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Andrew SEWELL, Lingnan University, Hong Kong

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Andrew Sewell and Jason Chan
Lingnan University, Hong Kong

This paper examines inter-speaker phonological variation within a mini-corpus of spoken Hong Kong English. The study focuses on consonantal features, and indicates that variation in the use of these features follows patterns that are implicational or hierarchical in nature. The findings are presented in the form of an implicational scale, in which the use of a particular feature by a speaker implies the use of other features by that speaker. The implicational patterns are discussed with reference to the intelligibility characteristics of the features and possible developmental pathways among L2 users. The possible relevance of the findings for areas of study such as the description of new varieties of English is also considered, with particular regard to pedagogical applications.

Keywords: Hong Kong English, new varieties of English, phonological features, variation, intelligibility, implicational scaling

1. Introduction

Variation can be observed in all areas of language use, from grammar and lexis to phonology. This variation can provide important insights into processes such
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as language acquisition and language change, as well as revealing some of the sociolinguistic dimensions of speech communities. To a certain extent, research into new varieties of English (NVEs) has focused on describing specific features, comparing these features to standard varieties, or tracing features across varieties (Sand 2008: 184); the variation that naturally exists within NVEs has not always been given systematic attention. A notable exception is Pakir’s (1991) study of Singapore English, in which variation is seen as occurring along two dimensions. One is a cline of formality ranging from “formal” to “intimate”, and the other is a cline of language proficiency between “advanced” and “rudimentary” levels. A model such as this allows for the identification of subvarieties, and helps us to understand their “range and diversity” within the English spoken by English-knowing bilinguals (Pakir 1991: 174).

In the case of Hong Kong English, several studies have helped to identify the main phonological features. Hung (2000) provides a comprehensive and phonetically detailed account, but acknowledges that the focus of the study is on the phonological phenomena themselves, rather than on frequency counts. The study of Deterding et al. (2008) includes frequency counts for some features, although these refer mainly to their rates of occurrence across different phonological contexts and word tokens. For example, the Hong Kong English feature of TH fronting (pronouncing the voiceless TH sound /θ/ as [f]) is reported as being most common in word-final position. The phenomenon of conflating [n] and [l] in onset position, in which word pairs such as nine and line become homophones, was found to be “rare” in Deterding et al.’s data, while in Hung’s study some word tokens (such as line) showed conflation in 37% of cases. Despite these interesting insights, what seems to be lacking is an overall indication of feature use by the speakers within a particular sample. This would enable us to differentiate between the features that are shared by most speakers and those that, while still being of interest, are in fact only used by a minority. An indication of whether and how these features tend to co-occur would also be a useful aid to understanding and perhaps quantifying variation.

The question of how much variation exists in NVEs has sometimes been controversial. In one of the earliest exchanges of views on the topic, Prator (1968: 17) claimed that Outer Circle varieties such as Indian English are quite different to their Inner Circle counterparts in that “the amount and range of individual linguistic variation is much greater … than among a similar group of Britons or Americans”. Kachru (1990: 119) clarifies the nature of this variation, observing that there is a “cline of intelligibility” ranging between an “educated” subvariety and “regionally marked” subvarieties, and that speakers may move...
along this cline according to the context and participants. Because of this variation, labels such as “Hong Kong English” may sometimes give a misleading impression of homogeneity. Of course, this also applies to Inner Circle or “old” varieties of English, as noted by Laver and Trudgill (1979: 23):

> We can refer to ‘Cockney’ as if this label referred to a discrete linguistic variety, but we must be aware that this is not the case. We can also use terms such as ‘Bristol accent’, but here again we must be aware that it is a term which permits degrees of more or less (and linguistic analysis can of course help us to quantify exactly how ‘Bristol’ a particular variety is …).

The description of Hong Kong English phonology provided by Hung (2000) is based on recordings of fifteen arts and science undergraduates, and the resultant phonological system has certain features in common with other descriptions of NVEs. For example, the vowel system is reduced, compared with so-called standard varieties, so that speakers in general “operate with as few as seven simple vowel contrasts” (Hung 2000: 343). The consonantal system is also simplified, and in the case of the fricative consonants there is no evidence of a voiced / voiceless contrast for the majority of speakers (Hung 2000: 347). In considering variation, Hung (2000: 339) believes that the degree of variability in Hong Kong English is greater than within native speaker varieties, and posits the existence of a continuum “with an ‘idealised’ Hong Kong English phonology at one end and standard British or American English phonology (whichever happens to serve as that speaker’s model) at the other”. While this continuum of phonological variation perhaps resembles Kachru’s “cline of intelligibility”, Hung’s version appears to relate mainly to inter-speaker, rather than intra-speaker, variation. More information about the nature of this inter-speaker continuum would be useful in describing subvarieties of Hong Kong English.

The question of variability can affect judgements of whether NVEs actually exist, in some cases. Stibbard (2004) focuses on the considerable amount of variation within his Hong Kong English samples, concluding that this variation is largely unsystematic in both intra-speaker and inter-speaker terms. He argues against the very existence of Hong Kong English phonology on “phonological grounds”, namely that “the instability of the accent, the repeated co-occurrences of phonemic overlap in the data, and the fact that for the most part the pronunciation is clearly due to transfer from Cantonese, all undermine the attempt to establish a ‘phonology of Hong Kong English’” (Stibbard 2004: 140). Setter (2008: 503) also believes there is evidence for the relative instability of Hong Kong English phonology, although she prefers to see Hong Kong English
as an “emergent variety with a developing system”. However, in the absence of a model of variation it is not always clear what these and other studies mean by “Hong Kong English”. It is crucial to consider speech data with regard to its variational features, if possible quantifying the variation and situating the subvarieties on a continuum or continua of variation. The intelligibility characteristics of these features and the degree to which they occur systematically will also be an important consideration, as will the question (raised by Stibbard) of whether or not they are simply features that have been transferred from the L1.

