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The influence of the L1 lexical system on the processing of tones in L2

Patrick Chu and Marcus Taft

University of New South Wales, Sydney, Australia

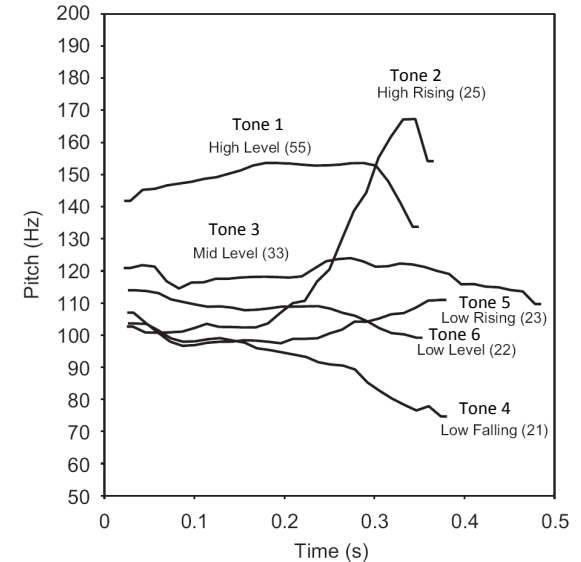


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Tonal system in Cantonese and Mandarin

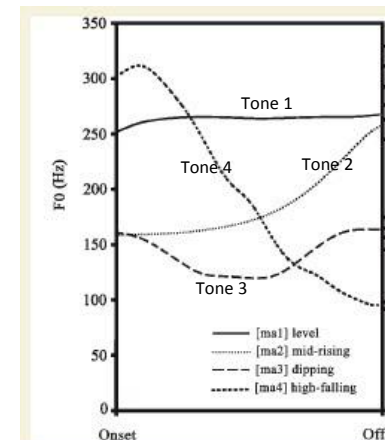
Cantonese tone system

Cantonese Tones	Pitch	Examples	Meaning
1	high level	詩 /si1/	'poem'
2	high rising	史 /si2/	'history'
3	mid level	試 /si3/	'try'
4	low falling	時 /si4/	'time'
5	low rising	市 /si5/	'city'
6	mid-low level	是 /si6/	'yes'



Mandarin tone system

Mandarin Tones	Pitch	Examples	Meaning
1	level	媽 /ma1/	'mother'
2	rising	麻 /ma2/	'hemp'
3	dipping	馬 /ma3/	'horse'
4	falling	罵 /ma4/	'blame'



Transfer from L1 Cantonese tone system into L2 Mandarin tone system (phonological level)

- Native Cantonese speakers may not be able to differentiate the following Mandarin tone pairs
 - Tone 1 (level) vs. Tone 4 (falling)
 - Tone 2 (rising) vs. Tone 3 (dipping)
- Other Mandarin tone errors produced by Cantonese speakers
 - 魔 ‘devil’
Cantonese: mo1 (high level)
Mandarin: mo2 (rising) → mo1 (level)
 - 摸 ‘touch’
Cantonese: mo2 (high rising)
Mandarin: mo1 (level) → mo3 (dipping)

Major tone correspondences between Cantonese and Mandarin (Zhang & Gao, 2000)

Cantonese tone	Mandarin tone	Percentage	Example	Cantonese / Mandarin pronunciation	Exception	Cantonese / Mandarin pronunciation
1	1	93%	郊 'suburb'	<i>gaau</i> <u>1</u> / <i>jiao</i> <u>1</u>	魔 'devil'	<i>mo</i> <u>1</u> / <i>mo</i> <u>2</u>
2	3	89%	找 'find'	<i>zau</i> <u>2</u> / <i>zhao</i> <u>3</u>	摸 'touch'	<i>mo</i> <u>2</u> / <i>mo</i> <u>1</u>
3	4	91%	怪 'strange'	<i>gwai</i> <u>3</u> / <i>gwai</i> <u>4</u>	傘 'umbrella'	<i>saan</i> <u>3</u> / <i>san</i> <u>3</u>
4	2	93%	牛 'cow'	<i>ngau</i> <u>4</u> / <i>niu</i> <u>2</u>	微 'little'	<i>mei</i> <u>4</u> / <i>wei</i> <u>1</u>
5	3	76%	偉 'great'	<i>wai</i> <u>5</u> / <i>wei</i> <u>3</u>	市 'city'	<i>si</i> <u>5</u> / <i>shi</i> <u>4</u>
6	4	94%	又 'again'	<i>jau</i> <u>6</u> / <i>you</i> <u>4</u>	捕 'catch'	<i>bou</i> <u>6</u> / <i>bu</i> <u>3</u>

