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Intonational Variation in Four Dialects of English: the High Rising Tune

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14.1. INTRODUCTION

Many varieties of English have intonational patterns or patterns of 'tune usage' that differ from the most studied varieties, namely General American English and Standard Southern British (SSB) English (Cruttenden 1994; Ladd 1996; Grabe 1998*a, b*, Grabe *et al.* 1998). In this chapter we propose to show how intonational analyses within an autosegmental-metrical phonological framework can deal with this type of variation. In Sections 14.2.1 and 14.2.2 of this chapter we re-examine the nuclear rising tunes often associated with declarative utterances in Australian English and New Zealand English with particular focus on socio-phonetic differences. Section 14.3 describes the nuclear rises in Glasgow English and Belfast English compared to other varieties of British English. As pointed out by Cruttenden (1994), these rises differ from the declarative rises of the two Australasian varieties in that they constitute a 'standard' declarative tune rather than what has traditionally been considered to be a sociophonetically marked pattern in New Zealand and Australia. They also differ somewhat in their phonetic realization.

We propose to re-examine intonational differences among varieties of English in terms of a typology elaborated by Ladd (1996) which is based partly on a descriptive framework established by Wells (1982) to describe segmental differences among varieties of a single language. Ladd's typology was developed primarily to consider intonational differences among languages but he also applies it to varieties within a language. We propose to extend his treatment of dialectal differences to consider issues of sociophonetic variation within a variety, and to consider the possibility of differences also being

neutralized in certain situations. The Ladd typology includes semantic differences (Type 1) which cover differences in meaning or function of phonologically identical tunes; systemic differences (Type 2) which include differences in the inventory of phonologically distinct tune types, irrespective of Type 1 differences, realizational differences (Type 3) where phonetic realization of an identical phonological tune may differ among or within varieties, and finally phonotactic differences (Type 4) which are differences in tune-text association.

In the final section of this chapter we consider representational issues that emerge from analysis of cross-dialectal phenomena and we include brief descriptions of two annotation systems that have emerged in recent years.

14.2. INTONATION IN AUSTRALIAN ENGLISH AND NEW ZEALAND ENGLISH

14.2.1. *The high rising terminal: a semantic difference?*

Earlier studies of Australian English (e.g. Mitchell and Delbridge 1965) have proposed that Australian speakers use a similar inventory of intonational patterns to speakers of Standard Southern British (SSB) English or standard American English. This suggests that the intonational phonology of Australian English is not significantly different from SSB English. However, potential cross-variety differences need to be taken into consideration with respect to tune usage. Previous studies of Australian English (e.g. Guy and Vonwiller 1984, 1989; Horvath 1985) document the growing usage since the 1970s of the so-called high rising terminal (henceforth referred to as the HRT) accompanying syntactically marked declarative utterances as well as yes/no questions. A similar phenomenon has been widely documented for its near dialectal neighbour, New Zealand English (e.g. Britain 1992; Cruttenden 1994). It is widely claimed that phonetically identical high-rising tunes can be used to signify these two different utterance types, which makes Australian English and New Zealand English intonation different from SSB English, for example where the high-rising nucleus is used primarily with yes-no questions, and never with declarative utterances. Ladd (1996) classifies this dialectal difference as an example of a 'semantic' or Type 1 difference.

The majority of research on the use of HRT with declarative clauses in Australian English has been sociophonetic and auditory impressionistic. Halliday's 'phonetic' definition of an HRT is that the tune must rise to a pitch level approximately 40 per cent higher than the high nuclear accent. In

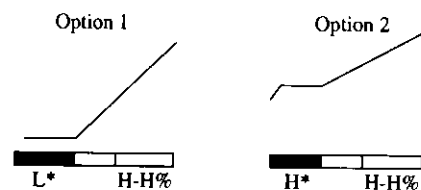


FIGURE 14.1 Illustration of two kinds of rising tunes in Australian English.

autosegmental-metrical terms (after Pierrehumbert 1980), the transcription of this tune would be H* H-H%, although Ladd suggests that the L* H-H% tune might also be classed as an HRT. Figure 14.1 illustrates these two options for Australian English. The first tune is associated with an observable F_0 trough in the low part of a speaker's range associated with the primary stressed syllable of the accented word, rising to relatively high pitch level at the edge of the intonational phrase. By contrast, the second tune commences relatively high in the speaker's range, and continues to rise towards the phrase edge.

For the most part, researchers of the phenomenon in Australian English have adhered to Halliday's original definition of an HRT as a high rising nuclear tone, following transcription conventions of the British School of Intonation (e.g. Halliday 1967). Some consensus emerges from the sociolinguistic studies of the 1980s that the tune is used predominantly by young adolescent females, is associated with low prestige varieties (i.e. 'broad' Australian English), is socially stigmatized, occurs most often in the telling of narratives, and is spreading through other sections of the Australian community. Guy and Vonwiller (1989: 25) suggest 'HRT correlates with the semantic complexity of the text and therefore the need for checking to see if the audience is understanding what is being said'. Speakers tend to use it as a device to hold, rather than yield the floor in discourse situations. Guy and Vonwiller also claim that HRT usage fits with more general interpretations of rising pitch as signifying non-finality.

The situation in New Zealand English appears to be somewhat similar. As in Australian English, HRTs are more typically associated with narratives than with opinion texts, and in New Zealand English they are also more frequent amongst women and speakers of Maori ethnicity (Britain 1992). There is a suggestion that HRTs also serve as positive politeness markers in New Zealand English, maintaining speaker-hearer solidarity (for a review see Warren and Britain 2000).