1.1 Intelligibility

Unlike Kachru’s “cline of intelligibility”, Hung’s continuum of variation does not refer explicitly to intelligibility. The location of his description of Hong Kong English phonology on this postulated continuum is therefore not discussed, but in terms of what is known about international intelligibility (see Jenkins 2000; Deterding and Kirkpatrick 2006) a speaker of this subvariety would probably encounter intelligibility problems in international communication. Essentially, the findings of such studies suggest that most consonant and vowel contrasts need to be preserved; a functionalist explanation would be that this aids communication by maintaining clarity and avoiding the proliferation of homophones. The consonantal features that have been shown to be less important in maintaining intelligibility tend to be those with a lower functional load, such as the TH or dental fricative sounds /θ/ and /ð/ (see Brown 1991 for an explanation of the concept of functional load). Modifications of postvocalic /l/, such as L vocalisation, and final consonant cluster reductions that follow native speaker patterns are also likely to be unproblematic, according to Jenkins (2000). However, the evidence suggests that modifications of initial consonant clusters may reduce intelligibility. A possible explanation is that changes to the initial sequences of lexical items tend to impede word recognition more than do alterations of final sequences, as noted by Schreier (2005: 219).

Regarding vowel contrasts, Jenkins (2000) believes that length or quantity contrasts, such as that between /ɪ/ and /iː/, are more important for intelligibility than quality contrasts, such as that between /æ/ and /e/, although this seems to ignore the fact that so-called “long / short” vowel contrasts are often achieved through differences of quality (as in the case of /ɪ/ and /iː/; see Schneider 2004: 1 128). In general, however, the empirical data and a consideration of linguistic and psycholinguistic factors suggest that ceteris paribus, the most internationally
intelligible varieties (whether Inner, Outer or Expanding circle) will be those that preserve a maximal number of contrasts — with the probable exception of the consonantal features mentioned above, and while allowing for a large amount of variation in vowel realizations. Of course, there is more to intelligibility than segmental phonology alone, and any consideration of international intelligibility must acknowledge the fact that not all speakers need or wish to be intelligible to all listeners, in all circumstances. There is also the possibility, raised by Deterding and Kirkpatrick (2006), that certain features of NVEs may actually increase intelligibility when compared with native speaker varieties. But despite the gaps in our knowledge of this area, and while accepting that international intelligibility may not always be a priority, intelligibility may still be a useful consideration when identifying different types of variation. This remains so whether we are considering particular features, individual speakers, or varieties and subvarieties of English.

2. Data

In our investigation of Hong Kong English phonology, we decided to focus on variation within what might tentatively be called “high proficiency” Hong Kong English (although it is accepted that variation also occurs for reasons other than proficiency level). This was partly because of the considerable utility of a description of this subvariety for pedagogical purposes; Kirkpatrick (2007: 387) believes that Hong Kong needs a description of the local bilingual variety of English “as exemplified by highly proficient users of English who are mother tongue speakers of Cantonese”. Another reason is that previous studies of Hong Kong English phonology (for example Hung 2000; Stibbard 2004; Deterding et al. 2008) have used tertiary-level students as sources of speech data, and the speech patterns of a different group would provide a useful comparison.

One of the most accessible sources of such high-proficiency speech samples is local television programmes. With the permission of the broadcasters, library DVD copies of two current affairs television programmes were used to obtain speech data. Samples of Hong Kong speakers were digitally extracted and saved as 16-bit stereo, 1 611 kbps WAV files to preserve sound quality. A database or “mini-corpus” was thus created, consisting of 48 speech samples from 25 different speakers. The total sample length for each speaker was between 14 and 229 seconds, and the whole mini-corpus contained just over 30 minutes of
spoken Hong Kong English. All of the speakers were presumed, on the basis of accent, to have Cantonese as their first language.

Among the several advantages of using authentic broadcast material (see, for example, Van der Walt 2000), the resultant samples have the advantage of being preselected for proficiency to some extent, as presumably the speakers would not have agreed (or been allowed) to take part in the programmes if their proficiency level had been inadequate for the task. The disadvantages of using “media English” include the fact that the samples may not be representative of the way most people actually use English, although we did not feel that the speakers in our study represented particularly unusual or unattainable examples of the local variety. However, the range of speakers was somewhat limited in terms of gender, occupation and age. All but four of them were male, perhaps reflecting actual gender imbalances in their occupations. Around half were involved in politics, although in Hong Kong this often means they are also working representatives of occupational and professional groups, under the “functional constituencies” system. The other speakers included journalists, civil servants and spokespeople for professional, commercial and social organisations. The focus on experts and senior figures means that most speakers were aged over 50, and certainly none appeared to be under 30. The range of topics was also quite limited, with political and social issues forming the thread of most programmes.

