

4. PROSODY – INTRODUCTORY

(Readers unfamiliar with the prosodic terms used will find explanations in the Glossary.)

4.1 Aims of RVE Research

Prosody (stress, rhythm, intonation etc) contributes strongly towards the ‘melody’ of Welsh English accents. Chapter 5 will attempt to describe the main features of RVE prosody. Like t’Hart, Collier, and Cohen of the Institute for Perception Research in Eindhoven (1990: 2-6), the approach will be primarily ‘from the phonetic level of observation’.³⁵ Comments will be made concerning the functions / meanings of the prosodic forms identified, but the researcher is very aware that the links between meaning and prosody are seldom straightforward:

- (1) discerning the meaning of an utterance is a matter of pragmatic interpretation in which many factors beside prosody need to be taken into account (propositional content of the lexis-grammar, full context of the situation, speakers’ body language etc)
- (2) several prosodic features, e.g. voice quality, loudness and intonation, may be operative at the same time and therefore difficult to disentangle
- (3) the same prosodic feature may be involved in ‘doing’ more than one thing at the same time – for example a given pitch movement may be simultaneously involved in *accentuation* and *demarcation*
- (4) nearly all prosodic features – including pitch level – are subject to *gradient variation* and can be used to carry signals that many analysts would consider paralinguistic rather than linguistic (cf discussion in Ladd 1996: 33-41).

Due to such factors, suggestions as to the meanings of RVE prosodic forms will be tentative and restricted to discourse functions such as the *segmenting*, structuring and highlighting of information.

4.2 Pitch Movements and Levels

4.2.1

Intonation forms a conspicuous part of the ‘melody’ of RVE. In attempting to describe it, the author is mindful that the descriptive apparatus he adopts will not please all intonationalists, there being a ‘quite remarkable absence of any consensus concerning the transcription of intonation’ (Hirst and Di Canio 1998: 14). In the controversy of whether intonation should be portrayed primarily in terms of ‘pitch-levels’ or ‘pitch-movement’, he will tend to favour pitch-movement, in line with tone-unit theory (e.g. Halliday 1967; Crystal 1969; O’Connor & Arnold 1973), the Institute of Perception Research in Eindhoven (e.g. Cohen and t’Hart 1967, t’Hart, Collier and Cohen, 1990) and Bolinger (1958, 1961, 1972, 1986, 1989). Bolinger consistently argues against the ‘levels approach’ of Pike (1945), Wells (1945) and Trager-Smith (1951),³⁶ and the later two-level approach of AM phonology (Pierrehumbert 1980; Ladd 1996), maintaining that significant pitch changes are heard as contours rather than levels, i.e. as ‘melody’ rather than as ‘notes’. Taking issue with AM, he attributes the appeal of analysing contours in terms of ‘levels, target pitches and the like’ to the linguist’s desire to digitize the elements of speech, and he warns that descriptive systems must be served and ‘not dictated to’ by such instrumental constraints (1986:

28). RVE intonation is thus characterised in Chapter 5 primarily in terms of pitch movement – *rises, falls, rise-falls, fall-rises* etc. The pitch movements of particular interest are those located at *accents* and at the boundaries of phrases. The pitch movements at accents will be referred to as *accent contours* (Section 5.4), which may be simple rises or falls, or involve complex movement e.g. falling-rising, rising-falling. Those at the ends of phrases will be called *terminal tones* (Section 5.7).

4.2.2

Pitch level, however, is also of importance to the description. Following Crystal (1969: 141-52), it is taken to be independently meaningful from pitch movement. Reference will be made to pitch levels as ‘contour-points’ in the overall phrase, and instrumental measurements, where available, will plot their *fundamental frequency*. This enables us to perceive not only whether a given contour-point is higher or lower than another, but also the span (width) of pitch movements. To describe pitch spans, the researcher will use logarithmic units of semitones, following t'Hart, Collier, R. & Cohen (1990: 23-24).

Pitch level may be important for different reasons. For example, pitch level is used to help signal the relative prominence of the information carried by different accents. Ladd (1996: 67-70) observes in this respect that speakers appear to be able to precisely scale the relative peak heights of two 'Highs'. An example from the RVE data can be seen below in Figure 35. The H-peak of the accent on 'walked' in the IP 'I walked from Cardiff' is scaled higher than that on 'Cardiff' and thereby marks it as 'the more important information'. 🌸

(T1)

// I <u>walked</u> from <u>Cardiff</u> . . // (Key to transcription in Appendix 19)					
L	¹ H* + H	¹ L	L* + H	%	
(5)	8	9	4	2	4.5

