Sprachtypologie und Universalienforschung

Language Typology and Universals

Focus on:
Stress, tone and intonation in Creoles and contact languages
Editors: Parth Bhatt & Ingo Plag

Editor-in-chief: Th. Stolz, Bremen


BAO ZHIMING (SINGAPORE)

Clash avoidance and metrical opacity in Singapore English

Abstract

Some word-accusation patterns in Singapore English are metrically opaque with abating stressed syllables, e.g. phonology. Yet words like abacuses are metrical transparent: cf. Singapore English abacuse vs. English abacus. I show that phonology and abacuse result from the interplay of two metrical derivations, one based on the English (Hi)ol (ol) typology and the other on the (Hi)(ol) typology: a Singapore English innovation. Phonology carriers both English (phonology) and Singapore English (phonology) footprintings. Abacace exhibits the Singapore English footing (abacuse) and the effect of clash avoidance as an active constraint.

0. Introduction

Singapore English has been described as having staccato or syllable-timed rhythm, in contrast to the stress-timed rhythm of English. This impressionistic description is supported by the stress pattern of words like those in (1).

(1a) phonology/phonology (English: 'phonology')
(1b) monopóly/monopoly (English: 'monopoly')

* Earlier versions of the paper were read at the workshop on the phonology and morphology of creole languages, University of Siegen, and at the graduate seminar, Department of English and American Studies, University of Manchester. I thank David Detterding, Ingo Plag, Derk Zelliger and two anonymous reviewers for their valuable comments. The work is partially supported by research grants R1/530000003112 and R1/530000004012 from the National University of Singapore, and by a Visiting Researcher grant from the Centre for Chinese Linguistics, Peking University, China. I wish to thank Li Jiannian, the director of the Centre, for making my visit a profitable one. All errors of fact and interpretation, of course, are my own.

English refers to the variety discussed in such metrical works as Hayes (1981) and Singapore English to the vernacular spoken in casual, informal circumstances in Singapore. Singapore English emerges and develops in a contact environment that resembles what Muyskens (2001) calls settlement colonial, with a constant and homogeneous linguistic substratum and superstratum throughout its history. For Muyskens (2001) and Christianson (2001), pidgins and creoles are adaptations of the nonstandard lexifier language to its contact ecology, and a creole need not develop out of an erstwhile pidgin through the acquisition of native speakers. Elsewhere (Bao 2001, 2003). I have argued that Singapore English is an endogenous creole in this sense, without the superstratal assumptions. Works on the staccato rhythm of Singapore English include Tongue (1976), Plait & Webster (1980), Tay (1982), Browne (1988, 1991), Detterding (1994, 2001), Low & Grabe (1999), and Low, Grabe & Nolan (2000). The latter four are instrumental studies of syllable duration and degrees of vowel reduction in British and Singapore English. These works do not attempt a metrical analysis of the phenomenon. The data in this paper are cited mainly from Tongue (1976), and from my own observation.
In comparison with the English pattern, two differences are worth noting. First, primary stress falls on the penultimate syllable in Singapore English, but on the antepenultimate syllable in English. Second, the pre-tonic syllables carry secondary stress and unreduced vowels in the Singapore English pronunciation; by contrast, there is no secondary stress in the English version, and the unstressed vowels are reduced. Prima facie, the Singapore English pattern is metrical opaque in that it does not obey clash avoidance. Phonologists generally recognize two types of opacity. A form is said to be opaque if it is not a rule to apply to the form despite the fact that it meets the structural description of the rule, or 2, a rule applies to the form even though on the surface it fails to meet the structural description of the rule. In this paper we will be concerned with the first type of opacity, i.e. clash avoidance fails to rule out forms like phonology, with abutting stressed syllables. In rule-based derivational theory, opacity is accounted for in terms of rule ordering, as we should see shortly.