In terms of context or setting, about 50% of the samples involved location interviews where the speaker contributes facts or opinions on a topic, without the interviewer being audible or visible in the actual programme. Around 30% were taken from studio discussions, where a programme host (usually a native speaker of English) elicits contributions from the participants. The remainder of the samples came from studio interviews, which feature one interviewer and one interviewee, and public speeches. The speakers’ perception of their audience will inevitably affect the kind of language used, especially when one considers that “[t]he pressures of speaking to a large audience and as the representative of an institution are heightened in mass communication” (Bell 1984: 171). In Bell’s approach to language style, speakers “are designing their style for their audience” (1984: 197), and in media situations this will include not only the interviewer or the other participants, but also the wider audience, however this is perceived. It might be assumed that the typical audience for these English-language programmes consists of local English-speaking expatriates, but this not necessarily the case; 62% of the readers of the English-language *South China Morning Post* are Chinese or Asian (South China Morning Post 2009). While a consideration of factors such as “audience design” or the presence of a native-
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speaker interlocutor suggests that media English in Hong Kong is likely to be skewed towards the acrolect, it is worth bearing in mind that style shifting towards prestige norms is limited by the ability of the speaker to make such adjustments. The considerable inter-speaker variation found in the present study can thus be seen as indicating the constraints that limit such convergence.

The context or setting also affects whether speech is planned or unplanned in nature. In location interviews speech may be at least partly planned and designed to provide “sound bites” for rhetorical effect; it is arguably monologic in nature. In studio discussions and studio interviews the sub-topics are less predictable and speech is mainly unplanned and dialogic, while public addresses feature speech that is planned, probably scripted, and monologic. There may be resultant differences between the speech types in terms of paralinguistic features; for example, speeches tend to be delivered at a lower rate, with more pausing. In general, accessing media English proved to be a viable solution to the problem of obtaining a range of speech samples. The particularities of the mini-corpus must be acknowledged, however, as it represents a fairly narrow range of ages, occupations, and contexts of speaking. Appendix 1 provides more detailed information about the speakers and speech samples used in this study.

3. Analysis

The first step in the data analysis was to identify the phonological features that existed and gain an overall picture of their distribution amongst the speakers. It was decided to focus on consonantal features in this study, partly to simplify the analysis but also because consonantal substitutions, such as those involving dental fricatives, frequently appear as potential candidates for acceptance or codification in NVEs (see, for example, He and Li 2009). It also appeared from impressionistic listening that while there were many distinctive vowel realizations, instances of conflation or merger (for example, the mergers of /æ/ and /e/ and of /ɪ/ and /iː/ reported in Hung 2000 and Deterding et al. 2008) were rarer than consonantal substitutions. Previous studies of Hong Kong English phonology were used to draw up a list of consonantal features for consideration. Table 1 lists these features and also provides examples from our own data.

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Insert table 1 about here
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It will be noted that the features in Table 1 are defined in terms of how they differ from standard varieties such as RP, but this is not meant to suggest any presupposition of how they “should” be pronounced (Deterding et al. 2008: 153). We have attempted to use similar terminology to that employed in similar studies, where possible, with some modifications for the Hong Kong context. A feature name that has not appeared in previous studies is initial CCM (consonant cluster modification). Chan and Li (2000) describe the deletion of /r/ in the initial cluster of produce, and Deterding et al. (2008) include an example of substitution (crowded as [klauəd]). In the present study, initial CCM includes both deletion and substitution. It was regarded as being of interest partly because Jenkins (2000) found it to be a cause of intelligibility problems in her data.

While Table 1 covers most of the consonantal features reported in such studies as Chan and Li (2000), Hung (2000) and Deterding et al. (2008), there are of course other consonantal features of Hong Kong English, such as the devoicing of voiced consonants and certain other substitutions. Munro and Derwing (2006) note the conflation of [s] and [ʃ] in initial position and the replacement of /d/ with [z] in intervocalic position, but these features did not seem to occur in our data. There was a great deal of final consonant cluster reduction (final CCR) in our data, but as it occurs so widely in all varieties of English and is partly conditioned by the surrounding phonological environment, we decided not to include it in our list of segmental features. The analysis also revealed some interesting minor features of Hong Kong English phonology, for example the apparent lexical conditioning of the word thousand. The operation of phonological rules would predict the initial voiceless TH sound to be substituted by [f], but in our data it was substituted by [d], and this seems to be a fairly widespread pronunciation in Hong Kong.

It should also be noted that none of these features is unique to Hong Kong English. Some are found in many varieties of English, including native speaker varieties. Schneider (2004: 1123) observes that the use of [d] for /ð/ (i.e., TH stopping) is “the rule rather than the exception” in regions as diverse as the Caribbean, Africa and Asia. Similarly, L vocalisation occurs “fairly generally” in some American English dialects, as well as in southern British English (Schneider 2004: 1125). Other features, such as TH fronting, have a rather more restricted distribution, being found mainly in certain varieties of British English and New Zealand English (Gordon and Maclaglan 2004: 608). The realisation of /v/ as [w] is described by Schneider (2004: 1 129) as a “distinctive sound realisation that may serve to characterise specific regions”; its occurrence in Indian English is noted by Mesthrie and Bhatt (2008: 127). The modification of
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initial consonant clusters (initial CCM) also has a restricted distribution, and occurs mainly in contact-induced varieties such as Jamaican Creole, according to Schneider (2004: 1126). It could also be viewed as an example of “learner English”, associated with relatively lower levels of proficiency. The realisation of /r/ as [w] also seems to belong in this category, although there is an L1 transfer explanation in this case: Cantonese does not have an /r/ phoneme, so [w] is sometimes used as an approximation. Still other features are more particular to the region. The conflation of [n] and [l] in onset position is related to ongoing language change in Cantonese, and although it is sometimes thought to be unique to Hong Kong English, it also occurs in the English of speakers from central China (Deterding et al. 2008: 160).

