyr)	‘Gwarchan Maeldderw’, <i>Book of Aneirin</i> (CA 55; no rhyme)
angel ‘angel’	engylion (can mil e.)	‘Armes Dydd Brawd’, <i>Book of Taliesin</i> (CC, poem 20, lines 145–6; end-rhyme) Cardiff 1.362 (<i>Brut y Brenhinedd</i>) [14c]
ban ‘top, tip, point’	bannoedd (pedair b.)	Peniarth 18 (<i>Brut y Tywysogion</i>) [14c]
brenin ‘king’	brenhinedd (deu f.)	<i>Book of Aneirin</i> , where <i>-geith</i> is part of end-rhyme (CA 44)
caeth ‘captive, slave’	ceith (wythgeith)	
celfydd ‘skillful; expert’	celfyddon (pumwnt/pump c.)	<i>Book of Taliesin</i> (LPBT 182 [l. 169] and 226; <i>-on</i> is part of end-rhyme).
ci ‘dog’	cwn (trychwn)	<i>Book of Aneirin</i> (CA 8; 14; 45; none participate in rhyme)
dafad ‘sheep’	defeid (teir d.)	Peniarth 29; Cotton Titus D.ii; Cotton Caligula A.iii; BL Add 14931 [13c]
dant ‘tooth’	deint (deu ddeint)	Cott. Cleo. B.v part 1 (<i>Brenhinoedd y Saeson</i>) [14c]
daw, dawf ‘son-in-law’	dofion (deu ddofion)	<i>Brut y Brenhinedd</i> , several manuscripts: NLW Peniarth 44, Llanstephan 1, NLW 5266 (<i>Brut Dingestow</i>) [13c]
dedwydd ‘happy; blessed’	dedwydd(i)on (deu ddedwyddion)	<i>Brut y Tywysogion</i> , several manuscripts: Peniarth 18; NLW 3035 (Mostyn 116); Jesus College 111 (Llyfr Coch Hergest); Peniarth 19 [14c]
dyledog ‘noble; nobleman’	dyledogion (tri d.)	<i>Gwaith Bleddyn Fardd</i> poem 54, l. 7; not part of compulsory rhyme
dyn ‘man, human being’	dynyon (tri d.)	Jesus College 111 (<i>Trioedd Ynys Prydein</i>) [14c] (same section has <i>tri dyn</i> with singular several times).
ewythr ‘uncle’	ewythredd, ewyrthedd (tri e.)	<i>Brut y Brenhinedd</i> , several manuscripts: NLW 5266; NLW Peniarth 44; Llanstephan 1; NLW 3036 (13c, 14c). <i>Tri ewythr</i> (sg.) normal elsewhere.
gwehydd ‘weaver’	gwehydd(i)on (tair g.)	Peniarth 20 (<i>Y Bibyl Ynghymraec</i>) [14c]
gwry ‘virgin’	gweryddon (tair g.)	<i>Marwolaeth Mair</i> , several manuscripts: Peniarth 14 (1–44) p. 29 [13c]; Peniarth 5, p. 39r; Jesus 119, p. 73r [14c]
gwrach ‘ugly old woman, crone, hag’	gwreichon (tair g.)	<i>Culhwch ac Olwen</i> , NLW Peniarth 4 and Jesus College 111 [14c].

huawdr 'gentle, kindly; kindly one'	huodron (dau huodron)	<i>Brut y Tywysogion</i> , in several manuscripts: Peniarth 18; NLW 3035 (Mostyn 116); Jesus College 111 [14c]
hynaf 'chief, elder'	hyneif (dau h.)	BL Add. 14931 [13c]
mach '(enforcing or paying) surety, guarantor'	meich	<i>Pedwar meich ar ugeint</i> 'twenty-four sureties' (BL Add. 14931; Cotton Titus D.ii) [13c]. Cotton Caligula A.iii [13c], Peniarth 35 and Jesus College 57 [14c] have <i>pedwar mach ar ugeint</i> with the singular.
maen 'stone'	mein (pedwar mein)	<i>LIDC</i> poem 18, l. 156 (end-rhyme) and l. 192 (no rhyme)
tarw 'bull'	teirw (dau d., tri theirw)	Peniarth 11 (<i>Ystoriaeu Seint Greal</i>) [14c]. <i>Tri tharw</i> with sg. is attested several times.
ŵyr 'grandson'	wyron, wryron (teir w.)	<i>Culhwch ac Olwen</i> , Jesus College 111 [14c]. Bromwich and Evans (1997: 143) suggest <i>teir</i> 'three' (fem.) is a mistake for <i>tri</i> (masc.) but it is not clear from the context whether grandsons or granddaughters are meant. The three are called <i>Och</i> , <i>Garm</i> and <i>Diasbad</i> , the latter two also being feminine common nouns, so a feminine interpretation seems likely.
ysgwyd 'shield'	ysgwydawr (cant y.)	In the poem 'Marwnad Rhun' (<i>EWSP</i> 424)
