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Phonological Variation in Mid-Wales

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1. Introduction

This article will examine the nature of phonological variations in one part of mid-Wales, namely the area around Tywyn, known in Welsh as Bro Dysynni (see Map 1).¹ First impressions of this dialect may suggest that the variations found in this area merely involve random alternations. However, the detailed analyses presented in this paper show that they involve complex patterns which are highly sensitive to a wide range of linguistic factors. It will also become apparent that some social factors influence these variation patterns too, but that these are secondary to the linguistic factors.

This study focuses on three specific phonological features, namely the high central vowel [i(:)] / [ɪ],² the fronted and raised low vowel [æ(:)], and the palatalised velar plosives [kj] / [gj].³ The high central vowel is characteristic of north Wales dialects, and the contrast that is heard there between [i(:)] / [ɪ] and [i(:)] / [ɪ], e.g. in pairs such as [ti:] 'ty' *house* and [ti:] 'ti' *you*, is usually lost in south Wales (Awbery, 1984: 72; G. E. Jones, 1984: 57; Hannahs, 2013: 14). Since the nature of the phonological transitions found in mid-Wales has hitherto not been a serious subject of investigation, the results described below for the high central vowel will shed light on the way in which a Welsh phonological feature is behaving in a transition zone, and show how its use varies considerably from one linguistic context to another. Not all phonological features found in mid-Wales are 'transitional' *per se* however, and they do not relate simply to the location of mid-Wales between the north and south of the country. The other two features discussed in this paper, the fronted raised [æ(:)] and the palatalised velar consonants [kj] / [gj], are of this type, and may be regarded as more 'local' characteristics. It will become clear that speakers' use of these too varies substantially across different linguistic contexts.

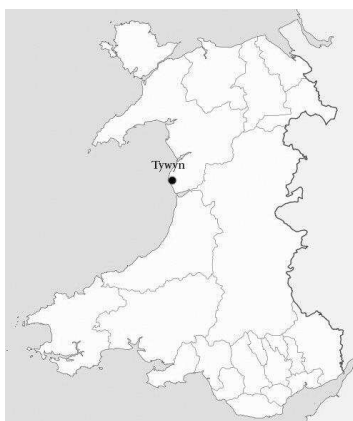
This study's findings suggest a different approach to dialect variation and geographical transitions from previous accounts of dialect variation in Welsh. Specifically, two concepts have been found to be inadequate and misleading. First, the term 'free variation', commonly used in structural phonological analyses of Welsh (e.g. C. Thomas, 1993: 16; Griffiths, 1974: XC), cannot adequately describe the patterns of variation that are found in the Tywyn area. This approach is not exclusive to traditional dialectological studies on Welsh, but rather has been commonly applied within mainstream linguistics 'to describe such a fluctuation between variants which seems to have no discernible pattern' (Petyt, 1980: 108). This paper thus challenges the whole concept of 'free variation' by showing how the patterns of variation found in the Tywyn area are conditioned by precise linguistic factors. Secondly, it also appears that the use of straightforward isoglosses (e.g. Darlington, 1902) fails to reflect the complex phonological patterns that emerge in this district in mid-Wales. Indeed, boundary-lines of this type imply, not only that one phonological variant may be switched for another at a certain point, but also that this change affects the whole system all at once. This study however will portray a far more complicated situation, where different linguistic contexts influence the use of all of the phonological features examined, and to which isoglosses cannot sufficiently do justice.

¹ This study draws on material first presented in my PhD thesis (Rees, 2013). Fieldwork was also conducted in the Harlech area, here similar phonological patterns emerged (see Rees, 2013: 118–458 for full account), but for convenience, the analysis presented here will focus on the results yielded in the Tywyn district. I am greatly indebted to Dr Gwenllian M. Awbery for her comments on previous versions of this article.

² Note that (:) in this article indicates that vowel length is optional, i.e. that both long [i:]s and short [ɪ]s are considered in this instance.

³ A fourth phonological feature was also analysed in my thesis, namely the close-mid and the open-mid vowels [e(:)] / [ɛ(:)] and [o(:)] / [ɔ(:)], and is discussed in full in Rees (2013: 390–458). The results for this feature are very similar in their nature to the ones presented here.

Map 1: The location of Tywyn in mid-Wales



Adapted from http://commons.wikimedia.org/wiki/File:Wales_-_location_map.svg

Section 2 will give a brief outline of the methodology of this study, explaining how informants were selected and recorded, and how different phonological variables were chosen and auditorily analysed. These methodological details will then be followed by the empirical results in sections 3–5, and section 6 will present the main conclusions of the study.

2. Data collection and analysis⁴

Informants were selected in the Tywyn district using the ‘friend of a friend’ technique which enabled me to draw on people’s pre-existing social relationships (Milroy, 1987: 66). Contact was made with local community members who agreed to function as ‘brokers’ in the area, and helped me to persuade suitable speakers to participate in interviews with me. In this way I was able to access local social networks, and to be recognised first and foremost, not as a researcher, but as a friend of the ‘brokers’.⁵ The ‘friend of a friend’ method also proved to be an effective way of obtaining hours of natural speech. Random sampling was not used in this study: Welsh speakers in this area are in the minority, especially in the 65+ age-group, and sociolinguists working on other varieties of Welsh have found this technique to be impractical in the context of a minority language (e.g. A. E. Thomas, 1998: 92; M. C. Jones, 1998: 49).

My aim was to record a group of people who could be considered similar in social, cultural and educational terms. Broadly speaking, all informants were members of the older generation, i.e. aged 70+ when the interviews were held, apart from R.P., who was in her early sixties.⁶ Table 1 shows the gender and dates of birth of the speakers, as well as the towns or villages in which they lived and grew up. The area under consideration in this study therefore includes the coastal town of Tywyn and Bryn-crug (about 2.5 miles from the town), and extends inland towards Abergynolwyn and Llanfihangel-y-pennant (approximately 7 and 8 miles respectively from Tywyn), as shown in Map 2. An equal number of male and female informants were chosen in order to assess whether gender differences might prove to be a significant factor. None of the participants had received formal education beyond the age of 16, and with the exception of one male speaker,⁷ all had spent the greater part if not the whole of their lives in their communities. Informants therefore resemble fairly

⁴ For full account of the methodology of this study, see Rees (2013: 85–116).

⁵ This technique has previously been used in several sociolinguistic studies around the world, e.g. in Wales (A. E. Jones, 1982; M. C. Jones, 1998), England (Britain, 1997), New Zealand (Holmes et al., 1991), Austria (Lippi-Green, 1989), Australia (Horvath, 1985) and Brazil (Bortoni-Ricardo, 1985).

⁶ Incidentally, R.P. was also the ‘broker’ of this area. Because her spoken Welsh exhibited many phonological features characteristic of mid-Walian dialects, and since she too was from a similar background to the other participants interviewed, I decided to include her in the Tywyn district sample.

⁷ This participant, C.D. had left Wales for England in his early twenties in order to take up a post with the Royal Navy, and had not returned to live permanently in his home community until his retirement. Since English had naturally been his exclusive language of communication in England (with both his family and colleagues), it became apparent from the outset that the phonological patterns exhibited in his Welsh were characteristic of the Tywyn area. This initial perception is indeed confirmed by the results, some of which are presented in this paper.

closely the NORMs – non-mobile, older, rural males – of traditional dialectology (Petyt, 1980: 110–16; Chambers and Trudgill, 1998: 29–30), except for the inclusion of female as well as male speakers. They had all grown up in an environment where the use of Welsh as a spoken language was natural throughout the community, although considerable demographic changes have taken place during their lifetime, primarily due to immigration from England (Aitchison and Carter, 1994: 48, 49, 53 and 94; Idem, 2004: 52; H. M. Jones, 2012).

In the case of the high central vowel, the fronted and raised low vowel, and the palatalised velar plosives, it was clear from listening informally to the recordings that the realisations of all three phonological features varied considerably and would require closer examination. The recordings were initially analysed using a broad phonetic transcription, and were transcribed in a series of audit trails. Each of these focused on a specific phonological variable, and on a particular linguistic context. For instance, whilst examining the use of the high central vowel, the first transcript focused on the forms found in monosyllabic words, whilst the second focused on polysyllabic forms. A similar procedure was followed in the case of the other two dialect features. This approach ensures that careful attention is given to all forms relating to a variable, and that the probability of including every single relevant token in the transcriptions is maximised.

Table 1. Informants from the Tywyn district

Speaker	Male/Female	Living in/Grew up in	Date of Birth
B.R	F	Abergynolwyn	14/06/1913
M.V	M	Tywyn	21/04/1929
C.D	M	Bryn-crug / Abergynolwyn	29/09/1929
G.E.T	M	Bryn-crug	22/07/1931
E.W	F	Llanfihangel-y-pennant	04/12/1932
R.P	F	Abergynolwyn	27/04/1951

Map 2: The towns and villages of the Tywyn area



Adapted from <https://www.ordnancesurvey.co.uk/shop/explorer-map-cadair-idris-bala-lake.html>

The raw material gathered in this way was then systematically organised for analysis. The data for each linguistic context were kept separate, and it was not assumed that phonological features would behave uniformly across different linguistic contexts. In the same way, the data for each individual were kept separate, and there was no assumption that individuals from a uniform social group would be linguistically similar. In the case of each variable, a binary scale was employed, recognising two variants for each of the phonological features under discussion.⁸ The precise phonetic value of the two variants may differ slightly from one speaker to another, and from one context to another, but crucially an opposition between two particular values is to be seen in all cases. All the relevant tokens were examined, and the percentages of each variant in each context for each informant were calculated. In the following results, it should be noted that the order in which the speakers appear differs for each phonological feature, and is established in each case by looking at their rankings (from highest to lowest) in the first context of the first relevant graph (cf. Figures 1, 3 and 6 below).⁹

⁸ For a discussion on the difficulties of threefold scales when examining a phonological feature of Welsh, namely the fronted and raised low vowel, see A. E. Thomas (1998: 104).

⁹ The implications of these different rankings will be discussed in more detail in section 6 below.

