# Goidelic inherent plurals and the morphosemantics of number

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Abstract

After numbers above 2, nouns are singular or plural depending on the language. But in Irish and Scottish some nouns must be singular and others plural, in a variety of dialectal patterns. Once the semantic basis underlying all these patterns is clarified, the ''irregular'' distribution of number in Goidelic fits neatly into the typological pattern of classifier constructions. Number seems arbitrary in some constructions, because that is where nouns are interpreted as transnumerals: apparent singulars are just numberless, and plurals are inherently plural stems. This provides a unified explanation for a host of constructions beside numeratives, and affords a deeper understanding of the way aspects of lexical semantics are encoded by number morphology.

## 1    Introduction[1]

While the Brythonic branch of Celtic has provided a wealth of material for the study of "special"

plural nouns (cf. Trépos 1957, Anderson 1986, Stump 1990), the morphology of nominal

number in Goidelic has received much less attention, because Irish and Scottish Gaelic nouns

apparently show little of interest apart from some irregularities in the distribution of grammatical

number after numerals. This paper argues instead that what look like minor idiosyncrasies in

these contexts reveal an important aspect of Goidelic grammar: the relative ease with which

nouns may lie beyond the number opposition, either as a lexical property or because of the

syntactic structure. This arises most conspicuously with unit numbers (3-10). I will argue that, in

Scottish, the nouns that exceptionally appear in the singular after these numerals are

syntactically classifiers, that look singular but are in fact numberless; while in Irish 3-10 *always*

require a classifier structure, with the result that nouns are generally singular (in fact

numberless) after them. Most of the exceptions involve nouns for which plural is an intrinsic

property of the stem. These Irish lexical plurals, traditionally seen as contextual variants of

regular plurals, illustrate a different type of classifier-like transnumerals: semantically interpreted as equivalence classes rather than as pluralities of individuals, they lie outside the inflectional opposition defined by the two number values available in the language.

The most important aspect that emerges from an in-depth analysis of these irregularities, behind the apparently capricious dialectal variation, is the systematic connection between semantic and morphological properties, which only fully emerges when the Goidelic data are placed in a wider typological context. Sections 2 and 3 address these issues. The interplay of semantics and morphology in Goidelic numerically quantified structures is analyzed in detail in section 2, where the irregular nouns are introduced that represent the main empirical focus of the paper. Section 3 will set the Goidelic data in a crosslinguistic context, making explicit the link with classifiers. This will lead to a precise semantic characterization of the nouns involved, followed by a detailed morphological analysis. The final part of section 3 articulates the claim that the numerals 3-10 govern classifier structures, with a few nouns in Scottish but generally in Irish; unit nouns are irregular either because they are numberless (Scottish) or because they are intrinsically plural stems (Irish). In either case, they are interpreted as equivalence classes. Finally, I will argue in section 4 that the notion of transnumerality helps to make sense of seemingly unrelated peculiarities of Irish and Scottish Gaelic in the distribution of nominal number, and to open up a new perspective in the analysis of Goidelic copular constructions.


2    The Goidelic evidence[2]

The grammatical number of nouns governed by numerals may seem to follow a simple pattern: singular after 'one', plural after anything above it: *one cow, two cows*. In fact, this is only a superficial impression, quickly dispelled by a glance at languages typologically different from English (cf. Corbett 2000: 211), or by a more careful examination of English itself: expressions like *three Euro, zero cows*, or *one point five degrees* show that the choice of number in this context is not entirely reducible to the simple opposition between one and many. The Goidelic

languages show a particularly complex interplay of morphological, syntactic, and semantic factors, made even more complex by dialectal variation. The main facts are presented in this section. Not all numeral constructions are relevant, and 2.1 will close in on the basic alternation: the grammatical number of nouns governed by the numerals 3-10. After presenting the general patterns, I will turn to the exceptions. The Scottish Gaelic facts are reviewed in 2.2, while Irish presents a more articulated picture requiring two subsections: 2.3 to complement the results of earlier studies with more dialectal data, and 2.4 to offer a reappraisal of the general points made in 2.1 in the light of this more comprehensive empirical basis. Finally, 2.5 sums up the conclusions of this descriptive overview, emphasizing the analytical questions that arise from it.

## 2.1    Irish and Scottish Gaelic nouns after 3-10

The Goidelic languages express numerical quantification through a variety of syntactic structures. A complete review of these structures should include, apart from the basic construction *Numeral + Noun*, cases where the numeral is not expressed (Irish *cat amháin* 'one cat', lit. 'cat only'), where the noun is not expressed (Scottish *a trì* 'three of them'), where the numeral has two constituent parts placed on either side of the noun (Scottish *trì cat deug* '13 cats', lit. 'three cat teen'), and where the quantified noun is preceded by the preposition 'of' (Irish *trí cinn de chait* 'three ones of cats'); in addition, Goidelic numerals include special collective forms like Irish *triúr* 'three people'. A syntactic analysis of quantified DPs in Goidelic should take into account the whole range of these constructions (see Greene 1992 and Duffield 1995); however, the interplay of morphology and semantics which represents the main empirical focus of this study only arises in the basic structure *Numeral + Noun*, in fact only for the units between 3 and 10. This is because Goidelic nouns are uniformly singular when they are governed by large round numerals like 20, 100 or 1,000 (a common typological trend), as well as after 2 (where the singular is replaced by a special form, historically an old dual, for a lexically

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restricted set of nouns). We can therefore concentrate on the behaviour of nouns governed by the unit numerals 3-10. In Scottish Gaelic, such nouns are normally plural:


(1)        3-10 N$_{PLURAL}$                (Scottish Gaelic)

           trì / ceithir / còig / sia / seachd / ochd / naoi / deich    cait

           three / four / five / six / seven / eight / nine / ten        cat.PL


In Irish, by contrast, they are generally singular:[3]


(2)        3-10 N$_{SINGULAR}$                (Irish)

           trí / ceithre / cúig / sé      chat        seacht / ocht / naoi / deich    gcat

           three / four / five / six      cat.SG      seven / eight / nine / ten        cat.SG


I must immediately add that the generalizations have different status in the two branches. While singular nouns after 3-10 have the status of exceptions in Scottish Gaelic, the picture is much less clear-cut in Irish. The normative standard and the pan-dialectal descriptions of Ó Siadhail (1982, 1989), as well as the studies by Greene (1974, 1992), state or suggest that plurals after 3-10 are exceptional, but data from the Ulster and especially Munster dialects (two of the three main dialectal groups) show that this statement is too strong.


2.2   Exceptions in Scottish Gaelic

The generalization "plural after 3-10" has two kinds of exceptions In Scottish Gaelic. The first is represented by nouns that take the singular, although they have a regular inflectional plural. *Là* 'day', here contrasted with the regular *oidhche* 'night', illustrates this pattern:


(3)   a     trì là / *làithean

3 day.SG / day.PL

b     trì *oidhche / oidhcheannan

3 night.SG / night.PL

Not many nouns behave in this way: Greene (1992: 532) lists *bliadhna* 'year' *ceud* '(one) hundred', *duine* 'person', *dusan* 'dozen', *fichead* 'twenty', *latha/là* 'day', *mìle* '(one) thousand'.

The second type of exception involves nouns with a special plural only used for counting; MacAulay (1992: 208) and Greene (1992: 532) give only one example, from the Lewis dialect:

(4)     bò 'cow'            crodh 'cattle'            còig ba 'five cows'

The suppletive plural *crodh* may be viewed as a collective form referring to cattle seen as an uncountable mass, like the English *cattle*.

Both kinds of exception involve nouns that have in some sense a privileged relation with numbers: units of the counting system (dozen, score, hundred, thousand) and nouns for concepts that can be used for measuring, whether they quantify livestock (cows), time (day, year) or the numerical strength of a group (people). Greene (1992: 532) refers to these as "substantival numbers" and "enumerators" respectively. Despite the intuitive plausibility of this description, however, a more precise semantic characterization remains elusive. Obviously, not all units of the counting system are irregular, nor are concepts like 'day' or 'person' intrinsically more countable than, say, 'night' or 'horse'. From a language-internal perspective, all that can be said is that if a noun deviates from the rule "3-10 govern the plural", then it is either part of the counting system or at least can be used as a standard unit of quantification. The implication only goes in one direction, and cannot be stated as "if singular after 3-10, then enumerator" (because the irregularity encompasses singulars as well as special plurals like *ba*).