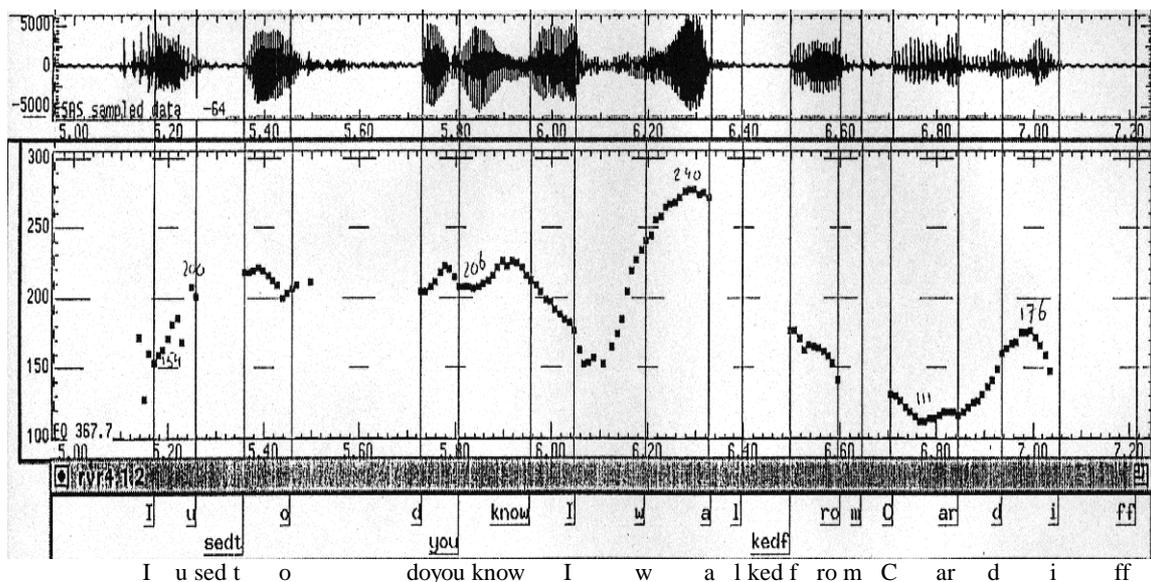


Figure 35. High peak on 'walked' in order to signal its greater informational prominence.

4.2.3

To help provide a phonetic modelling of both pitch movement and pitch level, the RVE analysis uses a modified ToBI transcription (Beckman & Ayers 1994). A symbol of ‘H’ denotes that a contour-point is higher than the previous one marked, and ‘L’ a contour-point which is lower. Such a labelling system enables reference not only to pitch levels but also to pitch movement. An accent transcribed as L*+H, for example, has a pitch movement to the stressed syllable (*obtrusion*) that is downwards, and a pitch movement from the stressed syllable (*tone*) that is rising.³⁷ To enable a fuller phonetic modelling of IP tunes, the symbol ‘0’ is added, denoting zero pitch movement, since as well as going up or down pitch may clearly stay level – as for example in the *level tone* of tone-unit theory (Crystal 1969, Tench 1996, Brazil 1997), or when speaking in a monotone.³⁸ Thus, 0*+H indicates zero pitch obtrusion to the stressed syllable and a *rising tone* from it, and H*+0 denotes a pitch obtrusion upwards to the stressed syllable and a level tone from it.

4.3 Prosodic Constituency

4.3.1

A first task of any prosodic transcription might be to segment the utterances of speakers into *intonational phrases* (IPs), or ‘tone-units’ / ‘tone-groups’ as they are generally known in tone-unit theory. Whereas in written discourse, demarcation is by punctuation, clues to demarcation in spoken discourse are primarily prosodic. But perceiving the demarcations may be extremely difficult in spontaneous speech, as the speaker can use minimal clues. Prosodic clues to IP demarcation include:

1. the presence at the end of the IP of a drawn-out tone
2. strong disjuncture (optimally a discernible pause) between IPs³⁹
3. ‘anacrusis’ (speeding up) of any unstressed syllables at the start of a new IP (cf Cruttenden 1997: 21)
4. *a base-line reset* (de Pijper & Sanderman 1994: 2043) between IPs, consisting of a ‘rapid upward jump of the base-line’.

4.3.2

For many linguists, the next unit below IP in the *prosodic hierarchy* is ‘stress-group’ or ‘rhythmic foot’, typically made up of a stressed syllable and one or two unstressed syllables following it. Halliday, for example, posits a hierarchy of four units, in descending order ‘tone group, foot, syllable and phoneme’ (1967: 12). That is to say, a tone unit is made up of one or more feet, a foot of one or more syllables and so on. But it is uncertain in what way the unit of rhythmic foot relates to that of tone group (IP). One of Halliday’s tone groups, split into feet, can be seen in Figure 36 (1967: 20). Feet are bracketed and stresses are underlined. It can be seen that the feet do not necessarily coincide with meaningful phrases – they are purely rhythmic in nature.