For Australian English, anecdotal evidence suggests that the tune is no longer primarily associated with young adolescent female Australians, and has been adopted by a broader cross-section of the Australian community, as predicted

by the sociolinguistic studies of the 1980s. Data from the ANDOSL (Australian National Database of Spoken Language) MAP corpus (Millar *et al.* 1994) will be presented to show that male and female participants in the MAP task frequently use the HRT. We will also show that HRTs labelled as either L* H-H% or H* H-H% are used with declarative utterances as well as with yes/no questions. The ANDOSL MAP task¹ is similar to the original HCRC map task developed in Edinburgh and Glasgow in the late 1980s (Anderson *et al.* 1991) and has been used widely in intonational studies of other languages, like German and Japanese. Versions of a map task have also been developed for other varieties of English including Northern British varieties (Grabe *et al.* 2000) and New Zealand English (Daly and Warren 2001). In the ANDOSL corpus, male and female speakers have been recorded from the three linguistically defined dialectal groups of Australian English—cultivated, general, and broad (Mitchell and Delbridge 1965). The following examples of HRTs have been chosen from a section of the ANDOSL MAP database that has been fully transcribed according to autosegmental-metrical conventions that are more or less equivalent to the Tones and Break Indices (ToBI) tagging criteria outlined by Pitrelli *et al.* (1994) for American English. The conventions for Australian English are outlined in Fletcher and Harrington (2001). All data presented below are from speakers of 'general' Australian English.

Figures 14.2(a) and (b) show two examples of tunes labelled H* H-H% from a female speaker. The first contour shows the rising tune with a yes/no question and the second contour shows a declarative utterance with essentially the same tune. Similarly Figures 14.3(a) and (b) show a male speaker illustrating two instances of the L* H-H% 'low-rising' tune, one for a declarative utterance and the other for a yes/no question. The tunes are identical, apart from a slightly higher F_0 value at the endpoint of the contour associated with the yes/no question.

Intonational phrases labelled L* H-H%, L+H* H-H% or H* H-H% were all classified as examples of HRTs, following a suggestion made by Ladd (1996). Looking at a sample of the labelled corpus (three females, six males), 21 per cent of all high rising tunes produced by the female speakers coincide with declarative utterances, whereas for males, the proportion is slightly higher at 25 per cent. The male speakers use HRTs more often than females, contrary to earlier sociolinguistic findings (e.g. Horvath 1985; Guy and

¹ Participants in the ANDOSL MAP task work in pairs, each with a map in front of them that the other cannot see. One participant (the 'instruction-giver' IG) has a route marked on their map and is required by the task to instruct the other (the 'instruction-follower' IF) in drawing the correct route onto their own map. The maps are similar, but differ in the presence, position, and names of certain of the landmarks.

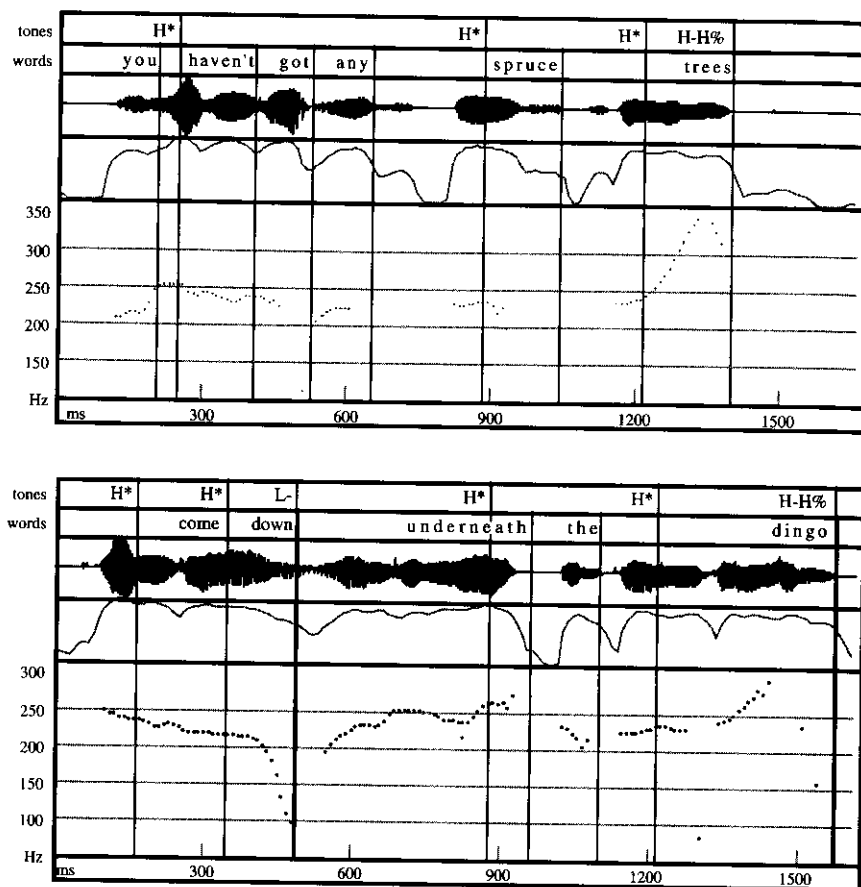


FIGURE 14.2 (a) An example of an H* H-H% high rising tune from Australian English. This example is produced by a female speaker and accompanies the yes/no question 'You haven't got any spruce trees?' (b) An H* H-H% nucleus produced by a female performing the 'leader' role in a map task dialogue. The utterance is part of an instruction to the 'follower' in the map task, 'comes down underneath the dingo'.

Vonwiller 1989). The rest of the H-H% tunes are generally associated with yes/no questions. It is also interesting to note that these results are from speakers performing the 'leader' role in the MAP task. Generally, more H-H% tunes associated with yes/no questions are observed when speakers are adopting the role of the 'follower'. It is also not surprising that HRTs are found in this kind of task. Its construction is specifically designed so that one participant is frequently requesting information, or seeking verification and confirmation from the other participant. A MAP task can also be construed as a 'semantically'

