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Rare and endangered linguistic subsystems in Celtic and Welsh

Nelle lingue celtiche si osservano numerosi tratti rari e interessanti sul piano interlinguistico, ma tutti questi tratti sono minacciati dal numero sempre più basso di parlanti attivi. Ad esempio, nel caso del gallese, sebbene di recente questa lingua abbia mostrato segni di ripresa, le sue caratteristiche morfosintattiche più specifiche sembrano in declino oppure già estinte nell'uso dei parlanti più giovani. Questo contributo prende in considerazione alcune strutture delle lingue celtiche, il loro attuale stato di pericolo, e il caso di alcuni recenti sviluppi osservati in gallese.

1. *Introduction*

The Celtic languages are spoken on the western fringe of Europe: Welsh and Scottish Gaelic in Great Britain, Irish Gaelic in Ireland, and Breton in western France. These languages have a number of cross-linguistically rare and interesting features. Well-known are the mutations, changes to the initial consonants of words, the vigesimal counting systems, and several phonological features, including a voice opposition in liquids and nasals in Welsh, and systematic grammatical use of an opposition between palatal and non-palatal consonants in Irish and Scottish Gaelic.

However, all four surviving Celtic languages are endangered (Salminen 2003). Breton is classified as seriously endangered and will be moribund very soon; Irish and Scottish Gaelic are classified as endangered, with active speakers in the low tens of thousands and declining; only Welsh continues in use as the day-to-day language of a large number of speakers. Welsh has seen a revival in recent years: public pressure for recognition has resulted in widespread official use, the number of speakers has been increasing, and the proportion of young speakers is promisingly high. Superficially at least, Welsh seems vigorous and secure. The future of at least this one Celtic language, with

its interesting and unusual grammatical and phonological features, seems safe.

A closer look at Welsh though, reveals grounds for concern: the language is changing, becoming more like the English in which almost all Welsh speakers now are fluent. Lexical borrowing, calquing, perhaps incipient metatypy, mean that the language of many younger speakers is very different to that of the oldest generation. Each of the cross-linguistically rare features of Welsh belongs to a subsystem of the language which is itself endangered, in other words these features are recessive or already extinct in the language of younger speakers. Below I present some cross-linguistically unusual subsystems of the Celtic languages, and then look at how four of these are developing in present-day spoken Welsh.

2. *Cross-linguistically rare features of the Celtic languages*

2.1. *Phonemes*

None of the individual phonemes found in the Celtic languages are unique, but several are unusual, and there are two contrastive systems which are highly unusual in the world's languages.

The Celtic languages contrast voiced and voiceless consonants, and in Welsh this contrast[1] extends to liquids and nasals: cross-linguistically the Welsh phonemes /ɬ r̥ m̥ n̥ ŋ̊/ (spelt *ll, rh, mh, nh, ngh*) are individually rare, and to have the voicing contrast across the full set of liquids and nasals is very rare.

Though the voicing contrast does not extend to liquids or nasals in the Gaelic languages, they have in addition to the voicing contrast a thoroughgoing opposition between palatalised and velarised consonants (Chasaide 1999). This opposition is used not only for lexical differentiation, but also systematically in the verbal and nominal paradigms, e.g. in Irish the verbal noun (gerund) 'drink' has nominative singular /ɔl̪ʸ/ and genitive singular /ɔl̪ʲ/; the nominative singular for

[1] In Welsh 'voiceless' consonants are strongly aspirated and 'voiced' consonants have little or no voice, so the contrast is rather fortis / lenis or aspirated / unaspirated, see Thomas (1996: 758[b]) and Jones (2000: 32).

'boat' is /bʸæ̲dʸ/, genitive singular /bʸæ̲dʲ/. Historically, this gave Gaelic an unusually large number of liquid phonemes, including four laterals and four rhotics /l̪ʸ l̪ʲ lʸ lʲ ɾʸ ɾʲ rʸ rʲ/, and eight nasals /mʸ mʲ n̪ʸ n̪ʲ nʸ nʲ ɲ ŋ/, though few – if any – present-day dialects maintain the full range of contrasts.

2.2. *Consonant mutations*

The Celtic languages are well-known for their consonant mutations. Changes to the initial consonants of words are triggered by the morphological and syntactic environment. For example, the word for 'dog' can appear in Welsh as *ci, gi, nghi*, or *chi* /ki gi ŋi χi/, in Breton as *ki, gi, c'hi* /ki gi χi/; in Scottish Gaelic as *cù, chù* /kuː xuː/; in Irish as *cú, chú, gcú* /kʸuː xʸuː gʸuː/.

Consonant alternation, or ablaut, as such is not particularly unusual in the world's languages; even English has some marginal examples such as the *f/v* alternation in plurals: *knife-knives, leaf-leaves, self-selves*. The alternation in English is not productive: synchronically it is an irregularity confined to a few words. Historically it is a remnant of an earlier allophonic alternation conditioned by the phonological context. Such phonologically conditioned alternation is found productively in a number of languages including Hebrew, Finnish and Luo (Western Nilotic). In Finnish and Luo it occurs only word internally; in Hebrew it extends to all syllable-initial consonants, including word-initial consonants. Alternation affecting word-initial consonants only is more unusual, but still hardly unique. In Japanese, word-initial voiceless consonants are productively voiced under certain conditions if they become word internal, for instance in the common surnames *Yamazaki*, from *yama* 'mountain' and *saki* 'promontory', and *Honda*, from *hon* 'base' and *ta* 'paddy-field'.

Word-initial consonant mutation has been said to occur in Nivkh, a language isolate with about 400 speakers on Sakhalin island and the nearby Siberian mainland. However, the Nivkh alternation seems to be a case of sandhi rather than morpho-syntactically triggered mutation. Shiraishi (2004: 164) writes that a phonologically conditioned consonant alternation "applies cyclically to every left edge of a morpho-syntactic unit until the maximal projection is reached". In other words,

the type of consonant alternation (spirantisation, hardening or no change) is conditioned by the phonological context, and alternation applies to the initial consonant of every morpheme except the first within a syntactic phrase.

