

# Minority Language Survival: Obsolescence or Survival for Welsh in the Face of English Dominance?<sup>1</sup>

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## 1. Introduction

*Cymraeg*, Welsh, is one of the two surviving languages that formed the Brythonic branch of the Celtic family of languages. All of the four modern Celtic languages—Welsh, Breton (Brythonic), Irish Gaelic, and Scottish Gaelic (Goedelic)—are under threat of extinction. Centuries of political and social pressures from the English and French have contributed to their decline, both in status and usage (Dalby, 1998). Such pressure has led to the near-obliteration of Manx and Cornish. (Manx is a Goedelic language of which only a few hundred speakers remain, most of whom learned it as adults, although some claim to have learned it as a first language from their grandparents. Cornish is a Brythonic language that died out in the 18<sup>th</sup> century; however, it has since undergone a revivalist movement—Crystal, 1994). Due to such pressures, most native Welsh speakers (excluding infants) are by now Welsh-English bilinguals. However, although “the history of the Welsh speaking population in the 20<sup>th</sup> century is a history of decline” (Baker, 1985: 1), recent efforts towards reviving the language have resulted in a promising increase in the number of speakers at the dawn of the 21<sup>st</sup> century. Adults living in Wales have been encouraged to learn Welsh as a second language, with over 13,000 adults reported to have attended Welsh language classes in 1993 (Jones, 1998). There has also been an increase in bilingual education over the past century. The Education Act of 1988 ensured that Welsh was an obligatory subject in all secondary schools in Wales, and since 1996, Welsh has been compulsory in the primary schools (Davies, 1999). This has undoubtedly affected the success of the revitalization process. Welsh is currently spoken by approximately 600,000 speakers—21% of the population of Wales (2001 Census data). However, the future of the language remains uncertain. Although Welsh seems to be in the strongest position for survival of all the Celtic languages, in many areas Welsh is becoming less of a community language. Such is the impact of this decline that, for many people living in Wales, the imminent death of the language is a foregone conclusion.

All the surviving Celtic languages—Welsh, Breton, Scottish Gaelic, and Irish Gaelic—have retained most of their Celtic characteristics, one of which is their relatively unique<sup>2</sup> mutation system. When language death is underway, it is possible to assume that grammatical categories or syntactic structures that are present in the minority language but that are not present in the dominant language will be the most likely to undergo change or decay. The mutation system is one such system. However, in cases where language shift is underway—where “a new language is gradually replacing the original language of a community” (Dorian, 1981: 114) —the remaining speakers of the original language of the community often display differing abilities with the language; this is especially relevant within the adult population. Recently, Jones (1998) has suggested, from a comprehensive study of linguistic change in two sociolinguistically contrasting Welsh communities, that language obsolescence is underway in Welsh in Rhosllannerchrugog and Rhymni. A key piece of evidence for this death is observed differences in adults’ abilities with grammatical gender (and with other constructions) in Welsh at distinct ages. Older adults’ speech was found to retain the use of more consistency of forms and greater conformity to the expected norms than that of the younger speakers. However, these two communities studied by Jones are communities in which Welsh is spoken by a very small minority.

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<sup>2</sup>The uniqueness of the mutation systems of the Celtic languages has been challenged, however (see e.g., Ball & Müller, 1992; Willis, 1990).

There are some contrasting areas in North Wales where bilingualism is dominant. These areas are under-represented in the literature on language obsolescence to date. An important question to address, therefore, is whether the processes of language death observed in some areas of Wales apply to areas where Welsh occupies a more prominent position in the community.

The data discussed in this paper focus on the linguistic construction of grammatical gender. We will begin by giving a description of the mutation system, and its role in gender marking in Welsh. As will be seen, the constructs in question are extremely complex and opaque. Their description will be followed by a discussion of the normal “natural history” of complex constructs in normal language change, along with those expected in the “dying” situation. A summary of Jones’ (1998) findings will then be presented, followed by data on speakers’ productive and receptive abilities with gender constructs in the North Wales context of Gwynedd and Anglesey (or *Ynys Môn*). The county of Gwynedd, located in the northwest region of Wales “forms part of what is termed the heartland of the Welsh language” (Lindsay, 1993: 1); it is also home to the largest density of speakers (Crystal, 1994; Aitchison & Carter, 1994; Jones, 1997). Whereas Gwynedd used to include Anglesey, since the re-assignment of the counties in 1996, Anglesey is now the second most prevalent area for Welsh. Our conclusion will be that whereas signs of obsolescence are present in the more Anglicized areas, where English monolingualism is dominant, such changes are not yet evident in those areas where bilingualism is dominant, suggesting that exposure is a major factor in the retention of these morphological and morphophonological forms in Welsh.

## 2. The mutation system in Welsh

The mutation system of the Welsh language involves a morphophonological process whereby the initial segments of words change depending on the linguistic environment in which they appear. The Welsh system involves three mutation types, only two of which are relevant to grammatical gender and are discussed fully below. These are Soft Mutation (SM) and Aspirate Mutation (AM). Under SM, the voiceless stops /p, t, k/ and the liquids /l, r/ become voiced (/b, d, g, l, r/), the voiced stops /b, d/ and /m/ become fricatives (/v, ð, v/), and /g/ is deleted. Under AM, the voiceless stops /p, t, k/ become fricatives (/f, θ, x/), and /h/ is inserted before vowels. The feature of these mutations that sets them apart from mere processes of lenition and spirantization is that the conditioning environments are not generally phonological, but rather morphological, lexical, and syntactic. The linguistic environments for SM are numerous, and there are more initial sounds affected by SM than the other mutation types. The linguistic environments for AM are more limited, and fewer sounds are affected by this mutation. Tables 1 and 2 present some samples of the conditioning environments for each of these mutation types.

As can be seen in Table 1, for example, many prepositions trigger SM. These include *i* “to”, *o* “from/of”, but not *mewn* “in”, or *rhwng* “between”. Thus, for example, the initial /k/ of *coeden* “tree” will undergo SM to become /g/ after the preposition *ar* “on”: *mae aderyn ar goeden* “is-bird-on-tree: (a) bird is on (a) tree” (but not *mae aderyn rhwng coeden a wal* “is-bird-between-tree-and-wall: (a) bird is between (a) tree and (a) wall”). Similarly *ci* [ki] “dog” will undergo AM into *chi* [xi] after the conjunction *a* “and”: *cath a chi* “cat and dog” (but not after the conjunction *nid*: *ci nid cath* “(a) dog not (a) cat”).

### 2.1 Mutation and gender

According to Crystal (1994) gender is defined as a “grammatical category which displays such contrasts as masculine/feminine/neuter or animate/inanimate” (p. 151). Not all languages show grammatical gender distinctions; some show “natural” gender where gender distinctions can largely be made only for those referents that can be distinguished by sex. In grammatical gender languages, the gender denotes a grammatical classification of nouns and not the sex of the nouns’ referents.

Table 1: Some triggering contexts for Soft Mutation (SM) (adapted from Thomas, 1996).

Triggering Class	Lexical Items	Example Target Word	Mutation Examples
Demonstrative Verbs	dacw “there is (are)” dyma “here is (are)” dyna “that is”/ “what” wele “behold”	tyddyn “dwelling” cyfle “chance” cwestiwn “question” rhywun “someone”	Dacw dyddyn bach “There’s a small dwelling” Dyma gyfle “Here’s a chance” Dyna gwestiwn “That’s a question” or “What a question” Wele rywun yn dod “Behold someone coming”
Prepositions	am “for” gan “by, with” heb “without” tan “under” tros “over/ for, across” trwy “through/ by” wrth “by”	popeth “everything” merch “girl” dinistrio “destroy” llach “lash” rhyddid “freedom” lleddfu “to soothe” calon “heart”	Diolch am bopeth “Thanks for everything” Darlun gan ferch “[A] picture by a girl” Cloddio heb ddinistrio dim “Digging without destroying anything” Dan lach “under a lash” Pleidleisio tros ryddid “Voting for freedom” Gwella trwy leddfu poen “To improve by soothing the pain” Calon wrth galon... “Heart upon heart...”
Degree Markers	cyn “as” mor “as”	coched “red (comparative)” gwyn “white”	Cyn goched â than “As red as fire” Mor wyn â’r galchen “As white as limestone”
Conjunctions	neu “or” pan “when”	gweiddi “shout” goresgyn “to invade”	Sgrechian neu weiddi “Scream or shout” Pan oresgynnodd y gelyn... “When the enemy invaded...”
Particles	a - interrogative particle fe - pre-verbal particle mi - pre-verbal particle o - vocative particle	pleidleisiodd “voted” baglodd “to trip” dysgi “to learn” Duw “God”	A bleidleisiodd? “Did he/she vote?” Fe faglodd “He/she tripped” Mi ddysgi ryw ddydd “You’ll learn one day” O Dduw! “O God!”
Possessive Adjectives	dy “your” ei (masculine possessive)	cysur “comfort” byddin “army”	Dy gysur “Your comfort” Ei fyddin “His army”
Numerals	dau “two” (masculine) dwy “two” (feminine)	tymor “term” caseg “mare”	Dau dymor “Two terms” Dwy gaseg “Two mares”
Continuous Aspect	yn “is”	maethlon “nourishing”	Yn faethlon “[is] nourishing”
A Small set of Pre-Head Adjectives and Adverbs	hen “old” gwir “truly”	cadair “chair” penderfynol “determined”	Hen gadair “old chair” Gwir benderfynol “truly determined”
Phrasal Category	-	cath “cat”	Gwelais gath “(I) saw (a) cat”

Table 2: Triggering items for Aspirate Mutation (AM) (adapted from Thomas, 1996).