3. The high central vowel¹⁰

The high central vowel, or the ‘northern u’ (*yr ‘u ogleddol’*) as it is informally called (B. Thomas and P. W. Thomas, 1989: 31), is well known to be a characteristic feature of northern Welsh. Generally in north Wales, a clear contrast is heard between pairs such as [mi:] ‘mil’ *thousand* and [mi:] ‘mul’ *donkey*. Conversely, since this contrast is neutralised in the south, these words are homophones, and are always pronounced with the high front vowel [i:] (see, for instance, Hannahs, 2013: 14). Consequently, the phonological systems of southern dialects generally have fewer vowels than northern ones (Ball and Williams, 2001: 34–6; Awbery, 2009: 359–60), and this particular loss of contrast results in important structural differences as far as the phonology of Welsh is concerned. As Sommerfelt puts it, the disappearance of the high central vowel in mid-Wales is ‘of fundamental importance to the phonetic system’ (1925: 133).

In view of this, it may be surprising that the transition in parts of mid-Wales between districts which retain the northern [i(:)] / [ɪ] and those where only the southern [i(:)] / [ɪ] is found has never been a subject of an in-depth investigation. Thomas Darlington at the turn of the twentieth century attempted to establish the isogloss for what he called ‘the northern boundary of what is known as the south Welsh pronunciation of *u* (*y*), as in *bu, llys, ufudd, hyn*; that is to say the pronunciation which makes no distinction between *i* and *u*’ (1902: 14–15), and it is this description by Darlington which forms the basis for the mid-Wales isogloss that appears in Map 3. Broadly speaking, linguists reporting on dialects in mid-Wales have assumed that Darlington’s boundary-line is on the whole reliable, although some writers have suggested that there could be transition areas where both vowels are heard (e.g. Sommerfelt, 1925: 133–34; B. Thomas and P.W. Thomas, 1989: 31).¹¹

From my initial analysis of the phonological system in the Tywyn area, it was clear that variation between northern [i(:)] / [ɪ] and southern [i(:)] / [ɪ] was widespread. The following examples illustrate how variation of this kind was found in a wide range of different phonological contexts. Note that the same word may vary between the usage of one speaker and another, and even within the speech of one single informant.¹²

- Monosyllables; long vowels: [bi:d] -- [bi:d] ‘byd’ *world*; [ʔi:n] -- [ʔi:n] ‘llun’ *picture*; [ti:] -- [ti:] ‘ty’ *house*¹³
- Monosyllables; short vowels: [biθ] -- [biθ] ‘byth’ *ever*; [kin] -- [kin] ‘cyn’ *before*; [pɪmp] -- [pɪmp] ‘pump’ *five*
- Stressed penultimates; short vowels: [*wɪðɔχ] -- [*wɪðɔχ]¹⁴ ‘gwyddoch’ *you know* (2nd plural); [hɪna] -- [hɪna] ‘hyn’ *na’ that (there)*; [sɪsnag] -- [sɪsnag] ‘Saesneg’ *English (language)*
- Unstressed final syllables; short vowels: [kəsgɪ] -- [kəsgɪ] ‘cysgu’ *to sleep*; [hɛlpi] -- [hɛlpi] ‘helpu’ *to help*; [wedɪn] -- [wedɪn] ‘wedyn’ *afterwards*

The discussion which follows will look in turn at each of these contexts, examining first

¹⁰ Although terms such as ‘the high central vowel’ and ‘the northern vowel’ are employed here, two particular vowels of this type, specifically [i(:)] and [ɪ], were identified, similarly to other accounts of north-Walian / mid-Walian phonological systems see, for example, Awbery, 2009; A. R. Thomas et al., 2000; Mayr and Davies, 2011). The main difference between them is that the first is higher (or closer) than the latter. [ɪ] was only found in short vowels, whilst examples of [i(:)] were noted for both long and short vowels. The equivalent front vowels of these central vowels are therefore [i(:)] and [ɪ]. The following analyses will only be concerned with the contrast between central and front vowels, regardless of the fine phonetic detail of their realisations.

¹¹ For a detailed discussion of previous accounts of the use of the high central vowel in parts of mid-Wales, see Rees (2013: 31–48). Also for a detailed analysis of this phonological feature in both the Tywyn and Harlech areas, see Rees (in preparation³).

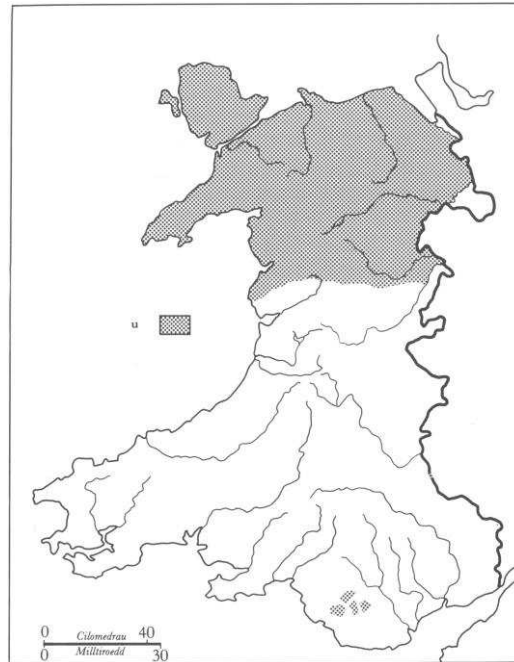
¹² Although it is tempting to consider this kind of variation as a classic example of ‘free variation’ (Petyt, 1980: 108), the appropriateness of this term will be explored further in section 6 of this article.

¹³ Long vowels of this type appear also in other contexts, specifically in stressed final syllables, e.g. in [əmlɪ:sg] ‘ymysg’ *among* and [əŋ’hi:d] ‘ynghyd’ *together*, and in stressed penultimates when followed by another vowel, e.g. [bi:an] -- [bi:an] ‘buan’ *early*. However, it was not possible to carry out a reliable comparison in these instances due to a shortage of relevant tokens. My analysis of long vowels is thereby limited to monosyllabic forms only.

¹⁴ Note that * signifies a mutated form throughout this paper.

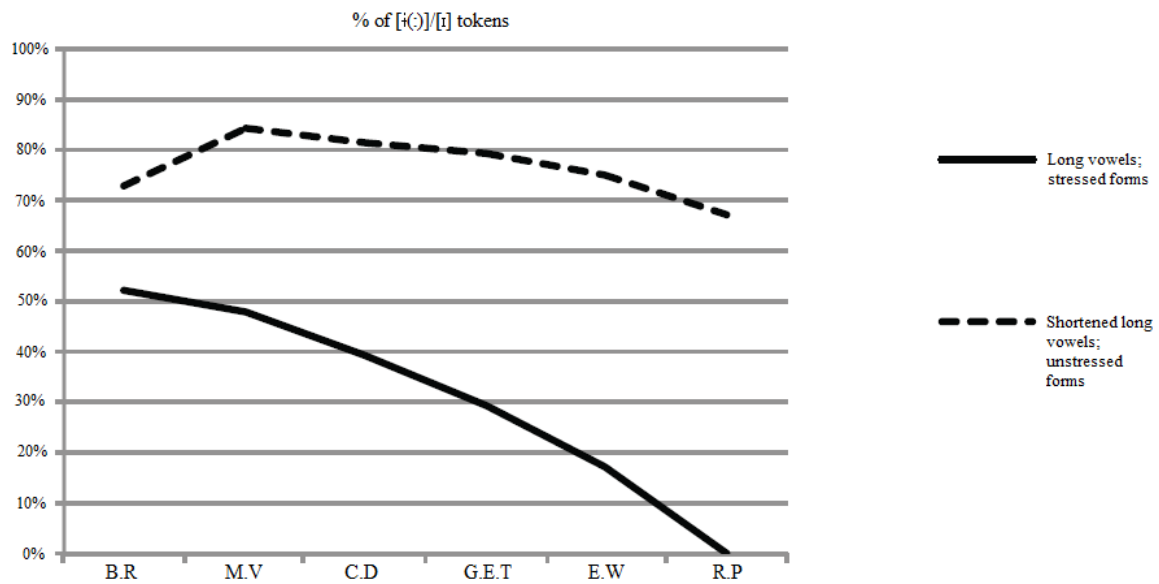
long vowels in monosyllables, and then short vowels in a range of different contexts.¹⁵

Map 3: The geographical distribution of the high central vowel in north Wales



B. Thomas and P. W. Thomas, 1989: 32

Figure 1: Long vowels in monosyllables



Context	Examples
Long vowels; stressed forms	[di:ð] "dydd" day; [kli:sd] "clust" ear
Shortened long vowels; unstressed forms	[dið] "dydd" day; [in] "un" one

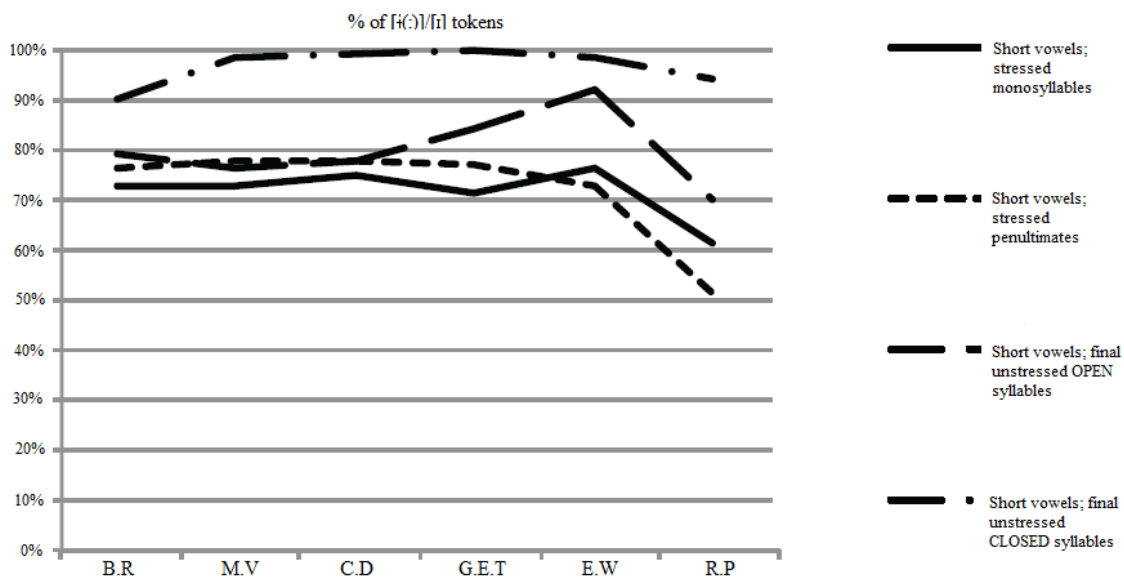
¹⁵ Similar alternations between [i] / [ɪ] and [i:] / [ɪ:] were noted also in diphthongs, both as first and last elements, e.g. in [biu] -- [biu] 'byw' to live and [mu:i] -- [mu:ɪ] 'mwy' more. However, as these cases raise other considerations (see Rees, in preparation^b), the discussion here will focus exclusively on simple vowels.