// per[haps it’s][easier when you’re][marking][language] //

Figure 36. Tone-group split into rhythmic feet – Halliday (1967: 20).

By contrast, Beckman and Pierrehumbert (1986: 286-98) identify a unit of *intermediate phrase* below IP, which is clearly a unit of sense rather than of rhythmic organization. Figure 37 below shows examples of IPs split into intermediate phrases.

Use 'hint' / if you need help

A round-windowed / sun-illuminated room

Figure 37. Examples of Intermediate phrases (Beckman & Pierrehumbert, 1986: 290-1)

Somewhat similar units are proposed by Nespors and Vogel (1983: 123-152), which they call **phonological phrases**. They are right-headed and their composition is described thus:

Join into a [phonological phrase] any lexical head X with all items on its non-recursive side within the maximal projection and with any other non-lexical items on the same side (e.g. prepositions, complementizers, conjunctions, copulas).
(Nespor and Vogel, 1983: 124)

An example of how an IP can be split into phonological phrases is given by Nespors and Vogel in Figure 38.

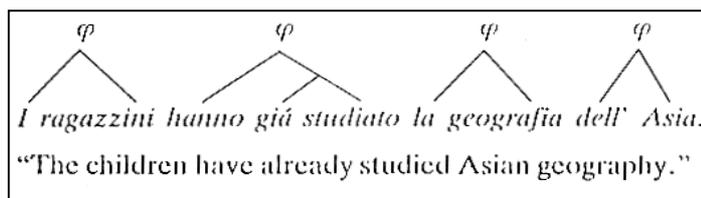


Figure 38. Phonological Phrases (Nespor & Vogel 1983 : 125).

'Rhythmic feet', in contrast to phonological phrases, are left-headed. As can be seen with '*-haps it's*' and '*easier when you're*' in Figure 36, they may not correspond with how a speaker would actually phrase an utterance. This is not a trivial point, because how we phrase has a direct effect on prosodic effects such as *juncture*, *liaison* and duration. Divided instead into phonological phrases, the Halliday example (Figure 36) might be represented as in Figure 39:

// [*perHAPS*] [*it's EASier*] [*when you're marking*][*LANguage*] //

Figure 39. Tone-group in Figure 36 split into phonological phrases.

This would seem to be a more convincing modelling of the phrasing than division into rhythmic feet. Each phonological phrase is characterised by close liaison of its internal syllables and potential disjuncture between it and the next phrase. One could imagine, for example, a *minor demarcation* (i.e. intermediate boundary) being put in by the speaker after '*perhaps*' or after '*it's easier*'. As with IPs, syllables beginning the phrase may be speeded up, and the final syllables may be lengthened / drawn out.

4.3.3

As well as *major demarcation* indicating an IP boundary, the RVE transcription will

At some point in the early stages of its development, Welsh underwent the Old Welsh Accent Shift. This involved the shifting of word-stress from the ultima to the penult in polysyllables The Welsh ultima had been the (stressed) penult in the parent language, British, but with the loss of word-endings and inflection that characterised the change from British to Primitive Welshthis syllable became the new ultima and retained its stress.

Opinions as to when these changes took place vary from the 5th to the 11th century. They seem, however, to have left behind relations between stressed penult and final syllables which influence the prosody of the Welsh Language to this day.

The rhythmic structure of Welsh has received less attention. Williams (1983, 1985, 1986) claims that there is a *stress-timed* rhythm, with 'a slight tendency for stressed syllables to occur at approximately equal intervals' (1983: 39). Such a rhythm would involve segmental adjustments to accomplish the lengthening, shortening and crushing together of syllables needed to accommodate the rhythm. Ball (1989), however, takes a different view, finding there to be more evidence of *syllable-timing*:

In Welsh, as in most languages manifesting syllabic stress a difference may exist between citation forms and words in connected speech. The stress patterns, particularly of function words, are subject to possible reduction in connected speech. However, unlike English, this reduction does not usually include vowel and consonant reduction. This means that the dichotomy between weak and strong forms found in English is lacking in Welsh. (Ball 1989: 89-96)

4.5 Accents and terminal tone

4.5.1

British intonational theory from the time of Palmer (1922) has centred largely around the identification and description of units of speech segmentation called *tone-units* or *tone-groups*. A tone unit /group is said to contain a *nucleus* / *tonic* that is claimed to be phonetically the most salient accent in the tone-unit / group and focus of information in it (Halliday 1967: 14; Crystal 1969: 205).