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2.3   Exceptions in Irish: the main facts

The exceptions to the generalization (2) in Irish show a more complex pattern, subject to much dialectal variation. Here too, as in Scottish Gaelic, the irregularity consists either in a non-canonical value for grammatical number or in a special plural form for counting. According to the standard as described in the grammar of the Christian Brothers (GGBC 1999: 70), the following nouns must appear in the plural after 3-10, instead of the canonical singular:

(5)   *nouns taking the plural after 3-10 (Standard)*

ceann 'head (as a unit), one', cloigeann 'head (counting persons)', orlach 'inch',

troigh 'foot (measure)', slat 'rod (measure), yard'

Revealingly, the singular is compulsory when the meaning is not that of measurement:

(6)        bhí    trí cheann    ar an bhfathach

be.PAST 3 head.SG  on the giant

'the giant had three heads'

But Irish is especially rich in morphologically irregular plural forms used for counting. The grammar of the Christian Brothers (*ibidem*) lists the following:

(7)       | *singular* | *plural* | *plural after 3-10* |
|---|---|---|
| bliain 'year' | blianta | bliana |
| fiche 'twenty' | fichidí | fichid |
| pingin 'penny' | pinginí | pingine |
| seachtain 'week' | seachtainí | seachtaine |
| scilling 'shilling' | scillingí | scillinge |

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uair 'time, occasion'        uaireanta        uaire

More exceptions appear when dialectal usage is taken into account. The description of the Connacht dialect of Cois Fhairrge by De Bhaldraithe (1953 [1977]: 7) adds to these exceptions *scór* 'score' and *ubh* 'egg'; for Connacht generally, Ó Siadhail (1982: 102-104, 1989: 167-168) lists *bord* 'load', *ceathrú* 'quarter', *cloch* 'stone (of weight)', *dual* 'strand', *galún* 'gallon', *lámh* 'hand', *mála* 'bag(ful)', *punt* 'pound', *stór* 'storey', *ualach* 'load'. But it is with the Ulster and especially Munster dialects that the acceptability of plural after 3-10 becomes too widespread to be called exceptional. For Ulster, Ó Baoill (1999: 104) states that "singular or plural may be used although the usual number is singular" [my translation–PA]; he adds that some nouns are mostly plural, giving ten examples with morphologically regular plural and eleven with a special counting plural (almost all corresponding with the standard or with Connacht usage). For Munster, Ó Siadhail (1982: 102-104, 1989: 166-168) adds the following:

(8)      *singular*            *plural*            *plural after 3-10*

| singular | plural | plural after 3-10 |
|---|---|---|
| bád 'boat(ful) | báid | |
| fear 'man' | fir | feara |
| nóimint 'minute' | nóimintí | |
| punt 'pound' | púint | |
| réal 'sixpence' | réalacha | réal(t)a |
| turas 'time, occasion' | turais | |

Again, many more are uncovered by the thorough investigation of a single Munster dialect. The following (not exhaustive) list from Corca Dhuibhne is from Ó Sé (2000: 225-228):

(9)    *feminine:* bó 'cow', cnámh 'bone', maidean 'morning', méar 'finger', naomhóg

'coracle, small boat'.

*masculine:* capall 'horse', cos 'foot', dosaen 'dozen', focal 'word', fód 'strip of land',

piunt 'pint', soitheach 'vessel, jar', tigh 'house', bua 'life, gift', suíochán 'seat', gort

'field'

Staying with Munster dialects, Ua Suilleabháin (1994: 512) simply states that "In Cork and

Kerry 3,4,6 are followed by a plural with simple consonant [onset] or singular with lenition" [my

translation–PA]. As a reviewer notes, his examples feature a singular for a referential reading (*trí*

*mhallacht* 'three curses', lit. 'curse') and a plural for a measure (*trí bulóga aráin* 'three loaves of

bread'), from the same speaker.

2.4    Exceptions in Irish: their significance

The amount of exceptions obtained by piecing together observations about different dialects

gives an idea of the extent to which Irish can deviate from the canonical pattern "singular after

3-10". Taken together, these nouns both confirm and call into question some conclusions

previously reached on the basis of more restricted samples (cf. Ó Siadhail 1982, 1989). The

preponderance of terms of measurement or counting is an indisputable fact, as is the tendency

for special plurals to be "shorter" than regular plurals. In addition, although I have not indicated

it in the examples, most of the nouns in question are feminine. Ó Siadhail (1982: 103) interprets

as follows the concomitance of these factors: "Leaving aside *ceann*, *fiche*, *fear / cloigeann* which

are an integral part of the numeral system, and ignoring for the moment *punt* and *orlach*, all

nouns in question are feminine. Furthermore, they are either monosyllabic or dissyllabic and add

(consonant +) neutral vowel in the plural form used after cardinal numbers." After examining

some exceptions, he concludes (1982: 104): "It therefore seems reasonable to assume that, apart

from nouns forming an integral part of the counting system (i.e. *ceann*, *fiche*, *fear*, *cloigeann*),

there was a small group of 'measure units' which took a plural form after cardinal numbers. This

group was analogically expanded to various other units of measurement." This conclusion must now be qualified. Measure terms lie at the semantic core, but the list contains many nouns that simply are not measure terms, like 'morning', 'finger' or 'egg'. Just as in Scottish Gaelic, a precise semantic characterization remains elusive.

Consider now gender. Ó Siadhail's observation about the centrality of feminine is confirmed by the examples provided by Ó Baoill (1999: 105-106): of his ten examples of nouns that are typically plural after 3-10, nine are feminine (the exception being *ceann* 'head'); what is more striking, he also cites ten nouns that *never* appear as plurals, and they are all masculine. In fact, these are measurements or units of time: *bomaite* 'minute', *lá* 'day', *mí* 'month', *céad* 'hundred', *míle* 'thousand', *milliún* 'million', *scór* 'score', *acaire* 'acre', *punta* 'pound', *tonna* 'ton'. The similarity with the Scottish Gaelic list is striking (and not so surprising, given the geographic and historical connections between the two dialect groups), and it confirms the importance of measure terms. However, while in Scottish measure terms (including "enumerators") are the only nouns that can be singular after 3-10, Ulster Irish seems to make a distinction based on gender: nouns after 3-10 can be plural or (predominantly) singular, but those that *must* be singular are all masculine measures, and those that are *mostly* plural are mainly feminine measures. While the generalization "singular after 3-10" is an oversimplification, the Ulster data confirm the tight connection between feminine gender, measure semantics and plural number. Cross-dialectally, however, this connection is not so tight. Beside the few exceptions considered by Ó Siadhail (1982) and Ó Baoill's (1999: 106), it is again the Munster data that blur the picture. Here, too many nouns occur as plurals after 3-10, and they include too many masculines to think that feminine is the normal gender for such "exceptions". Overall, it remains true that Irish irregular plurals after 3-10 are mostly feminine, but not as overwhelmingly as would appear.

As for the shape of alternative plurals, Ó Siadhail's view follows the traditional distinction between "long" and "short" plurals, noting that all special forms (those restricted to counting)

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are "short". This is indeed confirmed by the dialectal data. It is not clear, however, in what sense forms like *feara* 'men' or *seachtaine* 'weeks' are shorter than the regular *fir* and *seachtainí*.

In sum, the exceptions to the pattern "singular after 3-10" in Irish display the following tendencies: (i) semantically, they cluster around a core made up of terms of measure; (ii) morphologically, they are predominantly feminine (but not in all dialects); (iii) often, but by no means exclusively, they are special forms that coexist with a regular plural used in all other contexts; (iv) when such a plural doublet arise, the plural used with numerals is normally shorter.

The systematic association between special plurals and shorter form has historical reasons, which should be briefly recalled here in order to better bring into focus its synchronic significance. As is well known, the nominal paradigms underwent some dramatic changes in the evolution from Old Irish to Middle and Early Modern Irish (from which both modern Irish and Scottish Gaelic developed). Old Irish followed the traditional Indo-European pattern whereby numerals above 2 governed plural nouns. Then, chiefly because of the phonetic erosion of final unaccented syllables, several previously distinct forms became homophonous. In tandem with the loss of some case distinctions, this led to the development of new endings to mark plural on nouns. In the Irish dialects, however, the context [3-10]_____ (where plurality was semantically implied) was the only one where the new endings were not introduced (Greene 1974, 1992), and this, in due course, gave rise to the pattern "singular after 3-10". The difference between Irish and Scottish Gaelic, like the great variety of plural endings among Irish dialects, is one consequence of this readjustment in the Goidelic nominal paradigms. The presence of distinctive "shorter" forms is another: short plurals are simply those which did not acquire a new plural ending to replace the older one. The question posed by the Irish plural doublets, then, is not why the "short" and the "long" forms exist, but why some nouns failed to generalize the singular after numerals and chose instead systematically the shorter of two alternative forms, *both of which differ from the singular*. Historical change can explain the rise of new plural alternants, not their remarkably systematic synchronic distribution. Why did "short" plurals survive along with

"long" ones, if they were distinct from the singular? What do they have to do with the context [3-10]_____, where they replace the regular singular? And just what significance have the traditional terms "long" and "short" in the synchronic morphological system of Irish?