In order to analyse the data, the two authors of this study (one a native speaker of English, the other a native speaker of Cantonese) listened independently to the extracts, noting words containing possible contexts for the features and deciding whether or not they actually contained the feature. We then compared our lists, noting instances of disagreement and in some cases altering our decisions after repeated listening, but avoiding any tendency towards convergence. Our final rate of agreement ranged between 97.9% of word tokens, for the conflation of [n] and [l], and 75.6% for L vocalisation; the average rate of agreement was 90.7%. There was thus a high level of agreement between the two raters, and no attempts at instrumental analysis were made. In this study we were not particularly concerned with the finer details of variation in terms of the precise phonetic characteristics of the sounds, or with their intra-speaker variability. Table 2 provides a summary of the numbers of word tokens analysed, the distribution of the features across word tokens and speakers, and measures of inter-rater agreement for each feature.

The analysis showed that some features were far more prevalent than others. Phonemic substitutions such as those involving /r/ and /v/, and the conflation of [n] and [l], were the least frequently occurring features, while the two most frequently occurring features were L vocalisation and TH stopping. Figure 1 below shows the distribution of the features according to their frequency of occurrence across all word tokens; only when both raters agreed on the presence of the feature within a word were the relevant tokens counted as examples of feature use.
The results of our individual analyses were then combined to give overall codes for each speaker / feature combination. “Y” and “N” codes were used by the raters to show the presence or absence of a feature in word tokens. If a speaker received a “Y” code from both raters for the same word on at least one occasion, an overall “Y” code was applied to this speaker / feature combination. Figure 2 shows the distribution of the features according to the percentage of speakers using them in at least one context, calculated on this “single instance” basis.

Thus, the single occurrence of a feature within the speaker’s utterances led to the assignment of a “Y” code. This may seem rather strict, and it certainly masks the existence of intra-speaker variation as the rates of feature occurrence within individual speakers varied widely. For example, speaker 25 in our mini-corpus showed the conflation of [n] and [l] in one out of thirteen possible instances, whereas speaker 1 used TH stopping in the one possible instance. Both received a “Y” code in the analysis, following our criteria. However, our investigation of variational patterns involved the use of implicational scaling, which generally uses binary categorisation to show the presence or absence of a variant. Such a single-instance, binary categorisation also perhaps reflects sociolinguistic realities; Schilling-Estes (2002: 394) notes that the single occurrence of a salient feature can carry strong social connotations.

The “Y” and “N” codes were then entered into a table with the 25 speakers as row labels and the seven features as column headings. Following the procedure outlined by Rickford (2002: 145) for the construction of an implicational scale, the columns of the table were then reordered horizontally according to the total number of “Y” codes in each column, with the most frequently occurring features being placed on the left hand side of the table. The rows were reordered vertically according to the number of “Y” cells in each row, so that the uppermost speakers were those with the largest number of Hong Kong English features. An “n/a” code was entered where there were no contexts for the feature within the speaker’s utterances. Table 3 below shows the resultant implicational scale.
4. Implicational scaling

The underlying principle of implicational scales is that they depict “hierarchical co-occurrence patterns in the acquisition or use of linguistic variables by individuals or groups, such that $x$ implies $y$ but not the reverse” (Rickford 2002: 143). 17 of the 25 speakers exhibit perfect implicational patterns, in which (reading along each row from left to right) an “N” symbol is followed only by more “N” symbols (or occasionally, by an “n/a” code). In other words, the absence of a consonantal feature in a speaker’s row implies the absence of those features to its right, while the presence of a feature implies the presence of those features to its left. In Table 3, for example, speaker 10 follows an implicational pattern in that initial CCM does not occur, and the other features to the right are also absent. Speaker 19 also follows an implicational pattern as the presence of /r/ substitution implies that other features to the left will be used, and this is in fact the case: /v/ substitution, TH fronting, initial CCM, TH stopping and L vocalisation all occurred with this speaker. In terms of the codings, when read from left to right “YY”, “YN” or “NN” inter-cell transitions are seen as following an implicational pattern, while “NY” transitions are seen as “deviant”. In the above table, ten deviant “Y” cells are visible (these are circled). An example is speaker 25, who does not show /r/ substitution and would not therefore be expected to show the conflation of [n] and [l]; however, this feature does appear.

Guttman (1944), the originator of implicational scaling, proposed a measurement of the “index of reproducibility” (IR) to assess the scalability of such data, or in other words the extent to which the implicational pattern repeats itself. The formula is:

$$\text{IR} = 1 - \frac{\text{Number of “errors” (deviant cells)}}{\text{Number of data cells}}$$

In this case there are ten deviant cells and 175 data cells. The treatment of “n/a” or empty cells in implicational scaling is somewhat problematic (see Rickford 2002). If the seven “n/a” cells are excluded the calculation becomes $1 - (10/168)$, giving an IR of 0.94. A stricter measurement would take account of the fact that the left-hand column cannot have an implicational relationship because it is not preceded by anything, and on this basis (150 data cells) the IR is slightly lower at 0.93. Rickford (2002: 157), citing Dunn-Rankin (1983), states that an IR of 0.93 “approximates the .05 level of significance”. Rickford advises against having too many empty cells, noting that the proportion of these in implicational scales has varied greatly, from 3.125% (Pienemann 1998) to 28.2% (Bickerton
In Table 3, there are seven empty cells (4%). Perhaps more importantly, it should be noted that codings for 15% (30 out of 175) data cells in the table were applied on the basis of a single word token, because of the limited duration of some extracts. This was particularly true of the rarer features such as /r/ and /w/