Brown et al (1980: 141-154) report the result of experiments in which twenty nine volunteers, including eight 'professional phoneticians', all confident of their ability to recognize nuclei, tried to identify them from phonetic cues alone. This involved their listening to sentences of (1) Edinburgh English and of (2) RP. The sentences were spoken in isolation. Each sentence was heard three times with an 8-second pause between. The same sentences were examined instrumentally to identify the syllables having maximum pitch height, maximum pitch movement and maximum intensity. The listeners' judgements were then compared with each-other and with the acoustic measurements. The listeners, even the eight 'professional phoneticians', reported that they found the task of identifying nuclei difficult in both the ESE and RP samples. There was so much discrepancy in identification that not in a single case, even in two-word utterances, was there unanimity. Any item perceived as stressed was likely to be selected, although there was a tendency for judges to choose the last lexical item unless there was very strong phonetic competition elsewhere. The two sentences in Figure 42 below are illustrations of the significant extent of disagreement among the listeners, and also of the tendency of listeners' judgements to fall on the final lexical item despite the location of all the phonetic maxima elsewhere.⁴²

Excerpt from) Brown, G. et al (1980) Nucleus Identification Experiments

	ABC			
1.	there is my house			
	12		14	
	(3)		(3)	
<hr/>				
	A	C		B
2.	the old	man	asked if she had	posted the letter
		2		7
	(3)	(2)	(5)	15
				(4)

Unbracketed figures = listener chose it as single nucleus.
 Bracketed figures = listener chose more than one.
 (29 listeners in all)

'A' = maximum pitch height, 'B' = maximum pitch movement 'C' = maximum intensity

Figure 42. Choices of 'nucleus', compared with the location of phonetic maxima
 (Brown et al 1980: 143-4).

As a result of these and other experiments, Brown et al (1980: 14) conclude that 'it is impossible to identify tonics [i.e. nuclei] in our data in a consistent and principled way' from phonetic clues alone. They propose (op. cit.: 156 - 158) the abandonment of the notion of tonic / nucleus altogether in favour of units bounded by 'terminal tones'.

The other main characteristic of the nucleus of tone-unit theory is that it is held to signal the 'focus of information'. Halliday (1967: 22-24), for example, maintains that tone-units contain a 'given - new' informational structure, the nucleus focusing the 'new'. Gussenhoven (1986) claims, indeed, this is the only means of identification of the nucleus, and downplays the notion of 'phonetic salience.'

...there is no suggestion that the nucleus is necessarily the most prominent syllable in the tone-group (where 'prominent' is used in some loose sense of 'subjectively most striking'), or that it is necessarily the syllable with which the largest pitch movement is associated (Gussenhoven 1986: 78)

Brown et al (1980: 159) question the notion of nucleus as 'information focus' as well as its being phonetically 'most salient'. They characterise the units in their data as only rarely reflecting a clear arrangement of information into 'given' and 'new'. More of the time, it seems to them that the speakers are expressing their attitudes towards a whole lot of information that is being 'kept in the air'.

It may be supposed that when tone-units / groups contain *contrastive focus*, the extra stress imparted would result in there being no problem in locating the 'nucleus'. However, a further experiment reported in Brown et al (1980: 147-152) suggests that even this may not be so. The experiment elicited *cleft-construction sentences* spontaneously from speakers during the course of a game-playing situation (Figure 43 below). The elicited sentences produced a clear concentration of contrastive focus and phonetic maxima (greatest pitch height, movement and amplitude) on the same items. They were then listened to by 25 judges. The purpose of the experiment was to see

whether, with both contrastive focus and phonetic maxima on the same item, the judges would have any difficulty in 'nucleus' identification.

Excerpt from Brown et al (1980) Nucleus Identification Experiments

ABC		
1. 'Was it the miller's <u>daughter</u> who returns home on the back of the pony?'	9	9
	(7)	(7)
(3)		

BC		A
2. 'Was it the rich <u>farmer</u> who had three sons?'	10	8
	(7)	(7)

Unbracketed figures	= listener chose it as single nucleus.
Bracketed figures (25 listeners in all)	= listener chose more than one.
'A' = maximum pitch height, 'B' = maximum pitch movement 'C' = maximum intensity	

Figure 43. Cleft-sentences in which underlined items have both contrastive focus and phonetic maxima (Brown et al, 1980: 147-152).

Despite the co-occurrence of contrastive focus and phonetic maxima on '*miller's daughter*' and '*rich farmer*' in the examples in Figure 43, significant numbers of the judges were found to place the nucleus on the final lexical item. In the first case above, as many judges selected '*pony*' as '*daughter*', and in the second almost as many chose '*sons*' as '*farmer*'. As with their earlier experiments, this points strongly to the attraction of the final lexical item and supports the notion that, whatever accentuation of information occurs inside a 'tone-unit', a system of terminal marking is additionally at work at the end of it.