Long vowels are found in monosyllabic words, but their actual length varies according to whether lexical stress is placed upon the word.¹⁶ Words such as [di:ð] ‘dydd’ *day* and [i:n] ‘un’ *one* are truly long when stressed, whilst they are shortened when unstressed because emphasis is placed on other words in the phrase, e.g. in [di ‘hi:n] ‘dydd Llun’ *Monday* and [rin ‘pe:θ djɔ] ‘yr un peth (y)di-o’ *it is the same thing*. As a result, these ‘long’ vowels were divided into two separate groups:

- Long vowels; stressed forms;
- Shortened long vowels; unstressed forms.

Figure 1 reveals a clear difference between the results for these two contexts. The solid line shows substantial variation between the speakers for long vowels in stressed forms, with the percentages of [i:] tokens ranging from 52% to 0%.¹⁷ In contrast, the dotted line shows that considerably less variation is found for the shortened long vowels of unstressed forms. The scores of all the speakers are also considerably higher in unstressed forms than in stressed ones. Clearly, it would not be appropriate to combine the scores of these two contexts as to do so would obscure the substantial differences that exist between them.

Figure 2: Short vowels in monosyllables and polysyllables



Context	Examples
Short vowels; stressed monosyllables	[mɪnd] ‘mynd’ to go; [bɪθ] ‘byth’ ever
Short vowels; stressed penultimate	[klɪsdʒə] ‘clustiau’ ears; [ɪxæ] ‘uchaf’ upper
Short vowels; final unstressed open syllables	[gweli] ‘gwely’ bed; [kani] ‘canu’ sing
Short vowels; final unstressed closed syllables	[kəxwɪn] ‘cychwyn’ begin; [pəpɪr] ‘papur’ paper

Figure 2 shows how the use of the high central vowel varies across the contexts in which short vowels are found. In the case of stressed monosyllables, i.e. forms such as [mɪnd] ‘mynd’ *to go*, [kɪn] ‘cyn’ *before* and [pɪmp] ‘pump’ *five*, the solid line illustrates that the scores are very consistent, and it is striking that no major differences appear to exist between these short vowels in stressed monosyllables, and the shortened ‘long’ vowels of unstressed monosyllables as seen in Figure 1. It seems that vowels which are short for whatever reason behave very differently from the truly long vowels of stressed monosyllables. The results obtained for stressed penultimate, i.e. forms such as

¹⁶ This type of stress is referred to as ‘acfen bwys’ in Welsh (see, for example, P. W. Thomas, 1996: 788), and corresponds to the English term ‘lexical stress’, or ‘word stress’ as it is called by Cruttenden (1986: 17–8).

¹⁷ The raw figures that form the basis of all the results presented in this paper can be found in the appendix of my PhD thesis (Rees, 2013).

[klišdja] 'clustiau' *ears* and [hīnan] 'hunan' *self*, are then shown on the dotted line.¹⁸ These results tally closely with those of short vowels in monosyllables (the solid line), and it is clear that one speaker differs in both cases from the others, namely R.P., the youngest speaker, whose scores are considerably lower than the others. These results may well be in line therefore with her complete absence of northern vowels in the context of long vowels in stressed monosyllables.

Finally, turning to short vowels in final unstressed syllables, these were divided into two specific sub-groups; first those in open syllables with no following consonant, as in [gweli] 'gwely' *bed* and [kəsgɪ] 'cysgu' *to sleep*, and secondly those in closed syllables with a following consonant or cluster, as in [kəχwɪn] 'cychwyn' *begin* and [papɪr] 'papur' *paper*.¹⁹ Figure 2 shows that the use of the high central vowel is generally higher in closed syllables than in open ones.²⁰

On the whole then, it appears from Figures 1 and 2 that a hierarchy exists whereby the use of the high central vowel in the Tywyn district varies largely according to the linguistic context. The highest levels of use appear in the case of short vowels. First on this scale are forms such as [kəχwɪn] 'cychwyn' *begin*, where short vowels appear in final unstressed closed syllables. Second on this scale are forms like [gweli] 'gwely' *bed*, where short vowels appear in final unstressed open syllables. The usage is generally lower where short vowels appear in stressed penultimates and stressed monosyllables, which resemble each other closely.²¹ Interestingly, the scores of both of these stressed syllables are also similar to those of the shortened long vowels of unstressed monosyllables. The high central vowel is least likely to appear as a long vowel in a stressed monosyllable.

Usage of the high central vowel in the Tywyn district appears then to be largely conditioned by four specific linguistic factors, namely:

- The length of the vowel: long or short
- The type of lexical stress placed on the word: stressed or unstressed
- The vowel's position within the word (i.e. the syllabic context): in a monosyllable, a stressed penultimate, or an unstressed final syllable
- The precise phonetic environment in which the vowel appears: followed by a consonant or not

It is clear too that variation exists also between individual speakers. Are these types of variation related in any way to a particular social factor such as age? The results for long vowels in stressed monosyllables (see Figure 1) show a wide range of scores and it is evident from Table 1 above that it is the eldest speaker, B.R., who has the highest score (52%), whilst the youngest, R.P., is on 0%. We may infer from this perhaps that the erosion of this dialect feature is currently underway in the Tywyn area, and that this variation is an indication of a gradual change from [i(:)] / [ɪ] to [i(:)] / [ɪ]. If so, it may be argued that the high central vowel is least likely to be retained as a long vowel in a stressed monosyllable.²² Interestingly enough, it is in this context also that the broadest range of scores are seen; an indication perhaps of a relatively rapid change. A greater degree of uniformity is exposed in other contexts in which short vowels of different types are examined, and where the high central vowel is more likely to be preserved. Even though a correlation seems possible between the age of a speaker and the use of high central vowels for long vowels in stressed monosyllables, similar parallelisms are less obvious (cf. R.P.'s slightly lower scores in some contexts in Figure 2), or do not appear at all, in the case of short vowels. It seems therefore that the influence of a particular social factor such as age may be greater in some linguistic contexts than others. Other social factors may also be relevant however as the other four speakers (M.V., C.D., G.E.T., E.W.) are of a similar age

¹⁸ Note that vowels are predictably short in stressed penultimates, except when they are followed by another vowel, e.g. in [bi:an] 'buan' *early* and [ki:a] 'caeau' *fields*; cf. footnote 13.

¹⁹ The actual phonetic realisation of these vowels is normally closer in open syllables than in closed syllables.

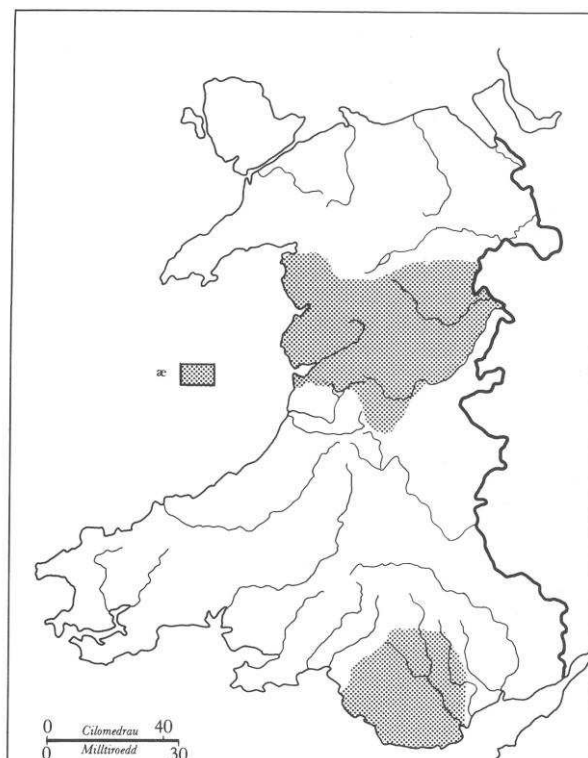
²⁰ Note that short vowels in monosyllables and stressed penultimates always appear in closed syllables.

²¹ Note however that the first three speakers' results for final unstressed open syllables are strikingly similar to their scores in stressed penultimates and stressed monosyllables.

²² This situation appears to be very different from that of an earlier contrast in Welsh between [u(:)] and [i(:)], which is reported to have been merged by the end of the sixteenth century (G. E. Jones, 1982: 49). Indeed, the high central rounded vowel [u(:)] seems to have persisted longer in stressed monosyllables than in unstressed syllables (Watkins, 1961: 82; J. M. Jones, 1913: 13). It is by and large the opposite situation that we find today in the case of the high central unrounded vowel [i(:)] in the Tywyn district.

but display different scores. Gender differences do not appear relevant, and it is difficult to link the variation found here between these four speakers to other social or extralinguistic factors.

