THE PHONOLOGICAL REPRESENTATION OF ENGLISH LOANWORDS IN CANTONESE
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(0) INTRODUCTION

(1) Host language speakers have no access to the phonological representation of incoming loanwords

(2) Two levels of loanword phonology:

1) PERCEPTUAL LEVEL: parsing the input signal into segment-sized chunks, providing native feature matrices

2) OPERATIVE LEVEL: full prosodization triggers phonological processes which are peculiar to the loanword phonology

(7) English primary stress \(\rightarrow [H]\) tone
   English non-primary stress \(\rightarrow [M]\) tone
   a. [card] \(\rightarrow [kat[H]]\)
   b. [cigar] \(\rightarrow syt[M] ka[H]\)
   c. [gin] \(\rightarrow [tsin[H]]\)
   d. [guitar] \(\rightarrow kit[M] t'[H]\)

(8) Epenthesized vowels \(\rightarrow [L]\) tone

   a. [stamp] \(\rightarrow [fu[L] luk[H]]\)
   b. [stick] \(\rightarrow [si[L] tik[H]]\)
   c. [break] \(\rightarrow [pi[k][L] lik[H]]\)
   d. [cream] \(\rightarrow [kei[L] lim[H]]\)

(9) input:
   Perceptual Level:
   Operative Level:

   a. [body] \(\rightarrow [p][l][l] ti[MH]\)
   b. [cello] \(\rightarrow ts'[E][H] lou[MH]\)
   c. [fashion] \(\rightarrow [fa[H] soen[MH]]\)

   d. [buffet] \(\rightarrow [pou[M] fei[H]]\)
   e. [cigar] \(\rightarrow syt[M] ka[H]\)
   f. [motor] \(\rightarrow W[H] ta[MH]\)
   g. [soda] \(\rightarrow [si[3][H] ta[MH]]\)
   h. [stick] \(\rightarrow [si[L] tik[H]]\)
   i. [fluke] \(\rightarrow [fu[L] luk[H]]\)
   j. [lace] \(\rightarrow [lei[H] si[MH]]\)
   k. [film] \(\rightarrow [fi[e][H] Lt,m[MH]]\)

(12) Prosodization precedes tonal suffixation
(bus) -> (p[HH] si[MM]) (*p[HH] si[LL])
(lace) -> (l[HH] si[MM]) (*l[HH] si[LL])

(13) Domain of Pitch Contrast Analysis: <English free morpheme>

(14) (dockyard)
    [floorshow]
    [sideboard]
    [t[HH]]
    [j[HH]] (f, [H])
    [sou[HH]]
    [sai[HH]]
    [put[HH]]
(15) CONSTRAINTS AT THE PERCEPTUAL LEVEL

(16) Perceptual Uniformity
Hypothesis:

At the Perceptual Level, identically perceived input is uniformly provided with identical feature matrices

(17) English voicing contrast is neutralized
a. [ball] -> [p']  b. [sideboard] -> [sai
   [game] -> (kEm)  [salad] -> [sa
   put)  loet)

(18) English /r/ is perceived as /l/
  a. [bearing] -> [p' ling]
  b. [warrant] -> loen]
  c. [lorry] -> lei]

(19) English /sh/ is perceived as /s/

[show] -> [sou]
[tie] -> [sap]
[cut] -> [env]

(20) English derived aspiration is perceived as lexical

[pa]
[p'ai] -> [vo
[bumper] ta]
[wa n] [motor] -> [m'
u lik)
THE OPERATIVE LEVEL: PROCESSES TRIGGERED BY PROSODIZATION

C -> [=cont] /
 )

1. input: [shaft]

Perceptual Level: [lift] [lift]

Opevative Level: (lop)

salad) card) [k'at]

1. input: 'salad) [card] [k'at]

Perceptual Level: sa lot(')>

Operative Level: 191 lot [k'at]

V / s] a.

1. input: Iti pr; I f; t-

Perceptual Level: I:lip s.1 [stl>

Operative Level: 'tip NilHi C]j

1. input: Ina 1,0 j [card] -> [k'at]

Perceptual Level: sa lot(')>

Operative Level: 191 lot [k'at]
Evidence for Level-Ordered Loanword Phonology: The Analysis of Truncated Forms

1. Tone is perceived in relation to the full underlying form.
2. No tonal suffixation.
3. As these forms enter Cantonese, they are preliminarily scanned in their entirety.

Input: [physics chemistry biology] -> [fi[H] k'Em[H] pai[M]]


Operative Level: [fi[H] k'Em[H] pai[M]]

Surface: [fi[H] k'Em[H] pai[M]]

Scansion One Scansion Two Operative Level

[composition] [k'Vm[H] p'ou[MH]]

[geography] -> [ts'k[H] ka[MH]]

[marketing] -> [ma[H] k'Eti[MH]]

1. Tone is perceived in relation to pitch contrasts present on the surface.
2. Tonal suffixation.
3. Truncation applies on Scansion One.

Strategy (A) Strategy (B)

Sample Derivations

1. Input:
[marketing] [composition] [economics] [sociology]

2. Scansion One (Perceptual Level):

<table>
<thead>
<tr>
<th>F</th>
<th>F</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>S</td>
<td>S</td>
</tr>
</tbody>
</table>

<mak't>{ing} <k'vmpou>{sison} <ik'namiks> M MH M M

3. Scansion Two (Operative Level):

<table>
<thead>
<tr>
<th>F</th>
<th>F</th>
<th>F</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>S</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<k'vmpou> {sison} <ik'namiks> M MH M M

4. Stray Erasure:

<mak't>{ing} <k'vmpou> {sison} <ik'namiks> M MH M M

5. Surface:

<sousi> {13tsi}
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>incoming acoustic signal</td>
<td>$[\text{ma}{\text{H}}]k^*\text{Et}{\text{MH}}]$</td>
</tr>
<tr>
<td>2.</td>
<td>Scansion One/truncation</td>
<td>$[\text{10bm}{\text{H}}]\text{pou}{\text{MH}}]$</td>
</tr>
<tr>
<td>3.</td>
<td>Scansion Two</td>
<td>$[\text{i}{\text{M}}\text{.k}^*{\text{M}}]$</td>
</tr>
<tr>
<td>4.</td>
<td>Stray Erasure</td>
<td>$[\text{sou}{\text{M}}\text{si}{\text{M}}]$</td>
</tr>
<tr>
<td>5.</td>
<td>Surface</td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSIONS

1) Cantonese speakers do not have access to English phonological representation.
2) Cantonese loanword phonology possesses two distinct ordered levels.
3) PERCEPTUAL LEVEL: parsing the input signal into segment-sized chunks, providing native feature matrices, lexical tones, and syllable nodes.
4) OPERATIVE LEVEL: full prosodization triggers phonological processes which are peculiar to the loanword phonology.
5) Operative Level processes are available through Universal Grammar.
6) Scansion One = Perceptual Level
Scansion Two = Operative Level

References

Hayes, B. 1988. Compensatory Lengthening in Moraic Phonology. ms., UCLA.
Kearns, K. 1990. The Glottal Fricative in Maori. me., MIT.
Lim, Yeonjoo 1990. English Loanwords in Korean. ms., UCLA.
Silverman, D. 1991b. The QI Binary Foot in Cantonese: Against the Iamb. Presentation, Phonology Seminar, UCLA.