In what follows, I show that Singapore English is metrical despite the staceato impression, and that the metrical opacity exhibited in phonology and monoply is due to the workings of two sets of normal metrinication rules, one inherited from English, the other a Singapore English innovation. The two sets of rules operate independently, assigning metrical structures to the same string, each subject to the familiar clash avoidance constraint that acts "actively" to prevent ill-formed structures from being created.

1. A Singapore English innovation

It has long been observed that stress in Singapore English tends to fall on the last two syllables (Tongue 1974, Platt & Weber 1980, Tav 1982). The deciding factor is the weight of the last syllable: if it is heavy, it is stressed; if not, the penultimate syllable is stressed. We can see this in the examples in (1). More examples follow (the colon indicates long vowels or diphthongs).²

(2a) report

(2b) topic

agenda

In Hayes's (1981) analysis of English stress, the last consonant is extrametrical. Syllables of the types -V and -VC? are light. Assuming that they are light in Singapore English as well, these words motivate the foot typology stated in (3a) (H, heavy; L, light; O, syllable of any weight).

(3a) Singapore English foot typology: (H)/O/L

(3b) English foot typology: (H)O/O/L/O

² Long vowels, though not diphthongs, are often pronounced as short vowels in Singapore English, prompting some scholars to conclude that vowel length is not phonemic; see Platt & Weber (1980), Tav (1982), and Brown (1991). This creates a problem for the analysis of words like report, which requires a long vowel in the final syllable, i.e. report vs. topic. In such cases I notate long vowels based on English; see Bao (2003) for a detailed treatment of the instability of the re-structuring phonemic system of Singapore English.

We will use Buozzo's (1994) parentheses to mark feet. The feet are trochaic, or left-headed. What this typology means is that primary stress is placed on the last syllable if it is heavy, otherwise it is on the penultimate syllable. This typology is similar to the (H)O/O(L)O typology of English shown in (3b) (Hayes 1981, Buozzo 1994). The crucial difference is that Singapore English does not employ final syllable extrametricality, so the primary stress shifts one syllable to the right in some strings. The two typologies may yield different structures, giving rise to different stress contour: we illustrate this point with the tri-syllabic string O/L/L:

(4a) by Singapore English typology: O(L)O

(4b) by English typology: (O)L

The mismatch in metrical structure created by the two typologies will play an important role in our understanding of word accentuation patterns in Singapore English.

Given the typology of (3a), the words in (2) may be assigned the structures shown in (5).

(5a) report

(5b) topic

agenda

In Singapore English, primary stress always falls on the last stressed syllable. Secondary stress is placed on alternate syllables to the left of primary stress, regardless of the weight of the skipped syllable, as shown in the data in (6).

(6) o0H English Singapore English

(6a) 00H o0H millionaire millionaire

volunteer volunteer

(6b) 00H o0H moderate modernize anecdote anecdote

(6c) 00L o0O/L criticism vegetable

criticism vegetable

³ Secondary stress in Singapore English may not be as noticeable as it is in English, but the metrical rhythm it captures is still discernible. In words where every syllable receives some degree of stress, such as phonology, -o- is clearly more prominent than the others. Metrical rhythm also is displayed in vegetable and opportunity. We see the prominence on -ve- and -por- as due to secondary stress assignment, i.e. (vegeta)ble and (oppor)tunity. Under our analysis, the stress on -ve- in opportunity is due to English, see below.