Triggering Class	Lexical Item	Example Target Word	Examples
Preposition	â gyda “with” tua “towards, about”	poeri “spit” ti “you” cant “hundred”	Peidiwch â phoeri “Don’t spit” gyda thi “With you” tua chant “Towards a hundred” or “about a hundred”
Conjunctions	a “and”- relativizer na “than”- standard marker in comparatives na “neither, nor”- relativizer	pys “peas” tywydd “weather” cath “cat”, ci “dog”	ffagots a phys “fagots and peas” gwell na thywydd ddoe “Better than yesterday’s weather” Na chath na chi “Neither a cat nor a dog”
Possessive Adjective	ei (feminine possessive)	teledu “television”	ei theledu “her television”
Numerals	chwech “six” tri “three”	plât “plate” cosyn “a cheese”	chwe phlât “six plates” tri chosyn “three cheeses”
Adverb	tra “very”	cyfrinachol “confidential”	tra chyfrinachol “very confidential”

Grammatical gender is marked as follows in standard Welsh:

- (1) Singular feminine nouns undergo SM after the definite article and after the numeral *un* “one”; masculine nouns do not. For example *cath* “cat” (feminine) becomes *gath* in *y gath* “the cat” (cf. *ci* “dog” (masculine) becomes *y ci* “the dog”).
- (2) Adjectives modifying feminine nouns undergo SM; adjectives modifying masculine nouns do not. For example, *mawr* “big” becomes *cath fawr* “big cat” (cf. *ci mawr* “big dog”).
- (3) The third person singular possessive adjective *ei* indicates masculine possession if it is followed by SM, and feminine possession if it is followed by AM. For example, *pêl* “ball”—*ei bêl* “his/its ball”, *ei phêl* “her/its ball”. Also *mae’r gadair ar ei chefn* (*cefn* “back”) “is-the-chair-on-its-back: the chair is on its back” (cf. *mae’r drws ar ei gefn* “is-the-door-on-its-back: the door is on its back”).
- (4) A few numerals have masculine and feminine forms: *dau* (masculine)/*dwy* (feminine) “two”; *tri* (masculine)/*tair* (feminine) “three”; and *pedwar* (masculine)/*pedair* (feminine) “four”. It should be noted that although the choice of lexical form is based on gender it is not the case that the feminine triggers one mutation (e.g., SM, as *y(r)* does) and the masculine another or none. Instead, some numerals trigger SM regardless of gender (e.g., *dau/dwy*) and some do not (e.g., *pedwar/pedair*).
- (5) Anaphoric pronouns reflect the gender of the antecedent noun—*hi* for feminine, *o/fo* or *e/fe* for masculine.

The first two points above reveal a general association of feminine gender with SM. However, this association is a “loose” one, for a number of reasons:

- (a) Only singular feminine nouns undergo and trigger SM, not their plural forms.
- (b) Feminine nouns and adjectives that begin with sounds that are not susceptible to SM (i.e., /θ, ʃ, s, h, v, n, l/) and word-initial vowels have no overt marking for gender. Thus, there may be

whole constructions, like *yr haul oren* “the-sun-orange: the orange sun”, that provide no overt cues to gender marking.

- (c) The possessive structures, noted in (3) above, link SM with masculine forms, not with feminine forms.
- (d) Furthermore, SM cannot ever be fully correlated with “some type of gender” because of all of the other triggers for SM, such as those shown in Table 2.

An additional complicating factor is that the gender of a noun can be ambiguous in gender contexts, even if the noun has an initial sound that undergoes mutation (e.g., /b/ can be either the basic form of a masculine /b/-initial noun after *y(r)* or the mutated form of an underlying /p/-initial feminine noun). There is also some uncertainty regarding the gender of fairly recent borrowings (Williams, 1980). Whereas in early borrowing nouns were assimilated to some extent to the native system, in almost all recent borrowings the assignment of nouns to masculine gender is dominant (Watkins, 1993; see also Williams, 1973). This is not at all surprising given that approximately two thirds of nouns in Welsh are masculine (SurrIDGE, 1989).

In addition to these complexities is the fact that there is a great deal of variability in speakers’ adherence to mutation in general, including in relation to gender marking. Nevertheless, numerous dialect studies conducted over the past century suggest that SM is retained in speech more than the other two mutation types, and that SM is often used in contexts traditionally reserved for triggering the other mutations (see Ball & Müller, 1992, for a review). This is not surprising given that SM is triggered by more conditioning environments than the other two mutation types and affects the most sounds.

Within each mutation type there is variability by lexical item in that some triggers are more likely to condition mutation than others. For example, Roberts (1988) reported that Nasal Mutation (NM) was used after *fy* but not after *yn*. There is also only one trigger that seems to condition AM consistently; this is the feminine possessive adjective *ei*, discussed above (see Ball & Müller, 1992, for a review).

In terms of phonology, all phonemes susceptible to a given mutation type are not always affected in each triggering context. Initial /A/ and /ɣ/ often resist mutation in some contexts; for example, after the predicative *yn* (Thorne, 1993). The restrictive mutation of /A/ and /ɣ/ under SM also applies to gender mutation (although Rhys Jones, 1977, notes that this exception is confined to North Wales dialects). Feminine singular nouns with initial /A/ and /ɣ/ resist SM when modified by the article *y(r)*. Therefore speakers will say *y llygoden* “the mouse” and *y rhaw* “the spade” and not *y lygoden* and *y raw* (Uned Iaith Genedlaethol Cymru, 1976; Evans, 1981; Hughes, 1984; Thorne, 1993; Williams, 1980; Watkins, 1993; Ball & Müller, 1992). This also applies to feminine singular nouns modified by the numeral *un* (see e.g., Hughes, 1984; Evans, 1981; Thomas, 1996). However, according to Thomas (1996) and Awbery (1986), although /A/ and /ɣ/ resist SM after *y* in the standard language, it is not uncommon for some dialects to mutate these sounds in this context (i.e., *y lygoden* “the mouse”, *y raw* “the spade”).

In many of the northern dialects, the adjective *bach* “small, little” resists mutation after feminine singular nouns (Thomas, 2001; Thomas, 1996; Griffiths & Jones, 1995; Thorne, 1993).<sup>3</sup> For example, in some dialects speakers will say *hogan bach dda* “girl-little-good: good little girl”, where the noun *hogan* “girl” is feminine, and *da* “good” has undergone SM into *dda* but where *bach* “little” has retained its basic form (cf. *hogyn bach da* “boy-little-good: good little boy”). Similarly, speakers will say *pêl bach goch* “ball-little-red: little red ball”, where *pêl* “ball” is feminine and *coch* “red” has undergone SM into *goch* but where *bach* has retained its basic form (cf. *car bach coch* “car-little-red: little red car”). The reason why this particular item behaves in this way seems to relate to the functional role that this item plays. *Bach* may be functioning as a diminutive, in which case the mutation or no mutation rule appears to be becoming less relevant.

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<sup>3</sup> This difference in usage of *bach* in the northern and southern dialects is clearly shown in examples of place-names: *Eglwysbach* “Little Church”, where *eglwys* “church” is feminine, exists in North Wales, whereas *Eglwysfach* exists in South Wales (Thomas, 1996).

Gender mutations, like mutations in general, are also prone to variation both between and within speakers. For example, a noun might be marked for feminine gender in one sentence, and subsequently de-marked for feminine gender in another sentence; for example, *Ma' na ddafad yn gweld y dent, a ma'r ddafad yn mynd am y dent...Mewn â'r ddafad drost y tent, malu'r dent...* “A sheep sees the tent (+ SM), and the sheep goes for the tent (+ SM)...In goes the sheep over the tent (- SM), breaking the tent (+ SM)...” (extract from a story told by an adult participant in Experiment 1 described later in this paper). In this example, the speaker alternates between SM and no mutation of *tent* (which, in standard descriptions, is treated as feminine). Such usage often reflects spontaneous speech “errors”. The variable use of mutation is often acceptable to speakers (although some speakers despise such deviations from the standard norm). Dorian (1981) noted—for Scottish Gaelic, which operates a similar gender system to Welsh—that the mutation of adjectives after masculine nouns and the non-mutation of adjectives after feminine nouns in Scottish Gaelic are “tolerated”, suggesting that they are accepted as correct, by even the most conservative speakers. Variation also occurs in agreement; the noun may be marked for feminine gender but not the adjective or vice versa. For example, it is common to hear such constructions as *y gath du* “the-cat-black: the black cat” in which *cath* “cat” has undergone SM into *gath*, but in which the colour adjective has not undergone SM into *ddu*. Conversely, one may also hear, for example, *y pêl goch* “the-ball-red: the red ball” in which *pêl* is feminine, but has not undergone SM after the article *y* into *bêl*, but in which the colour adjective *coch* has undergone SM into *goch*.

Some nouns vary in gender according to dialect (e.g., Thomas, 1996; Williams, 1980; Thorne, 1993; Morris-Jones, 1921). In the colloquial speech of the different dialects these nouns may be marked for a gender that differs from the prescriptive norm. Some other nouns do not seem to be fully integrated into the gender of choice. For example, although *munud* “minute” is masculine for some speakers in the North, it is used as feminine, often by the same speaker, in *y funud hon* “the-minute-this (feminine): this minute” (cf. *y munud hwn* “the-minute-this (masculine): this minute”). Likewise, nouns like *tei* are marked as feminine on the adjective, but the noun itself is not marked as feminine after the article: *y tei ddu* “the-tie-black: the black tie” where *du* has undergone SM after the noun.

Therefore, the Welsh language exhibits many examples of variability in the use of mutations; adherence to mutations varies across dialects, and speakers, and within idiolects. This means that the Welsh grammatical gender system is in a more variable state than other grammatical gender systems, particularly those of Indo-European languages. Due to the complexity of the mutation system, gender marking in Welsh exhibits less regularity than that of other languages, producing gaps in the system, and a lack of a clear form-function mapping. This provides the Welsh learner with a very complex task to master.