## 2.5    Questions

To sum up so far, the choice of grammatical number on nouns governed by 3-10 in Goidelic is different in the two main branches, but in each branch the exceptions belong to a semantically homogeneous group, at whose core lie units of measure. Attempts to clarify this vague semantic intuition prove difficult, however, when a greater number of exceptions is considered than those mentioned in the previous literature. Above all, it remains unclear *why* these semantic and morphological properties should come together at all. The open questions brought up by this overview of Goidelic irregularities can be summarized as follows:

(10)  a  given that units of measurement are semantically at the centre of the relevant class,
          what is this class?
      b  why is there such a bias (but not an absolute rule) towards the feminine gender in Irish?
      c  why are Irish "short" plurals so systematically associated with counting?

My contention is that the subregularities in the distribution of Goidelic nouns after numerals can only be properly understood in a crosslinguistic perspective that takes into account morphology and semantics at the same time. An examination of related phenomena in other languages, to which I will now turn, will show that the mutual relation of gender, irregular number, morphological form and of a characteristic interpretation is not a fortuitous historical accident.

## 3     The morphosemantics of Goidelic classifiers

This section sets out the claim that the irregularities of nouns governed by 3-10 in Goidelic are just an instance of a general phenomenon: the relative independence from morphosyntactic number of nouns interpreted as units, or criteria for countability (as opposed to individuals). First, we will consider in 3.1 the consistent idiosyncrasy of classifiers and classifier-like unit nouns in languages different from Goidelic. The concept of unit noun is made semantically precise in 3.2, as nouns whose reference domain ranges over entities without distinctive individual properties. Only this semantic characterization adequately describes the range of irregular unit nouns which centre around measure terms but cannot be reduced to them. On these bases, I will argue that Irish counting plurals (and Scottish ones, where they are in use) are inherently plural stems with a specialized unit- or equivalence-class interpretation. As shown in 3.3, the preference for feminine gender ties in with the fact that other languages attribute the marked gender value (feminine) to nouns on which information about the individuality of the referents correlates with a special morphology. 3.4 shows that the morphology of Irish counting plurals systematically differs from that of regular ones, in that special plurals do not involve specifically plural suffixes. I take this to mean that they are intrinsically plural stems. Section 3.5 offers a syntactic implementation, based on the idea that unit nouns replace a noun's Number Phrase with a Classifier Phrase void of number features. The explanation for special plurals is the same for Irish and Scottish; while the different distribution of singular is traced back to a single morphosyntactic property of Irish numerals.

3.1   Unit nouns in a typological context

Despite their apparent syntactic identity, the expressions *two books* and *two litres* are semantically very different. *Books*, like any other referring noun whose interpretation admits of numerical quantification, denotes a set of units, each described by the predicate *book*. *Litre*, however, is not a referring expression in the same sense as *book*: it is a unit of measure, not an object, and therefore *two litres* does not denote a two-membered set of litre-elements, but a two-

litre amount of matter. As Bunt (1985: 74-81) explains, *two litres* is but one possible designation for an equivalence class of (liquid) matter, equivalent to *two thousand millilitres* or *3.5196 pints*: "Measures can be thought of as (partial) functions from (plural or singular) objects into real numbers" (Chierchia 1998). Given the special semantic interpretation of measure terms, it is no surprise that languages with otherwise obligatory number marking on nouns may often suspend the expression of the plural on them, typically when they are governed by a numeral. British (or rather European) English provides the most obvious example, with respect both to units of counting and other terms of measurement, especially of currency:

(11)  a     three dozen / score / hundred / thousand / million          (British English)

      b     three bob / quid / pound / grand / cent / Euro / stone / fathom

I used deliberately the cautious wording "may often suspend": some terms, like *thousand*, *Euro* or *pound*, appear in the singular after numerals only as a matter of tendency, not as a grammatical rule; others, like *bob* or *quid*, can never be pluralized, regardless of the context (*3 bobs* is as unacceptable as *a few bobs*; notice the plural determiner in the correct *a few bob*). This morphological restriction on *quid* and *bob* is matched by a semantic one, in that they can only be interpreted as abstract amounts. In this, *quid* and *bob* parallel *head* in the construction exemplified in (12), with the difference that *head* must be related to the mass noun *cattle*:

(12)        three head of cattle

*Head* in (12) has the function of a *classifier*: an noun-like element that mediates between a (typically numerical) quantifier and a mass or collective noun, articulating it into the units required by the quantifier. Classifiers are typical of East Asian languages, where all nouns are syntactically mass and therefore countability requires a separate expression. Classifiers can fulfil

this function either by specifying a measure, or by providing a label for what counts as an interpretive unit (see Cheng and Sybesma 1999, Löbel 2001). For example, in the following Mandarin Chinese phrases, *ba* defines a quantity of rice, while *zhi* provides a syntactic expression of countability for a noun whose reference is already semantically organized in units:


(13)  a    san ba mi                    (Mandarin Chinese; Cheng and Sybesma 1999: 515)

           3 handful rice

      b    san zhi bi

           3 CL pen


As is well known (Greenberg 1974), languages where classifiers obligatorily mark countability typically lack morphological number on nouns. And even in languages that morphologically mark plural number on nouns, nouns used as classifiers are singular, as in Turkish:


(14)       bes tane anahtar                           (Turkish; Lewis 1967: 80)

           5   CL   key.SG

           'five keys'


Revealingly, *head* requires the singular in its use as a classifier. More generally, it seems that all exceptional singulars of British English are amenable to an analysis as units of counting (like *million*), units of value (like *bob*), measures for amounts (like *pound*), or classifiers for mass nouns (like *head*). Of course, the implication goes in one direction only, because there are many unit nouns that are not irregular in this way (for instance, *mile* or *dollar*). We must conclude that, in English, the connection between interpretation as a measurement unit and irregular singular is not deterministically fixed by the grammar, except for some nouns (like *bob* or *quid*) and for *head* in the fixed phrase in (12). Note that the exceptional use of singular here discussed is

distinct from that in adjectival modifiers, like *three foot tall* or *six-day week*: although the singular in both cases is linked to measure nouns, its appearance after numerals is lexically restricted to a few nouns, while any noun can appear as a singular in the adjectival construction, provided it has a measure interpretation in that context.

German provides a richer exemplification. Like British English, it routinely employs the singular on numerically quantified units of measure and currency:


(15)     drei Mark / Pfund / Kilo / Gramm / Fuss / Faden

         '3 mark.SG / pound.SG / kilo.SG / gram.SG / foot.SG / fathom.SG'


In addition, German has several constructions in which a mass is articulated (without a preposition) by a unit noun which keeps the singular after numerals above one:


(16)     drei Sack Kohle          drei Glas Wein          drei Korb Kartoffeln

         '3 sack.SG coal'         '3 glass.SG wine'       '3 basket.SG potatoes'


Dialectal and idiolectal variation is very strong with respect to the (few) nouns that can act as classifiers in this way, and being a native speaker of German by no means implies acceptance of all structures in (16), or even of any one of them. But the phenomenon remains instructive, because it is systematic. If a classifier structure like (16) is accepted at all, it invariably involves a noun used as a measure corresponding to a standard amount of some mass, mostly a container.

But the role of the singular in German is not limited to units of measurement. In a third context, numerals above one govern singular nouns when these refer to homogeneous collections, the single members of which are conceptualized as equivalent:


(17)      drei Mann        drei Stück

3 man.SG          3 piece.SG

Truth-conditionally, *drei Mann* does not differ from *drei Männer* ('3 man.PL'), in that both refer to sets of sets of three men. But the phrase with the singular *Mann* is only appropriate if *Mann* is used as a unit of measure for a man-set of cardinality three, the members of which are conceptualized as having no individual identity.[4]

Reference to identity, in this informal sense, is crucial. It is the lack of individual properties that provides the semantic common denominator for the constructions considered in this section: units of the counting system, measures of quantity, classifiers, and undifferentiated members of a set in phrases like the German *drei Mann*. A more precise analysis of this interpretive property, to which we now turn, will enable us to see the Goidelic irregular nouns as an instance of a common typological pattern, whereby nouns with non-individual interpretation tend to lack association with inflectional number.