Several West African languages have initial consonant alternation of a more complex type. These are languages of the northern group of the Atlantic (or West-Atlantic) branch of the Niger-Congo family, including such widely spoken languages as Fula, Wolof and Sereer. Consonant alternation in these languages is bound up with inflexion and derivation of nouns and verbs. In Fula for instance, a set of consonants that alternate forms a series of three, a fricative, a stop and a nasal (McLaughlin 2006: 174):

fricative	w	f	r	s	y	h	y	w	?
stop	b	p	d	c	j	k	g	g	g
nasal	mb	p	nd	c	nj	k	ng	ng	ng

A particular prefix or suffix will require one member or another of a series. Alternation is operative as part of the noun class system, in nominal derivation and in verbal inflexion. The following example (from Lyovin 1997: 195) shows members of the *r*/*d*/*nd* series conditioned by three suffixes:

(1) ***r***awaandu — dog
dawaadi — dogs
ndawakon — small dogs

Sereer has only the fricative and nasal alternations. The following example (from Torrence 2005: 5) shows members of the series *r*/*nd* conditioned by prefixes:

(2) mexe ***r***etaa — I leave
oxe ***r***etaa — he leaves
inwe ***nd***etaa — we leave
owe ***nd***etaa — they leave

Consonant alternation in these languages is thus conditioned by the morphological environment: phonology has no part to play in the conditioning, and the system is of a different type altogether to those of Japanese and Nivkh, which are phonologically conditioned types of

assimilation and sandhi. This type of morpho-syntactically conditioned mutation seems to be found only in West-Atlantic and Celtic languages.

However, the initial mutations of the Celtic languages are far more complex and wide-ranging than anything recorded from other languages. They seem to be unique in being triggered by a variety of syntactic as well as morphological contexts, as well as being ubiquitous and therefore highly salient in the languages. In the million-word CEG corpus of written Welsh (Ellis *et al*. 2001), for instance, about one word in seven overall is mutated, but words beginning with vowels (a large proportion of closed-class words) or immutable consonants do not mutate and if these are excluded the figure rises to one in three. Mutations are thus an extremely salient part of Welsh (and other Celtic) grammar.

Welsh has three types of mutation, traditionally called soft, nasal, and aspirate: in Welsh orthography

Base	p	t	c	b	d	g	m	n	rh	ll
Soft	b	d	g	f	dd	Ø	f		ṙ	l
Nasal	mh	nh	ngh	m	n	g				
Aspirate	ph	th	ch				(mh)	(nh)[2]		

and in IPA

Base	p	t	k	b	d	g	m	n	r̥	ɬ
Soft	b	d	g	v	ð	Ø	v		r	l
Nasal	m̥	n̥	ŋ̊	m	n	ŋ				
Aspirate	f	θ	χ				(m̥)	(n̥)		

Each mutation is triggered by a variety of different contexts, though the most frequent textually and the only one sensitive to syntactic context is the soft mutation. Mutation triggers can be divided into three types.

[2] The aspirate mutations of *m* and *n* are in brackets because their status is different in two ways. Though normal in all dialects of spoken Welsh which have the phonemes /m̥ n̥/, they are not part of the written standard. Also, mutation is restricted to nouns following feminine and plural possessive pronouns.

The simplest type of trigger is the individual word. In all the Celtic languages, many closed-class words trigger a mutation in the following word, particularly prepositions, numerals, and possessive pronouns. In Welsh, for instance, each singular possessive pronoun triggers a mutation: first person nasal, second person soft, third person masculine soft, and third person feminine aspirate (see the table below).

	'Head'		*'Nose'*		*'Ear'*	
	pen	pen	trwyn	truɨn	clust	klɨst
1	fy mhen	və m̥en	fy nhrwyn	və n̥ruɨn	fy nghlust	və ŋ̊lɨst
2	dy ben	də ben	dy drwyn	də druɨn	dy glust	də glɨst
3m	ei ben	ei ben	ei drwyn	ei druɨn	ei glust	ei glɨst
3f	ei phen	ei fen	ei thrwyn	ei θruɨn	ei chlust	ei χlɨst

These mutations are lexically specific: it is an arbitrary fact of the language that the feminine pronoun *ei* or the numeral *tri* 'three' or the preposition *â* 'with' trigger the aspirate mutation though phonetically and semantically similar words do not.

The second group of mutation triggers is connected with the gender system. All the surviving Celtic languages have grammatical gender: nouns are either masculine or feminine, and feminine nouns are soft mutation triggers. There is some interaction with the case system in the Gaelic languages, but in general, adjectives modifying feminine nouns mutate, and feminine nouns themselves mutate after the definite article. Welsh, for instance, has two virtually synonymous words for 'cheek': *boch* is grammatically feminine and *grudd* is grammatically masculine. Using · to mark mutations in the glosses, 'the hairy red cheek' is either

(3a)	y	foch	goch	flewog	or	(3b)	y	grudd	coch	blewog
	ə	voχ	goχ	vleuog			ə	griðˑ	koχ	bleuog
	the	·cheek	·red	·hairy			the	cheek	red	hairy

These mutations are sensitive to constituent structure: it is not just any old adjective that mutates after a feminine noun, but only an adjective modifying the noun: a pretty girl's blouse can be either

(4a)	crys	merch	ddel	or	(4b)	crys	merch	del
	krɨs	merχ	ðel			krɨs	merχ	del
	shirt	girl	·pretty			shirt	girl	pretty

depending on whether it is the girl or the blouse that is pretty. In the latter case, the adjective *del* following the feminine noun *merch* does *not* mutate as it modifies the masculine noun *crys* ‘shirt, blouse’.