Before considering what these implicational patterns may represent, it should also be pointed out that there are reasons to approach implicational scaling with caution. Fasold (1990: 199) notes that “[t]here is considerable freedom for manipulating the data in implicational scales”. Columns are usually ordered in such a way as to create as perfect a scale as possible, not in order to “manipulate” the data but because this ordering is thought to reflect the hierarchical relationship between features. The applications of implicational scaling are considered by LePage and Tabouret-Keller (1985), who criticise its neglect of social identities (cited in Fasold 1990: 197). In particular, the use of such scales may imply that there is a single focus, on the acrolectal or standard “target”. It is possible that some of the variation in accent samples is a result of deliberate style shifting by the speakers concerned. Nevertheless, the implicational patterns may show how such style shifting occurs, in terms of the likely combinations of features. Rickford (2002: 148) notes the parallel between DeCamp’s (1971) suggestion, that intra-speaker variation occurs according to implicationally ordered patterns already present in the community, and the proposal of Bell (1984: 159), that “[i]ntraspeaker variation must be explained in common with the inter-speaker variation from which it derives”.

Implicational scaling has a long history in sociolinguistics (e.g. DeCamp 1971; Bickerton 1973). It has not been widely employed in the study of NVEs, although Ho and Platt (1993) include an implicational scale showing copula variability in their study of grammatical variation in Singapore English. If one takes a dynamic interpretation of implicational scales, they can be seen as indicating typical pathways of language development. Williams (1987) notes that discussion of acquisitional processes has generally been avoided in research into NVEs, because this implies false notions of “target” and may lead to a deficit perspective. However, as long as one guards against this and the assumption that all speakers move or wish to move along the scale, there appears to be a role for implicational scaling in the analysis of varieties of English; Altendorf (2003) uses a hierarchical, although not explicitly an implicational, approach to depict the co-occurrence of phonological features in Estuary English in the UK. The existence of implicational patterns in language universals is well known, and
Eckman (2008: 97) observes that if a language has a voice contrast in syllable codas it will also have such a contrast in syllable onsets, but not vice versa.

A problematic issue in this type of exercise is deciding on the categories, the selection and definition of which will significantly affect the outcome. In the present study, phonemic substitutions such as those involving /t/ and /v/ could perhaps be grouped together as they are related to transfer. Conversely, other features may benefit from separation according to the contexts in which they occur. Despite these and other limitations of the approach, the tables and figures above give a useful overview of the frequency of occurrence and distributional patterns of some consonantal features in Hong Kong English. Perhaps the least that can be said is that “the scope of variability is significantly constrained” (Rickford 2002: 143). We will consider the question of what these patterns may represent, along with some broader implications, below.

5. Discussion

To return to the earlier discussion of variation and its relevance for the study of NVEs, three important considerations were identified: whether and how variation relates to the notions of a “continuum” or a “cline of intelligibility”; whether or not the variation is systematic in nature, and the extent to which transfer from the L1 can account for the variation. These and other related areas will be considered in the following sections. Of course, this study has only investigated a small part of the spectrum of phonological features within Hong Kong English and any conclusions must necessarily be of a tentative nature.

5.1 Intelligibility

Interestingly, there is a division in Table 3 between features that are likely to affect intelligibility (according to empirical studies, such as that of Jenkins 2000) and those that are not. The three features on the right-hand side of the scale, namely substitutions of /v/ and /r/ and the conflation of [n] and [l], are more likely to affect intelligibility. Consonantal substitutions (except of dental fricatives and postvocalic /l/) are disallowed in Jenkins’s Lingua Franca Core (LFC) of features that help to maintain intelligibility (Jenkins 2000). On the left-hand side of the scale, L vocalisation and TH stopping are seen by Jenkins as being unproblematic for intelligibility. The positions of initial CCM and TH fronting would need to be reversed in order to create a perfect ordering of
features according to their intelligibility characteristics, as the latter is not included in Jenkins’s LFC. However, the general tendency for intelligibility-reducing features to occur in relatively fewer word tokens and speakers is visible, and in fact a perfect ordering can be seen in the overall distribution pattern shown in Figure 1.

The ordering of the features may relate to the concept of a cline of intelligibility, as postulated by Kachru (1990). A dynamic interpretation of the implicational scale suggests a possible reason: the need to be understood exerts an influence at some stages of development, so that intelligibility-reducing features are increasingly avoided as speakers gain more experience and higher proficiency levels. Trudgill (1986: 21) discusses “the need to be understood” by observing that in situations where mutual intelligibility is potentially problematic, speakers rapidly become aware that “some features are likely to cause interlocutors more trouble than others”. In terms of the speech community, such features tend to be among those selected out of the feature pool (Mufwene 2001). However, there may be many other interacting factors, both linguistic and non-linguistic, that determine whether or not particular forms survive. Schneider (2007: 111) includes in his list of such factors the status of speakers and the identity-marking functions of linguistic forms; it is possible that in some cases these non-linguistic factors could override linguistic ones, such as intelligibility.