3.2    The semantics of unit nouns

All units of measurement are, by their own nature, equivalence classes. As Szabolcsi and Zwarts (1993) explain, expressions referring to amounts take their reference over algebraic structures that differ from those that underlie sets: in a set, single members must be conceptualized as distinct from each other (or else it would be impossible to count them), in such a way that the subset {a b} is a different entity from the subset {a c}. In algebraic terms, a set of distinct individual elements can be represented as a free join semilattice, that is, as a type of ordered relation between atomic elements and their sums (hence "join") with the property that all combinations of distinct elements give rise to distinct sums ("Freedom means that whenever two pairs of elements are distinct, their unions are distinct"; Szabolcsi and Zwarts 1993: 264). Amounts, by contrast, take their reference in *non-free* join semilattices, where not all pairs of distinct elements have distinct sums. Thanks to this formal property, non-free join semilattices

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can model the way amount units combine with other units to form bigger amounts, defined by the quantity of units they contain and not by their identity. For example, the amount 'two' in (18) is defined as the sum of [x] and [y], and 'three' as the sum of 'two' and [z]; but no relation is directly defined between [x] and [z] or [y] and [z]:


(18)                                 [x+y+z] (=3)

                    [x+y] (=2)

            [x] (=1)         [y]                    [z]
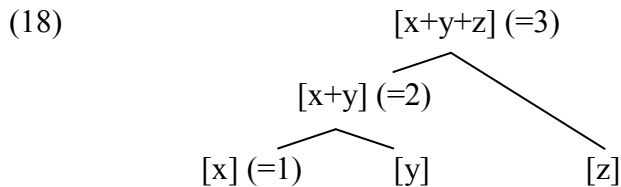

"Here [x], [y] and [z] are all unit-sized, though they are not unit-sized bits of concrete stuff, but arbitrary (and therefore abstract) unit-sized bits." (Szabolcsi and Zwarts 1993: 267). In so far as bits of matter can be said to have an identity (in so far, that is, as we can talk about the different parts of gold that make up a ring), substances and masses do not refer as in (18). But in so far as quantities are conceptualized as equivalence classes, their domain of reference has the structure of a non-free join semilattice, like (18). This encompasses units of counting and, importantly, also those classifier-like constructions where a noun provides a unit of measurement. The "unit-sized bits" of measure terms, whether they are purely numerical or define less abstract hierarchies (like monetary value or weight), define discrete entities that do not possess individual distinctive properties. But it is also possible to conceptualize factually individual entities, as opposed to abstract equivalence classes, as interchangeable units: such is the case of the German exceptional singulars *Mann* and *Stück* in (17), which refer to interchangeable entities without distinctive individual properties.

To clarify what it means to "conceptualize" discrete entities as undifferentiated, consider Guarino and Welty's (2000) enlightening distinction between "identity" and "unity":


(19)   Guarino and Welty (2000: 4):

"When something is an instance of a property *carrying* identity, it *can be identified*. If something is an instance of a property that carries unity, it is a *whole*. If something can be identified *and* is a whole, then we say it is an *individual*."

This principled distinction allows us to sharpen the definition of "unit-as-an-equivalence-class" that accompanies morphosyntactic irregularity after numerals: the nouns involved express properties carrying unity but not identity. These properties are therefore true of discrete units, but they do not provide criteria for attributing identity to any of these units.

We have thus reached a precise definition of the semantic counterpart of morphologically irregular nouns after numerals. What ties together measure nouns, classifiers and collections of "interchangeable units" (as in (17)) is the lack of distinctive individual properties associated with the lexical predicate; this explains why such nouns take their reference over a non-free join semilattice, that is the structure that models amount interpretations. In Goidelic as well as in English and German (and in classifier languages: see Greenberg 1974), measure terms represent the core case because they are the most typical equivalence classes. But it is not the interpretation as a measure that directly affects morphosyntax; the appropriate semantic common denominator is instead the lack of distinctive individual properties.

Beside explaining why irregular nouns systematically cluster around measure terms but are not limited to measure terms, the notion of non-individual units also explains the specificity of numerically quantified phrases and the somewhat fuzzy criteria for membership in the class, which results in inter- and intra-dialectal variation. As we have seen, a non-free join semilattice provides the reference domain for amounts; but in a numerically quantified context, many things can count as measures of magnitude. The reason why numerically quantified phrases are the likeliest contexts for nouns to display the morphological behaviour of unit nouns is simply that they are also the likeliest contexts in which nouns may carry no identity; and conversely, nouns that never carry identity criteria most typically occur in numerically quantified contexts, whether

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or not they are strictly speaking abstract measurements. The crucial property of the relevant nouns is that they is lack criteria for determining identity; but such criteria may be contextually provided (cf. Barker 1999), if the lexical property lends itself to such an interpretation. Purely abstract units of measurement, like *score*, *stone* or *quid*, do not lend themselves to be conceptualized as individuals in any context; but words may be bent into one interpretation or the other, depending on common usage, exactly as typically count nouns may be employed as mass or viceversa, in a way that is neither random nor deterministic (Allan 1980).[5]

## 3.3 Feminine as a determinant of Irish irregular plurals

As the notion of lack of individual identity has proven fruitful in clarifying why measure nouns are so common among Goidelic irregular plurals, we might wonder if something similar could clarify why feminine is so common among those nouns that, in Irish, stand out as irregular either because they take the plural after 3-10 (standard and Connacht dialects) or because they have special counting plural forms (standard, Connacht and Ulster; recall that in Ulster masculine measure nouns are also somewhat special because they cannot be plural after 3-10, unlike most nouns). The very fact that we are talking about a tendency, and one of uneven strength across dialects, makes a deterministic explanation highly unlikely. But feminine is the marked gender in a two-gender system like (modern) Irish; and there are, I think, good reasons why such a semantically defined class of nouns should tend to take the marked gender.

It is important to place, again, the Irish data in their appropriate typological context. A class of Italian irregular plural nouns (cf. Acquaviva 2002) provides a first, strikingly close parallel. Semantically, they resemble the Irish irregular nouns in comprehending units of measurement, nouns used as standard-sized quantities (often containers), and objects conceptualized as undifferentiated; this class includes members of collections where the set has greater perceptual salience than its constituent elements, parts of non-homogeneous masses, and

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objects which, like eggs, are distinguished by their spatio-temporal coordinates rather than by their intrinsic properties:

(20)    (some) Italian irregular plurals in -*a*:                          (Acquaviva 2002)

*paia* 'pairs', *centinaia* 'hundreds', *staia* 'bushels', *braccia* 'arms', *dita* 'fingers',

*lenzuola* 'sheets', *budella* 'entrails', *fondamenta* 'building foundations', *uova* 'eggs'

Morphologically, these Italian irregular plurals are more homogeneous than the Irish ones: they all end in -*a* (an isolated survival of the Latin neuter plural) and they are all feminine. Their gender would not be particularly striking if most of these plurals did not have a *masculine* singular, which is often accompanied by a masculine plural (regularly ending in -*i*), giving rise to paradigms like the following:

(21)    cervello 'brain; single organ'          MASCULINE SINGULAR

cervelli 'brains; plurality of organs'   MASCULINE PLURAL

cervella 'brains; mass, brainstuff'    FEMININE PLURAL

Acquaviva (2002) argues that the feminine plural in -*a* is a distinct lexeme, derived from the basic one by a word-formation process rather than by an inflectional operation. The role of gender is particularly relevant in this connection: whether or not items like *cervella* are really lexical plurals, their gender (a lexical feature) correlates systematically with a semantic characterization which is very similar, if not identical, to that of Irish special plurals.[6]

Feminine gender also plays a role in other semantically motivated word-formation processes. Simplifying somewhat, the nouns suffixed by -*enn* in Breton and the so-called "instance nouns" and "unit nouns" of Arabic (and of other Semitic languages) are both the outcome of a singulative derivation; in both cases, nouns are created which pair morphological

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features (feminine gender, for Breton also a specific affix) with the semantics of discrete units. In Arabic, feminine accompanies the derivation of count nouns out of mass ones, units out of collectives, and single event-nouns out of designations for stuff or activity predicates:

(22) a    baqar- 'cattle' – baqarat- (fem) 'cow'

labin- 'brickwork' – labinat- (fem) 'brick'  (classical Arabic; Hämeen-Anttila: 2000)

b    boos 'kissing' – boose (fem) 'kiss'          (Syrian Arabic; Cowell 1964: 297-299)

The close relation between this singulative derivation and classifiers is highlighted in the Omani dialect, where both structures are available in numerically quantified contexts:

(23) a    thalaath    baqraat                          (Omani Arabic; Greenberg 1974: 26)

       3          cow.FEM.PL

b    thalaathit    rwaas    baqar

       3          CL          cattle

'three cows'

In Breton, the match between gender and singulative reading appears even more clearly thanks to the feminine suffix *-enn*, which turns into discrete concepts not only mass and collective nouns, but also plurals which already have a regular inflectional singular form:

(24) a    plouz 'straw' – eur blouzenn 'a straw'     (Breton; Trépos 1957: 235-236)

b    stered 'stars' – eur steredenn 'a star'

c    bran 'crow', brini 'crows' – brinienn 'crow'

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Of course, one can always dismiss such examples of systematic match between gender and unit interpretation as accidents arising from the endings involved (as one reviewer suggests): singulatives use certain endings that happen to be consistently feminine in some languages (not all: in Welsh, for example, there are both feminine and masculine singulatives). This begs the question of why singulatives, when their gender is fixed, should select precisely those endings. I think what happens in Breton and Arabic is more likely to be an instance of semantic motivation for gender assignment, of the same kind as that operative in Italian irregular plurals. In these three examples, feminine gender is part of the output of a word-formation process that derives semantically homogeneous nouns: unit nouns for singulatives, plurals of weakly individual concepts for Italian. Feminine does not directly "mean" any of these things, but it makes a plausible candidate, as the marked gender value, for the value that must be explicitly specified by the word-formation rule.