The third type of mutation trigger is linguistically the most interesting. The soft mutation is triggered in certain specific syntactic environments. One such environment is the object position of a finite verb:

(5)	prynodd	merch	grys
	prənoð	merχ	grɨs
	buy.PST	girl	·shirt
	‘A girl bought a blouse’.		

A noun phrase used adverbially mutates: ‘Monday morning’ is *bore Llun*; ‘on Monday morning’ is *fore Llun*:

(6)	awn	ni	fore	Llun
	aun	ni	vore	ɬɨn
	go.IMP.1PL	us	·morning	Monday
	‘Let’s go on Monday morning’.			

A right-shifted (heavy) noun phrase mutates:

(7)	mae	peswch	arnaf
	mae	pesuχ	arnav
	is	cough	on.me
	‘I have a cough’,		

but

(8)	mae	arnaf	beswch	sy	’n	gwrthod	gwella
	mae	arnav	besuχ	sɨ	n	gurθod	gueɬa
	is	on.me	·cough	is.REL	in	refuse	improve
	‘I have a cough which will not get better’.						

In some constructions right-shifting is almost obligatory, e.g.

(9)	mae	rhaid	imi	fynd
	mae	r̥aid	imi	vɨnd
	is	necessity	to.me	·go
	'I must go',			

where the noun phrase *rhaid mynd* 'necessity of going' is interrupted by the prepositional phrase. Other mutating environments include vocative and appositive for noun phrases.

The above description is of the standard written language. A survey in the early 1980's of mutation in the spoken Welsh of adults (Ball 1993: 203) found "no noticeable change in soft mutation triggering" between standard and colloquial Welsh. With the aspirate and nasal mutations, English-dominant speakers (mostly aged in their twenties) generally failed to mutate; Welsh-dominant speakers had only a "high" incidence of mutation and for many speakers, some individual lexical items "are no longer considered to be triggers of aspirate mutation" (Ball 1993: 197). Mutation in the colloquial spoken Welsh of 25 years ago was thus essentially as described above, though there was some degree of optionality in the aspirate mutation, at least with some triggers.

Mutation has until recently been productive in colloquial Welsh, so that the English phonemes /ʧ/and /ʤ/can be mutated in words borrowed into Welsh: at least in some parts of Wales forms such as /n̥jips/ 'my chips' /barɨn o ʤokled/ 'a bar of chocolate' (base forms /ʧips/ 'chips', /ʧokled/ 'chocolate') are standard.

2.3. *Vigesimal numerals*

All the Celtic languages traditionally use vigesimal counting systems, as in the following Welsh and Manx examples:

(10a)	deuddeg	ac	wyth	ugain	
	12	&	8	20	
(10b)	hoght	feed	as	ghaa	yeig
	8	20	&	2	-teen
	'172' (Ezra 2:3),				

or the Scottish Gaelic

(11) naoi fichead fear 's a deich
9 20 man & ART 10
'190 men' (Calder 1972: 128).

Grammar books, e.g. Calder (1972: 127-128), Hemon (1972: 43-44), present the systems as vigesimal, as in the examples above, up to 200, after which a hundred is used as an intermediate base. In practice, a hundred may be used as an intermediate base from 100 up, as in Manx:

(12) keead kaire feed as hoght
100 4 20 & 8
'188' (Nehemiah 7:26).

Higher bases are powers of ten rather than twenty, e.g. Welsh *mil* 'thousand', *milfil* or *miliwn* 'million', but multiples of these higher decimal bases are counted vigesimally, as in Manx and Welsh:

(13) shey feed thousane persoon
6 20 1000 person
'120,000 people' (Jonah 4:11).

(14) tair ar ddeg a saith ugain o
3 on 10 & 7 20 of
filoedd a chwe chant
1000.PL & 6 100
'153,600' (II Chronicles 2:17).

This is more than just a matter of vocabulary or grammar: conceptualisation of quantities is affected. Approximations are made in terms of twenties instead of the tens and hundreds which a decimal system imposes. The following Welsh example, using an approximation 'seven or eight twenties', expresses a thought that cannot be neatly expressed in a language with a decimal counting system:

(15) Erbyn amser y tren bydd rhyw saith i
by time the train be.HAB about 7 to
wyth ugain o bobl ifainc ar y platfform
8 20 of people young on the platform
'By the time the train is due, there are about 140-160 young people on the platform' (Morgan 1957: 13).

Rhetorical expressions too make use of the system, as with the repetition of *shey* 'six' in Manx:

(16) My ta shey, ny shey feed
whether is 6 or 6 20
'[Regardless of] whether there are six or 120' (*Carrey y Pheccah*).

The salience of 20 rather than 10 is supported by Hammarström (2005), who looks at the frequency of occurrence of different numbers in corpora of various languages. He finds that in English (in the 100 million word British National Corpus), frequency decreases with magnitude for numbers up to 100, but multiples of 10 have elevated frequencies, i.e. frequency peaks occur at 10, 20, 30, 40, etc. He notes that other research (particularly Jansen / Pollmann 2001) has shown a similar profile for some other European languages with decimal counting systems, and goes on to look at frequencies in corpora of some non-European languages with decimal counting systems, which again show similar profiles. Welsh however is different: his count of frequencies of multiples of 10 in the million-word CEG corpus (Ellis *et al*. 2001) shows multiples of 20 (i.e. 40, 60, 80, 100) to be clearly more frequent than the others. The concept of the 'round number' (Sigurd 1988) is of course relevant here. Round numbers are more frequent textually because they have an additional function: they can express approximations as well as exact quantities. Sigurd suggests that the roundness of a number is related to the base system used, but in his paper only discusses the decimal systems of Swedish and English. Jansen / Pollmann (2001), building on earlier work by Dehaene / Mehler (1992), show that the frequency distributions of numbers from 2 to 1000 are similar in corpora of newspaper articles in Dutch, German, French and English. They show too that the numbers used to express

approximations are similar in these four corpora, and that one simple function of the magnitude of a number and its use in approximations predicts its overall frequency well in these four languages. The roundness and frequency profiles for numbers 2-1000 are hence the same for these four languages. They go on to attempt a mathematical characterisation of the concept of roundness in these languages, and their formula is crucially based on the number 10. Hammarström's result suggests that even in late twentieth-century written Welsh, 20 is more salient than 10 here: the interlinked areas of roundness, approximation, and frequency distribution are in Welsh a function of the number twenty.