4.5.2

A similar auditory experiment was carried out with the RVE data in 1995. Six British intonationalists (five with published work within the field), operating within a tone-unit theoretical framework, were sent three of the short extracts of RVE speech (Section 4.7.1 below) to listen to. The extracts ranged from 72 to 88 words in length. The tasks of the six intonationalists were to

1. divide the utterances of the main speaker in each passage "into intonation units (e.g. 'tone-groups / units') "
2. underline all syllables they considered to be "prominent" or "salient" in each intonation unit
3. circle which of the 'prominences /saliances' they considered to be a "nucleus" or "tonic"
4. label the "tone(s)" found in each 'intonation unit'

They worked entirely independently from one another, and could listen to the extracts as many times as they liked. The three extracts, with the different transcriptions of the six intonationalists can be seen in Appendix 11. A summary of findings from the

4.5.3

Tone-unit theory has particular problems where there are two competing candidates for ‘nucleus’ in a tone-unit / group, the first typically being the more salient phonetically and carrying a *falling tone*, and the second having a *rising tone*. To describe such a sequence, Crystal (1969: 218-220) adopts an expedient of ‘compound tone’, giving the example:

[falling tone]	[rising tone]
// I’m Sorry about the BOOKcase //	

O’Connor and Arnold (1973: 28) adopt a similar solution, calling such a sequence a ‘compound tune’, while Halliday (1967: 13-18, 1970: 12) calls it a ‘compound tone-group’ or ‘double-tonic tone-group’, i.e. a single tone unit with two nuclei. Other tone-unit theorists, who would not accept such an expedient, would be forced to choose between one or other of the prominences for ‘nucleus’, and would analyse Crystal’s example in one of the two ways:

- | | |
|--|--|
| (1) nucleus (fall-rise tone) on first prominence | // I’m <i>SORry</i> about the <i>bookcase</i> // |
| (2) nucleus (rising tone) on final prominence | // I’m <i>sorry</i> about the <i>BOOKcase</i> // |

Figure 47. Other possible analyses of the phrase ‘*I’m sorry about the bookcase*’.

The solution of *fall-rise tone* in Figure 47 (1) is itself problematic. It raises the issue of ‘split fall-rise’ in which the two halves of the ‘tone’ are widely separated. It is difficult to see in Figure 48 below how the fall-rise contours in (1), where the fall-rise forms a clear unitary tone on stressed ‘*Mandy*’, and in (b) where the fall-rise spreads from ‘*fifty*’ to ‘*kilo*’ are formally or functionally ‘the same’.

Fall-rise contours

- | | | |
|-----|--------------------------------------|----------------------------------|
| (1) | They <u>s</u> poke to <u>MAN</u> dy. | Fall-rise |
| (2) | <u>FIF</u> ty pence a <u>k</u> ilo | Fall rise
(‘split fall-rise’) |

Figure 48. Different fall-rise contours

A further example of disagreement between the six intonationalists in the RVE auditory experiment can be seen in the phrase in Figure 49 ‘*only the fight mind*’. The word ‘*only*’ is phonetically much the most salient word in the IP (see acoustic record in Appendix 24), and represents the ‘contrastive’ information (see context in the transcription in Appendix 21). With ‘*fight*’ also marked as salient / prominent by all six intonationalists, the familiar dilemma for tone-unit theorists presented itself as

to where to place the nucleus. The analyses of four of the volunteer intonationalists are shown in Figure 49 ('V1', 'V2' etc refer to their code-names). It can be seen that V1 opts for a split fall-rise, V2 & 3 mark a 'nucleus' on '*fight*' despite it being neither the 'main focus of information' or 'phonetically the most prominent', and V4 adopts the expedient of 'double-nucleus'.

A Fall-rise tune over the whole of an IP [CLIP 99]

(M9)

	<i>falling- rising</i>	
V1	/ <u>ON</u> ly the <u>fi</u> ght mind/	Nucleus on ' <i>only</i> '
	<i>rising</i>	
V2&3	/ <u>o</u> nly the <u>FIGHT</u> mind/	Nucleus on ' <i>fight</i> '
	<i>rising- falling</i> <i>rising</i>	
V4	/ <u>ON</u> ly the <u>FIGHT</u> mind/	Two nuclei

Figure 49. V's different analyses of the RVE IP '*only the fight mind*'.

4.5.4

As a result of such problems, the RVE analysis rejects, alongside Brown et al 1980, the notion of 'nucleus' as 'phonetically most prominent' or 'focus of information'. Instead, it will identify *accents* ('non-final' and 'final') and *terminal tones*. Such an approach does not force one to choose between '*only*' and '*fight*' in Figure 49 as 'nucleus'. Both are deemed to carry accents. The one on '*fight*' is the final accent and that on *only* non-final. There is a rising terminal tone (H H%) on '*mind*' which carries the 'terminal marking' of the IP (Figure 50).

(M9)

// <u>o</u> nly the <u>fi</u> ght <u>mi</u> nd// H*+¹H L ¹L*+H H H%
--

Figure 50. RVE analysis of the IP '*only the fight mind*'. (Transcription Key in Appendix 19.)