Map 4: The geographical distribution of the fronted raised [æ(:)] in mid-Wales



B. Thomas and P. W. Thomas, 1989: 37

4. Fronted and raised low vowels

Vowels which are consistently low in other dialects of Welsh (as well as in the standard language) are fronted and raised in mid-Wales, and this fronted raised vowel is referred to as the ‘slender a’ (*yr ‘æfain’* in Welsh) (B. Thomas and P. W. Thomas, 1989: 36). The realisation of the low vowel as [æ(:)] rather than [a(:)] does not involve a loss of contrast, and both [æ(:)] and [a(:)] appear in the dialects of mid-Wales to variable degrees depending on context. It was Thomas Darlington (1902: 17–19) once again who first attempted to map the geographical distribution of [æ(:)] in mid-Wales and based on his description, the substantial territory in mid-Wales with which this feature is associated is displayed in Map 4.²³ Linguists writing about the phonological features of mid-Wales seem to be in agreement that the boundaries described by Darlington are fairly accurate (e.g. Sommerfelt, 1925: 136; B. Thomas and P. W. Thomas, 1989: 36–9).

As for the contexts in which this vowel is found, previous writers report that the fronted raised [æ(:)] normally appears as a long vowel, e.g. in [tæ:d] ‘*tad*’ *father*, [dæ:] ‘*da*’ *good* and [kanja’tæ:d] ‘*caniatâd*’ *permission*. A few exceptional examples of [æ] appearing as a short vowel have been noted, most notably in the common monosyllabic form [mæm] ‘*mam*’ *mother* (Darlington, 1902: 19; Sommerfelt, 1925: 8; B. Thomas and P. W. Thomas, 1989: 39), possibly due to habitual collocations such as [tæ:d a mæm] ‘*tad a mam*’ *father and mother* and [mæm bæ:χ] ‘*mam bach*’ *dear mother*, as Darlington suggests. Close examination of earlier studies reveals that [æ] as a short vowel also turns up sporadically in polysyllables, e.g. in [ækstrɔ] ‘*acstro*’ *axle* (Sommerfelt, 1925: 8); [tæmɛd] ‘*tamaid*’ *piece*, [kædu] ‘*cadw*’ *to keep*, [bənæg] ‘*bynæg*’ (*what*)*ever* (Griffiths, 1974: LXIX); [kjædu] ‘*cadw*’ *to keep*, [æskjævn] ‘*ysgafn*’ *light* and [talkjæn] ‘*talcen*’ *forehead* (A. R. Thomas et al., 2000: 350, 367,

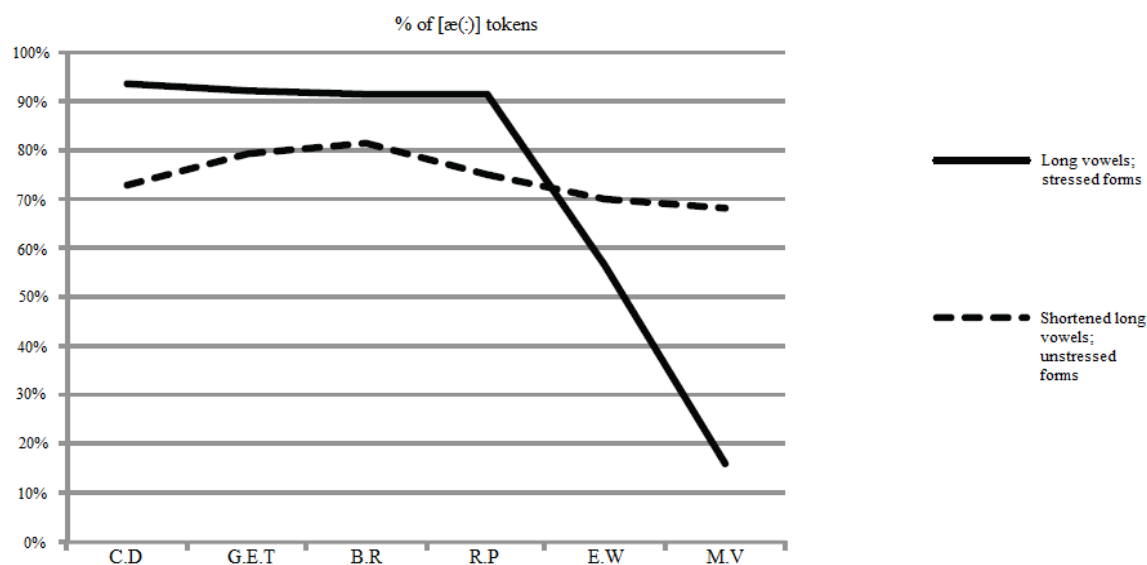
²³ Note that this feature is also characteristic of the traditional Welsh dialect of south-east Wales (*y Wenhwysseg*). For discussion on the parallels of phonological features in mid-Wales and south-east Wales, see Rees (2013: 471–3).

329). Overall then, it appears that instances of [æ] occurring as a short vowel are generally regarded as irregular or arbitrary exceptions.

My data from the Tywyn area however suggest a different picture. From my initial phonological analysis, it became quickly apparent that variation between the low vowels [æ(:)] and [a(:)] was common in several phonological contexts, as can be seen from the following examples. As with the high central vowel, the same word may vary between the usage of one speaker and another, and even within the speech of one single informant.

- Monosyllables; long vowels: [bræ:v] -- [bra:v] 'braf' *nice*; [hæ:] -- [ha:] 'haf' *summer*; [tæ:ð] -- [ta:ð] 'lladd' *to kill*
- Monosyllables; short vowels: [mæm] -- [mam] 'mam' *mother*; [plænt] -- [plant] 'plant' *children*; [kænt] -- [kant] 'cant' *hundred*;
- Stressed penultimates; short vowels: [jærad] -- [jarad] 'siarad' *to speak*; [æmsar] -- [amsar] 'amser' *time*; [*gælad] -- [kalad] 'caled' *hard*
- Unstressed final syllables; short vowels:²⁴ [ivæŋk] -- [ivɔŋk] 'ifanc' *young*; [sɪsnæɡ] -- [sɪsnag] 'Saesneg' *English (language)*; [di:tæd] -- [ditad] 'dillad' *clothes*

Figure 3: Long vowels in monosyllables; all tokens included



Context	Examples
Long vowels; stressed forms	[kæ:l] "cael" have; [a:g] "ac" and
Shortened long vowels; unstressed forms	[kæɪ] "cael" have; [ma] "mae" is

²⁴ Since this dialect neutralises the contrast that is seen in other parts of Wales between 'a' [a] / [æ] and 'e' [ɛ] / [e] in unstressed final syllables, instances of variation between [æ] and [a] in this context were found, not only in words which have [a] 'a' in their final syllables in all dialects of Welsh, e.g. 'dillad' *clothes*, but also in words which have orthographic [ɛ] / [e] 'e' in their final syllables in other parts of Wales, e.g. 'Saesneg' *English*. When these two groups of words were analysed separately, no significant differences were found in the results. The geographical distribution of this particular neutralisation (in both the north-west and the south-east of Wales) is illustrated and discussed in B. Thomas and P. W. Thomas (1989: 40–2), and a detailed analysis of its historical development in North Wales is given in Awbery (2012).

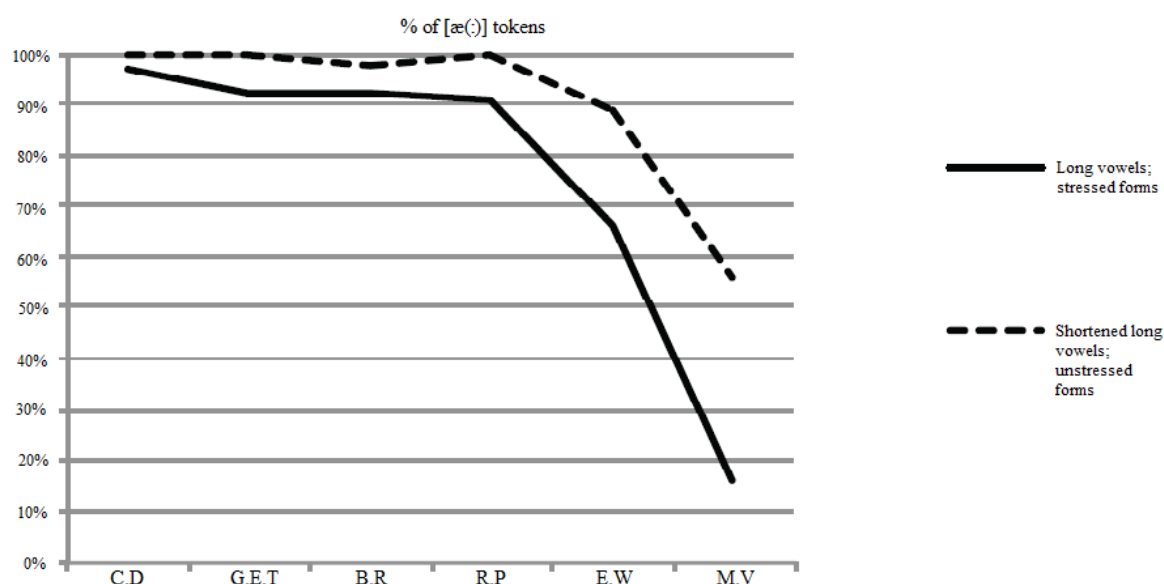
The discussion which follows will look in turn at these different contexts, examining first long vowels in monosyllables, and then short vowels in a range of different positions.²⁵

Here again, long vowels are found in monosyllabic words but their actual length varies according to the presence or absence of lexical stress. The words [bæ:χ] ‘bach’ *small* and [ka:l] ‘cael’ *to have* for example have a long vowel when fully stressed, but these long vowels are shortened in the equivalent unstressed forms, as in [kæɫ ˈbu:ɪd] ‘cael bwyd’ *to have food* and [plɑnt bæχ ˈdru:g] ‘plant bach drwg’ *naughty little children*. These ‘long’ vowels were therefore divided into two separate groups:

- Long vowels; stressed forms;
- Shortened long vowels; unstressed forms.