My claim is that the association of Irish special plurals with feminine conceals a similar case of semantically motivated gender assignment. The role of gender is less direct in Irish, because here we are not talking about a set of derived nouns sharing a gender, an affix and an interpretation. Rather, the significance of feminine for Irish plurals after 3-10 is this: when it is exceptional for nouns to be plural after 3-10 (so, not in the Munster dialect), nouns that are thus exceptional are mostly feminine (and refer to weakly individual concepts). This correlation is especially noticeable with the special plurals only used after 3-10 (like *bliana* or *uibhe* 'years', 'eggs'), which are overwhelmingly feminine except for terms that are only used for counting (like *fiche* 'twenty'). Developing Ó Siadhail's (1982) insight quoted above in 2.4, I hypothesize that Irish has a set of unit nouns characterized as such not only by their meaning, but by their morphology too. Those nouns that must be lexically specified as taking the plural after 3-10 form a grammatically relevant class, marked by their meaning and by feminine gender; for several of them, also by the availability of a special plural form. The association with gender is

not the result of a deterministic grammatical rule, so that many nouns with similar interpretation do not fall into this category, and a few that are in this category are not feminine.[7]

The hypothesis, then, is that gender, meaning and morphosyntactic idiosyncrasy are all facets of a lexical marking on these nouns. A closer analysis of the morphology of special counting plurals, to which we now turn, supports this intuition.

3.4    Irish counting plurals as lexical plurals

As we saw in 2.4, Irish counting plurals are traditionally recognized as being "shorter" than regular ones. In most cases, this means that their plural exponent is a suffixed neutral vowel which takes on the [±back] value of the stem-final consonant (cf. 2.4 above), for instance palatal in *uair-e* 'times' and non-palatal in *blian-a* 'years' (whose singular *bliain* is however palatalised). In a few cases, the special plural is formed by simple palatalisation of the stem-final consonant: such is the case of *scóir* 'scores' and *cinn* 'units, ones', which in the western dialect of Cois Fhairrge contrast with the regular plurals *scórtha* and *ceanna* (De Bhaldraithe 1953 [1977]: 7).[8] Considering that vowel extension may combine with palatalisation (as in *ubh* 'egg' – *uibhe* 'eggs'), the exponence of plural on special counting forms reduces to the following:

(25)  *Irish "short" plurals:*

*—palatalisation* (scór / scóir 'score / scores)

*—vowel extension* (bliain / blian-a 'year / years')

*—vowel extension + palatalisation*  (ubh / uibh-e 'egg / eggs')

Consider now the range of plural exponents on regular nouns (cf. Ó Siadhail 1989: 149-164):

(26)  *Irish regular plurals:*

*—specifically plural suffixes*

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bus-anna 'buses', blian-ta 'years', scór-tha 'scores', seachtain-í 'weeks' ...

*—suffixes with stem extension*

uibh-each-aí 'eggs', uair-ean-ta 'times' ...

*—palatalisation*

fear / fir 'man / men', punt / puint 'pound / pounds', bord / boird 'table / tables'...

*—vowel extension*

lámh / lámha 'hand / hands', ceann / ceanna 'head / heads' ...


Clearly, special plurals use a subset of the morphological resources that mark plural on nouns. But the crucial point is that this is a very particular subset: palatalisation and vowel extension have widespread application in the Irish (and Goidelic) morphology, as exponents for a variety of functions. For palatalisation, Ó Siadhail (1989: 135-139) lists: genitive singular, plural, dative singular, vocative and comparative in nominal morphology, third person masculine for prepositional inflection (the list is longer if one considers palatalisation and depalatalisation as two values of the same rule). As for vowel extension, Ó Siadhail (1989: 140) says that "it plays an important role in the morphology of the noun and adjective", but he only gives examples of its use as plural on nouns (alone or in tandem with consonantal suffixes) and, in verbs, in the formation of the subjunctive. One can add the plural on adjectives, the genitive singular on nouns (cf. *muice* from *muc* 'pig', *ama* from *am* 'time') and the vocative plural on petrified expressions like *feara* 'men!'. The endings *-anna*, *-acha*, *-tha*, *-í*, *-ta*, *-nta* are different: with or without concomitant palatalisation or vowel extension, they are restricted to nouns and specifically signal plural (except for *-ta* and *-tha*, which enter in the formation of the verbal adjective: *scríobh* 'write', *scríobhtha* 'written'). These suffixes are category-specific mappings of sound and a specific meaning; palatalisation and vowel extension are not. In addition, plural suffixes other than palatalisation and vowel extension *nearly* always appear on so-called "strong" plurals, that is, plurals that do not formally distinguish nominative and genitive:[9]

(27)     strong plurals: (*bliain* 'year', *carr* 'car')

|  | *singular* | *plural* | | *singular* | *plural* |
|---|---|---|---|---|---|
| *nominative* | bliain | blian-ta | | carr | carr-anna |
| *genitive* | blian-a | blian-ta | | cairr | carr-anna |

Plurals distinguishing two case forms feature instead vowel extension and palatalisation:

(28)     weak plurals: (*fear* 'man', *muc* 'pig')

|  | *singular* | *plural* | | *singular* | *plural* |
|---|---|---|---|---|---|
| *nominative* | fear | fir | | muc | muc-a |
| *genitive* | fir | fear | | muic-e | muc |

Not all weak plurals are special counting forms; but all counting forms are weak plurals. Notice that doublets like *fir* ('men', regular) – *feara* ('men', counting form) and *seachtainí* ('weeks', regular) – *seachtaine* ('weeks', counting form) are no longer a problem, even though the counting form is not "shorter" than the regular plural. It is not essential for a counting plural to be literally shorter (although that is most common), but to express plurality through palatalisation and / or vowel extension.

Overall, there is strong evidence that the traditional "short" plurals are a morphological category with real synchronic significance. Such forms systematically eschew unambiguously plural suffixes and display instead palatalisation and vowel extension. Why?
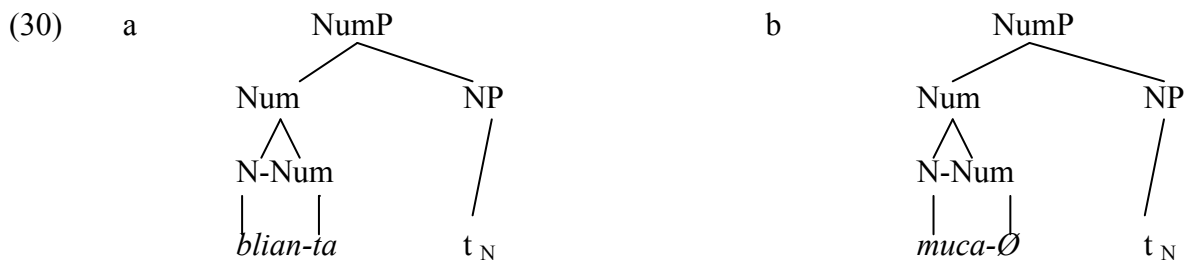
I think the reason is that plurality is a *lexical* property of these forms, associated with the stem itself and not brought about by association with a plural suffix. This morphological property correlates with the other properties that concern the lexical item as a whole, namely non-individual interpretation and feminine gender. Although a full-fledged syntactic analysis of

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Irish DPs (which should be based on more than just noun alternations after 3-10) is clearly beyond the scope of this paper, I would like to propose a schematic implementation of this intuition. Suppose, following much recent work since Ritter 1991 (for Irish, cf. Duffield 1995), that the locus for number features on nouns is a head [Number], distinct from the determiner:

(29)         [$_{DP}$  D  ...  [$_{NumP}$  Num  [$_{NP}$  N  ]]]

The observed differences between suffixes of strong plurals on the one hand and vowel extension / palatalisation on the other can then expressed as follows: the former, which are intrinsically plural affixes, spell out Num; the latter are instead stem modifications in the context of a [plural] Num. The regular plural *blianta* 'years', for example, is bimorphemic: *blian-* spells out N and *-ta* spells out Num (the linear order being derived by the movement of N to Num). The two combine when N raises to Num, and the resulting complex head then raises further up in the DP (which has more than the minimal structure sketched in (29); see chapter 5 in Duffield 1995 and references cited there). The exponents of weak plurals, by contrast, are not specific to nominal morphology. I would like to propose that they are not morphemes spelling out Num, but modifications on the stem itself in the context of a plural Num, like umlaut plurals (cf. German *Mütter* 'mothers' from *Mutter*). Crucially, this analysis extends to vowel extension plurals such as *muc-a* 'pigs', even though the final *-a* would appear to be a plural suffix. In my view, the *-a* ending of *muc-a* differs from the *-ta* of *blian-ta* or the *-anna* of *carr-anna* 'cars' because it is not by itself an expression of plurality, and *for that reason* does not appears on the noun on all plural case forms. It is instead a stem modification, contextually dependent on the presence of a [plural] Num head (which by itself is null) and, additionally, restricted to direct case as opposed to genitive. Since the DP-internal syntax is the same for strong and weak plural nouns (in particular, they both precede adjectives), the difference lies in the make-up of the [N-Num] complex, and not in the raising of N:

(30)    a

```
                NumP
              /      \
           Num        NP
           /\          \
        N-Num           \
        |   |            |
     blian-ta           t N
```

b

```
                NumP
              /      \
           Num        NP
           /\          \
        N-Num           \
        |   |            |
     muca-Ø            t N
```

The point is that *all* special plurals fall into the class of *muca* in (30b). Thus in my interpretation, *blianta* consists of N plus the plural suffix *-ta,* while the counting form *bliana* is an extended stem N (Num may be regarded as being spelled out by a zero morpheme, although I prefer to think it is not spelled out at all). Plurality is inherent to these stem forms, like gender; in this sense, the Irish special plural *uibhe* 'eggs' parallels the Italian synonym *uova,* morphologically as well as semantically. What sets counting plurals apart from other weak plurals like *muca* is the limitation to the context following 3-10. *Bliana*, therefore, is not just a plural stem; it is a plural stem that expresses the non-individual, equivalence-class unit reading discussed in 3.2. In sum, Irish counting plurals (and Scottish ones like *ba* in (4)) are lexically derived classifiers.

We now have some definite answers for the questions set out in (10) above:

— the nouns with irregular morphology after numerals in Goidelic are semantically clustered around units of measurement, because they conceptualize entities seen as multiple units, devoid of distinctive individual properties, and whose reference domain is a non-free join semilattice

— the association of feminine with these nouns is an instance of semantic motivation for gender, whereby a grammatically significant semantic class is associated with the marked gender in a binary system

— Irish "short" plurals are so systematically associated with counting because they are inherently plural stems, specialized for the "unit" reading.


3.5   The structure of Goidelic numeral expressions

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The results arrived at for counting plurals can now be placed in the more context of nouns following 3-10 in Goidelic. First of all, the decomposition of morphological properties envisaged by Distributed Morphology (Halle and Marantz 1993, Marantz 1997) affords a concrete morphological implementation for the notions of Number-less stems and inherent plurals. Assuming nouns to be made up of a category-neutral root embedded under a head [n], in turn embedded under Num, we obtain the following correspondences between morphosyntactic properties and syntactic objects:

(31)     ROOT                    category-neutral base; "core" lexical meaning

         [ n [ ROOT ]]           properties defining a noun

         [ Num [ n [ ROOT ]]]    noun with specified number

(The linear order is then reversed by application of head-adjunction.) The properties that define a noun independent of its syntactic context include gender; in this framework [n] is therefore the host for gender features, an important insight due to Kihm 2001. I have claimed that the "singular" nouns governed by 3-10 in Irish, like the Scottish "enumerators" in 2.2 above, are really bare nouns without Number; their structure is then [[ROOT ] n ]. What about special plurals like *bliana* 'years', which have the same structure but encode plural themselves? Recall that [n], being the repository of morphological information specific to a noun (not to a root), is also the best candidate for hosting number features when they are an inherent property of the noun regardless of the context. "Lexical plurals" can thus be defined as "nouns where [n] encodes [plural]". And, since [n] also encodes gender, it is no surprise that the marking of [plural] on [n] can be associated with a specific gender, like feminine in Irish special plurals. *Bliana* has therefore the structure [[ROOT ] n ], where [n] encodes [feminine, plural].

     This approach can now be implemented syntactically. Irish (and Scotttish) special plurals are effectively classifiers, or unit nouns that do *not* owe their plural marking to combination with

an affix that spells out Numº. In the analysis of Irish DPs proposed by Duffield (1995: 266-332), such elements fill a ClsP ('Classifier Phrase') projection below DP but above NumP; raising of the numeral (from inside the specifier of NumP) derives the order 'numeral – classifier, as in *trí bliana* 'three years':

(32)
```
                    ClsP
             Cls          NumP
       Numrl-Cls      spec        Num'
                  |
                  t        Numº          NP
           |_____|
```
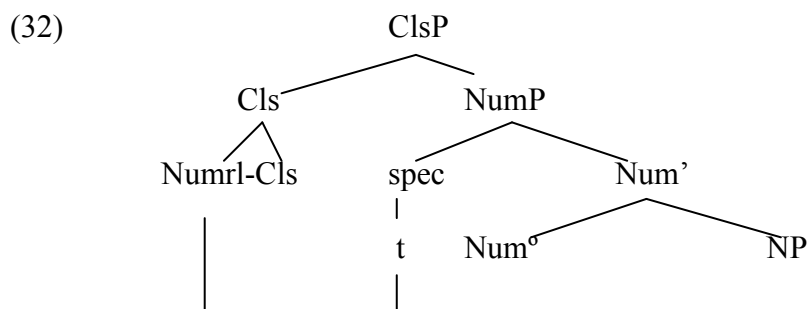
Duffield exemplified classifiers with *cinn* 'ones', which may plausibly be analyzed as generated in Clsº  rather than on Nº. But *cinn* is only one among special counting plurals; others, like *bliana* 'years', are clearly stem forms of lexical nouns. The key question is precisely the relationship between the lexical head Nº and the position Duffield called Clsº.

Without venturing into a complete analysis of noun phrase syntax in Goidelic, the facts reviewed about numeral structures allow certain conclusions to be drawn. Both in Scottish and in Irish, exceptions to the prevalent pattern of number assignment after 3-10 semantically qualify as "unit nouns"; obviously, the fact that lexical nouns can qualify as Clsº interferes with the encoding of number on Numº. In my view, the crucial shortcoming in Duffield's analysis is the failure to distinguish number as a property of DP from number as a property of the complex [[Root [n]], (for which I will keep the traditional label N). I will locate the former on Duffield's AgrP, a projection immediately below DP (Duffield 1995: 308-321), and the latter on NumP. Normally, the two agree; when unit nouns enter the picture, things can change. Both in Irish and Scottish Gaelic, DPs quantified by numerals above 2 are syntactically plural, a fact that is reflected in the obligatory plural number of a qualifying adjective in Irish, even when the noun it qualifies is morphologically singular:

(32)       trí chat dubha                                      (Irish)

          3 cat.SG black.PL

          'three black cats'


This must mean that the singular N must be dissociated from the expression of plural features for the whole DP, a conclusion already reached by Duffield (1995: 330). In both Goidelic branches, when N is governed by 3-10, the whole DP is plural, and therefore Agrº must be plural. In Scottish, N itself is also plural. This suggests that Numº is present as well, and it unsurprisingly agrees with Agrº in number. The fact that the only exceptions are unit nouns suggests that ClassifierP and NumP are mutually incompatible in Scottish:


(33)  ... [AgrP *trì*$_i$ *cait*$_k$ [NumP t$_i$ t$_k$ [NP t$_k$ ]]]     ('3 cats'; plural DP, plural N)        (Scottish Gaelic)

      ... [AgrP [ClsP *trì là*$_k$ [NP t$_k$   ]]]          ('3 day'; plural DP, singular N)


Assuming with Cheng and Sybesma (1999) that [Number] and classifiers are alternative syntactic expressions of countability, I propose to view Scottish singular "enumerators" as nouns that play the semantic role of unit expressions in a classifier construction, thereby avoiding the association with [Number] which is otherwise a morphological requirement of nouns (unlike in East Asian languages). The rationale of this analysis is that plural on [Number] expresses discrete countability, but nouns which can themselves be interpreted as pure criteria for countability (not as distinctive individual objects) fulfil the same function; if the morphology of the language allows it, they will not combine with [Number].[10] This results in what is superficially an irregular singular, which in fact is the numberless expression of a *transnumeral* noun (cf. Link 1998: 213-229). Only in the case of inherent plurals, like *ba* 'cows' in (11), is a

unit noun plural in this construction. This is because an inherent plural does not need Num in order to get plural features.