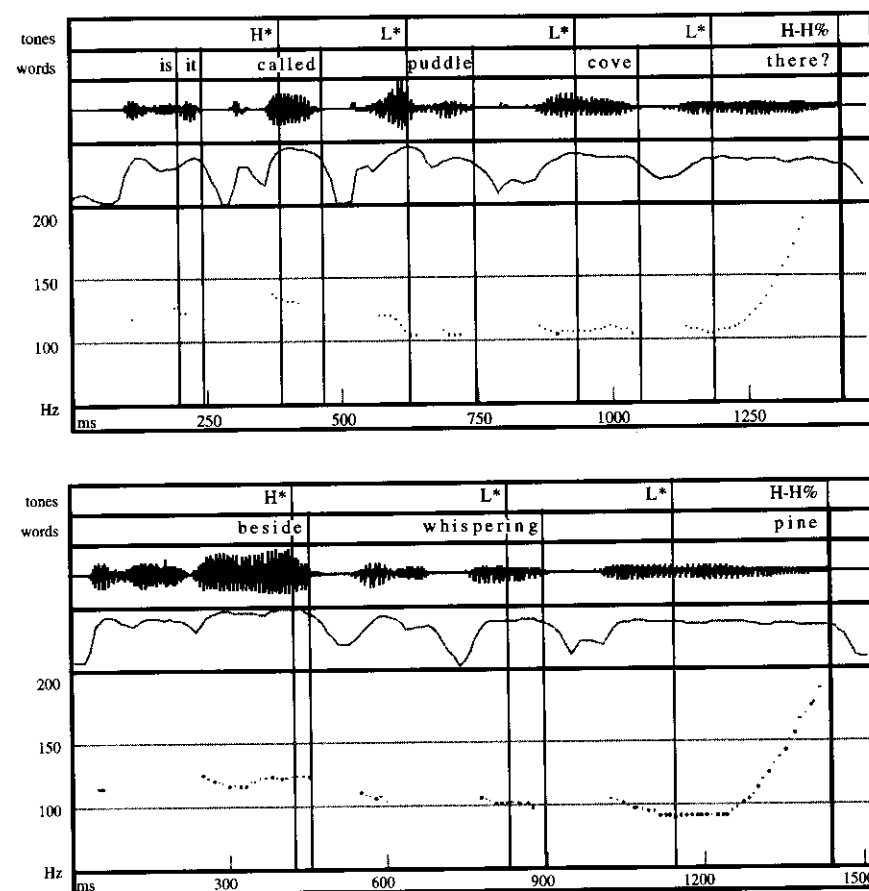


FIGURE 14.3 (a) An example of a L* H-H% 'low' rising tune produced by a male speaker of Australian English. This example is a question, 'Is it called puddle cove there?' (b) This example of a L* H-H% nucleus is part of a statement: '(it should be) beside whispering pine'. Note the similar extent of the rise from low to high pitch across this and the previous example.

complex text or a type of narrative. The results reported here therefore concur with earlier findings (e.g. Horvath 1985; Guy and Vonwiller 1989) for Australian English, namely, narratives are associated with a higher incidence of HRTs than non-narrative or 'opinion' texts.

There is an interesting trend in some of the MAP data analysed so far. It is apparent that there are no discernible phonetic differences between the HRTs associated with questions and declaratives for speakers like the one whose rises are illustrated in Figures 14.3(a) and (b), supporting earlier claims (e.g. Ladd

1996: 121). However other speakers in the MAP corpus systematically use 'high' nuclear rises for questions (i.e. H* H-H%) and 'low' nuclear rises for statements (L* H-H%). This pattern is a feature of both male and female speakers. For these speakers, the Fo value associated with the final H% boundary in L* H-H% tunes, is usually almost as high as in H* H-H% tunes, resulting in both tune types being perceived as an HRT by transcribers. Effectively for some speakers, there may be some kind of system-internal phonetic difference emerging between the kinds of rise used for questions versus statements, at least with respect to the starting point of the rise. Neither of these rising tunes (L* H-H% versus H* H-H%) would be associated with SSB English declaratives, which suggests that we are still dealing with some kind of semantic difference in tune usage between the two varieties. Speakers of SSB English presumably do not make a linguistic choice to use an HRT with a statement. Some of the Australian English speakers examined here are not only making a choice to use a rising tune versus a falling or fall-rise tune with a statement, they are making a further choice to use a different starting point for the rising tune to differentiate yes/no questions from statements.

Apparently, this potential systematic difference which may be emerging among male and female speakers of Australian English, is not the same as the kinds of differences that are emerging in New Zealand. The question of how the latter may be characterized (i.e. as semantic, systemic, or realizational) is examined in the next section.

14.2.2. *Rises in New Zealand English—a realizational or a systemic difference?*

As mentioned above, like Australian English, the most widely discussed distinguishing feature of New Zealand English (NZE) intonation is the high-rising terminal (e.g. Wells 1982; Britain 1992; Cruttenden 1994). More recent work (e.g. Daly and Warren 2001) has been revisiting the issue of gender differences in intonation patterns in NZE. As well as general features of pitch range and dynamism, this research has been investigating the realization of a range of final rises (not just HRTs) in NZE. A summary of the main findings is outlined below. Initial findings suggest that like the rises in Australian English, it may be necessary to take a closer look at exactly what kind of difference they represent in relation to other varieties of English.

The material referred to here comes from a close replication of the design established for British varieties discussed in further detail in Section 14.3 of this chapter. Initial close scrutiny of data produced in a sentence reading task

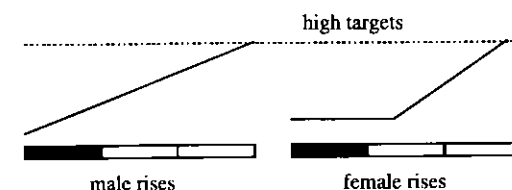


FIGURE 14.4 Schematic representation of male and female rises, showing the interrelationship of rise size, speed, and alignment. The oblongs represent syllables; the filled one is accented. The dotted line indicates the target pitch value for the rise.

revealed a difference in how question rises were being realized. All relevant cases involve a nuclear rise associated with a final di- or trisyllabic word with initial stress. While males tend to start a rise in the accented syllable, the females start it later, in the post-accented syllable. Figure 14.4 is a schematic representation of these two different phonetic rises. It is not clear whether the difference is realizational (Ladd's Type 3 difference), and thus a potential socio-phonetic marker of gender identity; systemic (a Type 2 difference), indicating a difference in the inventories of tunes from which females and males select (so again a potential marker of gender identity); or whether in fact the groups of speakers are simply making different semantic choices from a common pool of tunes.