Figure 3 shows that these contexts give very different results.²⁶ The scores for long vowels in stressed forms are shown by the solid line, and the shortened vowels of unstressed forms by the dotted line. While the first four speakers have higher levels of [æ:] in stressed forms, the opposite is true for the last two informants. The situation of unstressed forms is also more uniform for all speakers than for stressed forms.

Figure 4: Long vowels in monosyllables; function words omitted



Context	Examples
Long vowels; stressed forms	[kæ:l] ‘cael’ have; [ja:r] ‘iâr’ hen
Shortened long vowels; unstressed forms	[kæɫ] ‘cael’ have; [bax] ‘bach’ small

A possible problem in the interpretation of these results arises because certain grammatical function words seemed to be influencing each of the speakers’ scores. Words such as the verbs [ma(:)] / [mæ(:)] ‘mae’ *is* (3rd sg. pres. ‘to be’) and the conjunctions [a:] ‘a’ / [a:g] ‘ac’ *and* appear to behave differently from ‘normal’ lexical items. These function words were therefore omitted from the set in order to see how this might influence the picture, and the result is shown in Figure 4. Here a much clearer picture emerges where the percentages of [æ(:)] tokens are higher for all the informants in

²⁵ It is important to add that variation between these low vowels was also noted in the first elements of diphthongs of various types, e.g. in [tæ:iθ] ~ [tɑ:iθ] ‘llaeth’ *milk* and [jæ:un] ~ [ja:un] ‘iawn’ *okay* (see Rees, 2013: 155–186). However, as the length of diphthongs in the Tywyn district raises many other considerations (cf. Rees, in preparation), and since the total number of tokens is rare in the case of several diphthongs, the following analysis will concentrate exclusively on simple vowels.

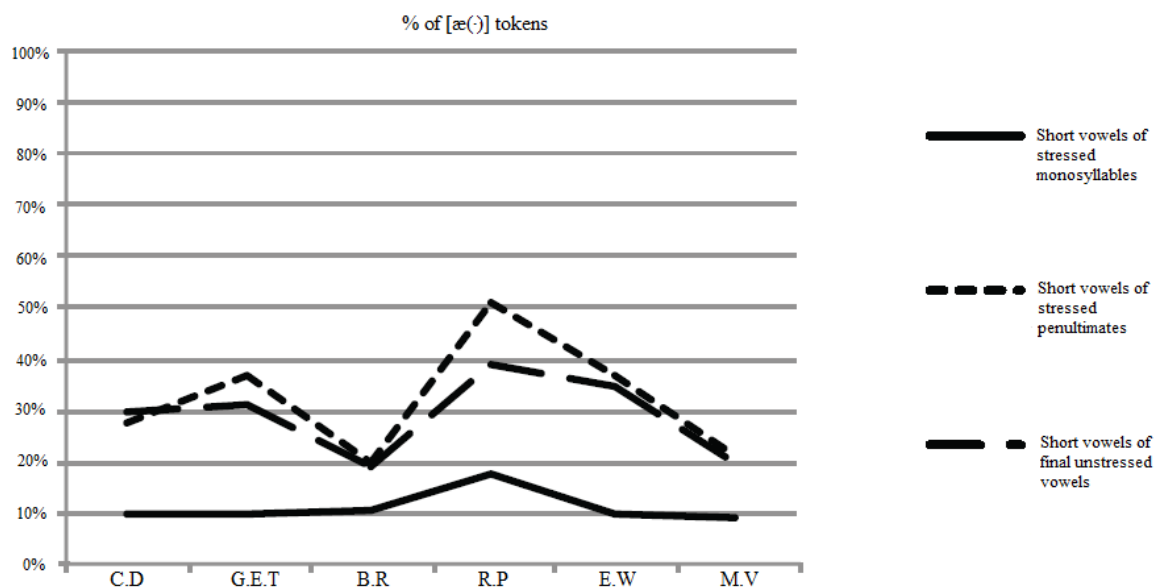
²⁶ Note that the order in which the speakers appear here is different from that of the discussion of the high central vowel in section 3 as it is based on their rankings (from highest to lowest) in this first context for [æ(:)], i.e. long vowels in stressed forms here. The implications of this kind of variation will be discussed in more detail in section 6 below

unstressed forms than in stressed ones. As in Figure 3, a distinction is exposed between the first four speakers, whose percentages of [æ(:)] tokens are high in all cases (i.e. over 90%), and the other two 'rogue' speakers, whose scores are clearly lower, especially in stressed forms.

Further examination of the actual tokens involved showed that the use of [a(:)] instead of [æ(:)] in the language of the first four speakers is on the whole confined to loan-words, or even words which are associated with other dialects of Welsh, e.g. [wa:l] 'wal' *wall* and [(hivən) ja:] '(hufen) iâ' *ice (cream)*.²⁷ As for the other two 'rogue' speakers, variation between [a(:)] and [æ(:)] is much more widespread, and both realisations are found for common words such as [ta:d] ~ [tæ:d] 'tad' *father* and [ka:l] ~ [kæ:l] 'cael' *to have*.²⁸ It appears then that the use of [æ(:)] in long vowels (both stressed and unstressed) is controlled to some extent by some speakers, but is stable and high for others.

The considerable difference between the results of the two 'rogue' speakers for stressed and unstressed monosyllables supports the view that this characteristic is under their control to various degrees. It seems likely that E.W. and M.V. are more successful in their attempt to control their use of this dialect feature in stressed syllables than in unstressed ones. As the fronted raised vowel is stigmatised in parts of south Wales (B. Thomas, 1980: 582), it may be that these speakers are also aware of such attitudes in parts of mid-Wales.

Figure 5: Short vowels in monosyllables and polysyllables



Context	Examples
Short vowels; stressed monosyllables	[bælx] "balch" proud; [tæt] "tall" other
Short vowels; stressed penultimates	[kæpa] "capel" chapel; [darta] "darllen" read
Short vowels; unstressed final syllables	[iværŋk] "ifanc" young; [muia] "mwyaf" most

Turning to the short vowels, Figure 5 reflects the results obtained from examining three different contexts, namely stressed monosyllables, stressed penultimates, and unstressed final syllables. The solid line shows that the use of [æ] in the short vowels of monosyllabic words is substantially lower than that seen in Figures 3 and 4 for long vowels. The percentages of [æ] tokens are also strikingly

²⁷ Note that 'iâ' *ice* is a southern form that corresponds to the northern form 'rhew', but that 'hufen iâ' *ice-cream* is nevertheless employed all over Wales as a standard form. It is interesting that this form has not yet been dialectised, i.e. the long low vowel of its second element is not fronted and raised, and in a similar manner, the standard [e] in the final unstressed syllable of its first element is not neutralised, despite the fact that [hivan] 'hufen' is common in the Tywyn district when it refers to ordinary cream. I have also observed the same tendency in the Harlech area.

²⁸ A discussion of possible social factors which may have influenced individuals' use of [æ(:)] may be found below in section 6.

more consistent among the speakers, although the score of one speaker (R.P.) is slightly higher than the others. A closer look at the actual lexical items involved shows that the use of short [æ]s in monosyllabic words is not confined to [mæm] ‘mam’ *mother*, contrary to previous accounts (Darlington, 1902: 19; Sommerfelt, 1925: 8), as forms such as [bælx] ‘balch’ *proud*, [kjænt] ‘cant’ *hundred* and [væn] ‘fan’ *van* were also identified.²⁹ The main point however is that the speakers’ scores in this context do not appear to correlate with those of the long vowels in Figures 3 and 4, which suggests that short vowels are not behaving in a similar manner to their long counterparts.

For polysyllables, the dotted and dashed lines in Figure 5 show that the use of [æ] as a short vowel is higher in both stressed penultimates and unstressed final syllables than in stressed monosyllables. Interestingly though, a clear correlation can be seen between the scores of these two polysyllabic contexts, and it could be argued that the results of all three contexts in Figure 5 are interrelated, especially as the same speaker (R.P., the youngest participant) ranks highest in all cases. Short vowels appear then to behave differently from long vowels, and this in all contexts.

Overall then, the situation for the fronted raised [æ(:)] shows that this feature too is affected by specific linguistic factors. The first three of these were shown to be important in relation to the high central vowel, and here one additional factor is also relevant.

- The length of the vowel: long or short
- The type of lexical stress placed on the word: stressed or unstressed
- The vowel’s position within the word (i.e. the syllabic context): in a monosyllable, a stressed penultimate, or an unstressed final syllable
- The type of word: a meaningful content word or a grammatical function word

Finally, although there is a consensus that the phonetic quality of the fronted raised [æ(:)] is not uniform all over mid-Wales (Darlington, 1902: 18–9; Sommerfelt, 1925: 8; B. Thomas and P. W. Thomas, 1989: 36), it should also be noted that the precise quality of this vowel varies somewhat across different linguistic contexts too. Since different realisations of this vowel may well influence the degree to which this feature is used, it seems relevant to pursue this aspect a little further. Figures 3 and 4 above suggest that the use of [æ(:)] as a long vowel, and a shortened long vowel, is controlled to a certain extent by some speakers, but this does not appear to be true for short vowels. It may be possible to account for this difference by noting that the vowel quality of [æ] appears to be less fronted and less close in short vowels than in long ones. The lexical item [mæm] ‘mam’ *mother* though is most certainly an exceptional instance of a form that consists of a short [æ], mainly because the phonetic realisation of its vowel is more fronted and raised than in other forms, and closer to the quality of [æ:] in long vowels. This may indicate that [mæm] is long established in the dialects of mid-Wales (cf. Darlington, 1902: 19; Sommerfelt, 1925: 8), and it may well be significant that some speakers drew attention in the interviews to their use of [æ] in [mæm] by noting that the phrase [tæ:d a mæm] ‘tad a mam’ *father and mother* was characteristic of their local dialect. It seems likely therefore that speakers are unaware of the existence of short [æ]s in words other than [mæm], which might explain why these vowels are generally not under their control. In other words, some of the informants’ control over this phonological feature appears to be restricted to long vowels and the exceptional form [mæm].