Vigesimal systems are by no means unique to the Celtic languages but, as Comrie (2005: 210) writes, "we live in a basically decimal world". Not only do the great majority of languages use decimal counting systems, also the decimal system is dominant in almost all parts of the world. One exception to this is central America, which is overwhelmingly vigesimal. The Classical Maya civilisation there had advanced mathematics and a written notation for numbers, all entirely vigesimal. The modern autochthonous languages of this area continue to count vigesimally. Elsewhere, vigesimal counting is found in several languages of West Africa and in several languages of New Guinea, and some modern Romance and Germanic languages have vigesimally-based vocabulary items (such as French *quatrevingt*) in a basically decimal system – perhaps deriving historically from the Celtic substratum.

Several other features of the Welsh counting system, in particular, are cross-linguistically very unusual, such as the use of 15 as an intermediate base for the numbers to twenty:

(17) pedwar ar bymtheg
4 on 15
'19'.

Subtraction is used in only a few languages other than Welsh:

(18) pedwar ugain namyn un
4 20 – 1
'79' (Thomas 1996: 298),

(19) Bu cant namyn dau o gynadleddwyr
were 100 – 2 of conference-attendees
'98 people attended the conference'.

Finally the use of half-bases is common to all the Celtic languages:

(20) hanner cant ac un
half 100 & 1
'51',

(21) Dwy fil a hanner
2 1000 & half
'2500'.

2.4. *Inflected prepositions*

In all the Celtic languages, prepositions inflect for person and number. In Welsh there are three or four paradigms to which a preposition may belong: two are shown below, exemplified by *ar* 'on' and *wrth* 'to, by':

	singular	*plural*	*singular*	*plural*
1	arnaf	arnom	wrthyf	wrthym
2	arnat	arnoch	wrthyt	wrthych
3m	arno	arnynt	wrtho	wrthynt
3f	arni		wrthi	

The endings are similar to those of verbal paradigms, and as with verbs a pronoun may be used with the inflected preposition, e.g. 'on me' is either *arnaf* or *arnaf i*. In the Gaelic languages, the forms do not co-occur with independent pronouns; instead there are emphatic suffixes which may be added to verbs or prepositions.

Portmanteau forms combining preposition and pronoun are not unique in the world's languages, they are found for instance in Hebrew and in Maori. However, in these languages the forms are transparent combinations of preposition and pronoun: the Celtic system of inflexion on the verbal model does not seem to be found elsewhere.

3. *The decline of the Celtic languages*

A century ago the Gaelic languages were already in sharp decline: Manx was already moribund, spoken only by the older generation; Irish had already receded to the western fringes of Ireland, and Scottish Gaelic to the highlands and islands of Scotland. The Brythonic languages were in a better condition: though Cornish had died out in the eighteenth century, Welsh was spoken by almost all Welsh people outside the Anglicised south-east of Wales, and Breton by almost all inhabitants of Upper Brittany, the traditional Breton-speaking area. Welsh had about a million speakers, more than ever before, and Breton probably half as many again. A large proportion of these Welsh and Breton speakers were monoglot.

The last native speaker of Manx died thirty years ago. All the other languages are now classed as endangered, with Breton seriously endangered (Salminen 2003). The classification is based on number of speakers, number of active speakers (who use the language in their daily lives), transmission to younger generations, and trends over recent generations. A 'seriously endangered language' is one with a substantial number of speakers but practically without children among them. Breton may have as many as 300,000 competent speakers, but most are elderly and only about 5% use the language on a daily basis (Texier / Ó Néill 2000). Hardly any children speak the language. Breton will disappear as a community language in the near future if things continue as they are.

The 'endangered' classification includes languages "with some children speakers at least in part of their range but decreasingly so" (Salminen 2003). Scottish Gaelic is certainly endangered in this sense: it has been in continuous decline for several centuries, and the most recent census figures show a further decrease in numbers of speakers, most particularly in the Gaelic-speaking heartland of the Outer Hebrides. MacKinnon (2004: 109) describes the situation as one of "scarcely retarded free-fall", noting that "the dominant pattern is of rapid sequential intergenerational decline in use of Gaelic." In the Western Isles administrative district, which MacKinnon characterises as the "heartland" area for Gaelic, the 2001 census records only 45% of 3-15-year-olds as knowing Gaelic, compared to 68% twenty years

previously (1981 census). Altogether, about 58,969 people in Scotland know Gaelic (MacKinnon 2004) and about 20,000 to 30,000 of these are active users (Salminen 2003).

The number of speakers of Irish Gaelic is difficult to know. The language is taught in schools in the Irish Republic and people with some non-native competence vastly outnumber native speakers, making interpretation of census data difficult. Hindley (1990) conducted an independent survey in 1989 and estimated the number of fluent native speakers at less than 10,000. At the same time Ó hEithir (1991) independently produced a similar estimate of 10,000 native speakers. Salminen (2003) estimates (fluent) speakers at less than 20,000. It seems then that fully competent speakers number between ten and twenty thousand. Larger estimates are probably counting people with some knowledge of Irish. Ethnologue (Gordon 2005) gives 355,000 speakers; the great majority of these will be English speakers who learnt a bit of Irish at school but will never become active speakers. Likewise, the great majority of the 1.6 million speakers recorded by the Irish Republic's census of 2002 will be English speakers who have taken a few Irish lessons. The Irish government has put a lot of effort into preserving the Irish language. Though they have succeeded in keeping knowledge of the language alive amongst the population, Irish continues to decline as a community language.