5.2 Systematicity

The systematic variation observed in this study challenges Stibbard’s (2004) conclusion regarding the instability of Hong Kong English pronunciation, although our data also reveal considerable intra-speaker variation in terms of the variable occurrence of many features. The speakers in our mini-corpus were almost certainly of a higher proficiency level than those in Stibbard’s study, and it is likely that there is greater variation at lower levels. Turning again to a dynamic interpretation of the implicational patterns, a plausible explanation of a general nature is provided by theories of L2 phonology acquisition. The operation of rules has been hypothesised to account for a “systematic progression” (Moyer 2004: 31). According to Moyer, who cites as evidence Preston (1989), Ellis (1985) and Selinker and Lamendella (1981), both sociolinguistic and psycholinguistic perspectives suggest that a phonological feature “enters the system somewhat ‘weakly’ but gradually becomes a categorical rule, replacing a previous version of the same rule or feature” (Moyer 2004: 31). However, here as elsewhere in second language acquisition the
operation of rules does not imply an orderly or linear progression, as there may be “periods of stability and change, including both systematic and unsystematic use of functionally similar forms” (Moyer 2004: 31). The probable existence of “idiosyncratic and random variation” (Laver and Trudgill 1979: 21) also complicates the notion of systematicity.

5.3 Transfer

Another interesting division that can be observed in Table 3 is that the three features on the right-hand side — /v/ and /r/ substitution, and the conflation of [n] and [l] — are probably related to transfer from the L1 (Cantonese), while the other features occur in speakers from diverse L1 backgrounds and are more likely to be related to developmental processes, “the sequences and modifications an L2 speaker makes in acquiring the L2” (Hansen 2006: 12). This tends to confirm the existence of an acquisitional sequence, as indicated by models such as the Ontogeny Phylogeny Model (Major 2001) and the longitudinal study conducted by Hansen (2006). In Hansen’s model there is a four-stage developmental sequence constrained by L1 transfer effects, developmental effects and markedness (Hansen 2006: 153). At the first stage, users make equivalence classifications and consonants that are similar in type and position are transferred (the use of [w] as a substitute for /r/ and /v/ is a possible example from Hong Kong English). At the second stage of development, consonants are typically modified towards the emerging L2 repertoire, while transfer is still a constraint. At stage 3, transfer effects decrease and more marked consonants begin to emerge, with developmental and markedness effects continuing to influence some sounds. Stage 4 of Hansen’s sequence is characterised by “the approximation of a native speaker-like phonology, which may still include some errors” (Hansen 2006: 155). We have used the more neutral term “features” in this study, and the segmental consonantal features that appear to persist in high proficiency Hong Kong English include L vocalisation and dental fricative substitutions such as TH stopping and fronting. These involve marked phenomena in English and are widely attested features of many varieties.

The relative rarity of transfer features is probably related to their salience (see Trudgill 1986; Kerswill and Williams 2002). Compared with other features such as L vocalisation, these substitutions show greater phonetic difference. The sounds they substitute, such as /r/ and /v/, are more likely to be involved in the maintenance of phonological contrast. Within the speech community, these
salient substitutions may also be stigmatised as markers of low proficiency, given that non-native speakers are sometimes “embarrassed by their compatriots’ struggles in the nonnative language” (Fayer and Krasinski 1987: 321, cited in van den Doel 2006: 11). Thus linguistic and non-linguistic factors may interact in complex ways to either inhibit, or in this case accelerate, the decline of feature use by speakers.

According to Mesthrie and Bhatt (2008: 162), one advantage of a developmental perspective is that it helps to characterise transfer by identifying the stage at which it occurs, and suggests that the “fossilised stages of different speakers mirror an internal developmental path of learners”. However, any discussion of developmental paths must acknowledge the fact that the speakers in this study are unlikely to be still “developing”, and may have no wish to do so. Factors such as the speaker’s past and present opportunities for learning and interaction, and his or her attitudes towards English, will also affect developmental paths and ultimate attainment, as noted by Hansen (2006).

5.4 Variation

The implicational scale helps to address the question of whether NVEs in general show greater variation; both Stibbard (2004) and Setter (2008) refer to the instability of Hong Kong English phonology. There does seem to be a different kind of variation in the data, in that the features on the right-hand side of the scale are linked to the influence of the L1. But does this represent more variation? First of all, it is important to distinguish between relative proficiency levels. Within the sub-category of Hong Kong English speakers who do not display any intelligibility-reducing features, the consonantal features observed also appear in many English accents, both native and non-native. A reasonable conjecture might therefore be that “high proficiency” varieties tend to show similar amounts and types of variation, regardless of whether they are from the Inner, Outer or Expanding Circles. The probable existence of a “proficiency effect” is unsurprising, given the nature of language learning; the study of Cutler et al. (2004) found that there is less uniformity in how non-native speakers perceive sounds in the target language, compared with native speakers. A sociolinguistic perspective is provided by Mesthrie and Bhatt (2008: 119), who note that many varietal features “are mainly found in mesolectal and basilectal speech; acrolectal speakers usually have accents that are somewhat closer to prestige TL [target language] norms”.

5.5 Innovation

While the phonological features commonly found in high proficiency Hong Kong English, such as L vocalisation and TH stopping, are also found in many other varieties, innovative features were present in the data. Although final CCR was not included in the analysis, there were some instances of this phenomenon that did not conform to native-speaker patterns. These included an increased tendency to delete /t/ and /d/ in clusters occurring in unstressed syllables (examples from the data included government, consultant and department, all produced without the final /t/ in phonological contexts even where this would not normally be expected in L1 varieties, such as before words with vocalic onsets). It is perhaps significant that these “innovations” do not seem to be intelligibility-reducing. Schreier (2005: 12) believes that psycholinguistic factors help to explain the prevalence of final CCR, because “cluster reduction is more frequent when word recognition is well-advanced or completed”.