### 3. Linguistic evidence of language change

The question of language death hinges on a thorough understanding of language change in general. No language is static over time (Aitchison, 1991; Trask, 1994); what must be assessed is whether any changes are likely to lead simply to newer forms of a language (e.g., Middle English vs. Modern English) or to the death of the language. Historical linguistics has identified a number of factors “internal” to the language that cause or contribute to processes of language change (see e.g., Anderson, 1973; Anttila, 1989). These include (1) articulatory mechanisms of co-articulation that lead to changes due to ease of articulation (e.g., assimilation, omission—Aitchison, 1991); (2) processes of analogy, which serve to “level” exceptions, particularly in less frequent forms; (3) re-construction of the language by each subsequent generation of language learners. An appropriate example to illustrate change is the early development of the mutation system in Welsh. During the historical development of Welsh from its parent language, Brythonic, certain consonants assimilated to their surrounding vowels (Watkins, 1993: 304). For example, *merka teka* “fair girl” (Brythonic) became *merka dega* (Late Brythonic); note that /k/ became /g/ and /t/ became /d/ in the adjective *teka* “fair” by voicing assimilation with the surrounding vowels. The same voicing process did not apply to /t/ in *donjos tekos* “fair man” (Brythonic) that became *donjos tegos* (Late Brythonic); this is because the preceding word *donjos* ended in a consonant and therefore /t/ did not appear between two vowels (Watkins 1961,

1993; Jackson, 1959). However, subsequent phonological changes resulted in the loss of Brythonic endings; this caused these respective forms to become *merch deg* and *dyn teg*. With the loss of the nominal endings, the alternation *teg/deg* was no longer phonetically conditioned: both *merch* and *dyn* ended in a consonant (Watkins, 1961, 1993; Jones, 1997).

In addition to these internal factors, factors “external” to the language system can cause language change. One of these is massive bilingualism, which is one of the products of language contact. Typically, language contact in a community can contribute to language change in a number of ways, including borrowings and simplification (Anderson, 1973). These do not necessarily lead to obsolescence, however. English is a prime example. English has borrowed vocabulary from other languages and continues to do so. English has also “lost” grammatical gender and underwent striking changes in its inflectional system (Peinovich, 1979; Jones, 1988). Although the changes that are involved in a language death process are rather similar to those that occur under a natural process (Hoenigswald, 1989), it is the rate, context and amount of change that differ (Jones, 1998).

According to Aitchison (1995), “language murder” comes about when there is a decrease in the number of people who speak the language, forcing those few speakers to become bilingual in the minority and the dominant language in order to survive. Bilingualism has been identified by many to be a prerequisite to language death (e.g., Mougeon & Beniak, 1989; Campbell & Muntzel, 1989; Hoenigswald, 1989). Bilinguals may become less proficient in the minority language over time due to a number of factors, including domain restriction of the minority language, cross-cultural marriages, and lack of transmission between the older speakers and the young. Therefore language obsolescence involves “the gradual loss of a language, which takes place when its transmission between generations ceases, and the number of its native speakers diminishes” (Crystal, 1997:267). Subsequently, “[such a] gradual reduction in use [of the language], due to domain-restriction, may result in the emergence of historically inappropriate morphological and/or phonological forms together with extensive lexical borrowing” (Jones, 1998:5-6).

Campbell and Muntzel (1989) list overgeneralization of marked features as one possible predictor of obsolescence. The evidence they provide for overgeneralization of marked features is that of speakers’ apparent imperfect learning of a complicated rule system used in Jumaytepeque Xinka. According to this rule, consonants are glottalized in particular morphological environments (which may be similar to the processes involved in the mutation system in Welsh). They note that speakers often use inappropriate versions of the rule with great frequency. They further argue that this imperfect learning is not due to the influence of the dominant language, since the changes seemed to be “internal to the structure of the obsolescent language...[and] appear to have no direct analog in the dominant language” (p. 189). Alternatively, in the minority language situation, some (e.g., Hennessey, 1990) argue the exact opposite: that the most likely linguistic elements to suffer language “death” are features that lack parallels in the dominant language. A natural process of change would therefore see complex structures being simplified. Awbery (1986) has suggested that the mutation system in the Welsh language is undergoing such a simplifying process, in that the system is being simplified from a four-way system (radical, SM, AM, and NM) to a two-way system (radical, SM) in some dialects. The retention of SM is attributed to the fact that there is more scope for the retention of SM in the language, and it is therefore expected that SM will be the process that will gradually take over the environments for AM and NM. Ultimately, this type of linguistic change may lead to “inconsistency and structural deterioration of forms of the language” (p. 152), which Crystal (2000) identifies as characteristic of obsolescence. However, such changes may also simply be examples of “natural” change. Hennessey (1990) argued this point with reference to Breton. He argued that the processes of change underway within spirant mutation in Breton are not much different from those that are evident in historical dialect data of Breton. This may also be the case in Welsh.

A final point to note is that obsolescence has also been characterised as the showing of immense lexical borrowing (Jones, 1998). Gathercole and Thomas (in preparation) find that borrowed vocabulary is less likely to be mutated than native Welsh vocabulary. Similar trends have been reported by Bellin (1988), for Welsh, and Stephens (1996), for Breton. This is not surprising given that speakers in some areas will hear mostly English in their environment, whereas others will hear both Welsh and English at varying degrees. In English, words are never mutated. Once enough examples of borrowings are accepted as words that do not undergo mutation in the language, the

mutation of other words may also gradually diminish in accordance with the pattern for the borrowed vocabulary.

Therefore although the decline of the mutation and the gender system in Welsh is highly possible, such simplification or general breakdown of the system need not entail or imply obsolescence. Often, in the world's languages, grammatical gender is transparent, where the form-function mappings between elements offer clear-cut information as to the gender of nouns (e.g., Levy, 1983a, 1983b; Vigliocco & Frank, 1999; Teschner & Russell, 1984). Children have been shown to acquire these systems quickly, and with relative ease (Maratsos, 1983). Children have also shown not only a surface knowledge of these systems, but also more abstract, rule-based knowledge of how linguistic items co-exist and agree for gender. However, in some instances, such clear-cut properties are not the case (e.g., Welsh, Russian). In such languages, children have been shown to acquire the systems later, and may rely on semantic underpinnings to determine the gender of a noun (e.g., Smoczynska, 1985; Maratsos & Chalkely, 1980; Mulford, 1985). When a language is highly complex, productive knowledge of the system is not evident until much later in development, if at all (Thomas, 2001). When a language has a complex grammatical gender system that offers no clear indication of noun gender any "late" development or apparent "lack" of systematic knowledge of the system may be attributable to its complexity.

#### 4. Evidence of obsolescence in Welsh

What evidence is there to help determine the extent to which gender marking and mutation are evident in the speech of Welsh-speaking adults? To what extent are these forms retained in the speech of the older adults more than in the speech of younger adults and children? Jones (1998) carried out an extensive naturalistic speech study with speakers from two communities, the first speaking a southern dialect (in Rhymni) where 6.7% of the community are Welsh speakers and the second speaking a northeastern dialect (in Rhosllannerchrugog) where 38.1% of the community are Welsh speakers (figures according to the 1991 Census data). Her aim was to provide a detailed study of the phenomenon of language death by drawing from the developments underway in Welsh. The participants were divided into five age groups. These were 7- to 19-year-olds, 20- to 39-year-olds, 40- to 59-year-olds, 60- to 74-year-olds, and 75+ -year-olds. From the northeastern community, an additional group of 10 children who were from Welsh-speaking homes, but who attended an English-medium secondary school, was also tested in this dialect area. The results for each dialect area are shown in Figures 1 to 11.

In the southern dialect of Rhymni, performance by the different age groups was as follows:

The 7- to 19-year-olds showed the lowest level of preservation of gender-marked distinctions for three of the contexts studied (*ei* as masculine possessive, feminine noun followed by an adjective, and gender-marked numerals). Informants under the age of 40 years provided fewer examples of mutated feminine nouns after the definite article than those older than 40, whereas informants under the age of 60 years provided fewer examples of mutated feminine nouns after the numeral *un* "one" than those over 60. Finally, informants under the age of 74 years provided fewer examples of feminine pronouns to refer to feminine nouns than those over 74. Figures 1 – 6 show Rhymni data (adapted from Jones, 1998):

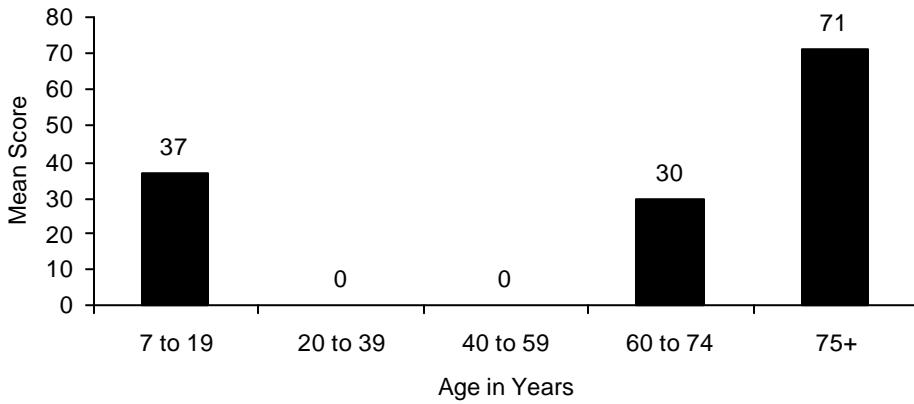


Figure 1: Appropriate use of feminine pronoun in distant marking.