The concept of terminal tones to be adopted in RVE is similar to the 'terminal junctures' of Trager-Smith (1951: 46), 'terminal tones' of Brown et al (1980: 156-8), and 'terminals' of Bolinger (1986: 25).

RVE IPs will thereby be described (mainly) in terms of their accents and terminal tone. Accents will be labelled as *non-final* or *final*, according to their position in the IP. The stretch from the final accent to the end of the IP will be referred to as the *nuclear contour*, consisting of (1) the final ('nuclear') accent and (2) terminal tone. The terminal tone will be defined as the final single pitch movement of the IP, which may be conflated with or separate from the final accent contour. The terminal tone, as will be seen in Section 5.7, is held to carry general discourse meanings of 'finality' (falling) vs 'non-finality' (rising or level).

4.6 RVE Descriptive Framework

4.6.1

The units by which RVE prosody will be described may now be listed. A full transcription key can be seen in Appendix 19.

Intonational phrase (IP) / Major demarcation

The term *intonational phrase* (IP) will be used to refer to the speech segmentation unit called 'tone group' by Halliday 1967, 'tone unit' by Crystal 1969 and Brazil 1997, 'phonemic clause' by Trager & Smith 1951 and 'intonation group' by Cruttenden 1997. IP boundaries will be termed *major demarcations*, and transcribed by a double slash '//'.

// I caught the bus one morning //

Phonological Phrase

An IP consists of one or more *phonological phrase*. A phonological phrase is made up of a stressed item forming the head of the phrase, and any joined on words, typically articles, prepositions etc to its left (Section 4.3.2). There are three such phrases in the IP '*I caught the bus one morning*'. Phonological phrases will not, normally, be transcribed.

[I caught] [the bus] [one morning]

Minor demarcation

A phonological phrase within an IP may be followed by a slight disjuncture. This will be termed a *minor demarcation* (Section 4.3.3). It will be transcribed by a single slash '/'. In the IP '*I caught the bus one morning*', the speaker is judged to have put in a minor demarcation after '*the bus*'.

// I caught the bus / one morning //

Stresses, accents

Three degrees of stress will be referred to: (1) *accents*, strong stresses deliberately made by the speaker, (2) *rhythmic stresses*, largely involuntary and motivated by 'the rhythm', and (3) unstressed. Accents are transcribed with double underlining and rhythmic stresses with single underlining.

// I caught the bus / one morning //

Accent contours, contour-points

The intonational tier is placed below the orthographic tier (Figure 51 below). In it, IP boundaries are marked with '%', and 'H', 'L' and 'O' symbols label the pitch of a given 'contour-point' as higher or lower than, or the same as, the previous one marked.

The most prominent pitch movements are 'accent contours', the pitch movements at accents. These are transcribed H*+L, L*+H etc, enabling reference to two separate pitch movements: *obtrusion* (the pitch movement to the stressed syllable) and *tone* (the movement from it). The symbol '* ' indicates the contour-point aligned with the stressed syllable, and '+ ' the contour-points joined into the accent contour. In the IP '*I caught the bus one morning*', the first accent occurs on '*bus*'. It has an L*+H accent contour. There is

a downwards obtrusion to the stressed syllable and a rising tone from it. The final accent is on 'morning', where there is another L*+H contour, with an obtrusion down to the stressed syllable then rising tone from it . 

<i>Orthographic tier</i>	// I <u>caught</u> the <u>bus</u> / one <u>morning</u> //
<i>Intonational tier</i>	↑H H †L*+H L L*+ H%

Figure 51. Prosodic transcription, showing orthographic and intonational tiers.

The symbols H, L and 0, as well as modelling the ups and downs of pitch movement, enable the identification of specific contour-points (pitch levels) in the overall intonational contour of an IP and the mapping of these contour-points to the acoustic record. By such acoustic measurements, a fuller description of pitch movements and levels may be made. For example, it can be seen how big or small a given pitch movement is, or the height or alignment of a pitch peak can be precisely determined.

Since the aim of transcription is, in the first instance, to provide a full phonetic modelling of RVE tunes, H, L and 0 symbols are marked not only at accents and IP boundaries but (as in Figure 51 above) at other contour-points contributing significantly towards the tune, for example at rhythmical stresses and at the boundaries of phonological phrases.

Nuclear contour and terminal tone

The RVE analysis will not use the term 'nucleus', for reasons that were discussed in Section 4.5, but it will refer to the stretch from the onset of the final accent to the end of the IP as the *nuclear contour*, which is transcribed in italics (Figure 51 above). The nuclear contour contains the final accent contour and the *terminal tone*, the final single pitch movement of the IP, *falling*, *rising* or *level*. The direction of the terminal tone is indicated by the final two contour-points in the IP. For example in Figure 51, the final contour-points are L and H, so the terminal tone is rising.