⁴ There appears to be no consensus in the analysis of the English patterns in (6b) and (7b). Buozzo (1994) parses modernize, colleague, and product into a single (oL) foot (moderniz-e, (col-l-e)league, and (pro-d-u)ct, with no stress on -s-e, -league, and -duce. In the analyses of Hayes (1981), heavy syllables are singled out by a special rule, and are marked as having their own feet. I follow Hayes (1981) in the analysis of heavy syllables, and will assume, without argument, that heavy syllables are marked as heads in English. In criticism and vegetable, we only consider criti- and -ical. In Buozzo (1994), these two words sport one ternary foot: (criti-cism) and (ve-g-e-ta-ble). The analysis of the Singapore English stress pattern is not affected by these technical differences.
In (6a), the stress pattern is the same for Singapore English and English. In the analysis proposed in Hayes (1981), the English pattern (6b) exhibits the effect of stress retraction, which 'retracts' primary stress to the preceding foot (the initial syllable in the examples). By contrast, the Singapore English pattern is derivable through normal footing. In (6c), vegetable could be interpreted as an example of spelling pronunciation, with /t/ rhyming with /table/. The stress pattern otherwise follows the (H)(o)L footing. In neither word does the antepenultimate syllable (-iti; -ge-) receive stress, as expected. Note that for each word in (6a,b) the metrical structure of Singapore English matches that of English, modulo the effect of stress retraction seen in (6b). In (6c), the metrical structure partially matches that of English: the primary-to-secondary demotion of the initial syllable is a natural consequence of Singapore English metrification that places primary stress on the last foot. The forms in (6) are metrical transparent; matched footing does not produce clashing configurations.

The metrical transparency with respect to clash avoidance in words in (2) and (6) contrasts sharply with the apparent violation of clash avoidance in (1). Note that phonology and monoply have antepenultimate stress in English (phonology, monoply), but penultimate stress in Singapore English (phonology, monoply). This difference in primary stress placement is the direct result of the difference in footing produced by the English (H)(o)L and the Singapore English (H)(o)L typologies. In fact, the opaque pattern exemplified in phonology and monoply is commonplace in words with mismatched metrical structure. The mismatched configurations are enumerated below (reduced vowels in Singapore English are set in bold; o to (8b) is optional).

(7) English: Singapore English

(7a) o0L
   ooL o(oL)
   abacus abacus/abacus
   bröcoli bröcoli/bröcoli

(7b) oH
   o(i)L o(H)
   colleague colleague/colleague
   product product/product

(8) English: Singapore English

(8a) o0L
   L(o)^0L,σ(H)(o)L
   phonology phonology/phonology
   écömy écömy/écömy

(8b) o0L
   ooL o(o)L
   asset asset/asset
   diplomát diplomát

The English patterns follow from the (H)(o)L:t typology; their Singapore English counterparts exhibit the additional metrical effect of the (H)(o)L typology, and more. There are two kinds of mismatch between the metrical structure assigned by Singapore English and that assigned by English. In (7), the initial syllable is unstressed and its vowel consequently reduced, despite the fact that it is stressed in English. Ostensibly, the stress on the penultimate syllable in (7a) and on the final syllable in (7b) causes the loss of the initial English-derived stress in these words. In (8a), we observe the converse of (7). Here, the penultimate stress of Singapore English denotes the English-derived stress on the antepenultimate syllable, but fails to dislodge it. The syllable retains its full vowel. These two are the basic types of mismatch in need of explanation. I will label them the phonology-type and the abacus-type, respectively. In (8b), asset parallels mélo in the phonology-type, and diplomát embodies both the phonology-type (-plomát) and the abacus-type (-diplo-), where the de-stressed -abuts a secondary stress. Primary stress falls on the last syllable in these words, as expected; see (6).

From these observations we obtain the generalizations stated in (9). For convenience I will use square brackets to mark foot boundaries derived from English, and the parentheses to mark foot boundaries derived from Singapore English.

(9a) If the string o000o3 is parsed as [o]000o3 in English and as o000o3 in Singapore English, then o3 is not stressed in Singapore English.
(9b) If the string o000o3 is parsed as o000o3 in English and as o000o3 in Singapore English, then o3 is stressed in Singapore English.
(9c) If the string o000o3 is parsed as o000o3 in English and as o000o3 in Singapore English, then o3 is not stressed in Singapore English.

(9) exhausts all the possible footings that may arise from the two typologies. (9a) is the abacus-type mismatch, and (9b) the phonology-type. What is interesting is that (9b) tolerates the clash between o3 and o3, but it is precisely this clash that motivates the de-stressing of o1 in (9a). (9c) is the matching type.