Innovations and variations may also represent sites of language change and indicate possible future developments in English; Blevins (2004: 4) regards as noteworthy the fact that “the majority of commonly attested sound changes are mirrored by synchronic alternations of precisely the same type”. Deterding et al. (2008: 161) believe that Hong Kong English may be “at the forefront of the development of the language” in extending the range of L vocalisation and deletion patterns. However, despite the possible innovations, it may appear at first sight that the high-proficiency variety of Hong Kong English is virtually indistinguishable from existing “standard” varieties, and that this negates its distinctiveness. But distinctiveness can be created by a range of phonological phenomena including vowel realisations and prosodic features such as intonation and rhythm, as well as by lexical and syntactic innovations. Furthermore, it is possible that new varieties do not have to be substantially different from existing ones in order to perform identity-affirming functions, if these functions are needed by the community. According to Joseph (2004: 144), if the desire for a distinct language to be recognised is strong enough, “the most minor differences will be invested with the ideological value needed to fill the bill”.

5.6 Pedagogy

While in Hong Kong the identity-affirming functions of language are mainly performed by Cantonese and by Cantonese-English codeswitching, the future roles of English cannot be predicted. In the pedagogical sphere, a practical advantage of using a high-proficiency varietal description would be that its
potential users are less likely to regard it negatively as being merely “Chinglish” or a collection of errors. The gulf between the perceptions of linguists and those of the general public on the question of NVEs has been noted by many observers, for example Joseph (2004) and Bolton (2008). From a strategic point of view, if the ultimate aim is to increase the acceptance of new varieties it is perhaps unfortunate that some descriptions of NVEs have tended to focus on differences, rather than on similarities.

The overall findings of the study increase the pertinence of arguments for the use of a local bilingual model (see, for example, Kirkpatrick 2007). While not all of the speakers use the same range of consonantal features, all are using Hong Kong English phonology to some extent. For example, the speakers’ patterns of final CCR tend to be different to those of inner circle varieties, to say nothing of their vowel realisations and prosodic features. Furthermore, a majority of the speakers do not use any intelligibility-reducing features, and therefore would not be expected to experience intelligibility problems in international communication (see also Kirkpatrick et al. 2008). This suggests that general admonitions against the use of Hong Kong English are in need of refinement. Instead of associating Hong Kong English with “mistakes” and being encouraged to pursue an idealised native speaker target, both learners and teachers would benefit from an awareness of which types and features of Hong Kong English are likely to be intelligible and acceptable. In other words, there would be pedagogical value in incorporating the “non-standard” into the curriculum as a variety to be discussed and contrasted, as recommended by Tan and Tan (2009).

5.7 Research

The possibility of “constrained variation” indicates that distinguishing between subvarieties of NVEs according to their distribution of features may be useful, depending on the intended applications of the research. The varietal type, and thus the type of variation, are crucial considerations. Implicational scaling may also be useful in that it provides an acquisitional perspective and enables comparisons to be made with other varieties (Mesthrie and Bhatt 2008: 95). In this case it helps to quantify how “Hong Kong” a particular Hong Kong accent is, something that has not normally been addressed by accent studies (for example Forde 1995; Luk 1998; Candler 2001). These studies investigated the local acceptability of a “Hong Kong accent” in comparison with “standard” accents, but the sample accents were not controlled in terms of their features.
The Hong Kong student listeners in Forde’s study reacted negatively to the Hong Kong accent, which was described as being of middle proficiency, but research into the acceptability of other subvarieties is needed. Finally, as has been mentioned, implicational scaling may also help to predict or explain stylistic variation, for example the “fluidity and complexity of use” observed on the cline between Standard English and the local variety in Singapore (Tan and Tan 2009: 477).

6. Conclusion

This study has shown how certain consonantal phonological features tend to pattern within speakers of Hong Kong English. As well as discussing some of the possible reasons for this variation, it has suggested why an awareness of such patterning may be relevant to research in the field. The value of implicational scaling lies in its dynamic nature and the insights it can provide into developmental processes, although in explaining the variational patterns there is the problem of multiple interacting factors, both linguistic and non-linguistic. Linguistic factors such as the salience of features and the need to be intelligible play a role in the phonological development of users, and non-linguistic factors such as perceived prestige will also determine how these users and their varieties evolve. Other important factors that help to explain the inter-speaker variation in this study include the speakers’ history of exposure to English, their attitudes towards the language and its speakers, and their perceptions of the audience. Bayley (2002: 117), while referring to grammatical variation, summarises the complexity of the dynamic interplay between factors:

[S]peakers’ choices between variable linguistic forms are systematically constrained by multiple linguistic and social factors that reflect underlying grammatical systems and that both reflect and partially constitute the social organization of the communities to which users of the language belong.