Though the number of Welsh speakers declined sharply during the first half of the twentieth century, and less sharply in subsequent decades, more recently the number has stabilised, and the last census recorded a slight increase. Pressure on the British government from the 1960's on brought about a change in government policy and in public perceptions of the language resulting in widespread official use of Welsh in education, in the media, and in government business. The 2001 census records 582,368 Welsh speakers: 21% of the population of Wales, or 25% of those born in Wales (a proportion which has hardly changed in the last 40 years). Percentages for children are considerably higher than those for adults, reflecting the growth of Welsh in education: a non-trivial portion of these Welsh-speaking children are not native speakers. A survey commissioned by the Welsh Language Board in 2004 (Bwrdd yr Iaith Gymraeg 2006) suggested that an amazing 73% of Welsh-speaking children had learnt Welsh outside the home, and that

only 44% of Welsh speakers under 16 thought themselves fluent. Most of the remainder will be English speakers who have learnt some Welsh at school. The survey found that 88% of speakers classifying themselves as fluent used Welsh every day, but that even amongst non-fluent speakers under 16, nearly 40% used Welsh every day, suggesting that a good proportion of the second-language learners may go on to be active speakers. Overall, the proportion of speakers who used Welsh every day was 62%, suggesting that Welsh has about 361,068 active speakers – if 'active' can be equated with daily use.

Of course the results of the 2001 census were not all welcome. The proportion of Welsh speakers in the heartlands of north and west Wales continues to decline, due to massive immigration and to emigration of Welsh speakers to the new political and administrative centre of Cardiff and its hinterland, which until recently were entirely English-speaking. There are now few places left in Wales where one can live one's life entirely in Welsh, as was possible over much of Wales until only a few years ago. No doubt the total amount of Welsh spoken each day has diminished as Welsh speakers are obliged to use English to communicate with non-Welsh speaking neighbours, co-workers, and shop-keepers – the Welsh Language Board's survey found that outside the home, 60% of present-day Welsh-speakers' conversations are in English.

4. *'Endangered subsystems'*

Language endangerment has been a much-discussed topic in recent years. A large proportion of the world's languages are in danger of extinction in the near future. What has hardly been noticed until recently is that even if a language as a whole is healthy and in no danger, subsystems of that language can be replaced by those of contact languages.

Wohlgemuth (2006; cf. Wohlgemuth / Köpl 2005: 178) uses 'linguistic subsystem' as a "cover term for any morphosyntactic or semantic pattern, feature, categorial expression or construction that is a part of a language's grammar and/or lexicon". Linguistic subsystems, like languages as a whole, are subject to change. It has recently been

demonstrated (Wohlgemuth / Dirksmeyer 2005) that such change can lead to situations where a subsystem of a language is abandoned though the language as a whole is not. Such subsystems include counting systems, honorifics, naming conventions, directional expressions, writing systems: each may be replaced in a language which remains otherwise vital. Wohlgemuth (2006; cf. Wohlgemuth / Köpl 2005: 178, 185) suggests that it is cross-linguistically unusual subsystems in particular that are under threat: "languages undergo adaptation to a more widespread type by abandoning a cross-linguistically rare type of subsystem, which thereby becomes rarer". Further, "while language change generally can occur without influence from outside the speaker community, changes pertaining specifically to endangered subsystems usually tend to be either motivated or at least reinforced by other, external factors" (Wohlgemuth 2006; also Wohlgemuth / Köpl 2005: 183). This fits the Welsh case, where it seems to be the increasing presence of English that is driving the changes in present-day Welsh.

One of the reasons that linguists find the loss of a language sad is that one less language in the world means that much less data for linguists to work with in their investigation of the human language faculty. Endangerment of subsystems is important for the same reason: if a rare subsystem becomes rarer, it becomes that much more difficult to investigate. It is unlikely for instance that we will ever understand the place of number in language: decimal counting systems are assumed to be normal and natural, but non-decimal systems exist, and there is evidence that there were many more in the past, with a variety of bases other than ten (Comrie 2005, discussed below). The data for a proper investigation of these systems are no longer available.

5. *The unusual subsystems of Welsh are endangered*

Present-day spoken Welsh is changing quickly. The speech of older people is very different to the speech of many younger speakers. Most of the changes are in the direction of the English in which almost all Welsh speakers are now fluent, which most Welsh speakers use extensively in their daily lives, and which is the dominant language of most young Welsh speakers. One aspect of the change is that several of

the cross-linguistically unusual subsystems of Welsh are disappearing from the spoken language of the present day.

At least one subsystem conformed to the English pattern long ago. Traditional Welsh names consisted of Christian name and patronymic, e.g. the poet Dafydd ap Gwilym /ˈdavɨð apˈ guilɨm/ was Dafydd the son of Gwilym, the poetess Gwenllïan ferch Rhirid /guenˈɬian verχ ˈr̥irid/ was Gwenllïan the daughter of Rhirid. This traditional naming system was still used in parts of west Wales at the beginning of the nineteenth century but patronymics have now long given way to English-style surnames.

5.1. *Phonology*

The three voiceless nasal phonemes /m̥ n̥ ŋ̊/ are marginal in Welsh in the sense that they hardly occur other than as mutated forms of other consonants. They occur word-internally in words with a prefix which triggers the nasal mutation, e.g. *annheilwng* /anˈn̥eiluŋ/ 'unworthy' from *an+teilwng*, and they occur word-initially as results of the nasal and aspirate mutations. A few words such as *nhw* 'they, them', *Nhad* 'Dad' and *nghariad* 'darling' have a radical initial voiceless nasal as a result of reanalysis of assimilated or mutated forms.