2. Initial de-stressing?

The core issue that needs to be explained is why the English-derived stress is lost in the abacus-type mismatch but not in the phonology-type. The apparent difference between the two types is that in English the initial syllable bears primary stress in abacus but not in phonology. We may therefore propose a rule that de-stresses a stressed syllable just in case it abuts the Singapore English-assigned primary stress. The rule is given informally as follows:

(10) Initial Destressing

Destress the word-initial syllable if it precedes the syllable with primary stress.

The rule de-stresses the initial a- in abacus, but not the medial -no- in phonology. The initial pho- is not de-stressed because it does not precede primary stress. Clearly, (10) is similar to other de-stressing rules which are motivated to resolve stress clash, such as the one that de-stresses the initial syllable in words like América (see Hálué & Kestnower 1991, Hálué 1998).

While it works for many words, especially words of the phonology-type, the de-stressing account fails to predict the stress patterns of words like asset and attack, which also sport phonology-type mismatch. The stress patterns of these words are shown below.
word comes with English assigned stress pattern phonology. Singapore English (H)(o)L) foot placement on stress -40- and -to-, automatically denoting the English-stressed -40- . There is, however, a serious problem with this scenario. First, stress clash is tolerated in phonology, second, abacus does not yield the metrically rich *abacus, which appears to indicate that stress clash is not tolerated. I will show that the solution of this apparent contradiction lies in taking clash avoidance as an active constraint on metrification rules, which means that a foot will not be created if it results in stress clash.

Up to this point, we have been using paired parentheses to mark metrical feet. In parametric metrical theories, parentheses may be inserted, one at a time, into the string through normal footing, or by means of various rules. A metrical foot is the stretch of syllables between any two parentheses, or between one parenthesis and one marker of some other type, such as word edge # (13a) or extrametricality boundary < (13b).

(12a) o(boy#
(13b) (prom-i-se>
A(meri-cca>

Following Halff & Edwards (1995), I interpret "" between two abutting feet (oo)(oo) as a single boundary, so (oo)(oo) is equivalent to (oo)(oo) or (oo)(oo), as the case may be. A foot may be delimited by parentheses obtained from different sources. This conception of foot boundary is crucial for us. Since Singapore English (H)(o)L) typology is imposed on strings which have already been parsed in the English (H)(o)L typology, a foot may be sandwiched by markers inserted into the string in the two independent metrifications. We enumerate the possible structures produced by this double footing in (14) and (15), starting with the string parsed in the English typology, marked with square brackets. The arrow indicates de-footing, and the forms on both sides of ± are equivalent.

(14a) o(oo) ~ (o)(oo), ± (o)(oo) = *(oo)(oo),
phonology, monopoli, photograph, America, economy, alternative, Acrópolis, herbivorous
(14b) (oo) ~ (oo) ⇒ (oo) = (oo),
abacus, broccoli, facility, character, frivolous, vehicle, calendar, citizen
(14c) [H] ⇒ (H = (H)⇒ (H),
mening, differ, colleague, missile, fortifi, purchase, produce, project
(15a) (oo) ⇒ (oo)(oo)(H)
voluntary, modernize, integrate, millionaire, heritage, Cântacuz, determine
(15b) (oo) ⇒ (oo) = (oo)(oo),
cricket, vegetable, terrorism, generative

The entries in (15) are the full and partial matching types, which do not need explanation. What needs explanation are the mismatched: the phonology-type in (14a) and the abacus-type in (14b) c. In terms of surface representation there is no difference in clash configuration between the two types - both structures have abutting feet consisting of single light syllables at some derivational stage. The crucial difference is that in the phonology-type, the relevant feet are bounded through separate footings, whereas in the abacus-type, the "offending" feet are created in a single footing. The relevant structure of the first two syllables is shown in (16):

---

"I am grateful to one anonymous reviewer for comments that have sharpened the relevant issues here."
(16a) phonology-type: o[ ] → (o)[ ] ≡ (o)
    cf. (pho)no(logy) → (pho)no(logy)

(16b) abacus-type: [o] → ( [ o ] ) ≡ (o)   cf. [a]bacus → a(bacus)

Most metrical theories contain a constraint prohibiting stress clash. The clash avoidance constraint in (17) is due to Halle & Idsardi (1995: 422).