The differences between the genders are illustrated by Warren and Daly's (2000) data for echo questions. While the late rising pattern is commonly used by both groups, males frequently have an early sharp rise to a high on the accented syllable, giving L+H* H-H%. Females, by contrast, often exhibit a later rise, possibly L* L-H%, but plausibly a realizational variant of L* H-H%. These differences are illustrated in Figures 14.5 and 14.6. In Figure 14.6, the rise has been labelled L+H* H-H% to capture the dynamic nature of the rising tonal movement through the initial primary stressed syllable of 'lilies'. Over the entire set of question sentences, late rises account for 54 per cent of the female questions (with 25 per cent rises on the initial syllable and 21 per cent no rises), but for only 17 per cent of the male questions (59 per cent were initial and 24 per cent had no rises). Informal judgements by native speakers of the dialect suggest that the male L+H* H-H% pattern on echo questions does not mark any particular additional nuances, but that the females L* L-H% or L* H-H% may indicate 'polite insistence/reminder', a meaning also conveyed by this sequence in other varieties of English. This suggests a gender difference in the approach taken to the task, at least as far as these late rises are concerned, rather than either a realizational or a systemic difference. It also suggests, though, that NZE at least as exhibited by the male speakers, has as one of its unmarked forms of question rises a contour similar to the Northern British rise-plateau (see Section 14.3).

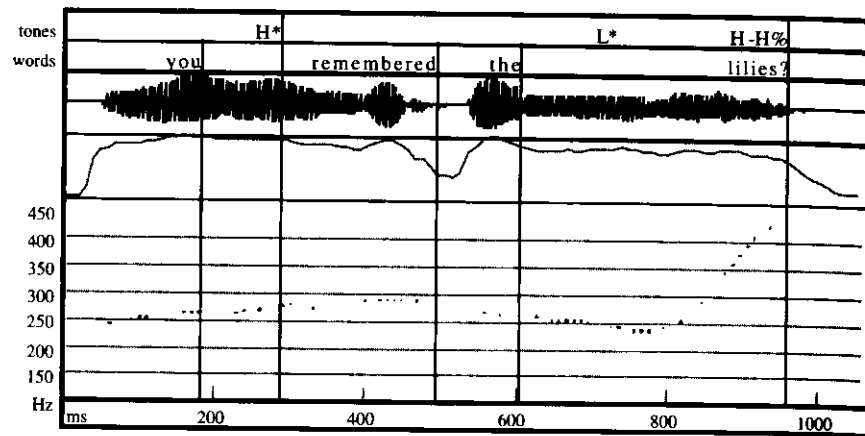


FIGURE 14.5 An actual example of a late-rising tune produced by a female speaker of New Zealand English for the yes/no question 'You remembered the lilies?' The rise has been transcribed here as L* H-H%. Many of these rises can also be transcribed as L* L-H%.

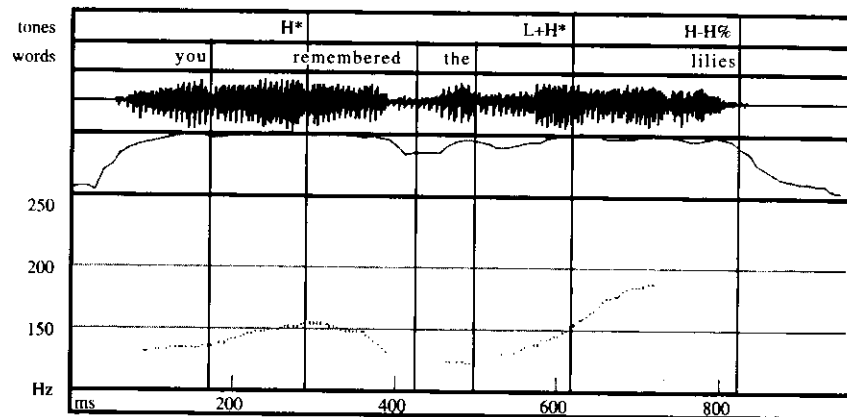


FIGURE 14.6 An example of an early rising tune produced by a male speaker of New Zealand English, transcribed L+H* H-H%.

In the NZE map task data, Warren and Daly distinguished the use of rises in questions from their use on statements, where they fulfil a function frequently associated with HRTs, namely checking that the other participant is following the instructions. Unlike the main trends reported for the Australian MAP data in the preceding section, there is a clear distributional difference between males and females, with the latter having later rises. However, both male and female

speakers show a larger proportion of late rises in statements compared with questions. On the basis of rather limited data (in particular, the males ask few questions in this task), it is unclear whether this pattern is consistent enough to constitute a phonological difference between question and statement rises. With other tunes, there is some additional evidence that males and females may be using similar phonological patterns, but aligning them differently. For instance, the sharp nuclear rise before a high boundary (L+H* H-H%) that is frequently used by males in the sentence-reading task turns up in the female data from the map task, but often with a later alignment. We do not believe that this is a contrasting L*+H scooped rise, though further data are needed to verify this.

14.2.3. *Neutralization of intonational contrasts*

According to Wells (1982), an additional source of difference among dialects is the extent to which phonemic contrasts may be neutralized *under certain conditions* (our emphasis). It may be pertinent to extend Ladd's typology to include this possibility. For example, the HRTs of Australian and New Zealand English may represent a form of 'tune' neutralization. In the case of Australian English HRTs, it has been assumed that a particular tune (e.g. H* H-H%) can have two possible semantic interpretations—either signifying a yes/no question or declarative statement. Another way of looking at it is that in the genres where HRTs are most prevalent (e.g. narratives and pragmatically complex texts like map task interactions), the contrast between the high (or low) rising tunes and the 'normal' falling declarative contours may be neutralized in certain contexts. Note however, that one of the 'consensus' interpretations of the HRT by almost all of the earlier studies of this phenomenon in Australian English is that it is often used as a floor-holding device. This suggests that an alternative form of 'functional' neutralization may be taking place. The contrast between the fall-rise tune (e.g. H* L-H%), or 'continuation' contour and high rising tune may be suspended. Critically, speakers who employ HRTs also use falling tunes and fall-rise tunes. However, in certain pragmatic contexts an HRT is favoured. This analysis of tune usage is highly speculative and needs further investigation across the HRT-using varieties. Nevertheless, neutralization of 'phonological' contrasts may be a useful addition to Ladd's typology of intonational differences when comparing tune use among varieties of a language.