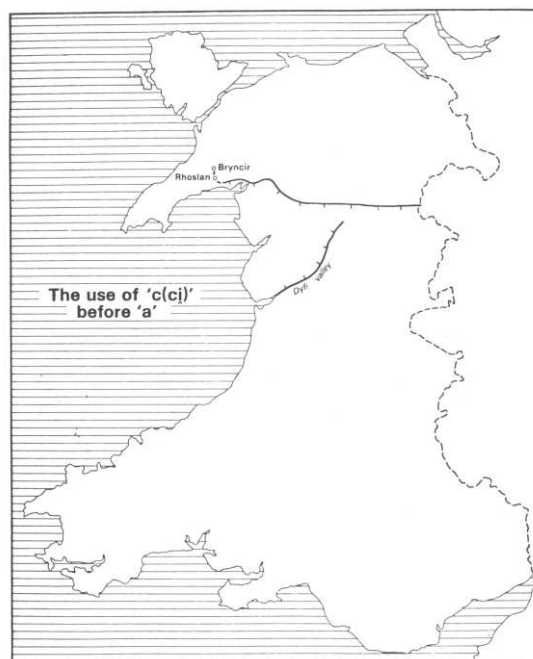
5. Palatalisation of velar plosives

The third feature to be explored, also a characteristic of mid-Wales dialects, is the palatalization of velar plosives, i.e. [k] / [g] > [kj] / [gj]. This differs from the previous features discussed in that it involves consonants rather than vowels, but it will become clear that this feature too is sensitive to a range of linguistic factors. Standard Welsh forms such as [ka:θ] ‘cath’ *cat* and [galu] ‘galw’ *to call* may be realised as [kjæ:θ] and [gjalu] in parts of mid-Wales, and both the standard velar plosives [k] / [g] and the palatalised plosives [kj] / [gj] may appear in a range of different contexts. Palatalisation of this kind occurs word initially, both in monosyllables and polysyllables, and also word-medially, either at

²⁹ It should also be stated that few forms were obtained in which half long vowels seemed to interchange with short vowels, e.g. [pla:nt] ~ [plant] *children* and [mæ:m] ~ [mæm] *mother*, some of which contained the fronted raised [æ]. As instances of half long vowels were on the whole scarce, I decided to group them with their short counterparts. The possible significance of half long vowels existing in this dialect is discussed fully in Rees (2013: 347–8).

the beginning of the penultimate syllable, e.g. in [akjeri] ‘aceri’ *acre* and [tikjedi] ‘ticedi’ *tickets*, or at the onset of the unstressed final syllable, e.g. in [baɣgjan] ‘bachgen’ *boy* and [haŋkjas] ‘hances’ *handkerchief*. The palatalised forms [kj] / [gj] are not possible word-finally under any conditions, and forms such as §[te:gj] and §[adagj]³⁰ (for [te:g] ‘teg’ *fair* and [adag] ‘adeg’ *period* respectively) are completely impossible. Another important phonological constraint on the use of [kj] / [gj] is that they may only appear before the low vowels [a(:)] and [æ(:)] and the front mid vowels [ɛ] and [e(:)]. This phonological feature again does not involve a loss of contrast, but concerns rather realisations which are merely different from the standard velar plosives used constantly in most dialects of Welsh.³¹

Map 5: The territory of ‘ci-’ when followed by ‘a’ in mid-Wales



Thorne, 1985: 87

As far as the geographical distribution of this characteristic is concerned, descriptions of isoglosses or transition zones for these palatalised plosives are very rare. An attempt to map the territory of [kj] when followed by [a(:)] was made by Thorne (1985: 87), and is based on a description at the turn of the twentieth century by Anwyl (1901: 40) in a report to The University of Wales Guild of Graduates. It is reproduced here as Map 5. Though it is obvious from this map that the palatalisation of velar plosives is associated with parts of mid-Wales, it is nonetheless unclear what the situation is in the east of the region. Discussion of this characteristic in previous studies of mid-Wales dialects (e.g. Sommerfelt, 1925: 131–7; R. O. Jones, 1967: 306–7; Griffiths, 1974: XCII–XCIII; B. Thomas and P. W. Thomas, 1989: 39) is rather limited. These accounts are nonetheless useful as they note the linguistic contexts in which [kj] / [gj] usually appear, and also confirm that this characteristic is found in several parts of mid-Wales, e.g. Llanbryn-mair, Machynlleth, Llanymawddwy, Llanfair Caereinion and Llanfachreth. This is also true of *The Welsh Dialect Survey* (A. R. Thomas et al., 2000), where sporadic instances of [kj] / [gj] are shown for several areas in mid-Wales (Rees: 2013: 68). Sommerfelt (1925: 136–7) and Griffiths (1974: XCII) also imply that some speakers in mid-Wales have the ability to control their use of palatalised consonants.

Variation involving palatalisation was identified in the Tywyn district in several different contexts, as can be seen from the following examples. As with the other phonological features discussed, the same word may vary between the usage of one speaker and another, and even within the speech of one single informant.

³⁰ Note that § signifies an impossible form.

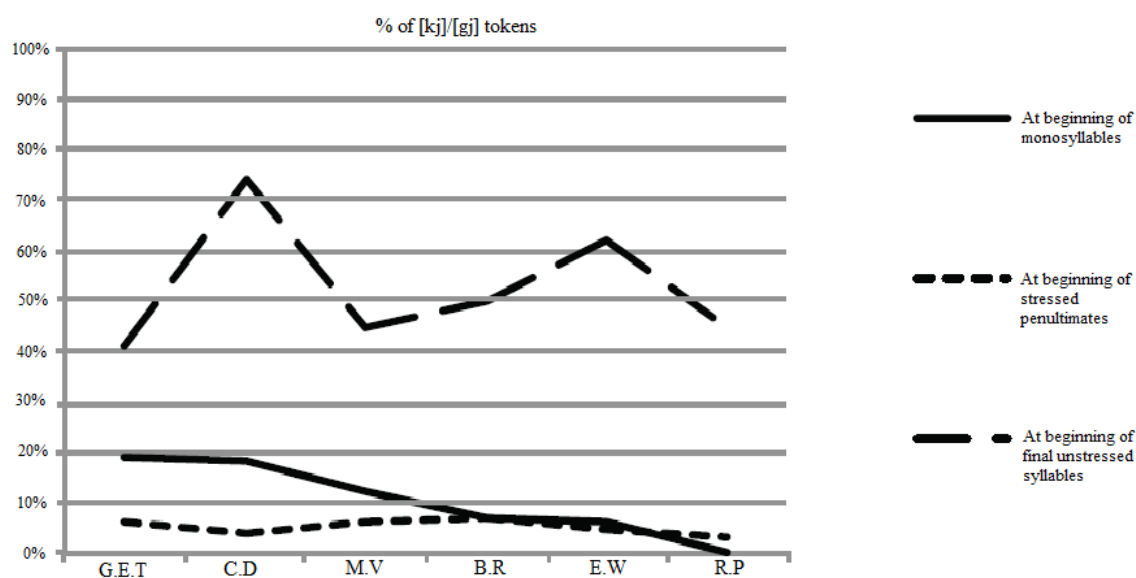
³¹ Similarly to the fronted and raised low vowel [æ(:)], palatalisation of velar plosives is also characteristic of the traditional Welsh dialect of south-east Wales (*y Wenhwysseg*). For discussion on the parallelisms of phonological features in mid-Wales and south-east Wales, see Rees (2013: 471–3).

- Word-initially; monosyllables: [kjæ:l] ~ [kæ:l] 'cael' *to have*;
[kjɛr] ~ [kɛr] 'cer' *go!*;
[kjar] ~ [kar] 'car' *car*
- Word-initially; stressed penultimates: [kjerig] ~ [kerig] 'cerrig' *stones*;
[kjɛfɪl] ~ [kefɪl] 'ceffyl' *horse*;
[gjælu] ~ [gælu] 'galw' *to call*
[tikjedi] ~ [tikedi] 'ticedi' *tickets*
- Word-medially; at beginning of stressed penultimates:
- Word-medially; at beginning of unstressed final syllables: [tɛkjæt] ~ [tɛkæt] 'teggell' *kettle*;
[baxɣjan] ~ [*vaxɣan] 'bachgen' *boy*

The discussion below will look first at scores for palatalised plosives in different positions within the word, and then at the effects of certain phonetic contexts on the frequency of palatalisation in one particular position.

First then, Figure 6 shows all of the contexts in which [k(j)] / [g(j)] are found,³² i.e. at the beginning of monosyllables, at the beginning of stressed penultimates, and at the beginning of unstressed final syllables. As is shown above, palatalisation at the onset of penultimates does not always occur word-initially in disyllabic words, but may also appear word-medially in longer forms, e.g. in [tikjedi] 'ticedi' *tickets*. However, as these latter instances are very rare, all examples of [k(j)] / [g(j)] at the onset of penultimates, whether word-initial or word-medial, were grouped together.