Not all dialects of Welsh have these phonemes: in south-eastern dialects /r̥ m̥ n̥ ŋ̊/ have merged with /r m n ŋ/ (and /h/ has been lost). Over most of Wales though, all these phonemes are contrasted, and they are prominent in prescriptive norms for formal written and spoken Welsh. There is evidence though that the voiceless nasals are becoming increasingly disused in modern spoken Welsh throughout Wales.

Jones (1998) compares the speech of various age groups in two communities, Rhosllanerchrugog /r̥osɬanerχˈrɨgog/ in north and Rhymney /ˈr̥əmni/ (spelt *Rhymni* in Welsh) in south Wales. She looks at a number of specific variables in her informants' speech, including several relating to the consonant mutations. The dialect of Rhymney, well to the south-east, traditionally does not have the phonemes /m̥ n̥ ŋ̊/ or /h/, although several of the examples Jones quotes do contain voiceless nasals, and /h/, indeed incidence of /h/ is one of the variables Jones looks at. However Jones' findings on incidence of mutations are likely to apply equally to those dialects with firmly established voiceless nasals.

Jones looked at mutation after the words *fy* 'my' and *yn* 'in', which both traditionally trigger the nasal mutation. In both Rhosllanerchrugog and Rhymney, speakers under 20 used the nasal mutation only about half the time. Sometimes they used the soft mutation instead, often there was no mutation. Jones quotes two earlier surveys supporting this finding. Speakers under 20 had completely lost the aspirate mutation of /m n/ to /m̥ n̥/, although the oldest speakers retained it consistently. Since these mutations are the major contexts in which the voiceless nasals occur, loss of the mutations would reduce their functional load close to nil.

This conclusion is supported by a count of frequencies of voiceless nasals in some Welsh corpora. Three corpora were examined: the one-million word CEG corpus of recent written Welsh (Ellis *et al*. 2001); a corpus of 52,404 words of adult conversation (Deuchar 2004); and a corpus of about 133,841 words of conversations of seven-year old children (Jones 2006). Though the CEG corpus is carefully constructed and should be representative of recent written Welsh, the two spoken corpora were assembled for specific purposes and are not necessarily representative of present-day spoken Welsh in general.[3] However, any bias in these two corpora seems to be towards speakers from the more solidly Welsh-speaking parts of Wales and towards speakers from more educated families, who are likely to be more influenced by the norms of traditional Welsh, and less likely to show the features being argued for here.

Inspection of the contents list and content of the written corpus shows that the spelling and mutations of most included texts are largely traditional. Since Welsh spelling is nearly phonemic, it is a simple matter to count the voiceless nasals: they occur at a rate of about once per 87 words. This can be taken to represent the approximate incidence

[3] The CEG corpus is a sampled corpus of modern written Welsh comparable to the English Brown and LOB corpora. Deuchar's corpus was collected for research into code-switching in spoken Welsh, see Deuchar (2005). It consists of transcriptions of spontaneous (unscripted) conversation, half recorded from broadcast radio interviews, and half informal, mostly between university staff and students. Jones' corpus consists of transcriptions of recordings of children playing together. An adult investigator was present at each recording session but took a minimal part in the conversations, so that the speech is almost all child to child. The corpus actually covers age-groups from three to seven, but only the seven-year-olds' conversations were used here, assuming that by this age acquisition of phonology and mutation would be complete (cf. Ball *et al*. 2005; Gathercole / Thomas 2005).

in traditional Welsh. In the spoken corpora, a voiceless nasal occurred once per 94 words in the speech of adults, and once per 2,624 words in the speech of the seven-year-old children. In the adult conversation, the single word *nhw*, the colloquial third-person plural pronoun, accounts for three-quarters of the voiceless nasals, though there is a lot of variation between speakers. *Nhw* is comparatively rare in the written corpus. In the children's speech it is outnumbered seventy to one by a new voiced variant *nw*. Hence the incidence of the voiceless nasals decreases from traditional Welsh, to the Welsh of adult speakers, where for many speakers it is maintained largely by a single word, to the speech of children, where it seems negligible. It is often said (most famously by Martinet 1955) that small functional load leads to loss of an opposition, though empirical studies have tended to cast doubt on this (Surendran / Niyogi 2006). On the other hand the appearance of voiced *nw* in the children's speech is suggestive.

5.2. *Mutations*

As noted above, Jones found the nasal mutation little used, and the aspirate mutation of /m n/ absent, in the speech of younger speakers. In general, she found mutation in decline with younger speakers, saying "while still used in a historically appropriate way by two-thirds or more of adult informants, the soft mutation was far more unstable amongst the younger generation who, in most cases, omitted it altogether" (1998: 59). This comment relates to speakers in Rhymney, but Rhosllanerchrugog was similar except that mutations "were retained to a greater extent as the age of informants increased" (Jones 1998: 164). Jones looks at mutations after individual words (prepositions and possessive pronouns) and mutations relating to feminine gender, and finds both affected.

Again a count of mutations in the three corpora examined above backs Jones up. As mentioned earlier, one in three mutable words are mutated in the CEG corpus of written Welsh.[4] The adult conversations

[4] The counts for the written corpus are based on the manually checked tags provided with the corpus, and so are likely to be accurate. The counts for the spoken corpora are based on the output of an automatic morphological analyser (Phillips 2001, §2.3) designed for conservative written texts, and are likely to be less accurate, particularly with the children's speech.

have a somewhat lower one in five, but the children have far fewer: less than one in twelve mutable words are mutated in the children's conversations.