(17) Avoid (x)

I interpret x as syllable. Following McCarthy (1986) and Halle & Idsardi (1995), I take (17) to be an "active" constraint that bars metrification rules from creating a foot that would result in the clashing configuration (o). Under our assumption, the phonological representation of the input string contains English metrical structures, which we note with square brackets, cf. (16). Crucially, the anti-clash constraint holds only for the metrification rules in Singapore English, and not for the English-metrified structure already present in the input representation. When a foot boundary would result in a stress clash, (17) demands its removal. On hypothetical strings of the types [o]... and [o]..., Singapore English metrification yields the same result:

(18a) o[ ] → ( [ o ] ) ≡ (o[ ]

(18b) [o]... → ( [o]...) ≡ (o)

Here, ] and ( [ ] mark the same foot boundary.

The state of affairs summarized in (16) can now be explained. In the Singapore English parsing, the initial foot in (16a), being binary, does not offend the anti-clash constraint (17). By contrast, the initial foot in (16b) contains a single light syllable, resulting in stress clash. Interestingly, when the Singapore English foot boundary is removed upon violation of (17), it takes with it the English-derived foot boundary; see (14b, c) and (16b). In other words, to avoid stress clash, Singapore English footing disregards structures created by the prior English footing, a derivation that resembles the Duke-of-York gambit.7 The English-derived boundary offends (17) as much as the Singapore English-derived boundary does in the same configuration.

The analysis proposed here provides a ready explanation for the metrical convergence of the English product and arrêt in Singapore English, as demonstrated below:

(19a) product → ( [pro duct] ) → ( [pro duct] ≡ pro duct

(19b) arrêt → ( [à r r é s ] ) → ( à r r é s ≡ à r r é s

The two words have a heavy final syllable (-VCC). Under the additional (H)/(o)L footing, the clash avoidance constraint in (17) ensures that the initial syllable of product is demetrified in Singapore English, and that of arrêt remains unmetrified. The same explanation extends to the retention of stress on the word-final light syllable (-VCF) in English ësët, attëck, and dipmët, and the metrical convergence among them:

7 I thank David Dirin for pointing out the Duke-of-York effect in the derivation of the abacus-type. The Duke-of-York gambit is a derivational strategy in which a later rule undoes the effect of an earlier rule, see Puhvel (1976). The derivation of the abacus-type resembles the Duke-of-York gambit in that the Singapore English footing (the later rule) undoes the effect of English footing (the earlier rule). This, however, is not a bona fide Duke-of-York derivation, since the two footings are presumed to operate in two distinct phonologies.

4. Vowel reduction and vowel enhancement

Vowel reduction as a consequence of de-stressing is a common assumption in generative studies of English stress (Chomsky & Halle 1968, Liberman & Prince 1977, Hayes 1981, Hammond 1986, Buurzio 1994). Short vowels in open syllables reduce to schwa when they occur in unmetrified or metrical weak position. In Singapore English, vowel reduction is active under similar conditions, as we have seen in words like ëbëcüs (cf. English abacus).

The matter, however, is more complex. To examine the robustness of vowel reduction and its converse, which, for lack of a better term, I will call vowel enhancement, consider the configurations displayed in (21) and (22).

(21a) [o]... → (o)... → [topic] → (topic

(21b) [o]... → (o)... → [moder]nite → (moder]nite

(21c) [a]... → (a)... → [a]genda → (a)genda

(22a) [o]... → (o)... → [pho]no(logy) → (pho)no(logy

(22b) [o]... → (o)... → [pho]no(logy) → (pho)no(logy

(22c) [o]... → (o)... → [a]bëcüs → (a)bëcüs

Under our analysis, these are created through the English (H)/(o)L typologies, and the Singapore English (H)/(o)L typologies, marked by ] and ( ] respectively. The configurations in (21) are the matching types. (21a) requires no comment; the vowel remains schwa in neutrally weak (21b) or unmetrified (21c) position. In these matching types, the vowels remain unchanged in Singapore English. We have seen examples of how (21b, c) operate in (6); more specimens follow.