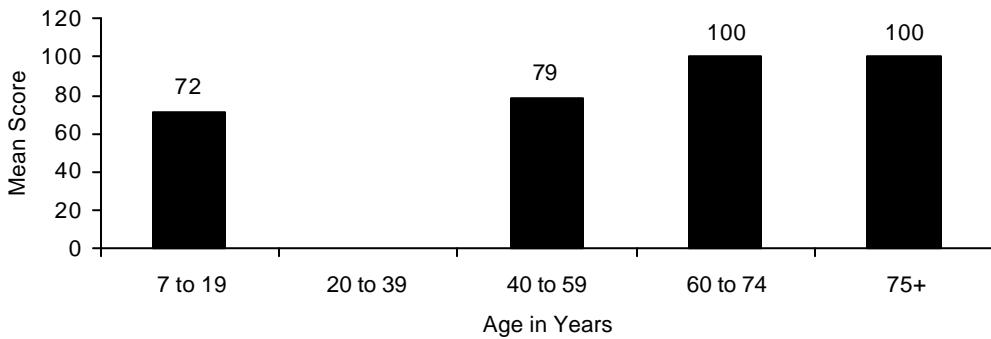


Figure 2: Percentage mutation on adjective after feminine noun

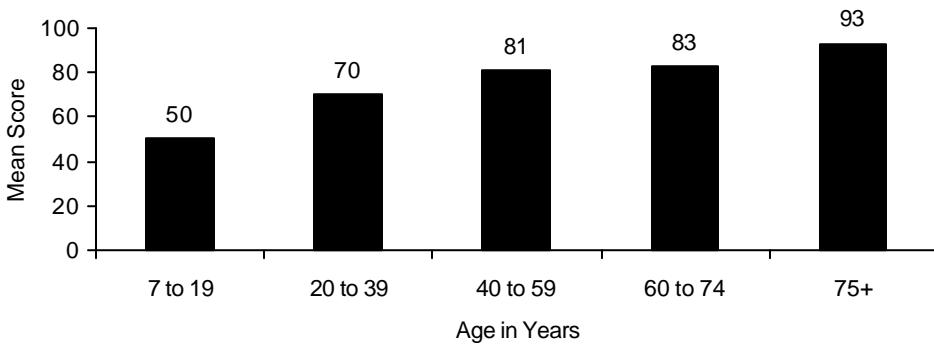


Figure 3: Percentage feminine nouns mutated after the definite article.

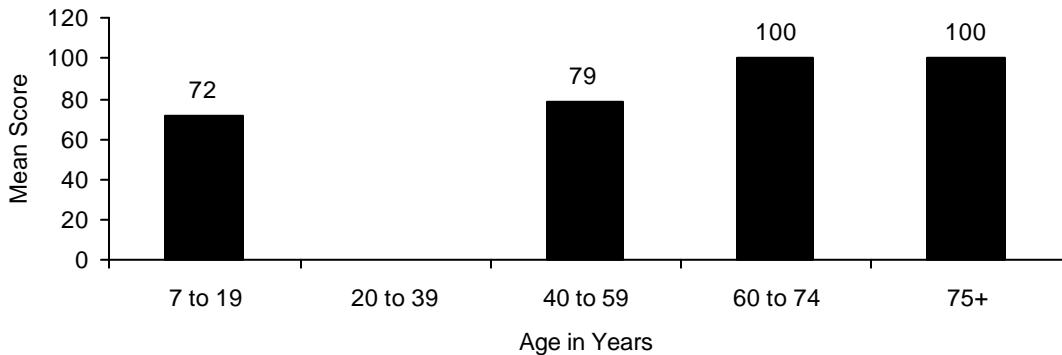


Figure 4: Percentage of feminine nouns mutated after the numeral *un* “one”.

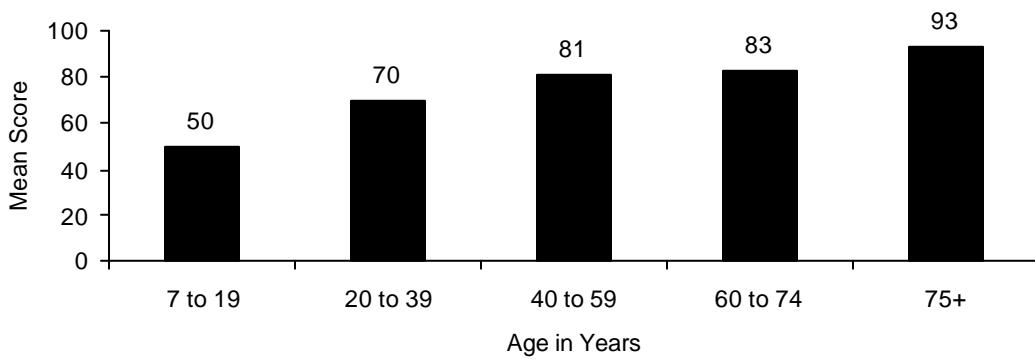


Figure 5: Percentage use of gender-appropriate numerals.

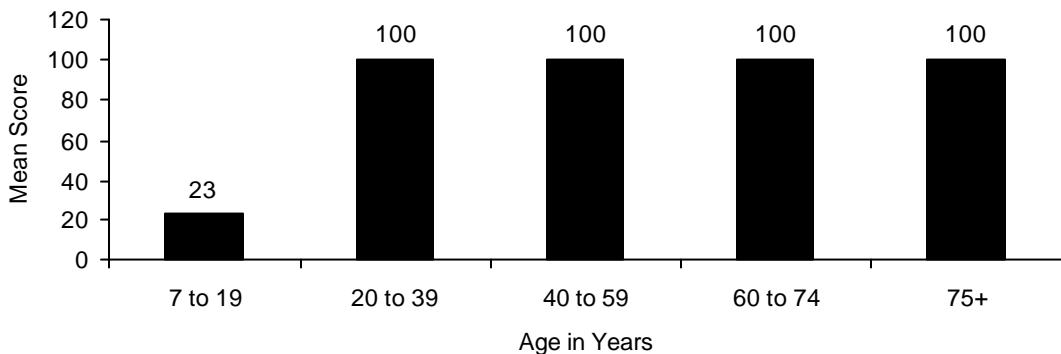
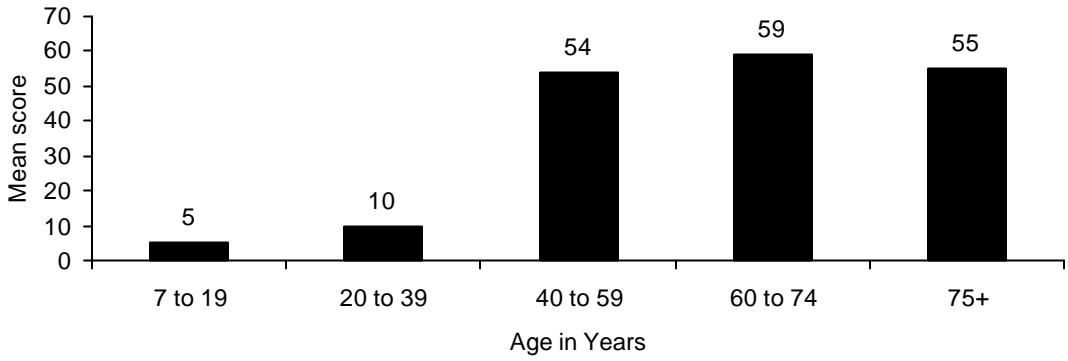


Figure 6: Percentage use of SM after *ei* “his/its”.



Rhos data (adapted from Jones, 1998):  
 Figure 7: Appropriate use of feminine pronoun in distant marking.

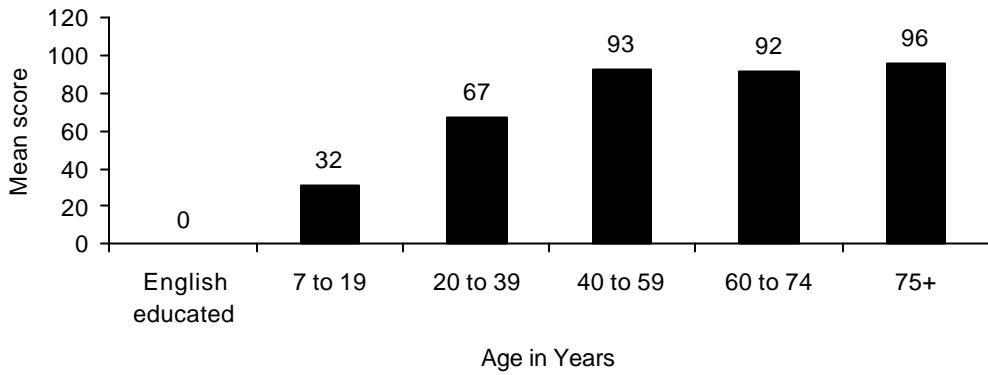


Figure 8: Percentage of mutated adjectives after a feminine noun.

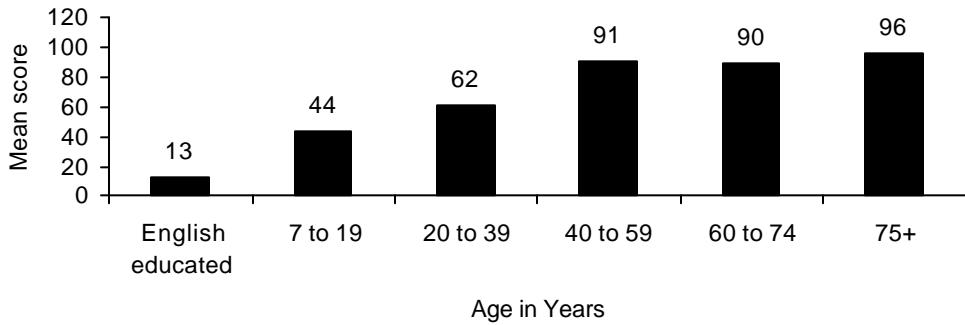


Figure 9: Percentage of feminine nouns mutated after the definite article.