Figure 6: Palatalisation in different positions



Context	Examples
At beginning of monosyllables	[kjɛvn] "cefn" <i>back</i> ; [kaus] "caws" <i>cheese</i>
At beginning of stressed penultimates	[gjælu] "galw" <i>call</i> ; [kefɪl] "ceffyl" <i>horse</i>
At beginning of unstressed final syllables	[baxɣjæn] "bachgen" <i>boy</i> ; [hanɣkas] "hances" <i>handkerchief</i>

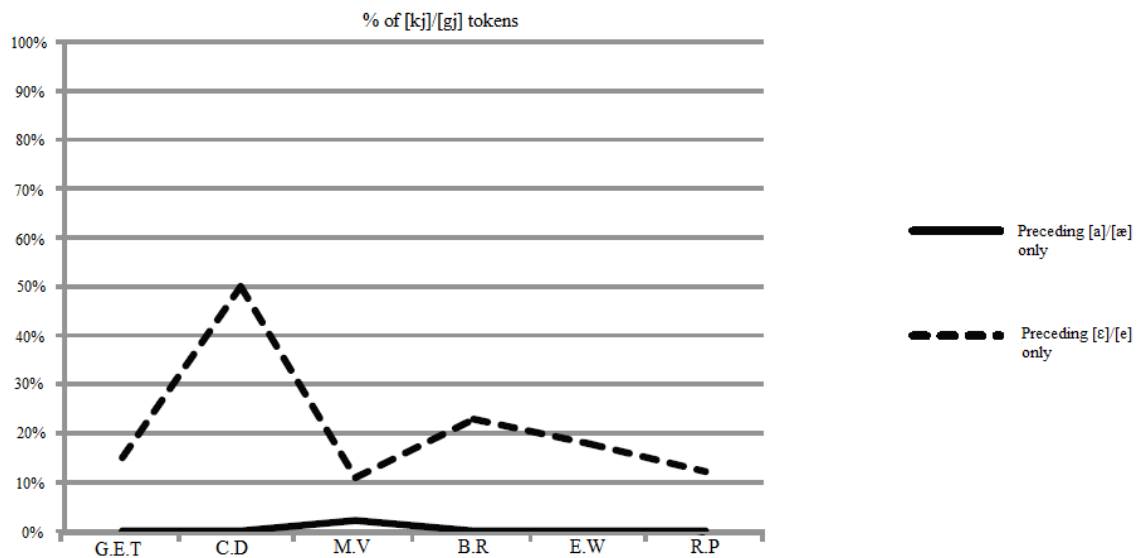
The solid line of Figure 6 shows that the frequency of palatalisation varies between 19% and 0% at the beginning of a monosyllable.³³ Though these percentages are relatively low, they suggest that

³² Note that (j) here signifies that palatalisation is optional, i.e. that every [k] / [g] as well as every [kj] / [gj] are included. Only examples where these consonants were followed by either the low vowels [a(:)] / [æ(:)] or the front mid-vowels [ɛ] / [e(:)] were considered as my initial phonological analysis confirmed that velar plosives were not palatalised at all when followed by other vowels (Rees, 2013: 209–10, 351).

³³ The order in which the speakers appear here is yet again different from that of the discussions of the high central vowel (in section 3) and the fronted and raised low vowel (in section 4), as it is based on their rankings (from highest to lowest) in this

variation between [kj] / [gj] and [k] / [g] is possible in this context for some speakers. The situation at the beginning of stressed penultimates is then represented by the dotted line. All speakers behave similarly in this context, with very low scores ranging from 7% to 3% only. In both of these contexts then, the use of palatalised consonants is similar, and only the first two speakers (G.E.T. and C.D.) differ to any significant extent as between them. The use of [k(j)] / [g(j)] at the beginning of unstressed final syllables is very different however, with the dashed line of Figure 6 revealing that the percentages of [kj] / [gj] tokens here are substantially higher. Furthermore, the scores of this context do not appear to correlate in any manner with the levels of the solid and the dotted lines. Speakers' levels of palatalisation vary greatly then, and are heavily influenced by the precise location of the consonant within the word.

Figure 7: Palatalisation at beginning of penultimates in different phonetic contexts



Context	Examples
Preceding [a] / [æ] only	[gʲælu] ‘galw’ <i>call</i> ; [kaɫad] ‘caled’ <i>hard</i>
Preceding [ɛ] / [e] only	[kʲerig] ‘cerrig’ <i>stones</i> ; [kɛɪnɪn] ‘cennin’ <i>leeks</i> ; [pɾeθɛθi] ‘pregethu’ <i>preach</i>

What accounts then for the differences displayed here between the various contexts? One possible explanation is that speakers may be aware of word-initial palatalisation in their speech and, since local forms such as [kʲæ:l] ‘cael’ *to have* and [gʲælu] ‘galw’ *to call* are stigmatised by some Welsh speakers, it is possible that they feel the need to control their use of palatalised forms when speaking to a stranger like myself. So far as occurrences of [kj] / [gj] at the beginning of unstressed final syllables are concerned, always in word-medial position, it may be far less obvious to speakers that these are palatalised versions of standard [k] and [g]. The semi-vowel [j] is very common at the beginning of unstressed final syllables in the dialects of north and mid-Wales, in suffixes such as [jɔ] ‘-io’ (e.g. in [neɪdʲɔ] ‘neidio’ *to jump*), [jan] ‘-ian’ (e.g. in [sevɔtʲjan] ‘sefyllian’ *to stand around*), and in verbal endings such as [jais], [jɔð] and [jɔn] (e.g. in [kikʲɔð] ‘ciciodd’ *he / she kicked* and [kikʲɔn] ‘ciciwn’ *I would kick*). As a result, common palatalised forms such as [baɫgʲjan] ‘bachgen’ *boy*, [teɫkʲaɫ] ‘teɫell’ *kettle*, [igʲjan] ‘ugain’ *twenty* and [haɫkʲjas] ‘hances’ *handkerchief* may well seem completely normal to speakers, and be regarded as standard forms in mid-Wales. It appears likely therefore that the considerably higher levels of the unstressed final syllable in Figure 6 may derive from speakers' varying levels of awareness of this feature as a dialect characteristic.

So far, the analysis has only considered levels of palatalisation in different positions in the word. A further issue is whether it is influenced by which vowel follows these palatal / velar plosives. Two distinct groups of vowels can be distinguished here: first, the low vowels [a(:)] / [æ(:)] in forms such as

first context for [kj] / [gj], i.e. at the beginning of monosyllables. The implications of this will be discussed in more detail in section 6 below.

[kalad] ‘caled’ *hard* and [gʲælu] ‘galw’ *to call*; and secondly, the front mid vowels [ɛ] / [e(:)] in words such as [kɛrðad] ‘cerdded’ *to walk* and [kʲerig] ‘cerrig’ *stones*.

A comparison of this type however is possible only in one context, namely at the beginning of stressed penultimates, and the results obtained for this context can be seen in Figure 7.³⁴ The solid line reflects the situation of plosives that precede [a] / [æ] only, and here the informants’ scores are clearly uniform. In fact, except for M.V.’s score of 2% (due to a single instance of the palatalised form [gʲælu] ‘galw’ *to call*), a score of 0% was found for all the other speakers. The absence of [kʲ] / [gʲ] in front of [a] / [æ] in penultimate is unexpected as palatalisation before low vowels is found at the beginning of monosyllables, e.g. in [kʲæ:l] ‘cael’ *have* and [kʲar] ‘car’ *car*, and at the beginning of final unstressed syllables, e.g. in [baɣgjan] ‘bachgen’ *boy* and [kʲakjæn] ‘cacen’ *cake*. The dotted line then shows that palatalisation is much more common before the front mid vowels [ɛ] / [e], and also that considerably more variation is seen in this context.³⁵ Closer analysis of the actual lexical items found reveals that palatalisation in this phonetic environment is not confined to a few words only, but is rather employed in a range of different forms, e.g. [kʲerig] ‘cerrig’ *stones*, [kʲɛrðad] ‘cerdded’ *walk*, [kʲɛrl] ‘ceffyl’ *horse*, [gʲɛti] ‘gallu’ *be able (to)*, [gʲɛnɔɣ] ‘gennyoch’ *you have* (2nd pl.) and [tikjedi] ‘ticedi’ *tickets*.

In the two other contexts, this kind of comparison cannot be carried out. In the case of monosyllables, a shortage of tokens with [ɛ] / [e], e.g. [kɛvn] ‘cefn’ *back* and [kʲɛrt] ‘cert’ *cart*, would make the results unreliable. In the case of final unstressed syllables, a very different complication arises. As was mentioned in the case of the fronted and raised low vowel [æ(:)], this dialect neutralises the contrast that is seen in other parts of Wales between ‘a’ [a] / [æ] and ‘e’ [ɛ] / [e] in the final unstressed syllables, so that orthographic forms such as ‘hances’ *handkerchief* and ‘bachgen’ *boy* are usually pronounced as [hanɣjas] and [baɣgjan] respectively, with low vowels in their final syllables.³⁶ Consequently, forms with [ɛ] / [e] in their final unstressed syllables are extremely rare, and a meaningful comparison of [ɛ] / [e] with [a] / [æ] is therefore impossible in this context.

Although this phonological feature differs from the others in that it involves consonants rather than vowels, the same fundamental conclusions can be drawn, and some of the same linguistic factors appear to influence its use, specifically:

- The consonant’s position within the word (i.e. the syllabic context): at the beginning of a monosyllable, or a stressed penultimate syllable, or an unstressed final syllable
- The phonetic context in which the consonant appears: followed by the low vowels [a(:)] / [æ(:)] or the front mid vowels [ɛ] / [e(:)]

6. Conclusions

A number of general points emerge from the detailed results presented in sections 3–5, and one of the most important findings is the extent to which linguistic factors influence the use of each of the phonological features discussed above. All three of the features examined in the Tywyn district have been shown to be highly sensitive to a range of linguistic factors, which include:

1. Vowel length
2. Lexical stress
3. The feature’s position within the word
4. The phonetic context in which the feature appear
5. Type of word (a meaningful content word or a grammatical function word)

³⁴ Note that the situation when all relevant items are included, whether they precede [a] / [æ] or [ɛ] / [e], has already been discussed, and is represented by the dotted line in Figure 6.

³⁵ It should not be assumed that this pattern holds true for the dialects of mid-Wales in general. In the Harlech area for instance, it was discovered that the palatalised plosives [kʲ] and [gʲ] were common in the penultimate syllable when followed by both [a] / [æ] and [ɛ] / [e], contrary to the results seen here for the Tywyn district (Rees, 2013: 361–3).

³⁶ As noted in footnote 24, a full account of this feature may be found in B. Thomas and P. W. Thomas (1989: 40–2), and a detailed analysis of its historical development in North Wales is given in Awbery (2012).

It is also clear that, while the same linguistic factors are relevant to different phonological features, they appear in various combinations. The use of the high central vowel [i(:)] / [ɪ], for example, is related to Factors 1, 2, 3 and 4.³⁷ The use of the fronted and raised low vowel [æ(:)] is then affected by Factors 1, 2, 3 and 5, and the use of the palatalised plosives [kj] and [gj] is conditioned by Factors 3 and 4. However, although the same linguistic factors turn up time and again, they do not necessarily have the same impact on different phonological features. In the case of Factor 2 (lexical stress) for instance, the results for the high central vowel show that the long stressed vowels and the shortened unstressed long vowels of monosyllables behave very differently from each other (see Figure 1), while the results for the fronted and raised low vowel on the other hand show a clear correlation between the scores of these contexts (see Figure 4). It appears therefore that the impact of these linguistic factors needs to be assessed separately for every single phonological feature, and that it is not possible to establish general principles for these factors.

