

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 t t s k k<sup>w</sup> i u u  
ts' k' k<sup>w'</sup>

(3) Cantonese segment inventory h 'a a

p

(aspiration is indicated by inverse commas, ng =<sub>5</sub>)

(4) Acceptable codas

p	t	k
m	n	ng
w	y	

(6) Lexical tones

55 ([H])	53 ([HM])
<sup>33</sup> ([M])	<sup>35</sup> ([ <sup>w</sup> ])
22 ([L])	24 ([ <sup>LM</sup> ])
21	

(6) STRESS - TO - TONE

processes which are peculiar to the loanword phonology

(7) English primary stress -> [H] tone  
English non-primary stress -> [M] tone

a. [card] -> [kat[H]]      b. [cigar] -> syt[M] ka[H]  
[gin] -> [tsin[H]]      (guitar)-> kit[M] t'[[H]]

(8) Epenthesized vowels -> [L] tone

[fluke]	->	[fu[L] luk[H]]
[stamp]	->	[si[L] tam[H]]
(stick)	->	[si[L] tik[H]]
[break]		[pik[L] lik[H]]
(cream)	->	[kei[L] lim[H]]

(9) input: [stamp] [stick]  
Perceptual Level: [s[L]t9m[H]]  
Operative Level: [s[L]tik[H]]  
surface: ]

(10) Tonal suffixation (si[L]tlim[H]) (si[L]tik[H])  
]]  
[si[L]thm[H]] [si[L]tik[H]]  
]]

(a) [body] -> [p][11] ti[MH]]  
(b) [cello] -> [ts'E.[H] lou[MH]]  
(c) [fashion] -> [fa[H] soen[MH]]

(11) a. [buffet] --> [pou[M] fei[H]]

[cigar] --> [syt[M] ka[H]]

b. [motor] --> W[H] ta[MH]]

[soda] --> [s13[H] ta[MH]]

c. (stick) --> [si[L] tik[H]]

[fluke] --> [fu[L] luk[H]]

d. [lace] --> [lei[H] si[MH]]

[film] --> [fei[H] lt,m[MH]]

(12) Prosodization precedes tonal suffixation

(bus] -> (pa[H] si[MH]] (\*pa[H] si[L]))  
(lace]-> (lei[H] si[MH]] (\*lei[H] si[L]))

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

(14) (dockyard]  
[floorshow  
]  
(sideboard  
]  
[<t7k[H]>  
<ja[HJ>] (<f, [H]>  
<sou[H]>]  
[<sai[H]>  
<put[H]>]

(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] -> [pʌ]      b. [sideboard] -> [sai  
put)  
[game] -> (kEm)      [salad] -> [sa  
loet)

(18) English /r/ is perceived as /l/

a. [bearing) -> [p<sup>f</sup>- ling]  
b. [warrant) -> loen]  
c. [lorry) -> lei]

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

[pie] [show) -> [sou]  
[tie] [sharp) -> [sap)  
[cut] [shaft) -> [env)

(20) English derived aspiration is perceived as lexical

-> [p'ai] [bumper] -> [vo pa)  
-> W a n [motor) -> [m' ta)  
ku lik)

-> [k'ot] [chocolate -> [ts

(21) English /v/ is perceived as /w/

[valve) -> [wa lou]  
[volume) -> [w) koln]

(22) THE OPERATIVE LEVEL: PROCESSES TRIGGERED BY PROSODIZATION

(23) C -> [-cont] /  
 ),

(24) lillm] -> [fei  
 1Drn) [shaft)  
 Ifloorshow) -> [f-,  
 SOU] [lift]

(25) 1. input:  
 [shaft]  
 2. Perceptual Level:  
 [<saft>]

3. Operative Level: (<sup>sDp</sup>) /1\

( 2 6 ) C -> /

(27) [salad] -> Ina 1,0 j[card) -> [k'at)

(28) 1. input: 'salad) [card)  
 2. Perceptual Level: sa lot(')>  
 [<k'at(,)>]

3. Operative Level: 191 lot [k'at)

(29) -> V / s) ■

(30) a. [tip si]  
 [wi si]  
 [si tam]  
 [si t']

[tips)

b. [waste)  
 [stamp)  
 [store)