The Irish facts are more complex, as we have seen, but there is one crucial difference with Scottish. In Irish, the numerals 3-10 *always* require a classifier construction, regardless of the complement noun (recall that Duffield's analysis was devised for Irish).[11] There is some evidence for this claim: when a numeral has pronominal sense, as in 'three, three ones', it must govern a unit noun (typically *cinn* 'heads') in Irish, but not in Scottish:[12]


(34)  a    *a trì*                    (Scottish Gaelic)

      b    *trí cinn*                 (Irish)

           'three (ones)'


Since in Irish, unlike Scottish, the numerals 3-10 must govern a classifier head as a morphosyntactic requirement, we can state account for the pattern "singular after 3-10" quite simply: where this is the predominant pattern, NumP and ClsP are mutually incompatible expressions of countability, just as in Scottish. The crucial difference is that ClsP will always replace NumP, not as a matter of lexical selection but as a syntactic requirement of Irish unit numerals. Therefore, only the second of the two structures in (33) will be allowed, and the noun, without association with Num, will again look like a singular, while being in fact numberless (Num-less). The only nouns that can appear with plural morphology in this structure are inherent plurals, which in Irish are relatively many.

All that is required to account for the alternative pattern "3-10 + plural" is to say that ClsP and NumP are compatible in the relevant dialects (especially Munster). I must hasten to add that this is, unquestionably, an oversimplification. The idea might be correct, but it remains a pure stipulation unless it is supported by independent evidence—which I have not. Moreover, it predicts that 3-10 should always, or nearly always, be followed by the plural; while we have

seen that, even in Munster, plural is at most very common, but not exclusive. Therefore, I can only suggest it as a starting point for a satisfactory analysis of dialectal variation in Irish DP-syntax. Instead of pursuing this much more general topic, I will now turn to providing more empirical motivation for the notion of transnumeral nouns in Goidelic.

## 4    The transnumeral dimension of Goidelic nouns

If the grammar of a language allows nouns to be interpreted as  transnumeral, clearly enumerations are the likeliest context; however, it is not the only one in Goidelic. By reviewing a number of constructions in which nominal number seems arbitrarily fixed by grammar, we will now see that transnumeral nouns are more frequent in Goidelic than has been acknowledged.

### 4.1    Numberless N after high numbers and other quantifying expressions

To begin with, numerical quantification displays instances of grammatically determined "singular" that involve in fact transnumeral nouns. The most obvious example is provided by high (round) numbers like '20' or '100', which are themselves unit nouns acting as classifiers and are followed by "singular" nouns. Questioning the quantifier, as in *how many N*, also imposes the same partitioning over the domain of quantification of N. Irish does not have a quantifier like *how many*; its work is done by *cé mhéad*, a combination of the interrogative operator *cé* 'who, which, what' and the noun for 'amount'; *cé mhéad* thus means both 'how many' and 'how much'.[13] The crucial fact is that it always governs the "singular":

(35)       cé mhéad peann / *pinn?                                    (Irish)

           Q amount pen.SG / pen.PL

           'how many pens?'

In this context, *all* nouns take the singular; there is no question of exceptionally plural unit nouns or special counting plurals (*blianta* is here glossed SP-PL to distinguish it from regular plural):

(36)     cé mhéad blian / *blianta / *bliana?                    (Irish)

         Q amount year.SG / year.SP-PL / year.PL

         'how many years?'

But we can hypothesize that *méad* itself plays the role of unit noun, governing a transnumeral complement that comes very close to the interpretation of bare nouns in East Asian classifier languages. A more precise translation of (35) would thus be 'what amount of pen-property'.

Transnumerality offers the same solution to yet another instance of puzzling "singular" : *cúpla* + N, literally 'a couple of N':

(37)     cúpla peann                                           (Irish)

         'a few pens, a couple of pens'

Again, the singular is mandatory on all nouns, without exceptions:

(38)     cúpla bliain / *blianta / *bliana                     (Irish)

         couple year.SG / year.SP-PL / year.PL

         'a few years, a couple of years'

The interpretation proposed for *cé mhéad* extends to *cúpla* as well, if we take this as a grammaticalized unit noun acting as a determiner: (37) would then be something like 'a little-sized collection of pen-property'.

## 4.2 Collectives

The Brythonic languages are well known for possessing, alongside nouns that fall into the canonical number opposition, a sizeable minority of underived collective nouns, which are semantically non-singular but differ from plurals both morphologically and interpretively (in so far as they refer to complex ensembles with non-individualized parts). They can be brought back into the singular-plural opposition through singulative suffixation, as in the following Welsh examples from a much longer list in King (1993: 67-69):

(39)      *collective*           *singulative*            (Welsh)

           brics 'bricks'           brics-en 'a brick'

           coed 'trees'           coed-en 'a tree'

           dillad 'clothes'         dilled-yn 'an item of clothing'

           plant 'children'         plent-yn 'a child'

In Welsh, nouns firmly within the singular-plural opposition follow instead the opposite morphological pattern, whereby the plural is derived by adding a suffix on the basic singular form: *cath* 'cat', *cath-od* 'cats'. While not approaching the wealth of Brythonic languages, Goidelic languages too have many underived collectives; this applies particularly to Scottish, where the following (from Thomson's dictionary (1981)) are all singular: *amart* 'linen, sheets', *aodach* 'clothes', *briogais* 'breeches', *buar* 'herd', *deud*, *deudach* 'denture', *druaip* 'lees', *eunlaith* 'birds', *greallach* 'entrails', *greigh* 'herd', *grùid* 'dregs', *innidh* 'bowels', *luath* 'ash(es)', *poball* 'people', *pónair* 'beans', *sgamhan* 'lungs', *sgrioba* 'team, crew', *slaman* 'curds', *sluagh* 'people', *treud* 'herd', *trusgan* 'clothes'. Some collectives even feed a non-productive singulative derivation:

(40)      gràn 'grain', gràinne 'a grain'        (Scottish Gaelic; MacAulay 1992: 207-208)

falt 'hair', fuiltean 'a hair'

The singulative derivation is semantically equivalent to the "packaging" operation of classifiers and unit nouns. Scottish, indeed, also has of classifier constructions like (41a), but the most interesting type is illustrated in (42b), where the semantically count *ech* 'horse' identifies the property characteristic of the kind, leaving the discretizing function to the unit noun *beathach*:

(41) a    sil   uisge / bainne / leanna          (Scottish Gaelic)

          drop    water.GEN / milk.GEN / beer.GEN

          'a drop of water / milk / beer'

    b     beathach eich

          animal horse.GEN

          'a horse'

The frequence of "collectives" in the Goidelic languages accounts for another observation: they have very few *pluralia tantum*. This does not emerge from a count of such nouns (nor can it, given how difficult it is to give definitional criteria), but from the observation that nouns for mass-like aggregates, and even borrowings of *pluralia tantum*, are consistently singular:

(42)

| English | Irish | Scottish |
|---|---|---|
| 'trousers' | treabhsar | triubhas |
| 'scissors' | siosúr | siosar |
| 'measles' | bruitíneach | a' ghriùthlach |
| 'oats' | coirce | coirce |

Why should Goidelic be so reluctant to countenance nouns with a fixed plural value? The large availability of "collective" nouns as a transnumeral category provides an answer: given their interpretation, they express exactly the readings associated with *pluralia tantum*, namely masses, abstract concepts, or objects which, while ontologically singular, are conceptualized as aggregates and so (being plural) require classifiers to be individuated: *a pair of trousers*.