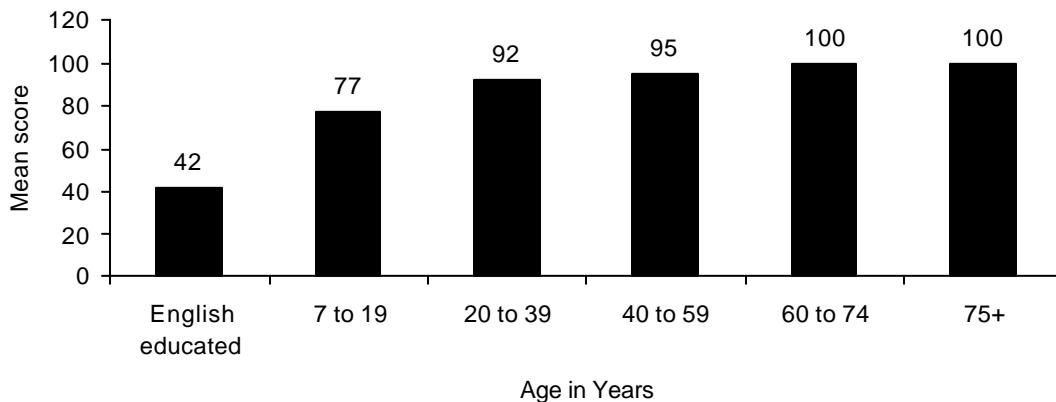


Figure 10: Percentage use of gender-appropriate numerals.

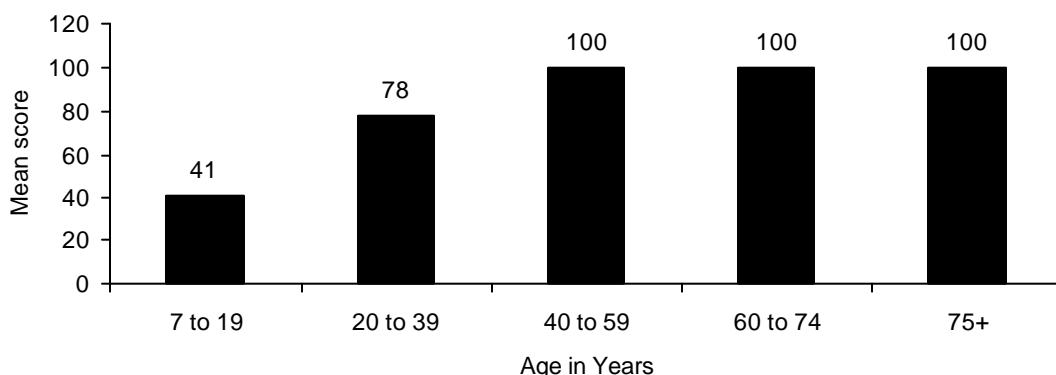


Figure 11: Percentage use of SM after *ei* “his/its”.

In the northern dialect of Rhosllannerchrugog (Rhos), performance by the different age groups was as follows:

The 7- to 19-year-olds showed the lowest level of preservation of gender-marked distinctions for SM after masculine *ei*, AM after feminine *ei*, SM on adjectives after feminine nouns, and numerals. (Children who attended the English-medium school scored lower than the 7- to 19-year-olds attending Welsh-medium schools in all contexts tested for both.) Informants under the age of 40 years provided fewer examples of feminine pronouns to refer to a feminine noun than those over 40. Jones suggests that this is because speakers were sometimes unsure as to the gender of a particular noun, which led them to sometimes apply and sometimes not apply SM to adjectives after masculine nouns. Informants under the age of 40 also provided fewer examples of mutation on feminine nouns after the article than those over 40.<sup>4</sup>

Although, as Jones notes, no gender-marked context is shown to be “defunct” in either dialect, together with other variables measured, Jones’ data suggest that “the variety of Welsh spoken in

<sup>4</sup> This information has been taken from Table 3.10 and interpreted in conjunction with Graph 3.8 in Jones (1998). There appears to be a typographical error in Table 3.10. We are inferring that “Absence of SM with an attributive adjective after a feminine noun” in Table 3.10 should read “Absence of SM with a feminine noun after the definite article”.

Rhosllannerchrugog has been shown to be undergoing language obsolescence, with the gradual increase of historically inappropriate features becoming more pronounced in the case of the younger generation” (p. 182). Moreover, Jones notes that gender-marking distinctions are retained more in the speech of younger informants in Rhos than in Rhymni—suggesting that the processes of obsolescence are less advanced in Rhos than in Rhymni (although the same “trends” of change are evident in the two communities).

Looking specifically at the Rhymni data, Jones notes that children’s relatively good performance on the production of feminine pronouns to refer to feminine nouns and of SM of feminine nouns after *un* “one” and gender-marked numerals may be related to the frequency of correction or level of emphasis provided for each gender-marked context in the classroom. Jones argues further that since the English-educated children in the Rhos study did not mutate any adjectives after feminine nouns, Welsh-medium education might contribute to the maintenance of this feature in the language of Rhos in the North. Therefore, overall, Jones suggests that modern spoken Welsh is showing signs of simplification in the gender system, changes that are indicative of obsolescence at a very gradual pace. Grammatical forms that are not in line with traditional standard grammar seem to be increasingly present in the speech of younger informants, often under the age of 40 years.

What is not clear, however, is whether these changes in adherence to gender marking in Welsh are representative of a natural process of simplification or of obsolescence. Jones notes that the purpose of her data was not to provide an unequivocal measurement of the degree of language obsolescence, but rather a description of the forms that do not adhere to standard norms.

One way of looking at this issue would be to look at speakers’ performance on nouns for referents that have real world sex versus their performance on nouns that have inanimate referents. Given the complexity of the gender system in Welsh, it is possible that the system is becoming a more natural or semantic gender system, not unlike the system in English. If this is the case, we could expect a difference between performance on nouns with human referents and those with animal or inanimate referents. Unfortunately, due to the methodological limitations of naturalistic observations, Jones’ analyses did not distinguish between speakers’ performance on these different noun types.

Differences by noun type may especially be apparent in the case of anaphoric reference. It is not uncommon for an inanimate noun to be marked as feminine in one context, but to occur with a masculine pronoun (Jones, 1993). For example, *Lle mae’r gadair? Dyma fo* “Where’s the chair (feminine)? Here it (masculine) is”. Dorian (1976) notes a similar trend in the language of speakers of Scottish Gaelic. She found that for some of the younger speakers (between 40 and 60 years of age) the pronoun used was invariably the masculine /a/ “he, it” regardless of the gender of the noun. She also notes, similar to the example above, that it was common for younger speakers (and even occasionally for the older speakers) to “have a mutation marking a feminine after the article and yet a pronoun replacement appropriate to a masculine within the same sentence” (p. 280). Jones (1998) also found that feminine inanimate nouns were very often referred to with a masculine pronoun, although masculine nouns were never referred to with feminine pronouns.

Such research suggests that Welsh, if spoken by only a few of the inhabitants of a dialect area, may be undergoing changes in morphological and morphophonological systems across generations, which may be indicative of obsolescence. It is not clear, however, whether such changes occur when the language of the community is balanced more towards the majority language. It is therefore important to investigate the abilities of speakers in less Anglicized areas where Welsh operates on a much stronger level in the community.

The next section examines data on speakers’ abilities with similar constructs, but from areas in which Welsh is more prominent than in Rhos and Rhymni. These areas are Gwynedd and Anglesey, the counties with the highest proportion of Welsh speakers in all of Wales (Lindsey, 1993; Jones, 1997). We will first present data on adult performance, followed by data on children’s performance, on a semi-naturalistic speech study. We will then present data from a comprehension task where adults interpreted the possessor of an object based on the gender of a coreferential pronoun or possessive form in distant gender-marked constructs. We argue that in situations where the majority of speakers are bilingual, the nature of the change in the system may be different from what is found when only a minority of the speakers are bilingual.

## 5. Experiment 1: semi-naturalistic speech production

### 5.1 Method

#### 5.1.1 Participants: adults

Thirty first-language (“L1”) Welsh-speaking adults took part in a story-telling task. All but three participants indicated that they were brought up in homes where the language spoken was 80 to 100% Welsh.<sup>5</sup> They were aged between 16 and 60+ years.<sup>6</sup> All participants had lived either on Anglesey or in the Bangor area for most of their lives. They were divided into three age groups: group 1 adults were between the ages of 16 and 30 years ( $N = 8$ , mean age = 20 years); group 2 between the ages of 31 and 50 years ( $N = 10$  mean age = 38 years); and group 3 adults were over the age of 51 years ( $N=12$ , mean age = 56<sup>7</sup> years).

#### 5.1.1 Participants: children

Forty-five children took part in this study. The children were divided into four age groups. Group 1 children were 4 1/2 years of age ( $N = 11$ , age range = 4;1 to 5;5 years, mean age = 4;9 years); group 2 children were 6 years of age ( $N = 11$ , age range = 5;9 to 6;7 years, mean age = 6;1 years); group 3 children were 7 1/2 years of age ( $N = 12$ , age range = 6;9 to 7;9 years, mean age = 7;2 years); and group 4 children were 9 years of age ( $N = 11$ , age range = 8;3 to 9;7 years, mean age = 8;9 years). The children were divided into these specific age groups so that it was possible to look at their linguistic abilities at specific and clear-cut times in their development. All children attended primary schools either on Anglesey or in the Gwynedd area. Consent forms were received from all parents, accompanied by a completed language background questionnaire outlining the parents’ and the child’s language. Most parents judged that their child received 100% Welsh input at home (only two of the completed questionnaires stated that the children’s Welsh home language input was 80%).

#### 5.1.2 Design

As a measure of semi-naturalistic production of grammatical gender a picture story illustrated by a set of pictures was designed. The participant’s task was to “tell” the story that he or she saw in the pictures. Using a “semi” naturalistic procedure in this way allowed some control over the variables under investigation.

The story task was designed to provide as good a balance as possible between animate and inanimate nouns, and within these, a representative selection of masculine and feminine nouns. Across animacy and gender, word-initial sounds susceptible to SM were balanced as well as possible.<sup>8</sup> The basic story design reflected the “typical” events found in children’s stories (see Berman & Slobin, 1994: 20). These typical events were: a hero and his or her companion; a problem; an attempt to rectify the problem; and solving the problem in a happy manner.