In the next sections, we turn our attention to the rising tunes of two Urban Northern British varieties. We also consider the potential problems these varieties present for intonation transcription systems built on the notion of a 'standard' variety.

14.3. INTONATION IN THE BRITISH ISLES

14.3.1. *Rises in Belfast English and Glasgow English*

The 'rise-plateau' and 'rise-plateau-slump' patterns prevailing in many northern varieties of British English have attracted some attention in the literature (Cruttenden 1994; Ladd 1996; Mayo, Aylett, and Ladd 1997; Nolan and Grabe 1997; Grabe 1998a). The considerable level of intonational variation in British English is being investigated in a longer-term project at the University of Cambridge—Intonational Variation in English (IViE).² Results from the IViE project are available in Grabe *et al.* (1998), Evans and Grabe (1999), Nolan and Farrar (1999), and Grabe, Post, Nolan, and Farrar (2000).

The 'Urban Northern British' (UNB) rises (Cruttenden 1994) are cited as the classic example of a systemic difference or Type 2 difference by Ladd (1996) where the intonational difference lies in the inventory of phonologically distinct tune types, irrespective of semantic differences. The rises represent a typical declarative tune in many of the Northern British varieties and are therefore quite different from the high rises discussed in the preceding sections. In the original ToBI annotation system for American English, the combination L* H-L% transcribes a rise-plateau. The H- phrase tone 'upsteps' the final L% boundary tone. This tone combination is not, therefore, available to transcribe a rise-plateau-slump in the Northern British varieties. Thus, the rise-plateau-slump represents a Type 3 contrast, where the H-L% transcription has quite a different phonetic realization in Glasgow or Belfast English compared to standard American or General Australian English. The transcription solution offered in Glasgow ToBI or GlaToBI (Mayo 1996; Mayo *et al.* 1997) involves the removal of the upstep rule after an H- phrase tone; the rise plateau is transcribed as L*H H-H% and the rise-plateau-slump as L*H H-L%. This solution may not produce transcriptions, which are comparable across different varieties of English (i.e. L*H H-H% transcribes a rise-plateau-rise in Southern British English and a rise-plateau in Glasgow English), but it works for Glasgow English if it is assumed that this variety does not have high rising tunes, like SSB English or Australian and New Zealand English.

² The aim of the project (Intonational Variation in English, or IViE, Economic and Social Sciences Research Council award R000237145 to E. Grabe and F. Nolan, 1997–2002) is to make available on CD-ROM an orthographically transcribed and prosodically-labelled database containing speech samples from eight varieties of British English. The varieties of English investigated are spoken in London, Cambridge, Leeds, Liverpool, Newcastle, Belfast, and Dublin. All speakers performed five tasks producing read, semi-spontaneous, and interactive speech data. The speech samples are transcribed using the IViE system for prosodic labelling.

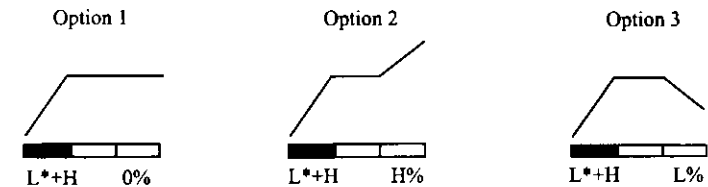


FIGURE 14.7 Three boundary options in Belfast English.

There is a variety of English, however, which unlike Glasgow English clearly exhibits three boundary options: Belfast English. Data from the IViE corpus (see Section 14.3.2(i)) show that after an L*H sequence of targets, Belfast speakers produced predominantly high plateaus in read speech but they also produced rises and falls, i.e. with pitch continuing to rise, or then fall after the L*H sequence (Grabe *et al.* 2000). Thus, when transcribing Belfast English, suspending the upstep rule is not always a satisfactory solution.

The solution offered in the IViE system is the following. At least in principle, it is assumed that speakers have three options at every phrase boundary. The implementation of the options is variety-specific; in Cambridge English, for instance, speakers have two options, in Belfast English, they have three. In the absence of a stressed syllable, speakers may raise pitch, lower pitch, or leave matters as they are. Rising pitch is transcribed as H%, falling pitch as L% and no change is transcribed as 0% (Grabe 1998a). Figure 14.7 illustrates the boundary options in Belfast English and gives the corresponding transcriptions.

14.3.2. *Some representational issues in transcribing different varieties*

Due to the systemic and realizational differences between rising tunes in Glasgow and Belfast English versus American, Australian, or New Zealand English discussed in the previous sections, the issue of representation has needed to be addressed by researchers working on these varieties. Tagging conventions based on autosegmental metrical treatments of English intonation (e.g. Pierrehumbert 1980) have either been modified (e.g. the removal of upstep) or different autosegmental-metrical models (e.g. Gussenhoven 1984; Grabe 1998a) have provided the basis for intonational tags to describe rising boundary configurations in UNB and other varieties, as well as other intonational phenomena.

So far it has been assumed that the main source of intonational variation between Australian English and American or British English is to do with tune choice and/or differences in the phonetic realization of phonological categories,

which are shared among the varieties. In other words, the variation is not necessarily due to differences in phonological inventories. The application of the American English ToBI annotation conventions to Australian English is relatively uncontroversial largely because the intonational phonology of these varieties is very similar (Fletcher and Harrington 2001). The conventions sanctioned by the tone and break index tiers provide sufficient coverage of the major intonation patterns and higher-level prosodic characteristics of Australian English. The direct application of a version of the American ToBI tagging system (or any other annotation system for SSB, American, or Australian English) to New Zealand English may not be as straightforward. The relevant phonological categories of New Zealand English intonation need to be established before adopting a labelling strategy that is identical to other varieties. At this stage no assumption has been made that the same annotation system (ToBI or otherwise) will automatically hold across both Australian English and New Zealand English. More rigorous quantitative analysis is needed before the relevant phonological contrasts are established for NZE. This needs to be done before a particular set of annotation conventions can be adopted to represent these phonological contrasts. On the other hand, due to the well-attested existence of intonational differences among varieties of British English, it is of no surprise that at least two annotation systems have been developed to reflect these differences. Some of the labelling conventions adopted by the IViE system and the GlToBI annotation system have already been outlined in Section 14.3.1. Further details of these systems will now be discussed.