4.6.2. Pitch levels

The H, L and 0 symbols indicate the pitch level of a given contour-point relative to the previous one marked. They tell us nothing about actual pitch level. In order to specify actual pitch spans and levels, acoustic measurements may be made, as discussed above (Section 4.2.2). To supply some information about this in the transcription itself, the following devices are employed:

- 1) Single or double arrows (upwards or downwards) indicate larger than normal *pitch spans*, which are expressed in units of semitones following t' Hart et al. (1990). Thus,
 - †H*+L shows a pitch obtrusion up to the stressed syllable of *three to six semitones* (examples can be seen in Figures 51 & 52)
 - H*+† †H shows a rise from the stressed syllable spanning *seven semitones or more*.
- 2) Symbols of '<' and '>' indicate *up-stepping* or *down-stepping*, respectively, of a sequence of similar local contours. With down-stepping, the second contour starts at a lower pitch level than the first. Up-stepping signifies the reverse. Thus,
 - L*+H ...>L*+H indicates that the second L H contour is down-stepped from the first, with the second L starting lower than the first one (example in Figure 56 below)
 - L*+H ...<L*+H indicates that the second contour is up-stepped from the first, with the second L starting higher than the first one.

The use of the terms 'down-stepping' and 'up-stepping', thus defined, is closer to AM

analysis (Ladd 1996: 74-8) than to INTSINT (Hirst & Di Cristo 1998: 15-18).

3) Pitch levels, where acoustic records are available, are marked on a scale of 1 to 10 below the intonational tier, where '1' represents the bottom of the speaker's apparent pitch range and '10' the top (cf Earle 1975; Ladd 1996: 256). An example is seen in Figure 54 below. Such levels can be plotted from the acoustic record. Since, however, speakers may not always be displaying their full 'normal' pitch range in the recorded samples, assumptions have to be made as to what this is.⁴³

4.6.3 Key and Termination height

A speaker may use higher than normal pitch and larger than normal pitch spans throughout one or more IPs, or lower than normal pitch and smaller spans. Such overall pitch variations are referred to as variation in 'key'. A three-term system is employed to describe this, following Brazil 1997: *high key*, *mid key* (neither high nor low) and *low key*. In practice, only occurrences of 'high key' and 'low key' are marked in the transcription.

Another pitch level of significance is 'termination height', the level at the end of the IP. With rising terminal tones, this is the finishing point at the end of the rise: perceptibly higher than the preceding H-peak is high termination, perceptibly lower is low termination. With falling terminal tones, the critical point is the H-peak of the final accent: perceptibly higher than previous peaks in *high termination*; lower in *low termination* – although low termination can also be achieved by the fall having a low finishing point. As with *key*, a three-term system is used: high termination, mid termination (neither high nor low) and low termination (cf. Brazil 1997). While low and high termination are an 'all or nothing' perception, a 'gradient' effect operates: the higher or lower the termination height, the stronger its effect.

Other prosodic phenomena

Other prosodic phenomena referred to will be mainly:

- *loudness* – to transcribe which, terms of 'forte', 'piano' and 'dim(inuendo)' are used (cf. Crystal 1969: 156-161)
- *pauses* – which are silent (unfilled) or voiced (filled)³⁹
- *length* – the lengthening or shortening of particular vowels or consonants are transcribed by means of standard IPA diacritics
- *tempo* – to transcribe which, terms of *presto*, *lento* and *rallentando* are used (cf Crystal 1969: 52-6)

4.7 Transcribing the Recordings

4.7.1

The researcher began by listening to all the thirty conversations, making synopses of them, timing their different episodes, and noting down the balance of participation between 'Speaker A' and 'Speaker B' in each episode and variations in recording quality (e.g. when affected by background noise).

One or more episodes from each of the thirty conversations were then transcribed orthographically. These synopses and orthographic transcriptions can be seen in Appendices 26 – 28. From the thirty orthographic transcriptions, one or more passages from the following six interviews were selected for *prosodic transcription*, using the units of analysis outlined above in Section 4.6:

- Treherbert 1 (T1)
- Treherbert 5 (T5)
- Maerdy 1 (M1)
- Maerdy 8 (M8)
- Maerdy 9 (M9)
- Porth 10 (P10)

(The numbers refer to the serial number of interview at the particular location.)

The passages were selected on the basis of being among the best for recording quality. The bio-details of informants participating in the six interviews selected for prosodic transcription can be seen in Appendix 1. For example in 'Treherbert 5', the two informants (T5A and T5B) were brothers and retired miners. In 'Porth 10', the two informants (P10A and P10B) were friends, one a printer and the other a skip driver.