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<sup>5</sup> Three of the participants indicated on the questionnaire that their home language was 50/50 Welsh-English until the age of 18 years, and one maintained that their home language was always 50/50 Welsh-English. However, each of these participants indicated that their L1 was Welsh.

<sup>6</sup> The “60+” was the age supplied by one of the participants.

<sup>7</sup> Since one of the participants supplied “60+ years” as an age, the mean age for this group was calculated using 61 as her age.

<sup>8</sup> In some cases, such a clean balance was not possible: for example, there are no /p/-initial feminine animate nouns in Welsh that would have been appropriate for use in this study.

Table 3: Nouns elicited in the picture story task

	Animate Nouns		Inanimate Nouns	
Initial Sound	Masculine	Feminine	Masculine	Feminine
/p/	-	-	parc “park” polyn “pole”	pais “petticoat” pedol “horseshoe” pabell “tent” padell ffrïo “frying pan”
/t/	tad “father”	tylluan “owl”	trowsus “trousers” tŷ “house” tân “fire”	teisen “cake” trol “cart”
/k/	ci “dog” ceffyl “horse”	cath “cat” cwningen “rabbit”	cyrtan “curtain” cae “field”	coeden “tree” côt “coat” coets “pram”
/b/	brawd “brother” babi “baby”	buwch “cow”	bwrdd “table” boncyff “tree trunk” brat “apron”	basged “basket”
/d/	-	dafad “sheep” dynes “woman”	drws “door”	deilen “leaf”
/g/	glöyn byw “butterfly”	gwiwer “squirrel” gwennol “swallow”	gwynt “wind”	gardd “garden”
/f/	llwynog “fox”	llygoden “mouse”	llwybr “path”	llif “saw”
/r/	-	-	rhosyn “rose”	rhaw “shovel”
/m/	Melinydd “miller”	mam “mother” malwen / malwoden “snail”	mat “mat” mysiarwm “mushroom”	maneg “glove” mainc “bench” melin “mill”

Also, the story was designed such that pictures of characters and objects were deliberately repeated; this was to set up contexts in which the use of the definite article was pragmatically felicitous (the effectiveness of which was shown in pilot data from both adults and children). Table 3 shows the potential nouns elicited in the task.<sup>9</sup> The picture story consisted of 28 A4 sized coloured pictures; these were presented in a book format–A4 plastic envelope pockets in a thin snap folder.

### 5.1.3 Procedure

All participants were seen individually. The adult participants were initially told that the purpose of the study was to look at children’s understanding of stories as told by adults. For this, they were given the folder containing the pictures and asked to “tell the story” they saw in the pictures as they would to a child, describing the characters, objects, and events as they unfold. With the child participants, a practice story, involving referents of nouns with non-mutable initial sounds, was read out by the experimenter. The children were then asked to tell another story, using the picture-book provided.

Each session was recorded on a VHS video camera, and later transcribed. Ten percent of the materials was later transcribed by an independent Welsh speaker. This produced an inter-rater reliability agreement of 97.83% for the adult data and of 93.4% for the child data.

<sup>9</sup> Because of the naturalistic style of this test, a given participant might not use all of the nouns elicited; alternatively, he or she might also include nouns that were not deliberately elicited at all, or both.

## 6. Results

### 6.1 Adults

Due to the nature of the data, only nouns preceded by an article and nouns followed by an adjective were analysed. Not enough examples were provided for the possessive *ei* or pronouns and numerals to be reported here. The results for performance on mutating/not mutating the noun after the article will be presented first, followed by the results of mutating/not mutating the adjective after the noun.

#### 6.1.1 Nouns

The adults' productions were analysed using a repeated measures ANOVA in which animacy (animate and inanimate), gender (masculine and feminine), and age (16 to 30 years, 31 to 50 years, 51+ years) were treated as independent variables. Because of the nature of the data (the proportion of mutations, according to standard descriptions, out of the number of times participants produced the determiner + noun construct with a feminine noun, and the proportion of no mutation with masculine nouns in the same construct), arcsin transformations were applied to the data. Because the sounds /ʃ/ and /r̥/ often resist mutation, even in feminine nouns, after the article in northern dialects, initial analyses were performed to compare the data with words with initial /ʃ/ and /r̥/ included and without such words included. The inclusion of responses on /ʃ/- and /r̥/- initial nouns affected adults' overall scores by less than .06% for all age groups, and children's no more than 2.8%. Therefore, the analyses reported here include all words. The analysis revealed that the only significant main effect was that of gender ( $F(1, 27) = 29.28, p < .001$ ); there were no interaction effects. The mean proportions for masculine and feminine nouns, scored in terms of approximation to the standard norm, were 1.00 and .883 respectively ( $SD = .204$ ). Note that all participants from all adult age groups performed at 100% level on masculine nouns; that is, masculine nouns were never mutated after the definite article. (Note also that one extreme respondent almost always resisted mutation of feminine nouns in this context. When his data were excluded from analysis, the overall score increased to over 90% mutation of feminine nouns.) The adults did not differ significantly in their responses across age groups ( $F(2, 27) = .932, p > .05$ ). There was no significant difference in performance of the three adult age groups: the younger adults performed at the same level as the older adults. Finally, the adults did not respond differently according to the animacy of the nouns ( $F(1, 27) = .391, p > .05$ ). That is, performance was high for nouns with human referents, animal referents, and inanimate referents. This is consistent with findings for grammatical gender in other languages.

It seems, from the above analysis, that the gender system is well established in speech across all adult ages. The marking of the elicited masculine nouns in the determiner + noun context reflected standard norms, and the elicited feminine nouns in the same context were mutated approximately 90% of the time. Most importantly these data indicate that adult Welsh speakers in the Gwynedd and Anglesey area have a good productive knowledge of gender, across noun types.

It should also be noted that in a few cases some of the participants had the “traditional” SM form as the basic form and “double mutated” the noun after the definite article. Two of the participants produced *y ddylluan* “the owl”, indicating the use of *dylluan* (and not the traditional *tylluan*) as the basic form. (This is supported by the fact that one of the participants also used the noun in the phrase *dylluan yn isda yn edrach arni* “and (an) owl sitting, looking at her”, where one would expect *a thylluan* (if the basic form is taken to contain an initial /t/), given that a “and” triggers AM, or *a tylluan*, given that not many speakers obey this rule.) Another participant produced *yr wningen* “the rabbit” on two separate occasions during her story; this indicated the use of *gwingen* (and not the traditional form *cwingen*) as the basic form. (This participant produced the same type of “double mutation” in a different mutating context: she said *wedi cael hyd i wningen* “has found (a) rabbit”, suggesting that the basic form for this participant is *gwingen* rather than *cwingen*.)<sup>10</sup> Speakers must

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<sup>10</sup> Thomas (1996) also notes that these nouns often have *dylluan* and *gwingen* as their basic forms.

retain some form of some abstract knowledge of mutation and possible mutating forms to be able to extend the system in this way. Moreover, the fact that speakers can do this may reflect language progress (in that speakers are able to change the system in a systematic and logical way) rather than language decay (in that speakers are moving away from the “traditional” forms of a system).

### 6.1.2 Adjectives

Not enough examples of adjectives were produced by the adults to allow for statistical analysis of the data. However, visual inspection of the data revealed that the adults never mutated adjectives after masculine nouns. The percentage of time that the adults mutated adjectives after feminine nouns was as follows, across ages: group 1, 65%; group 2, 46%; and group 3, 60%. As noted in the introduction, it was expected that one item would resist mutation in this context; this item was *bach* “small”, used frequently in this data set with animate nouns. When *bach* was excluded from the analysis, performance on feminine forms across age groups was as follows: group 1, 86%; group 2, 71%; group 3, 93%. Although the middle age group’s performance is lower than that of the other two age groups, the difference in performance between the younger and the older age groups was only slight, with the younger group ahead of the older group when *bach* was included in the analysis.

## 6.2 Children

### 6.2.1 Nouns

The children’s responses were analysed using a repeated measures ANOVA in which animacy (animate and inanimate), gender (masculine and feminine), and age (4 1/2-year-olds, 6-year-olds, 7 1/2-year-olds, and 9-year-olds) were treated as independent variables. Arcsin transformations were applied since the data consisted of proportional values.

The analysis revealed a significant main effect of gender ( $F(1, 24) = 51.815, p < .001$ ). The analysis revealed that children retained the basic form of masculine nouns ( $M = .956, SD = .154$ ) more than they produced the mutated form of feminine nouns after the definite article ( $M = .603, SD = .327$ ). No general trends across age groups appeared discernible ( $F(3, 24) = .885, p > .05$ ). As was revealed in the adult data there was no significant effect of animacy ( $F(1, 24) = .792, p > .05$ ), suggesting no distinguishable difference between performance on nouns with human referents and performance on nouns with non-human referents. There were no significant interactions. This suggests that the acquisition of the system may be a long drawn out process, not fully acquired even by the age of 9 years, and may be related to the complexity of the system. None of the children seemed to show the double-mutation phenomenon evident in the speech of some of the adults.

### 6.2.2 Adjectives

Overall, the children produced very few adjective forms after the nouns. This limited the variables that could be compared statistically. Because of the paucity of the children’s adjective responses, the children’s data were collapsed across animacy types to allow for an analysis of performance across gender and age only. The independent variables were therefore gender (masculine, feminine) and age (4 1/2-year-olds, 6-year-olds, 7 1/2-year-olds, and 9-year-olds). This revealed a significant main effect of gender ( $F(1, 17) = 10.573, p < .01$ ).