(31) 1. input: I t i pr; I I f;t-  
 ore

2. Perceptual Level:  
 I:lip  
 s•1  
 ['stl>  
 ]  
 S /I  
 /I

3. Operative Level: 'tip NilHi C]j

(32) EVIDENCE FOR LEVEL-ORDERED LOANWORD PHONOLOGY: THE ANALYSIS OF TRUNCATED FORMS

- (33) a. [economics] --> [i[M] k'n[M]]  
       [sociology] --> [sou[M] si[M]]  
       b. [biology] --> [pai[M] -][H]  
       [insurance] --> Lin[M] sD[H]
- (34) [physics chemistry biology] -> [fi[H] k'em[H] pai[M]]
- (35) 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
- (36) input: [physics chemistry biology]  
       Perceptual Level: ?[<fi[H]sik[M]s[L]>  
       <k'q[H]mi[M]st[L]li[M]>  
       <pai[M] [H]l, [M]tsi[M]>]  
       Operative Level: [fi[H]k'Em[H]pai[M]]  
       surface: [fi[H]k'Em[H]pai[M]]
- (37) Scansion One • Perceptual Level  
       Scansion Two Operative Level
- (38) [composition] [k'Vm[H] p'ou[MH]]  
       [geography] -> [ts'k[H] ka[MH]]  
       [marketing] -> [ma[H] k'Et[MH]]
- (39) 1. Tone is perceived in relation to pitch contrasts present on the surface  
       2. Tonal suffixation  
       3. Truncation applies on Scansion One
- (40) Strategy (A) Strategy (B)

(41) SAMPLE DERIVATIONS

1. INPUT:  
 [marketing] [composition] [economics] [sociology]
2. SCANSION ONE (PERCEPTUAL LEVEL):
- |  |  |  |  |
|--|--|--|--|
| $\begin{array}{c} / \\ \backslash \\ 5 \quad 5 \\   \end{array}$ | $\begin{array}{c} / \\ \backslash \\ 5 \quad 5 \\   \end{array}$ | $\begin{array}{c} / \\ \backslash \\ 5 \quad 5 \\   \end{array}$ | $\begin{array}{c} / \quad \backslash \\ S F \\   \quad   \\ <sousi, l>tsi \\ M \quad MH \quad M \quad M \end{array}$ |
| <mak't>(ing)   | <k'vmpou>(sison)   | <ik'>namiks  |  |
| H M  | H M  | M M H M L  |  |
3. SCANSION TWO (OPERATIVE LEVEL):
- |  |   |   |   |
|--|---|---|---|
| $\begin{array}{c} / \\ \backslash \\ 5 \quad 5 \\ / \quad   \quad \backslash \\ / \quad   \quad \backslash \\ mak'Et(ing) \end{array}$ | $\begin{array}{c} / \\ \backslash \\ 5 \quad 5 \\ / \quad   \quad \backslash \\ / \quad   \quad \backslash \\ k'vmpou(sison) \end{array}$ | $\begin{array}{c} / \\ \backslash \\ 5 \quad 5 \\ / \quad   \quad \backslash \\ / \quad   \quad \backslash \\ ik'n(amiksi) \end{array}$ | $\begin{array}{c} / \quad S \quad F \quad \backslash \\ 5 \quad WI \\ / \quad   \quad \backslash \\ sousi()13tsi \\ M \quad M \quad H \quad M \quad MH \end{array}$ |
| L  | 1   | M M H M L   |   |
4. STRAY ERASURE:
- |  |   |  |  |
|--|---|--|--|
| $\begin{array}{c} / \\ \backslash \\ 5 \quad F \\ / \quad : \quad \backslash \\ / \quad : \quad \backslash \\ mak't \\ H \quad MH \end{array}$ | $\begin{array}{c} / \\ \backslash \\ F \\ / \quad 5 \quad 5 \\ / \quad   \quad \backslash \\ / \quad   \quad \backslash \\ k'vmpou \\ H \quad MH \end{array}$ | $\begin{array}{c} / \\ \backslash \\ F \\ / \quad \backslash \\ s \quad s \\ / \quad   \quad \backslash \\ / \quad   \quad \backslash \\ ik'n \\   \quad   \\ M \quad M \end{array}$ | $\begin{array}{c} / \quad \backslash \\ S F \\ / \quad : \quad \backslash \\ / \quad : \quad \backslash \\ SOUSI \\ M \quad M \end{array}$ |
|--|---|--|--|
5. SURFACE:

- |                             |                             |
|-----------------------------|-----------------------------|
| 1. incoming acoustic signal | 1. incoming acoustic signal |
| 2. Scansion One/truncation  | 2. Scansion One             |
| 3. Scansion Two             | 3. Scansion Two/truncation  |
| 4. Stray Erasure            | 4. Stray Erasure            |
| 5. surface                  | 5. surface                  |

[ma [H] k<sup>e</sup>Et [MH]]                      [10bm [H] pou [MH]]  
[i [M] k. "l [M]]                      [sou [M] si [M]]

(42) 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

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