(i) *IViE*: the IViE system is modelled on the original ToBI conventions for American English, but incorporates two major changes (Grabe *et al.* 1998). The first involves the tonal inventory, and the second involves the number of tiers available to the transcriber. Changes to the tonal inventory were made to allow for comparable transcriptions of more than one variety of English in a single transcription system; unlike the original ToBI conventions for American English which accounts for one particular variety of English (i.e. the so-called 'standard' American English variety), IViE offers a pool of labelling options from which transcribers can choose a subset of labels for each variety they investigate. The IViE labels themselves are based on phonological analyses of English intonation by Gussenhoven (1984) and Grabe (1998a).

Secondly, the IViE system offers two new tiers, the rhythmic and the pitch movement tier. The addition of the two extra tiers results in the following 5-tier system:

- (1) orthographic tier
- (2) rhythmic tier

- (3) pitch movement tier
- (4) phonological tier
- (5) miscellaneous tier.

Note that IViE does not have a break index tier, because the system does not deal with different degrees of disassociation between words within intonation phrases or different degrees of boundary strength. The rhythmic and pitch movement tiers are intended to increase the transparency and replicability of the labels on the (phonological) tone tier. In essence, they permit a step-by-step breakdown of the process, which leads to a specific tonal transcription. In English, this process begins with the identification of rhythmically prominent (stressed) syllables because the pitch movements transcribed on the tone tier are anchored to these syllables. In IViE, this identification process is overt, rather than implicit; a rhythmic tier has been added on which the location of rhythmically prominent (i.e. potentially accentable) syllables is transcribed, by aligning the label 'P' for 'prominence' with the relevant vowel. The second step in the prosodic labelling procedure involves the identification of rhythmically prominent syllables which are not only stressed but accented, that is, associated with pitch movement (note that some prominent syllables may not be accompanied by pitch movement). Accentedness is established via inspection of the fundamental frequency trace and careful listening. The pitch movement surrounding the stressed syllable (if any) is then transcribed on the 'pitch movement tier'. Note that the pitch movement tier has heuristic rather than linguistic status; it allows labellers to make a record of the impression of a particular pitch movement which, combined with other information, leads them to assign phonological labels to a contour at a later stage. The pitch movement tier makes that decision-making process accessible to users of IViE transcriptions.

Secondly, the pitch movement tier provides information about accent realization. In varieties of British English, the realization of a pitch accent varies with (a) the segmental structure it is associated with and (b) the location of pitch accent within an IP (Grabe 1998b; Nolan and Farrar 1999; Grabe *et al.* 2000). On the pitch movement tier, the labeller provides information about the realization of pitch accents. The surface realization of a particular accent is transcribed within pitch movement *Implementation Domains* or IDs. Relevant landmarks within the ID are (1) the preaccentual syllable, (2) the accented syllable and (3) any following unaccented syllables (if any) up to the next accented syllable. Put simply, an ID consists of the preaccentual syllable and the following 'accent foot'. The examples in Figures 14.8 and 14.9 are intended to give a flavour of the labels on the pitch movement tier. Labels available are

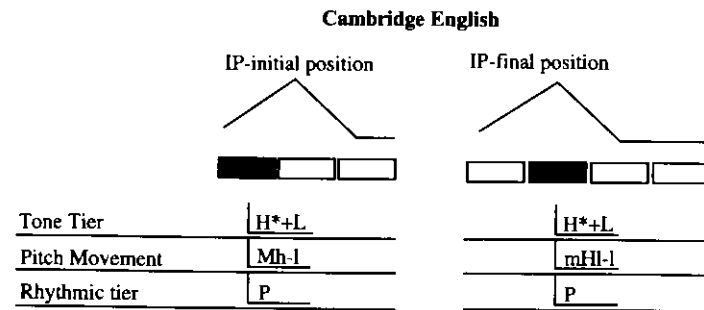


FIGURE 14.8 Realization of H*+L in IP-initial and IP-final position.

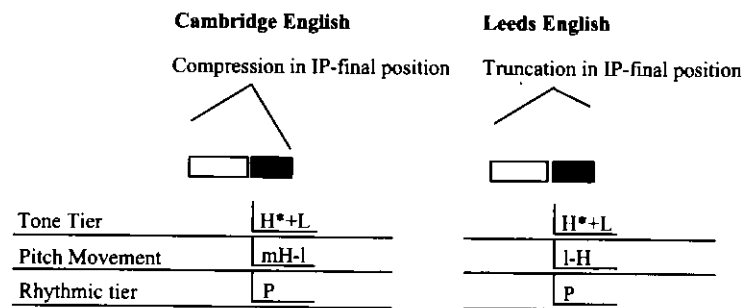


FIGURE 14.9 Cross-varietal differences in the realization of H*+L.

h(igh), l(ow) and m(mid), and they are transcribed relatively to each other. Capital letters indicate a pitch level accompanying a stressed syllable.

Figure 14.8 shows that in Cambridge English, H*+L in IP-final position is realized with high pitch on the stressed syllable (transcribed as H), low pitch on the following syllables (l), and mid-pitch (m) on the preaccentual syllable (Grabe 1998a). In IP-initial H*+L, the pitch peak is frequently delayed beyond the accented syllable, and we find mid-pitch on the stressed syllable (M), followed by a pitch peak on the following unaccented syllable (h). The syllable or syllables immediately after the peak are low (Nolan and Farrar 1999). A comparable effect can be observed in Newcastle, and in Leeds English.

Figure 14.9 illustrates cross-varietal realizational differences conditioned by segmental structure. The figure shows that in Cambridge English, on very short syllables with little voicing, H*+L is realized as a steep fall in Fo (compression). In Leeds English, H*+L on the same syllable accent is realized differently; instead of a steep fall, we see a very shallow fall or a level, and we hear high pitch rather than falling pitch (cf. Grabe 1998b, Grabe *et al.* 2000). The pitch movement tier allows us to capture this difference. The assumption

is that it is possible to establish a one-to-many mapping between a specific phonological label and a finite set of pitch movement labels. The relationship between the pitch movement tier and the ensuing phonological labels makes this mapping explicit and provides one method for determining whether intonational differences among varieties are realizational rather than systemic, according to Ladd's typology.