Again, the children produced the basic form of adjectives after masculine nouns more often than they produced the SM form of adjectives after feminine nouns. The incidence of the use of *bach* “little” in these data was very high. Because of this, it was not possible to conduct comparable analysis to that conducted on the adult data looking at responses excluding *bach* “little”. With feminine nouns, inspection of the data revealed that the children mutated *bach* “little” more often than the adults did: *bach* was mutated between 0% and 84.6% of the time in the child data (there were no errors with the use of *bach* with masculine nouns). In contrast, in the adult data *bach* was mutated between 0% and 42.1% of the time. It may be the case that *bach* is initially used solely as an adjective, but as the learner becomes more proficient with the language, it is also interpreted (and possibly to a greater degree) as a diminutive marker. This would coincide with the adults’ lack of mutation with this

adjective. Alternatively, the fact that children mutate *bach* after feminine nouns more than adults may be linked to input factors: children’s books and stories reflect the use of *bach* in a noun modifier position to a much greater degree than in adult literature.

### 6.3 Summary: Experiment 1

Analysis of the adult data revealed no significant effect of age for performance with the nouns, and no clear difference in responses with the adjectives, indicating that the younger and older adults were performing equivalently on both constructs. All age groups also performed equally well on nouns with animate and inanimate referents. This supports the notion that, in northwest Wales at least, the gender system remains “grammatical” in nature: performance does not reflect a sudden change to represent semantic or natural gender in “local” gender-marked constructs.

Like the adults, the children produced more basic forms of masculine nouns after the definite article than they did of SM forms of feminine nouns after the article. (Their performance on feminine nouns was quite a bit lower than the adults’, however.) There were also no clear trends in the data when they were analysed by animacy, gender, and age. Finally, the children did not show the “double mutation” phenomenon evident in the adult data.

Therefore, in a semi-naturalistic setting, gender-marking distinctions in the local constructs of article followed by a noun and noun followed by an adjective is well maintained in the speech of adults. Children are yet to reach adult competence, but their performance is well above the percentages shown in Rhos and Rhymni. However, both Jones’ (1998) and Dorian’s (1981) data suggest that possibly the least well-maintained gender-marked construct in adult speech is that which occurs in a distant position (in anaphora), and not so much those in “local” gender marking positions (i.e., within the noun phrase). Distant marking includes the use of a pronoun or a possessive in relation to an antecedent noun. These anaphoric forms must agree in gender with the noun. Both Jones and Dorian suggest that adults tend to overuse the masculine pronoun when referring to feminine nouns. Unfortunately, the nature of the data produced for Experiment 1 did not allow for full analysis of distant gender marking. The following section describes a study that was designed to examine speakers’ receptive command of distant marking of gender.

## 7. Experiment 2: receptive abilities

### 7.1 Method

In Experiment 2, the adults took part in a card task that was designed in order to test speakers’ receptive abilities with long distant gender marking. This involved the use of picture cards, and their task was to choose a picture that corresponded best with a sentence that involved distant gender constructs.

#### 7.1.1 Participants

The data presented here come from a set of 43 adult participants. These fell into two age groups: twenty-five under 50 years of age (mean: 31 years, range: 18 to 50 years), and eighteen over 50 years of age (mean: 61 years, range: 51 to 82 years). Thirty-one were female; twelve were male. The adults were brought up in one of two types of homes: homes in which Welsh was spoken over 80% of the time throughout their years of living there ( $N = 25$ ) or homes in which both Welsh and English were spoken between 40% and 60% of the time throughout their years living there ( $N = 18$ ).

#### 7.1.2 Stimuli

##### 7.1.2.1 Non-linguistic stimuli

In each trial set (36 trials), an initial picture included two referents corresponding to two different nouns, one masculine and one feminine—for example, a desk (*desg*, feminine) and a table (*bwrdd*, masculine). This first picture was accompanied by a sentence. A second picture was then shown, accompanied by a second sentence. In the second sentence, the participant was told something about

one of the two referents, and they had to choose which of the two referents the sentence referred to. Both referents in the second picture showed the exact same property that was described in the second sentence (e.g., having had its leg broken); the participants' task was to decide, on the basis of the gender-marked constructs within the sentence, which of the two referents was being described.

### 7.1.2.2 Linguistic stimuli

The first sentence involved a masculine and a feminine noun; the second sentence involved either a masculine or a feminine pronoun or possessive form. All nouns in the initial sentence were introduced in the determiner + noun + adjective construction. This was in order to provide the participants with a cue to the noun's gender. An equal distribution on nouns with human, animal, and inanimate referents were used, all of which began with one of the following mutable sounds: /p, t, k, b, d, g/. (See Gathercole & Thomas, this volume, for further details.)

### 7.1.3 Procedure

Each adult was seen individually. The experimenter showed a picture and uttered a sentence corresponding to it. She then turned over the card, to show the two choice pictures, and uttered the second sentence. The adult was instructed to point to the picture that the experimenter was 'talking about'.

Two practice items that were not relevant to the task were used; these were followed immediately by the trial items.

## 8. Results

An ANOVA was conducted in which age (under 50 years, over 50 years) and home language—OWH (only Welsh at home) and WEH (Welsh and English at home)—were treated as between-subjects variables, and linguistic form (pronoun, possessive), animacy (human, animal, inanimate), and gender (feminine, masculine) as within-subjects variables. Results revealed the following significant effects.

First, as revealed in Experiment 1, there were no main effects of age ( $F(1, 40) = .62, p > .05$ ) or of home language ( $F(1, 40) = .026, p > .05$ ). There was, however, a main effect of gender ( $F(1, 40) = 9.79, p < .01$ ), and a main effect of animacy ( $F(2, 80) = 61.41, p < .001$ ). The effect of gender was due to the better performance on interpreting the “feminine” possessor in sentences involving feminine referents (85% expected responses) than interpreting the “masculine” possessor of sentences involving masculine referents (79.4%). This was possibly due to the salience of AM after *ei* as signalling feminine possession. (Recall that AM is only used regularly in this context.) The main effect of animacy was due to better interpretation of the gender of possessors in sentences involving human referents (98.8%) than in those involving either animal referents (76.6%) or inanimate referents (71.2%): human vs. animal =  $F(1, 80) = 76.17, p < .001$ , human vs. inanimate =  $F(1, 80) = 105.66, p < .001$ . There were no other significant main effects.

There were also some significant two- and three-way interactions: gender X animacy,  $F(2, 80) = 7.007, p < .01$ ; gender X animacy X home language,  $F(2, 80) = 4.80, p < .05$ ; and linguistic form X gender X animacy,  $F(2, 80) = 4.29, p < .02$ . Figure 12 shows performance according to gender and animacy.

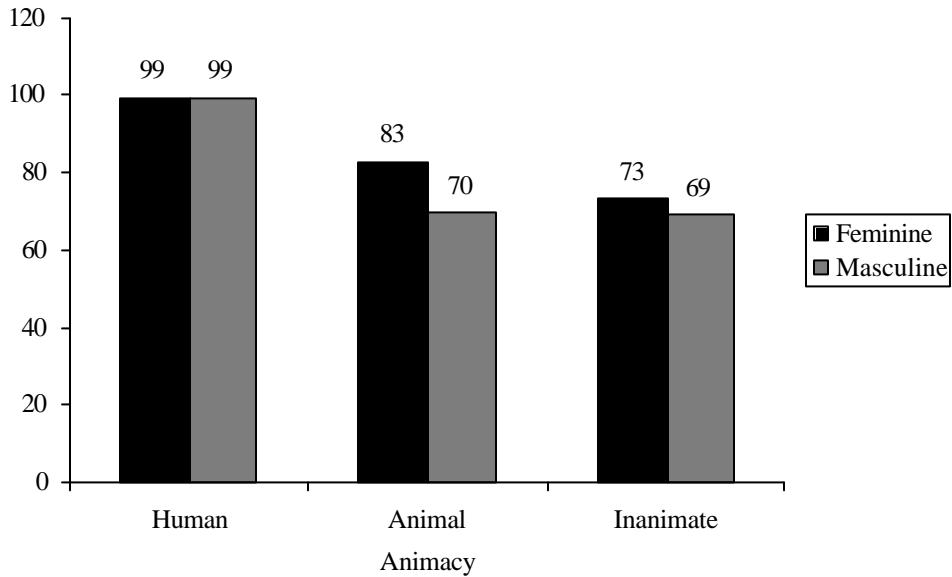


Figure 12: Adults' scores by gender x animacy.

Follow-up analysis revealed significant differences in performance on feminine referents according to the animacy hierarchy humans > animals > inanimates (all  $F_s(1, 80) \geq 12.13, p < .001$ ). For the masculine referents performance on human antecedents was best: humans > animals, humans > inanimates (both  $F_s(2, 80) \geq 130.1, p < .001$ ); performance on animals and inanimates was equal.

Performance by gender, animacy, and home language is shown in Figure 13. Post-hoc analysis revealed that this interaction was due to the WEH adults performing significantly better on feminine animal referents than on masculine animate referents ( $F(1, 17) = 21.25, p < .001$ ).

Performance by linguistic form, gender, and animacy is shown in Figure 14.

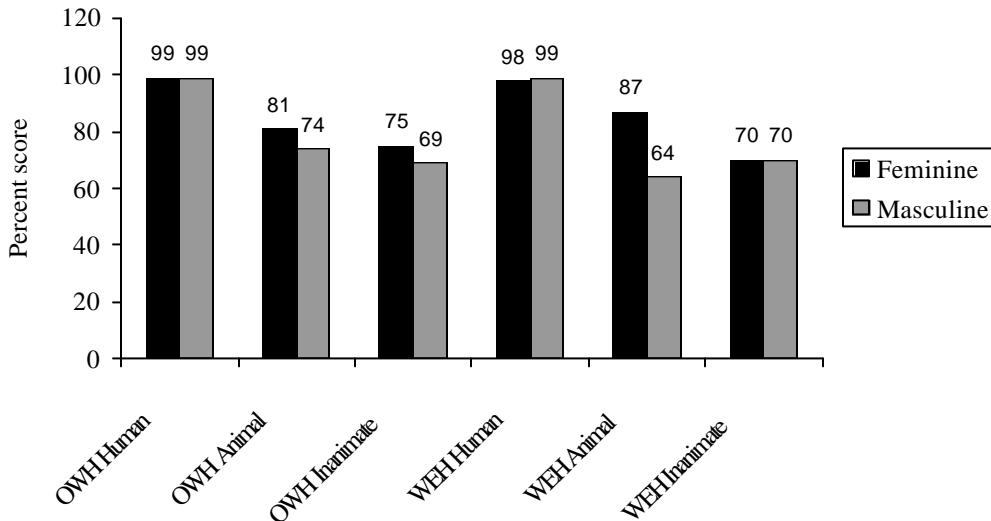


Figure 13: Adults' scores by gender x animacy x home language.