The prosodic transcription uses different tiers:

an orthographic tier

transcribes the text of what was said, indicates IP boundaries and minor demarcations, if any, within them, underlines all stresses (accents and rhythmical stresses) and indicates the nuclear contour

an intonational tier

shows contour points at accents and other locations in the IP by means of H, L & 0 pitch symbols, indicates pitch-movement spans that are larger than normal; and marks any down-stepping or up-stepping of sequences of similar contours

miscellaneous tiers

marks other useful prosodic information (for example shortening of stressed vowels, significant changes in tempo or loudness, uses of high or low key) or incidental information such as 'off-stage' noises or events.

The Transcription Key can be seen in Appendix 19, and the full prosodic transcriptions in Appendices 20-22.

Short extracts (1 - 2 minutes each) from each of the six prosodic transcriptions were then chosen for the purpose of detailed examination, and most of the examples employed in the discussion that follows will be taken from these. Three of these, Extract One (Maerdy 1), Extract Two (Maerdy 9) and Extract Three (Porth 10), were sent to the six intonationalists for the auditory experiment described in Section . These three extracts, together with the transcriptions of each intonationalist in vertical arrangement one above another, can be seen in Appendix 11.

4.7.2 Illustration of the transcription at work

The researcher's analysis of a passage from the interview M1 in Figure 52 (a-d) illustrates the transcription in action. The passage is from the M1 extract sent to the six intonationalists, whose own analyses can be seen in Appendix 11. Two tiers of the transcription are shown, the orthographic tier and the intonational tier below.

(M1) [1]

<p>//when <u>I</u> <u>started to work</u>// <u>I</u> <u>started</u> at <u>fifteen</u> and a <u>half</u>//</p> <p style="font-size: small; text-align: center;"> H H*+H L*+L L L% H*+H L*+L L L L H*+H% </p>
--

Figure 52 (a). Transcription of extract from interview M1.

In (1), the orthographic tier shows that the speaker is judged to have divided the utterance into two IPs, with boundaries after 'work' and 'half'. ☞ Three stresses are perceived in the first IP, on 'I', 'star-' and 'work', the first two of which are judged to be accents (double underlining), and the third a non-accentual / rhythmic stress (single underlining). ☞ The intonational tier transcribes the pitch movement (H upwards, L downwards) at different contour-points in the IP. The accent contour on 'I' is transcribed as H*+H (an upwards obtrusion to the stressed syllable and a rising tone from it) and on 'started' as L*+ L (downwards obtrusion to the stressed syllable and a falling tone from it). ☞ The L L% on 'work' indicates that that the terminal tone, in this IP separated from the final accent, is falling. The stretch from the onset of the final accent on 'started' to the end of the IP is put in italics, indicating the nuclear contour. (Acoustic record in Appendix 24.)

The second IP is judged to have three accents, with the final accent carrying simultaneously the terminal tone. ☞

(M1) [2]

//. . . and <u>I</u> was <u>working</u> in the . <u>colliery</u> / <u>down</u> in <u>Ferndale</u> //											
L	H*+H	L	L*	+ H	L	L*	+ H	<L	H	0	H*+H+ ⁺ L%

Figure 52(b). Transcription of extract from interview M1(cont).

In (2), the utterance is judged to form a single IP, and to contain a minor demarcation after 'colliery'. ☞ There is a sequence of two L H contours following each other on 'colliery' and on 'down'. The second is up-stepped from the first (Section 4.6.2). ☞ The terminal tone of the IP, which is falling (H L), is conflated with the final H*+H+L accent. ☞ (Acoustic record in Appendix 24.)

(M1) [3]

//. . . and my <u>father</u> / was <u>working</u> in the <u>colliery</u> in <u>Maerdy</u> //									
L	H* +H	L	0* +H	L	L*	+ H	L	L*	+ ⁺ H%

Figure 52(c). Transcription of extract from interview M1 (cont).

In (3), the utterance is also judged to form a single IP, with a minor demarcation after 'father'. ☞ The terminal tone, which is rising, is conflated with the final L*+H accent on 'Maerdy'. The span of the rising tone on 'Maerdy' is heard to span more than 3 semi-tones (Section 4.2.2). ☞ (Acoustic record in Appendix 24.)

(M1) [4]

//and <u>he</u> was <u>having</u> a <u>bath</u> // <u>because</u> they'd <u>modernised</u> <u>that</u> <u>pit</u> //											
L	0	H	L	H	L	H*+H%	L	L	H	H* + ⁺ H+ ⁺ L	L* HH%

Figure 52(d). Transcription of extract from interview M1 (cont).

In (4), the utterance is judged to be divided into two IPs. ☞ In the first IP 'and he was having a bath', final accent and terminal tone (rising) are conflated on H*+H 'bath'. ☞ In the second, 'because they'd modernized that pit', 'modernized' and 'that pit' are both strongly accented, 'modernized' so strongly that a secondary (rhythmic) stress is perceived on the final syllable of the word. The terminal tone is rising. ☞ (Acoustic record in Appendix 24.)