(23a) [o]gëmize → (o)gëmize

(23b) [o]réalize → (o)réalize

(23c) [o]pologëze → (o)apologëze

(23d) [o] Singpärëse → (o) Singpärëse

(23e) [o] hértëge → (o) hértëge

(cf. [o]gëmize)

(cf. [o]réalize)

(cf. [o]apologëze)

(cf. [o] Singpärëse)

(cf. [o] hértëge)
Bao Zumin: Clash avoidance and metrical opacity in Singapore English.

(23b) assècète (cf. assècète)
considèrèse (cf. considerate)
apòlogèze (cf. apologize)
détect (cf. détect)
adult (cf. adult)

The configurations in (22) are the mismatched types. The metrical weak (a) or unmetrical (b) syllable is metrified as head in Singapore English. In these two cases, we observe the opposite of vowel reduction: by bleeding the environment for vowel reduction, the English reduced vowel is “enhanced” to a full vowel, aimed to some extent by the spelling or the English pronunciation, as shown in (24).^4

(24a) abècus [-b-] (cf. abacus [-b-])
herètâge [-t-] (cf. heritage [-t-])
sylâblè [-l-] (cf. syllable [-l-])
diplomârè [-p-] (cf. diplomate [-p-])

(24b) phonâlògie [-a-] (cf. phonology [-a-])
contînènc [-a-] (cf. continue [-a-])
Amèricà [-e-] (cf. Americá [-e-])
callîgràfï [-e-] (cf. calligraphy [-e-])

Vowel enhancement is motivated by additional metrification, and is robust. All vowels, which are reduced in English, surface as full vowels after they have been metrified as head under the Singapore English (H)/o(L) footing.}

Vowel reduction, by comparison, is motivated by metrical structures that violate Metrical Preservation, and it is not as robust as vowel enhancement. Not all syllables that are demetricalized in Singapore English reduce to the schwa (menú: calendar). This is especially true of the two classes of words shown in (25).

(25a) [o(L)] → [o(L)] → o(L) → o(L)
democràt, acròbàt, Telecom, Canto-pòp

(25b) [oH] → [oH] → oH
content, confirm

Metricality, the words in (25a) are partially identical to those in (14b) (abècus, brèccoli), and the words in (25b) identical to those in (14c) (menú: collequique). We might say that the initial syllable of content, confirm, and Canto-pop ‘Cantonese pop music’ is heavy, hence does not undergo vowel reduction (see Borsio 1994). This explanation is not available for

^4 The transcription follows the Oxford English Dictionary (online edition, 1999). The distinction between /e/ and /e/ is not maintained in Singapore English, and /e/ is the mid-central full vowel one finds in bird. The colon is indicative of the phonetic lengthening induced by stress. English spelling is not a good guide to pronunciation. Not surprisingly, vowel enhancement is not unique. In addition to the enhancements noted in (24), the letter e may be realized as [ɛ] (abècus [-b-]), and the letter o as [ɔ:] (diplomârè [-p-]). The word phonâlògie is often heard as [fɔnɔlɔd[ɛ]] or [fɔnɔmɔld[ɛ]]

The qualities of enhanced vowels are not relevant to the metrical structure of Singapore English.

^5 The vowel /s/ may be treated as a reduced vowel in English, as in project (Burns 1994: 113). In Singapore English it appears in metrical weak position as well, cf. Singapore English technique and English technique. To be consistent with the proposed analysis, I consider the vowel in technique and calligraphy as non-reduced, on par with in Americá and o in phonology.

words like democràt. What is interesting, though, is that these words all show secondary stress, exceptionally, on the final light syllable in English, whereas those in (14b) do not. To see the significance of this, consider the major stress patterns of trisyllables in English and Singapore English given in (26).