A look at the actual usage of mutation in a sample of the corpus texts gives a more detailed picture. In the adult conversations, only lexically triggered soft mutation was well maintained. Lexically triggered nasal mutation was maintained after *fy* 'my' and occasionally after *yn* 'in', though as Jones found, it was here sometimes replaced by soft mutation and usually absent altogether. Lexically triggered aspirate mutation was well maintained only after the feminine possessive pronoun *ei* 'her'. Although Ball (1993: 197) found aspirate mutation after the conjunction *a* 'and' to be fairly well maintained by Welsh-dominant adults 25 years ago (over two-thirds of opportunities), there were here only 29 instances in 138 opportunities, all but two of these from professional speakers speaking publicly. Gender-triggered soft mutation was moderately well maintained for nouns with female referents, and for a few common feminine nouns with inanimate referents, but was otherwise absent. Syntactically triggered soft mutation was rare except for a verbal noun used as object of a modal verb, e.g. *lledu* 'to spread' in

(22) Gallai 'r frech goch ledu
could the measles ·spread
'Measles could spread'.

In the children's conversations, the same tendencies could be seen, but with much less mutation overall.

Two ongoing changes in Welsh syntax affect the incidence of mutation importantly. Welsh has a genitive construction used to mark possession, association, or the object of a verbal noun. The dependent follows the head noun if a full noun phrase, and precedes the noun if a pronoun:

(23a) trwyn merch
nose girl
'a girl's nose'

(23b) ei thrwyn
her ·nose
'her nose'

Possessive pronouns are mutation triggers as listed above in §2.2. For emphasis, a free pronoun may be added after the head noun:

(23c) ei thrwyn hi
her ·nose she

In present-day spoken Welsh the possessive pronouns are increasingly disused: either the pronoun is dropped leaving just the mutation:

(24a) thrwyn
·her.nose

(24b) thrwyn hi
·her.nose she

or, increasingly commonly, the syntax with a pronoun is the same as that with a noun:

(24c) trwyn hi
nose she

With the possessive pronouns a major set of triggers for the aspirate and nasal mutations are lost.

An important syntactic trigger was the object position of finite verbs, but finite main verbs are increasingly replaced in modern Welsh with periphrastic constructions using auxiliary verbs. In the spoken corpora I could find no example of a noun as object of a finite verb. The dominant pattern in the modern spoken language is for the main verb to be a verbal noun as object of a preposition marking aspect

(25a) Mae o 'n mynd
is he in go
'He is going'

(25b) Mae o wedi mynd
is he after go
'He has gone'

The mutation here, if there is one, is a lexical one triggered either by the preposition – neither *'n* nor *wedi* trigger mutation – or by a possessive pronoun marking an object:

(26) Dan ni 'n ei gladdu heddiw
are we in his ·bury today
'We bury him today'

An alternative pattern, commonest in the past tense is for the main

verb to appear in the form of a verbal noun as object of the auxiliary verb:

(27) Aru ni ddeud helo
did we ·say Hello
'We said "hello"'

Soft mutation of the verbal noun is expected here, as in the example. It is difficult to judge whether this mutation is generally maintained, because of the interaction with possessive pronouns. In most examples in the corpus the verb has a pronominal direct object, e.g.

(28) Aru o godi o
did he ·raise he
'He raised it'

Here there is soft mutation of the verbal noun *codi*, but whether this is due to an elided possessive pronoun (see above) or to the syntactic function of the verbal noun, is impossible to say. In other examples there is soft mutation even when the putative elided possessive pronoun would not trigger it, e.g.

(29a) Aru ni glywad ein hunan yn siarad
did we ·hear our selves in speaking
'We heard ourselves speaking'

The traditional form here would be:

(29b) Aru ni ein clywad ein hunan yn siarad
did we our hear our selves in speaking

with the possessive pronoun *ein* which does not trigger mutation. In yet other examples there is no mutation even when both possessive pronoun and syntactic function would require it, e.g.

(30) Aru ti tynnu o
did you pull he
'You pulled it'

Here the expected soft mutation of the verbal noun *tynnu* is absent. It seems then that mutation in these cases is simply optional.

In conclusion, it can be said that, on the one hand mutation is losing its peculiarly Celtic characteristics and becoming more like the simpler type of mutation in the West-Atlantic languages; and on the other hand, mutation in general is becoming optional.

5.3. *Vigesimal numerals*

Comrie (2005, §4) cites numerous examples of a language's counting system being replaced by that of a contact language. His examples include the widely spoken languages Thai and Japanese, both of which use Chinese numerals, Thai exclusively and Japanese for numbers above 10. Non-decimal counting systems are particularly at risk; the loss of many has been documented and perhaps most of those remaining are in danger. Comrie remarks that "we are probably already in a situation where so many numeral systems have died out that what remains is only a pale reflection of the 'human potential' with respect to numeral systems" (2005: 229). He also notes that "the traditional vigesimal numeral system of Welsh [...] has been replaced for most purposes for most speakers by an artificial transparent decimal system" (2005: 228). In fact there are three numeral systems in use in modern Welsh: the increasingly rare vigesimal system, now pretty much obsolete for numbers above about 30; English numbers; and the decimal system that Comrie mentions.

English numerals came to be widely used in Welsh largely as a result of the expansion of English-medium education to all classes of Welsh society from the late nineteenth century. Though many would learn Welsh literary skills at Sunday school, numeracy came to be associated with English, and several generations of speakers have been more at home with English than with Welsh numerals. It is common today to hear English numbers used in spoken Welsh, particularly for numbers above ten or twenty.

However, a Welsh system of decimal counting also exists. The system seems first to appear in print in an arithmetic textbook of 1832 (Thomas 1832, cited by Roberts 2000). It was probably deliberately invented a few years previously in response to a feeling that the

traditional numerals were awkward for announcing the numbers of hymns to be sung at religious services (Roberts 2000: 49): something corresponding more closely to the decimal Arabic notation printed in the hymn books had been needed. The new system had little influence in Wales at the time, but in the Welsh colony established in Patagonia in 1865, children were educated entirely in Welsh, and to ease the teaching of arithmetic using the decimal Arabic numerals, the decimal system was adopted by the schools there (Jones 1997: 312).