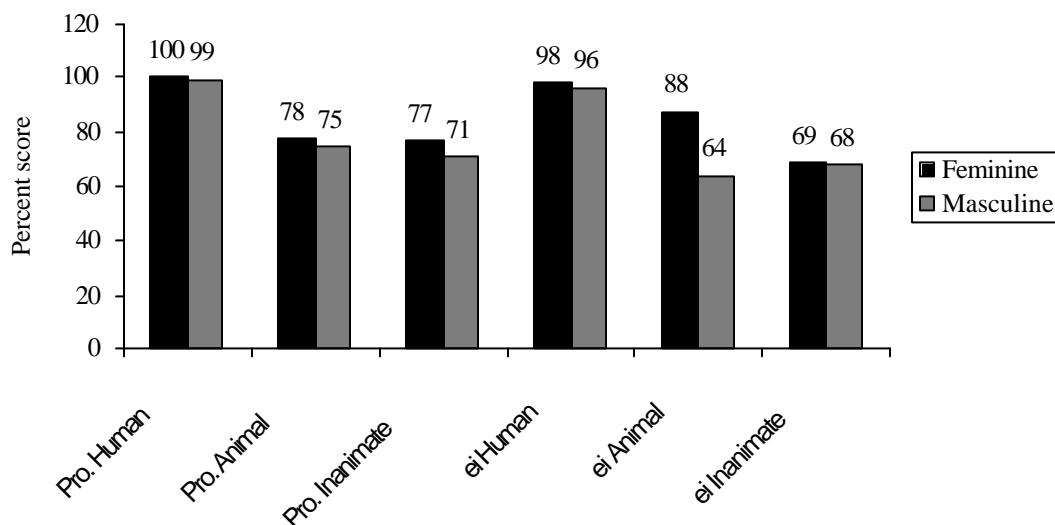


Figure 14: Adults' scores by linguistic form x gender x animacy (where Pro. denotes pronoun).

Follow-up analysis revealed a significant difference between responses for feminine pronouns for animals and possessives referring to animals ( $F(1, 80) = 5.49, p < .05$ ). That is, the adults performed better on the possessive forms for feminine animals than they did on the pronominal forms in relation to animals. This suggests that in the absence of clear sex distinctions, AM on the possessive form of nouns for animals “helps” the adult interpret the grammatical gender of the noun.

## 9. Discussion

The experimental data presented in this paper reveal a different picture of the processes of change currently underway in Welsh to that which has been shown in previous descriptions of speakers' competence with grammatical gender constructs in Welsh. Jones' (1998) naturalistic data revealed large differences between the performance of older and that of younger adults in the two dialects she studied. When similar constructs were examined in semi-naturalistic productions and receptive interpretations of speakers from areas where bilingualism is dominant, no discernible difference was found between the older and younger adults' productive and receptive command of grammatical gender in either experiment. This clearly suggests that gender distinctions are stable in their language.

The marking of gender, scored in terms of approximation to the standard norm, was generally higher, for all younger speakers, in Experiment 1 than in Jones' (1998) data. Children between the ages of 4 1/2 and 9 years mutated feminine nouns after the article approximately 60% of the time, and they mutated adjectives after feminine nouns approximately 58% of the time. They also mutated adjectives after masculine nouns (which retain their basic form in the standard norm) 5% of the time. Adults never mutated adjectives after masculine nouns in the story task. Comparable data in Jones' study revealed a clear difference between children's, younger adults', and older adults' responses. Children between the ages of 7 and 19 years in her study marked feminine gender less often than children in our Experiment 1. In her study, children mutated feminine nouns after the article 44% (Rhos) and 38% (Rhymini) of the time, and adjectives after feminine nouns 32% (Rhos) and 35% (Rhymini) of the time. Children also mutated adjectives after masculine nouns (which retain their basic form in the standard norm) 17% of the time. This was also evident in the speech of the younger

adults: the 20- to 39-year-olds mutated adjectives after masculine nouns 16% of the time whereas all adults over 40 years of age never mutated adjectives in this context.

Statistical analysis of the adult story data here revealed that adults mutated feminine nouns after the article 88% of the time, and adjectives after feminine nouns (excluding *bach*) 79% of the time. Comparable data from Jones revealed that the younger adults mutated feminine noun after the article 62% (Rhos) and 29% (Rhymni) of the time, and adjectives after feminine nouns 67% (Rhos) and 69% (Rhymni) of the time. Older adults produced these variants over 90% of the time.

Moreover, the Gwynedd/Anglesey data indicated that the children were slowly approaching the adult norm, and more quickly than the children (and even the younger adults) in Jones' study: The Gwynedd/Anglesey children's data showed that performance was near that of adults by 9 years, whereas the data obtained by Jones showed that even at 39 years of age speakers of the two dialects she studied were still performing at a much lower level than the older adults. That children from Gwynedd and Anglesey are approaching adult norms has also been documented in Gathercole and Thomas (in preparation; this volume).

The two data sets (Jones' and ours) differ in sociological terms. Rhos is situated close to the English border, and both Rhos and Rhymni have a history of immigration, leading back to the industrialization period in Rhymni. Gwynedd and Anglesey, on the other hand, have remained less affected by such developments thus far. Therefore the contrast between performance by the two sets of speakers as reported here strongly suggests that the so-called "critical mass" of speakers required in order to fully acquire the gender system is not present in Rhymni, and even less so in Rhos.

Children who attended English-medium education in Rhos made fewer gender distinctions than other children. Although all of the children of Rhos are exposed to the same critical mass of speakers in the community, it is the frequency and quality of exposure that may set these children apart. Due to the stronger element of bilingualism in Gwynedd and Anglesey, the frequency of exposure to the gender may be adequate to maintain the system.

It is worth noting, however, that although the 2001 Census data revealed a rise in speaker numbers, the analysis also revealed that the rise was even greater in the more Anglicized areas. Traditional stronghold areas showed a slight decrease in number. This may be linked to the change in attitudes towards maintaining the language in the more Anglicized areas (and the increasing influx of non-Welsh speakers to the stronghold areas of the language), while the younger speakers move from the rural areas to the more urban areas of South Wales (or outside of Wales) for work.

It remains to be seen whether the "healthy" trends reported in this paper remain the same in years to come. In fact, recent evidence by Gathercole and Thomas (in preparation) suggests that in a carefully controlled experimental setting testing for productive abilities with grammatical gender, older adults retain more of the expected gender distinctions than younger adults. This may highlight methodological factors rather than issues relating to language death, or it may reveal aspects of speakers' knowledge at the "edges" of their abilities. In addition, one difference between naturalistic and experimental studies is that the may taps into different types of knowledge, the latter relating more to metalinguistic knowledge than the former. In more naturalistic settings, participants are free to use whichever words and construction they choose to use. In the more experimental situation, however, participants are forced to use the constructs and words as provided, sometimes even involving created nonsense forms. Performance on tasks may to some extent reflect the frequency of use or preference of use of a particular form. Analyses by frequency are needed to explore such a possibility.

## 10. Conclusion

There are two key pieces of evidence that support the notion of obsolescence in Jones' dialects. These are (1) differences in performance according to age, with older adults retaining gender distinctions more than younger speakers, and (2) reduced numbers of speakers, resulting in a lack of transmission of the language across generations. The importance of these factors is underlined by differences between Jones' and our data. There was less use of mutation to mark feminine gender in the younger adult speakers of Jones' dialects than of the younger (and even child) speakers in our story-task. One piece of evidence that may serve to distinguish whether the changes observed correspond to "natural" language change or are examples of language death is speakers' performance

on anaphoric forms. Although not explicitly stated, it seems that Jones' data involved uses of *ei* in reference to animate possessors. Jones noted that "in this case study, enough tokens were yielded for a comparison to be made between the use by informants of *ei* + soft mutation to denote a male possessor and *ei* + aspirate mutation to denote a female possessor" (p.166). The use of the terms "male" and "female" (not "masculine" and "feminine") suggests animate, or even human, antecedents. Animate (and especially humans) have clear sex characteristics that correspond to male and female gender, so it is not surprising to find good responses here. Our Experiment 2 showed that adults' comprehension of *ei* (with either SM or AM) and of pronouns was high when the antecedent was human. However, it was low when the antecedent noun was an animal or inanimate object (see Gathercole, Thomas, & Laporte (2001) and Gathercole & Thomas (in preparation; this volume) for similar conclusions regarding children). An examination of performance on each of these noun types, can help to elucidate the ultimate status of gender (grammatical? natural?) in the system.

Together, what these data indicate is that: (1) major changes are underway in the speech of adults in Rhos and Rhymini. (2) These changes involve the reduction of morphological complexities in their speech. (3) This is evident to a greater extent there than in the speech of Gwynedd and Anglesey adults. (4) When the rate of change is sudden, occurring across generations, this suggests possible obsolescence. (5) Such extreme changes are not evident to the same extent in the speech of Gwynedd and Anglesey adults. (6) Finally, the differences in competence across dialects may be related to exposure to Welsh in the community.

Many questions are deserving of further study. Can a closer examination of gender by animacy elucidate the process of change currently underway in Welsh? To what extent do the methodologies used affect performance? What consequences do the adult uses have for child language acquisition? Finally, how do teenagers in the Gwynedd and Anglesey perform? Such data would be useful to help bridge the gap between the child and adult data. The answers to these questions will help lead to the ultimate answer regarding the nature of obsolescence or survival for the Welsh language.

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