(26a) [øH] → [ø] → o(ø) → o(ø)
agèndà → agenda
(26b) [øLL] → [ø(ø)] → o(ø)
abècus → abècus
(26c) [øH] → [ø(ø)] → o(ø) → o(ø)
Cântònèse → Cantonese
(26d) [øo(ø)] → [øo(ø)] → o(ø) → o(ø)
democràt → democràt

The matching structures (26a, c) are of no interest to us. (26b, d) display structures (27a, b), respectively, prior to the (H)/o(L) footing:

(27a) * * *
* * *
* * *
* * *
de-mo-cràt

The structure (27b) is an instance of the perfect grid (Prince 1983). (27a), by contrast, is not. This difference is crucial for our understanding of vowel reduction in Singapore English. Unmetrical syllables do not reduce fully to the schwa if they help form a perfect grid in English. They tend to reduce, and reduce fully, if they are not in a perfect grid. In effect, the final stress ‘saves’ the initial syllable of a trisyllable from being fully reduced to the schwa. Incidentally, the non-reduction of the de-metrical vowels obeys Metrical Preservation, albeit at the surface representation.

The euhythmic interpretation of vowel non-reduction sheds light on the stress pattern of words ending in -y. Two specimens are listed in (28); the words may be assigned the structures shown in (29).

(28) strategy
quality

The initial syllable in these words is not fully reduced, and typically retains the full vowel. Tongue (1974: 28) notes that many Singapore English speakers lengthen the word-final -y, rendering quality as qualitie and stories as stories. This is a robust tendency even today, especially in words ending in -ly (Low & Grahame 1999). Metricality, however, -y must be treated as light, since words like silly, happy, and opportunity have penultimate stress, i.e., (silly), (happy), and (opportunity). Even though the final -y is lengthened phonetically, the lengthening is not metricaly motivated. Furthermore, the penultimate syllable in strategy and quality carries stress, like democràt and Telecom, consistent with the (H)/o(L) footing. The words may be assigned the structures shown below.

(29) strategy:
quality:

As in democràt, the retention of the initial vowel in strategie and quality is not due to the failure of the clash avoidance constraint to de-foot the initial syllable. The lengthening of -y discourages the initial syllable from reducing.
Intuitively, the *abicus*-type and *democrata*-type reduction patterns may be seen as a compromise between the need to be faithful to the actual stress patterns of English (e.g. Metrical Preservation), which is the prestigious variety, and the need to follow the innovative (H)(0L) footing of Singapore English, which remains stigmatized in Singapore despite the fact that the vernacular is the native tongue of a sizable segment of the population. These two forces are at times antagonistic, and it is reasonable to assume that the robustness of the phonetic manifestation of the (H)(0L) footing is inversely correlated with the perceptual distance from English: the more salient a divergent pattern is, the more likely it is to be stigmatized, and the less likely it is to be robust and capable of spreading widely among words and speakers alike. Our data support the following hierarchy, in decreasing order of robustness.

30a Matching types
i. complete match  
   a(gend'oa) vs. a(gend'oa)
   (gène)(raze) vs. (gène)(raze)
   (hér)'age vs. (hér)'age

30b Vowel enhancement
phonology vs. (pho)(ni)(logy)

30c Vowel reduction
i. final syllable unstressed  
   *abicu* vs. *abicu*
   (démo)(cu) vs. (de'mo)(cu)

ii. final syllable stressed  
   *abicu* vs. *abicu*
   (démo)(cu) vs. (de'mo)(cu)

The metrically matching types are the most robust, even though the last foot always carries primary stress in Singapore English. The perceptual difference between English (gène)(raze) and Singapore English (gene)(raze) is negligible. A casual visitor to Singapore may easily observe these types, in street conversations or in radio and TV newscasts. Words exhibiting the effect of vowel enhancement and reduction are perceptually more salient, and are typically used in informal contexts. Nevertheless, some, like *technol'ogy, écœr'onnay*, and *hér'ivorous* are widely used in both formal and informal contexts.