4. 3   Predicate nominals

To conclude, I would now like to speculate on the relevance of the transnumeral interpretation in the copular construction. In both Irish and Scottish Gaelic the copula *is* has a characteristic interpretation opposed to that of the verb of existence *tá* / *tha*:


(43)  a   *copula*                                                            (Irish)

         is fear é            'he is a man' (permanent property)

       b   *verb of existence*

         ta sé in'fhear      'he is a man' (transient or contingent property)


Since the semantic opposition correlates with the choice of two distinct verbs, the analyses of copular sentences in Goidelic (cf. Carnie 1995, Doherty 1996, Adger and Ramchand 2003) rightly focus on the interpretive distinction between the verbs and on the concomitant structural asymmetries (if any). I would like to suggest that nouns could not lend themselves so easily to the two distinct interpretations in these structures, if they could not refer to pure identity properties, without units, in a way that is normally precluded to count nouns in languages like English. In the copular (43a), for instance, the noun *fear* does more than provide a predicate: while (43b) simply asserts the subject's falling in the set denoted by the predicate, (43a) says something like 'being a man is constitutive of his identity; if he wasn't a man he wouldn't be the same individual'. Attributing a property in this way is like asserting 'he is the stuff of man', as in

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'this is water': and indeed the predicate is employed, basically, as a mass noun—even though the concept expressed by *fear* is no less "count" than that expressed by *man*. Notice that the copular construction makes no difference between a count predicate like 'man' and a mass one like 'water'; the verb of existence, by contrast, is only compatible with a mass noun on a stage-level reading like 'it has turned to water, it is water now':

(44)  a      is uisce é                                              (Irish)

          'it is water'

      b      tá sé ina uisce

          'it has turned to water' / * 'it is water'

Claiming that Goidelic predicate nouns can be "just like" the bare nouns of East Asian languages would be an oversimplification, if only because they, unlike the complements of classifiers, can be grammatically plural (contrast (43a) with *is fir iad* 'they are men'). But this alone does not disprove the point; the plural on the predicate may well be due to agreement with the subject *iad*, without the intermediary of a [Number] head. Be that as it may, the characteristic reading of Goidelic copular sentences is primarily due to the verb. But, I claim, this could not happen if nouns could not be interpreted as pure identity-properties in Goidelic much more extensively than would appear at first glance.

5      Conclusion

Transnumerality underlies several aspects of the grammar of Goidelic languages, unifying phenomena that would otherwise appear unmotivated and unrelated: choice of grammatical number after 3-10, presence of special counting forms, interpretation as unit of measure or as weakly individualized entity ('eggs'), use of "singular" with high numbers and other expressions of quantity, relative abundance of collectives and relative paucity of *pluralia tantum*,

interpretation as property in copular construction; for Irish, semantically motivated assignment of feminine gender, and absence of [Num] in the morphological structure of special counting plurals. When the crosslinguistic parallels are added to this list, the notion of unit nouns as a grammatically relevant class appears, at the very least, as an extremely useful concept. I have argued that semantic transnumerality has particular prominence in Goidelic, where unit nouns define a class with morphological and grammatical relevance. I must stress that this does not amount to a claim that transnumeral nouns form a distinct morphological category, along with those of singular and plural nouns; Goidelic morphology still distinguishes two numbers, not three. A parallel with dual may be useful: several languages that only oppose singular and plural show the effects of an older dual, in that nouns governed by 'two' are singular or take an irregular form (this is true of Goidelic, for example). Similarly, the binary number opposition that underlies the paradigms of Irish and Scottish nouns, pronouns, adjectives, prepositions and verbs shows sensitivity to a particular interpretation, which transcends the semantic opposition of singular and plural. What I have argued is that the relevance of this interpretation for Goidelic morphology and syntax is much greater than has so far been acknowledged, and justifies reference to transnumerality as a morphosemantic concept.

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## Notes

[1] I would like to thank two reviewers for valuable criticism. Thanks are also due to Aidan Doyle, Aifric McAodha, Máire Ní Chiosáin, Micheál Ó Flaithearta and Diarmuid Ó Sé, and to the audience of the fourth Celtic Linguistic Conference (Cambridge, September 2003). Shortcomings and errors are my own responsibility.

[2] I will have nothing to say about Manx, which seems to have been rather like Scottish Gaelic in the relevant respects, including use of the singular for "enumerators" (cf. Broderick 1993: 243).

³ The Irish examples must be split into two groups because of two distinct initial mutations triggered by the numerals in question. The official standard prescribes lenition from 1 to 6 and nasalization from 7 to 10; however, dialects differ from each other not only with respect to which kind of mutation is triggered by which numeral, but also with respect to which nouns exceptionally deviate from the general pattern (see especially Ó Siadhail 1982). Something similar happens in Scottish Gaelic, where lenition is triggered as a rule by 1 and 2 alone, and also by 3 and 4 for a restricted choice of nouns. The essential observation is that the patterns of mutation do not always coincide with those of grammatical number or morphological exponence, on which alone I will focus.

⁴ A reviewer insightfully notes that this use of the singular is incompatible with adjectival modification of the noun, even when the adjective is compatible with a measure-like interpretation (*drei bewaffneter Mann '3 armed man', *drei beliebiger Mann '3 random man', 'any 3 man'). S/He concludes from this that DPs like *drei Mann* and *drei Männer* have different structures. The conclusion may well be correct, but it does not follow necessarily from the impossibility of adjective modification. The cause may be semantic, not (or not only) syntactic: a noun interpreted as a measure function, rather than an individual entity (Chierchia 1998), would not seem to admit modifiers that are predicates of individuals. However, I agree that this semantic difference is likely to be structurally represented.

⁵ There may even be direct empirical evidence for the idea that Irish irregular plurals owe their morphology to a non-individual interpretation. Suppose a context highlights the individuality of a noun's referents; in this case, irregular nouns should behave like regular ones. Two native speakers from Connacht confirmed this prediction:


(i)     seo dhuit   trí *huibhe / ubh                        (Irish)

        here to-you  3  egg.PL / egg.SG

        'here's three eggs for you'


In this dialect, '3 eggs' is normally *trí huibhe* (the initial aspiration on *huibhe* is triggered by the numeral). I can see no other reason why *uibhe* should be replaced by the singular *ubh* here (significantly, not by the regular plural *uibheacha*) other than the deictic context, which favours an interpretation of the eggs as three physical objects rather than a quantified commodity. One speaker even found that adjectival modification is degraded when referents of the noun are explicitly distinguished from one another, unless both noun *and adjective* are singular (cf. (32)):


(ii)    trí     ubh éagsúil  /  * huibhe éagsúla                (Irish)

        3      egg.SG different.SG / egg.PL different.PL

'three different eggs'

Clearly, these judgments would require a more systematic investigation. But the point stands that, for at least some speakers, the grammatical number of a noun after 3-10 is affected by purely semantic factors.

[6] A reviewer objects that feminine might just be a by-product of the association with the ending *-a*, which is an exponent for feminine (but singular, not plural) in Italian morphology. Apart from the fact that this very association calls for an explanation, it is plainly untrue that the gender of these irregular plurals is a function of their ending. Acquaviva (2002: 296) shows that these nouns remain feminine even when the ending *-a* is replaced by an evaluative suffix like *-ino*, regularly *-ine* in the feminine plural (*ditine* 'small fingers').

[7] A reviewer points out that, if Irish irregular plurals are classifier-like forms distinct from the lexical nouns they are derived from, there is no basis for attributing feminine to them, or indeed any gender (since morphological evidence of gender requires modification by an adjective, which is impossible on unit nouns; cf. note 4). This suggestion is highly plausible; but it does explain in itself why the derivation should target mostly feminine nouns.

[8] *Cinn* might seem to involve ablaut rather than palatalisation. In fact, the back or front quality of a short vowel is determined by the [±back] quality of the following consonant in Irish (Ó Siadhail 1989: 36-37, Ní Chiosáin 1991: 137-144), so the *-i-* of *cinn* is due to the palatalisation of the stem-final consonant (cf. also Ó Siadhail 1989: 136 and 149, where *linbh* 'children' and *fir* 'men' are analyzed as the palatalised plurals of *leanbh* and *fear*).

[9] That suffixal plurals are strong is a very definite tendency, but not an absolute rule: *tobar* 'well', for instance, distinguishes a nominative plural *toibreacha* from a genitive plural *tobar* (Ó Siadhail 1989: 150).

[10] This raises the question why not all languages have structures like *three dozen*, and why not all measure nouns can be numberless (*three fathom*, but *\*three metre*). I have proposed the beginning of an answer in Acquaviva 2004.

[11] Although space does not allow me to discuss collective numerals like Irish *triúr* 'three people', it should be clear that the *-úr* morpheme has the function of a unit noun. Note that, unlike *trí*, *triúr* does not require a complement N.

[12] I have no analysis for the particle *a* in the Scottish Gaelic *a trì*; whatever it is, it is not a unit noun.

[13] (35) cannot have the structure 'how-many a pen' with a null indefinite article, as suggested by a reviewer, because *cé mhéad* also applies mass nouns and so cannot mean 'how many': *cé mhéad uisce?* 'how much water?'.