The study can also be seen as an initial step towards the description of a high-proficiency variety of Hong Kong English, as called for by Kirkpatrick (2007). If such a description were to be used for pedagogical purposes, for example, it would have the advantage of being internationally intelligible, while retaining local distinctiveness.
Table 1. Hong Kong English consonantal features considered in the study.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Explanation</th>
<th>Examples from the data</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH stopping</td>
<td>Substitution of the voiced dental fricative /ð/ with [d]</td>
<td>Most frequent word-initially, e.g. <em>that</em> [dæt]</td>
</tr>
<tr>
<td></td>
<td>(Deterding et al. 2008, Hung 2000)</td>
<td></td>
</tr>
<tr>
<td>TH fronting</td>
<td>Substitution of the voiceless dental fricative /θ/ with [f]</td>
<td>Word-initially: <em>three</em> [θi:]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Word-finally: <em>[bouf]</em></td>
</tr>
<tr>
<td>L vocalisation</td>
<td>The use of a vowel (vocalisation) in place of /l/ in postvocalic position, e.g. <em>will</em> as [wɪl] and <em>oral</em> as [ɔrəl] (Bolton and Kwok 1990: 153, in Deterding et al. 2008: 161). Deletion may also occur, e.g. <em>cool</em> may be [ku] (Hung 2000: 350).</td>
<td>Word-finally: <em>people</em> [pi:pou]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preconsonantally: <em>chilled</em> [tʃrɪd]</td>
</tr>
<tr>
<td>[n, l] conflation</td>
<td>[n] and [l] are in free variation in onset position (Hung 2000: 352). Word pairs such as <em>night</em> and <em>light</em> become homophones.</td>
<td><em>number</em> [nʌmpba]</td>
</tr>
<tr>
<td>/r/ substitution</td>
<td>/r/ is produced as [w] in onset position (Chan and Li 2000: 80).</td>
<td>Word-initially: <em>rely</em> [wilə]</td>
</tr>
<tr>
<td>/v/ substitution</td>
<td>/v/ is produced as [w] in onset position (Chan and Li 2000: 79; Hung 2000: 348-349).</td>
<td>Word-initially: <em>very</em> [wɛri]</td>
</tr>
<tr>
<td>Initial consonant cluster modification</td>
<td>Initial consonant clusters are reduced, especially those involving /r, l/ after plosives (e.g. produce as [pædʒu:ʃ]; Chan and Li, 2000: 82). Substitution may also occur, e.g. <em>crowded</em> as [klaudrid] (Deterding et al. 2008: 159).</td>
<td>Word-initially: <em>providing</em> [praʊvədɪŋ]</td>
</tr>
</tbody>
</table>

Table 2. Number of word tokens and average number of tokens per speaker, frequency of occurrence across tokens and speakers, and rate of agreement for each feature category.
Patterns of variation in the consonantal phonology of Hong Kong English

<table>
<thead>
<tr>
<th>Feature</th>
<th>TH stop.</th>
<th>TH front.</th>
<th>L vocal.</th>
<th>[n, l] conf.</th>
<th>/r/ subst.</th>
<th>/v/ subst.</th>
<th>Initial CCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of word tokens containing possible contexts for the feature</td>
<td>141</td>
<td>73</td>
<td>119</td>
<td>140</td>
<td>63</td>
<td>68</td>
<td>145</td>
</tr>
<tr>
<td>Average number of word tokens per speaker</td>
<td>5.7</td>
<td>2.9</td>
<td>4.8</td>
<td>5.6</td>
<td>2.5</td>
<td>2.8</td>
<td>5.8</td>
</tr>
<tr>
<td>% (number) of word tokens showing the feature</td>
<td>52.5 (74)</td>
<td>30.1 (22)</td>
<td>45.4 (54)</td>
<td>1.4 (2)</td>
<td>9.5 (6)</td>
<td>8.8 (6)</td>
<td>13.8 (20)</td>
</tr>
<tr>
<td>% (number) of speakers using the feature in at least one context</td>
<td>76.0 (19)</td>
<td>27.3 (6)</td>
<td>80.0 (20)</td>
<td>8.0 (2)</td>
<td>12.0 (3)</td>
<td>19.0 (4)</td>
<td>32.0 (8)</td>
</tr>
<tr>
<td>% agreement between raters</td>
<td>81.6</td>
<td>90.4</td>
<td>75.6</td>
<td>97.9</td>
<td>96.8</td>
<td>95.6</td>
<td>97.2</td>
</tr>
</tbody>
</table>

% agreement between raters
Figure 1. The distribution of Hong Kong English consonantal features according to their frequency of occurrence across all word tokens (ordered according to frequency).

Figure 2. The distribution of Hong Kong English consonantal features according to the percentage of speakers using them in at least one context.

Table 3. The implicational scale of Hong Kong English consonantal features. Speakers are ordered vertically according to the number of “Y” cells within their rows, and features are ordered horizontally according to the number of “Y” cells within each column. “Deviant” or unexpected “Y” cells are circled. An “n/a” code represents the absence of word tokens within a speaker’s utterances.
### CONSONANTAL FEATURES

<table>
<thead>
<tr>
<th>Speaker Number</th>
<th>L vocal</th>
<th>TH stop</th>
<th>Initial CCM</th>
<th>TH front.</th>
<th>/v/ subst.</th>
<th>/r/ subst.</th>
<th>[n, l] conf.</th>
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<td>N</td>
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<td>3</td>
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| Number of Y cells | 20 | 19 | 8 | 6 | 4 | 3 | 2 |
Patterns of variation in the consonantal phonology of Hong Kong English

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<th></th>
<th>Gender</th>
<th>Occupation</th>
<th>Source of Speech</th>
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<td>M</td>
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</tr>
</tbody>
</table>

**Appendix:** Details of speakers and speech samples in the Hong Kong English mini-corpus
Patterns of variation in the consonantal phonology of Hong Kong English

References


Patterns of variation in the consonantal phonology of Hong Kong English


— Authors’ addresses

Andrew Sewell  
Department of English  
Lingnan University  
8 Castle Peak Road, Tuen Mun  
New Territories, Hong Kong  
asewell@ln.edu.hk

Jason Chan  
Department of English  
Lingnan University  
8 Castle Peak Road, Tuen Mun  
New Territories, Hong Kong  
sc26chan@alumni.ln.edu.hk