(ii) *GlaToBI*: the GlaToBI annotation system was designed to annotate intonation and prosody for one specific variety, namely Glasgow English, unlike the IViE system that aims to capture similar and dissimilar intonational phenomena across a number of varieties. GlaToBI also includes a Break Index tier, like other 'ToBIs'. Modifications have been made to the original tone tier of ToBI to represent the characteristic tunes of 'Standard' Western Scottish English, in particular the variety spoken in Glasgow. Similar to many recently developed annotation systems, the development of GlaToBI was intrinsically linked with the aim of performing large scale intonational analysis of a substantial digital speech corpus, in this case, the HCRC Map corpus (Anderson *et al.* 1991).

The tone and break index tiers are the central components of GlaToBI. The Break Index tier is essentially unchanged from American English ToBI. The indices range from 0 to 4 with the latter representing the highest-level intonational constituent, the intonational phrase (see Mayo 1996, for further details on other tiers). There are at least two crucial differences between the ToBI tone labelling conventions used for Glasgow English, and those adopted for American or Australian English. The first is the elimination of the contrast between rising and scooped accents, L+H* and L*+H, and second, already discussed in Section 14.3.1, is the removal of the upstep rule after an H- phrase tone to take account of the rise-plateau-slump. We mentioned that one of the implications of this is that the L*(+)H H-L% transcription will account for a very different tune in American or Australian English than in Glasgow English.

The elimination of the contrast between the two-bitonal accents (L+H* and L*+H) is another potential systemic or Type 2 difference. The accent type labelled by Mayo, Aylett and Ladd as L*H indicates that the accent is associated with a rising tune. They also claim that the * does not denote that either the H or L tone is phonetically anchored to the stressed syllable, but rather the *movement* from one to the other is what is observed through the associated stressed syllable. In other words, the temporal alignment of the L or H tone with the stressed syllable, critical to the contrast between the L*+H and L+H* of other English varieties, is not a feature of intonation patterns observed in the Glasgow English MAP data. It is therefore not absolutely necessary to include two different bitonal labels in the GlaToBI tone inventory. Mayo (1996) suggests however, that there

may be another kind of rising accent in Glasgow English, which aligns the H tone of the LH configurations with the stressed syllable. She therefore recommends retaining the two bitonal choices L*+H and L+H* in the inventory together with the L*H tag in case alignment proves to be a crucial factor in distinguishing more than one kind of rising accent in Glasgow English.

14.4. CONCLUSION

In this chapter we have presented a brief account of the characteristic high rises of four varieties of English. We have examined how they can be described using a typology of intonational differences proposed by Ladd. Differences that have been classified as 'semantic', such as the use of the high rising tune with statements by speakers of Australian and New Zealand English, may also constitute realizational differences. Furthermore, the phonetic realization of the HRTs and rises in general may not be entirely identical in the two Australasian varieties. There also appears to be gender-related sources of variation in the phonetic realization of rises in each case. The HRTs of Australasian English are therefore more complex intonationally than previous analyses would suggest, and are not necessarily best characterized as a simple substitution or redeployment of a phonetically identical 'question' intonation to a statement. Careful phonetic analysis of a wider variety of data is clearly necessary to support the preliminary findings reported here. We have also suggested that Ladd's typology might be usefully extended to include 'neutralization' of intonational differences. This is particularly relevant in cases where the intonational inventories of two varieties appear to be identical (i.e. between SSB English and Australian English) but where tune choice is clearly different under certain circumstances or in particular genres (e.g. the use of HRTs in narratives).

Some representational issues that arise from considering differences in tune usage or tune inventory among varieties have also been considered with respect to rising tunes and pitch accent realization. On the one hand, it is clear that certain varieties present a more or less straightforward case when it comes to issues of annotation (e.g. the application of American ToBI conventions to Australian English) compared to others (e.g. Glasgow English, Belfast English). This is not necessarily because the original American English ToBI conventions were designed to be 'pan-dialectal' in nature, rather it is more a question of the similar intonational inventories between Australian and American English. There has also been a reasonable amount of discussion in recent years as to whether it is desirable to have the same transcribed tone sequence represent

two radically different tunes (e.g. Ladd 1996; Nolan and Grabe 1997; Grabe 1998a; Grabe *et al.* 1998) across dialects or varieties. In addressing this concern, it is clear that one needs to take into account the major aims of a particular set of annotation conventions when considering representational issues. In the case of IViE, for example, one of the main goals of the system is to provide sufficient coverage of intonational phenomena across a very large corpus comprising several, very different, varieties of British English. An alternative approach is adopted by the developers of GlaToBI whereby a set of specific annotation conventions have been devised to capture the salient intonational events of one specific variety. Both approaches are united, however, in showing that the phonological and phonetic conventions of a so-called 'standard' are not always applicable to all varieties of a language. The example of New Zealand English intonation is also very important here. We noted earlier that the phonological contrasts of this variety (and its various sociolects) need to be established before adopting a rigid set of annotation conventions for a so-called standard variety of New Zealand English.

Documenting intonational variation among speech varieties is of great interest to many researchers of languages other than English. For example, the large-scale quantitative cross-dialectal studies of Swedish and Dutch dialects (e.g. Bruce *et al.* 1999; Bruce this volume Ch. 15; Gussenhoven and van der Vliet 1999) stress the importance of examining intonational variation among dialects of a language. For example, Bruce *et al.* state that this is necessary in order to contribute to the 'definition of criteria on which phonetic and phonological typologies can be based' (Bruce *et al.*: 321). Further large-scale analysis of gender-based or other sociolectal differences within a variety also needs to be undertaken before we can construct new or augment existing phonetic and phonological models and typologies. The research currently being undertaken by Daly and Warren on New Zealand English and the analysis of pitch realization by Latina girls in California by Jannedy and Mendoza-Denton (1999) are further examples of the kind of sociolectal study that can contribute to our understanding of the relationship between an intonational model based on a 'standard', and the type and range of variation that either can, or cannot be accommodated within that model.