Important as linguistic factors may be, some of the results presented above suggest that certain social factors are also related to the phonological variation found between individual speakers in the Tywyn area. It appears, for example, that some variation may be attributed to age differences, as with the high central vowel [i(:)] / [ɪ] in long vowels of stressed monosyllables, where it seems that the range of the scores obtained correlates roughly with the speakers' ages (see Table 1 and Figure 1). This may indicate that change is in progress from [i(:)] / [ɪ] to [i(:)] / [ɪ], with a gradual loss of the high central vowel. Similarly, in the case of the fronted and raised low vowels [æ(:)], R.P., the youngest speaker, stood out since her percentages of [æ(·)] in short vowels were generally higher than those of the other speakers (see Figure 5). This again may signify a change in progress, whereby short [æ(·)]s are becoming increasingly common, probably by analogy with the equivalent long low vowels, although more data are needed to investigate this further.

However, not all instances of variation among individuals in the Tywyn district can be attributed to age differences. In the case of the fronted and raised [æ(:)] in long and shortened long vowels, a distinction was made between four 'typical' speakers whose percentages were very high, and two other 'rogue' speakers whose scores were noticeably lower (see Figure 4). As it seems likely that the use of [æ(:)] is controlled to some extent by these 'rogue' speakers, but not by the other informants, it seems appropriate to ask whether any social factors may influence their use of [æ(:)]. Although all informants come from a similar rural background, it may be argued nonetheless that E.W. and M.V. are different in that they are, to different degrees, public and / or cultured figures in their community. E.W., for instance, had given talks at local Welsh societies regarding her family's experiences farming and competing at prestigious agricultural shows, and M.V. had represented his area as a County Councillor, and was a prominent member of a chapel in Tywyn. It therefore seems likely that both of these speakers may have wider social networks than the other speakers, and have learnt to accommodate their language towards speakers outside their community such as myself (see Trudgill, 1986: 1–38). M.V. in particular would have met other councillors from areas all over Gwynedd, most of which have [a(:)] as the only pronunciation of low vowels. It can be argued therefore that speakers' involvement in public life and / or Welsh cultural societies may be as pertinent as their educational background with respect to their use of this dialect feature.

Interestingly, individuals' rankings (from highest to lowest scores) differ considerably from one phonological characteristic to another. M.V., for instance, was one of the highest scorers when the use of [i:] in long vowels was investigated (Figure 1), but the lowest scorer with regard to the use of [æ:] in long low vowels (Figures 3 and 4). Conversely, R.P.'s scores were generally the lowest in the case of the high central vowel (Figures 1 and 2), but generally the highest when it came to the fronted and raised low vowel in different contexts (see Figures 3–5). It cannot easily be claimed therefore that some speakers have a 'stronger' or 'more marked' local dialect than others. It seems rather that every phonological feature has its own history and current trends, and that speakers' use of different dialect characteristics vary in an unpredictable way.

These findings regarding the influence of linguistic and social factors on the use of various phonological features would not have emerged if it were not for two of my initial methodological decisions. The first of these – that the data for every linguistic context would be kept separate – has

³⁷ It has been discovered that Factor 5, namely the type of word, also influences the use of the high central vowel in diphthongs, particularly those which may close towards [i], e.g. [ko:ɪd] 'coed' *trees* and [da:i] 'dau' *two* in monosyllables, and [kreɪlɒn] 'creulon' *cruel* and [mɹuɪə] 'mɹuyaf' *most* in penultimates (Rees, 2013:261–6).

highlighted the influence of linguistic factors on the different patterns of variation seen in the case of every phonological feature analysed. Furthermore, this first decision has also enabled me to show that the speakers' rankings (from highest to lowest scores) differ considerably from one context to another, even when the same phonological feature is being examined. An extreme example of this phenomenon is illustrated in Figure 6, where it is shown that G.E.T. has the highest percentage of the palatalised plosives [kj] / [gj] in one context, but the lowest percentage in another. The second initial decision – that the data for every speaker would be kept separate – has also been crucial in showing the substantial phonological variation that exists between different individuals (see Figures 1–7). It is important to stress here that all of the speakers interviewed in the Tywyn area for this study may be considered similar in social, cultural and educational terms, and might well have been grouped together in a sociolinguistic study.³⁸ Individual differences of this kind would not have become apparent if the speakers had not been examined separately from each other.

Both of these decisions undoubtedly have important implications for quantitative studies of linguistic variation and change. Regarding the importance of distinguishing between different linguistic contexts, it seems plausible that the results obtained for any phonological feature could be misleading unless the potential effects of a range of linguistic factors are taken into consideration. In other words, mean averages can hardly be reliable if they involve a range of linguistic contexts that give wholly different (or even incompatible) results when they are examined separately.³⁹ Similarly, as to the importance of keeping individuals' data separate from each other, a case can be made on the basis of this article's results that sociolinguists and social dialectologists should establish the extent to which individuals who are members of apparently uniform social groups are also linguistically uniform, and that this good practice should be followed before any comparisons of different social groups are drawn.⁴⁰

In view of the complicated and multifaceted patterns of variation presented in Figures 1–7, it seems appropriate to ask how all of this fits in with the more traditional approaches to dialect variation and geographical transitions, namely 'free variation' (see Petyt, 1980:108), and the use of isoglosses (see, for instance, Durrell, 1990: 925–30). In the light of the variation patterns that have emerged in this paper, it seems that the term 'free variation' is unhelpful. The results of Figures 1–7 cast doubt on the whole notion that different phonetic realisations may interchange 'freely' with each other, as the use of every phonological feature analysed here seems to be conditioned – or restricted – by specific linguistic factors. Griffiths (1974: XC), for instance, refers to [a:] and [æ:] interchanging 'unconditionally' ('*amrywio yn ddiamed*') in Llanfair Caereinion in mid-Wales, but terms such as 'unconditional variation' or 'free variation' do not seem to adequately reflect the results reported in this paper.

Similarly, the concept of isoglosses also appears to be inadequate in relation to the complex patterns of variation that have emerged in this paper. In the case of the high central vowel, the gradual loss of this phonological feature in parts of mid-Wales is often represented on maps by a clear-cut boundary-line that was first described by Darlington (1902: 14–15; Map 3). Isoglosses of this kind imply that the change from one variant to another is geographically abrupt, and that it affects the whole phonological system all at once. However, the results presented in Figures 1 and 2 clearly portray a far more complex picture. In fact, while some dialectologists have argued that Darlington's boundary-line for the high central vowel is still useful today as it captures the basic principles of the situation in mid-Wales (e.g. B. Thomas and P. W. Thomas, 1989: 31), it is important to stress that this isogloss completely disregards the variation in usage found on so many different levels in the Tywyn area, where alternations between different variants are commonplace, not only between different linguistic

³⁸ The significance of individual differences among a seemingly uniform group of speakers will be explored in detail in another article (Rees, in preparation⁶).

³⁹ In view of this interpretation, it is interesting to note that some Labovian studies have been criticised in the past for not dividing their data into discrete linguistic contexts (see, for instance, Bickerton, 1973:29).

⁴⁰ The following recent analysis by William Labov however confirms that this is not a common practice among sociolinguists: 'Many aspects of the N[ew] Y[ork] C[ity] study influenced linguists' later work, but one aspect did not. There are no people in most of the sociolinguistic studies that followed – just means, charts, and trends. Although I have campaigned to bring people back into the field of sociolinguistics there has only been a limited response on this front . . .' (2006: 157). Since some of this article's results (e.g. Figures 1, 3 and 4) have demonstrated that individual differences may be able to identify the effects of certain social factors on the use of various phonological features, it is worrying that variation between individual speakers is not given much prominence in sociolinguistic studies.

contexts, but also from one speaker to another, and even within the language of the individual. Indeed, the isogloss as a concept fails to capture any of this variation.⁴¹

It is hoped that the results presented in this paper demonstrate the need for further investigation into the complex patterns of variation which may arise when both linguistic and extra-linguistic factors are taken into consideration. Quantitative methods of analysing dialect variation reveal unexpected levels of complexity, and traditional approaches to dialect varieties cannot adequately reflect the patterns of variation found in a transition zone such as the Tywyn district in mid-Wales. More fieldwork is therefore required before the phonological variation found in such areas will be fully understood.

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⁴¹ Since only one phonological feature is involved in this treatment of isoglosses, the concept of a bundle of isoglosses appears to be even more problematic. The results presented here for the high central vowel [i(:)] / [ɪ] therefore complicate the view held by some linguistic geographers that bundles of isoglosses 'can be taken as being of more importance than isolated isoglosses and therefore as indicating some sort of dialect boundary', as Petyt (1980: 57) puts it. The possibility of various phonological boundaries clustering together in mid-Wales has been explored to some extent by Awbery (1984: 72–3), but to date, this complexity has not been backed up by any detailed fieldwork or quantitative data in this region. It is also interesting to note in this respect that some sources maintain that the geographical distribution of the fronted raised vowel [æ(:)] coincides with that of the palatalised velar plosives [kj] / [gj] (e.g. B. Thomas and P. W. Thomas, 1989: 39). Assuming that this is by and large true, it should nonetheless be noted that the results presented in sections 4 and 5 above show that the usage of these two features are very different from each other, and that most speakers' high levels of [æ:] as a long vowel (see Figures 3 and 4) coincide with relatively low levels of [kj] / [gj] (see Figure 6). It could therefore be proposed that too much emphasis has been given in the past to the concept of isoglosses that define different dialect areas (see, for instance, Durrell, 1990: 937–42), and that the importance of quantitative methods of examining (and comparing) the use of dialect features has thereby been overlooked.

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