5. Concluding remarks

To conclude, I would like to make five remarks. First, the so-called staccato rhythm of Singapore English is due to an unusually rich metrical structure, first created by the English (H)(0L) typology under Metrical Preservation, and further enriched by the Singapore English (H)(0L) typology, subject to the active participation of the anti-clash constraint (17). Despite the syllable-timing impression, syllables are not equally stressed and some are indeed reduced. Our analysis makes the correct prediction that only syllables which are metrified as heads in English (*phonology*) or Singapore English (*phonology*) are stressed and retain their full vowels, and that syllables which de-dote to the anti-clash constraint (*abicu*) or are unmetrified or not metrified as heads in English or Singapore English (*apologize* vs. *apologize*) are not stressed. As in English, unstressed vowels reduce. These facts support a metrical interpretation of the staccato, syllable-timed rhythm characteristic of Singapore English.

Second, clash avoidance is tied to the metrification rules of the language, and is not driven by surface configuration. The opaque *phonology*-type structure is licensed because its derivation -- English and Singapore English metrifications -- obeys the anti-clash constraint, even though on surface it constitutes a double stress clash. The metrical opacity we have seen here is rooted in the constraint-rule interaction (Kiparsky 1978). From the perspective of feature competition, the (H)(0L) and (H)(0L) typologies compete in the phonology of Singapore English, with no clear winner. The two typologies each produce metrically transparent structures. Opacity arises when the two structures are imposed on the same string. In our analysis, this is the result of serial operation of the two typologies.

Third, it is plausible to attribute the origin of the (H)(0L) typology to Malay, or Baba Malay, the Malay-lexified contact language spoken by early immigrants to Singapore who are among the first to shift to English (Tan 1988). Throughout Singapore's history, there are two main indigenous languages that have contributed to the grammar of Singapore English: Chinese (Min and Cantonese dialects) and Malay. Since Chinese is not a stress language, we will turn our attention to Malay. Malay has a five-vowel inventory, in addition to the schwa, as shown in (31) (Menz 1994).

31)  
   i.  
   u  
   c  
   o  
   a  

According to Menz (1994: 18–19), underived words in Malay have penultimate stress, except when the penultimate syllable contains the schwa. We may express Menz's insight as (32a) (32b) with feet being left-headed, i.e. trochees. Malay words active in the vocabulary of Singapore English are stressed in accordance with this typology:

32a goreng  
   ['goriŋ]  
   'fried'

32b lemam  
   ['le'mak]  
   'coconut'

32c Khatib  
   ['kātib]  
   'strike'

32d Sugai  
   ['suŋai]  
   Mandai  
   ['man'dai]

As in Malay, unstressed vowels remain fully pronounced in Singapore English, so subtle differences in prominence are difficult to perceive. When the final syllable contains a diphthong, as in (32d), accentuation appears to be variable.

Facts like (32) provide empirical support for the Malay-origin of the innovative foot typology. We can describe the scenario of the innovation in this way. The Malay typology (0)(0/0) enters Singapore English piggyback on Malay borrowings. As it tries to extend to English-derived words, it is interpreted as (H)(0L) to reflect the weight-sensitivity of
English, and runs into conflict with the English typology of (H)oO(L)o, which is partially resolved, as we have shown, by clash avoidance. Intuitively, the two competing typologies could declare truce and settle into parallel, coexistent metrical systems, with the Malay typology operating on Malay borrowings, and the English typology on English words only. This would result in the type of composite phonology discussed in Fries & Pike (1949), in which unassimilated loanwords support a phonemic system distinct and separate from the phonemic system of the host language. However, coexistent systems emerge in stable host phonologies. The multilingual contact ecology of Singapore English makes this outcome unlikely. It is interesting to note that the (H)(o)(O)(L)(o) typology, in the form of (H)(o)(O)(L)(o), competes with the English typology (H)(o)(O)(L)(o) on English words, but not the reverse, which would result in Malay borrowings being assimilated into the accentuation pattern of English. The conflict between the two typologies is a sign of phonological growth in Singapore English.

References