REFERENCES

- ANDERSON, A., BADER, M., BARD, E., BOYLE, E., DOHERTY, G., GARROD, S., ISARD, S., KOWT KO, J., MCALLISTER, J., SOTILLO, C., THOMPSON, H., and WEINERT, R. (1991), 'The HCRC Map Task Corpus', *Language and Speech*, 34/4: 351-66.

- BRITAIN, D. (1992), 'Linguistic Change in Intonation: The Use of High Rising Terminals in New Zealand English', *Language Variation and Change*, 4: 77–104.
- BRUCE, G. (this volume Ch. 15) 'Intonational prominence in varieties of Swedish revisited'.
- , ELERT, C., ENGSTRAND, O., and WRETTLING, P. (1999), 'Phonetics and Phonology of the Swedish Dialects—A Project Presentation and a Database Presenter', in *Proceedings of the Fourteenth International Congress of Phonetic Sciences* (San Francisco), 321–4.
- CRUTTENDEN, A. (1994), 'Rises in English', in J. Windsor-Lewis (ed.), *Studies in General and English Phonetics: Essays in Honour of Professor J. D. O'Connor* (London: Routledge), 155–73.
- DALY, N., and WARREN, P. (2001), 'Pitching it Differently in New Zealand English: Speaker Sex and Intonation Patterns', *Journal of Sociolinguistics*, 5/1: 85–96.
- EVANS, B., and GRABE, E. (1999), 'Connected Speech Processes in Intonation', in *Proceedings of the Fourteenth International Congress of Phonetic Sciences* (San Francisco), Vol.1: 33–6.
- FLETCHER, J., and HARRINGTON, J. (2001), 'High-Rising Terminals and Fall-rise Tunes in Australian English', *Phonetica*, 58: 215–29.
- GRABE, E. (1998a), *Comparative Intonational Phonology: English and German*, MPI Series 7 (Nijmegen, The Netherlands).
- (1998b), 'Pitch Accent Realisation in English and German', *Journal of Phonetics*, 26: 129–44.
- , NOLAN, F., and FARRAR, K. (1998), 'IViE—A Comparative Transcription System for Intonational Variation in English', in *Proceedings of the 5th Conference on Spoken Language Processing (ICSLP)* (Sydney, Australia), 1259–62.
- , POST, B., NOLAN, F., and FARRAR, K. J. (2000), 'Pitch Accent Realisation in Four Varieties of British English', *Journal of Phonetics*, 28: 161–85.
- GUSSENHOVEN, C. (1984), *On the Grammar and Semantics of Sentence Accents* (Dordrecht: Foris).
- , and VAN DER VLIET, P. (1999), 'The Phonology of Tone and Intonation in the Dutch Dialect of Venlo', *Journal of Linguistics*, 35: 199–235.
- GUY, G., and VONWILLER, J. (1984), 'The Meaning of an Intonation in Australian English', *Australian Journal of Linguistics*, 4: 1–17.
- , — (1989), 'The High Rise Tones in Australian English', in P. Collins and D. Blair (eds.), *Australian English* (St Lucia: UQP), 21–33.
- HALLIDAY, M. A. K. (1967), *Intonation and Grammar in British English* (The Hague: Mouton).
- HORVATH, B. (1985), *Variation in Australian English: The Sociolects of Sydney* (Cambridge: Cambridge University Press).
- JANNEDY, S., and MENDOZA-DENTON, N. (1999), 'Low Pitch in the Linguistic Performance of California Latina Gang Girls', *Perceiving and Performing Gender Seminar*, University of Kiel, Germany, 12–14 November.

- LADD, D. R. (1996), *Intonational Phonology* (Cambridge: Cambridge University Press).
- MAYO, C. J. (1996), 'Prosodic Transcription of Glasgow English: An Evaluation Study of GlaToBI', thesis, University of Edinburgh.
- , AYLETT, M., and LADD D. R. (1997), 'Prosodic Transcription of Glasgow English: An Evaluation Study of GlaToBI', in A. Botinis, G. Kouroupetroglou, and G. Carayannis (eds.), *Proceedings of the ESCA Tutorial and Workshop on Intonation: Theory, Models, and Applications* (Athens, Greece), 231–4.
- MILLAR, J., VONWILLER, J., HARRINGTON, J., and DERMODY, P. (1994), 'The Australian National Database of Spoken Language', in *Proceedings of ICASSP-94* (Banff, Canada), 197–100.
- MITCHELL, A., and DELBRIDGE, A. (1965), *The Pronunciation of English in Australia* (Sydney: Angus and Robertson).
- NOLAN, F., and FARRAR, K. (1999), 'Timing of fo Peaks and Peak Lag', in *Proceedings of the International Congress of Phonetic Sciences* (San Francisco), 961–4.
- , and GRABE, E. (1997), 'Can ToBI Transcribe Intonational Variation in the British Isles?', in A. Botinis, G. Kouroupetroglou, and G. Carayannis (eds.), *Proceedings of the ESCA Tutorial and Research Workshop on Intonation: Theory, Models and Applications* (Athens, Greece), 259–62.
- PIERREHUMBERT, J. (1980), 'The Phonology and Phonetics of English Intonation', Ph.D. dissertation (Massachusetts Institute of Technology).
- PITRELLI, J., BECKMAN, M., and HIRSCHBERG, J. (1994), 'Evaluation of Prosodic Transcription Labeling Reliability in the ToBI Framework', in *Proceedings of 1994 International Conference on Spoken Language Processing* (Yokohama, Japan), 1: 123–6.
- WARREN, P., and BRITAIN, D. (2000), 'Intonation and Prosody in New Zealand English', in A. Bell and K. Kuiper (eds.), *New Zealand English* (Wellington: Victoria University Press), 146–72.
- , and DALY, N. (2000), 'Sex as a Factor in Rises in New Zealand English', in J. Holmes (ed.), *Gendered Speech in Social Context: Perspectives from Gown to Town* (Wellington: Victoria University Press), 99–115.
- WELLS, J. (1982), *Accents of English 1: An Introduction* (Cambridge: Cambridge University Press).



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