Above ten the new system follows the Arabic notation closely, perhaps reflecting its origins as a way of reading Arabic numerals aloud:

1 un	11 un deg un	21 dau ddeg un
2 dau	12 un deg dau	22 dau ddeg dau
3 tri	13 un deg tri	23 dau ddeg tri
4 pedwar	14 un deg pedwar	24 dau ddeg pedwar
5 pump	15 un deg pump	25 dau ddeg pump
6 chwech	16 un deg chwech	26 dau ddeg chwech
10 deg	20 dau ddeg	30 tri deg

This system was adopted in Welsh-medium schools in Wales in the twentieth century. It has gradually ousted the traditional system, not only in schools but in everyday speech as well. Roberts (2000: 54) remarks that the vigesimal system is increasingly less common, exceptions being people's ages up to thirty and clock time, at least when read from an analogue clock. He notes a policy in the media that vigesimal numerals may be used up to 30, but decimal ones for higher numbers.

Personal experience suggests that many present-day Welsh speakers have difficulty understanding the vigesimal numbers: older speakers will use them for telling the time, but use English for higher numbers; many younger speakers know only the decimal system.

5.4. *Inflected prepositions*

Jones (1998: 71, 176) notes that for speakers under 60 in Rhymney, in nearly three-quarters of cases where an inflected preposition might

have been expected, an uninflected preposition was used with a pronoun. Loss of inflexion was less pronounced in Rhosllanerchrugog, but still accounted for about a third of cases in speakers under 40.

A look at the commoner prepositions in the two corpora of conversations did not entirely back this up. The adults almost always used the inflected forms where appropriate, with only six exceptions in over 200 examples. In about 300 examples in the children's conversations, about a sixth were an uninflected preposition with a pronoun. Most of the children's exceptions, and all the adults', were with the prepositions *o* 'from' and *ar* 'on'. Failure of inflexion was not confined to a few speakers: most speakers who produced failures of inflexion also produced inflected forms. The difference from Jones' results is probably areal: the speakers here are almost all from more solidly Welsh-speaking areas than Rhosllanerchrugog or Rhymney. It would seem clear that the system of inflexion is breaking down, becoming optional, but that it is by no means moribund yet.

6. *Conclusion*

The Celtic languages share a number of cross-linguistically rare and interesting features, but the surviving Celtic languages are all endangered, monolingual speakers are probably no longer available, and it has seemed that these interesting features may not be available for direct study for much longer. Welsh still has a reasonably large number of speakers, and recent political changes and census results have suggested that it is safe for the foreseeable future. However, Welsh is changing. For various reasons, including the large number of English-dominant and non-native speakers, and the increasing penetration of English into the everyday life of all Welsh-speakers, the grammar of Welsh is accommodating to that of English, and in the process losing those unique and cross-linguistically rare features which make it such an interesting language.

The subsystems of Welsh examined in the second part of this paper are all declining, both in the sense that they are used now less than they were, and in the sense that younger speakers use them less than older speakers. The rates of decline are different however:

Subsystem	*formal written*	*older speakers*	*younger speakers*
inflected prepositions	obligatory	maintained	optional
voiceless nasals	obligatory	maintained	rare
mutation	obligatory	mostly maintained	mostly omitted
vigesimal numbers	rare	rare	not used

Wholesale change of a language's grammar in conformity to the grammar of a dominant contact language has been studied by Ross (forthcoming and references therein) under the rubric of metatypy, with this definition:

> Metatypy is a diachronic process whereby the morphosyntactic constructions of one of the languages of a bilingual speech community are restructured on the model of the constructions of the speakers' other language. [...] The constructions of the replica language are changed through metatypy so as to match those of the model language in meaning and morphosyntax. (Ross 2007: 116)

Metatypy happens because it enables a language to be a badge of identity for its speakers without being too much of a mental burden. Ross quotes Nadkarni (1975: 681):

> Bilingualism is, after all, a psychological load – not so much because it requires knowing two language systems, but because, in a situation of intensive bilingualism, one is called upon to conduct communication through these two distinct systems all the time, using now one system and now the other. In such a situation, the tendency towards lessening the psychological load is quite natural; and this sets processes in motion whose result is a gradual convergence of systems in a speaker's head.

Welsh has not yet reached the stage of word-for-word intertranslatability with English which could be called metatypy, but there is certainly widespread calquing, resulting in ever-increasing similarity to English.

Why does it matter whether Welsh becomes grammatically identical to English? Obviously, to the average speaker, it does not. English-speaking visitors and immigrants in Wales note the strange phonemes /ɬ χ/, both of which are frequent in place-names and hence on road

signs, and that the vocabulary is very unlike English, and are convinced that Welsh is an exotic and difficult language. The discovery by linguists that the "rare Welsh tongue-twister" /ɬ/ "that makes Welsh so special" is used in another language (Tera, in Nigeria) merited a substantial article in a Welsh newspaper (Rees 2005). Hence Welsh serves as a badge of identity. As long as Welsh continues effectively to communicate what its speakers want to say, the changes to the grammar are of little interest to them. Consonant mutation might possibly be salient as an essential marker of the Welshness of Welsh, and therefore something that speakers would consciously try to preserve, but simplification of the triggers would not be a problem. It might have been supposed that the counting system would have been salient enough to the average speaker to be worthy of conscious preservation, but the traditional Welsh numbers are typically seen as old-fashioned and ill-suited to the modern world. Perhaps the point here is that the change of counting system conforms not to English but to an international decimal system of written notation.

To the linguist, the loss of such unusual features as the vigesimal counting system is important because it makes research into such features that much more difficult. The grammatical workings of the counting system can be investigated from written texts, but it is probably already too late to be able to investigate the psycholinguistic aspects, the effects on a speaker's cognitive system: there are probably now no speakers left who naturally 'think vigesimally', who are 'vigesimal dominant'.

Welsh will survive for the foreseeable future, but some of those features of grammar which make it interesting and unique seem unlikely to be part of the language for much longer. This is perhaps not important to the average Welsh speaker; it is a small but important loss to the science of linguistics.

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