Regular-tone

Irregular-tone

魔 'devil'

Cantonese: mo1 (high level)

Mandarin: mo2 (rising) → mo1 (level)

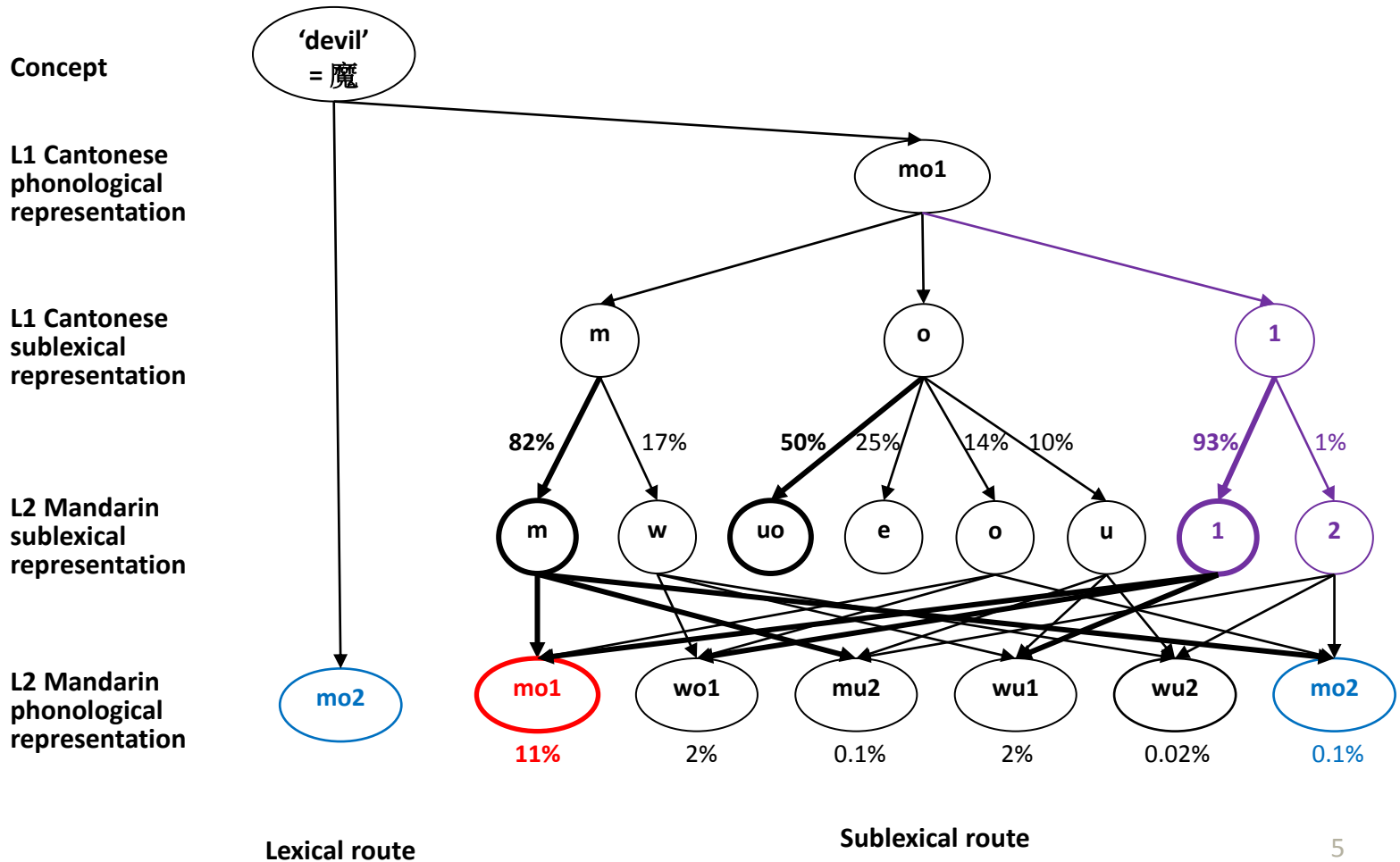
摸 'touch'

Cantonese: mo2 (high rising)

Mandarin: mo1 (level) → mo3 (dipping)

Dual Route L2 Mandarin word production model (Chu & Taft, 2010, 2011)

Irregular Mandarin tone word 魔 'devil'
Cantonese: *mo1* Mandarin: *mo2* → *mo1*



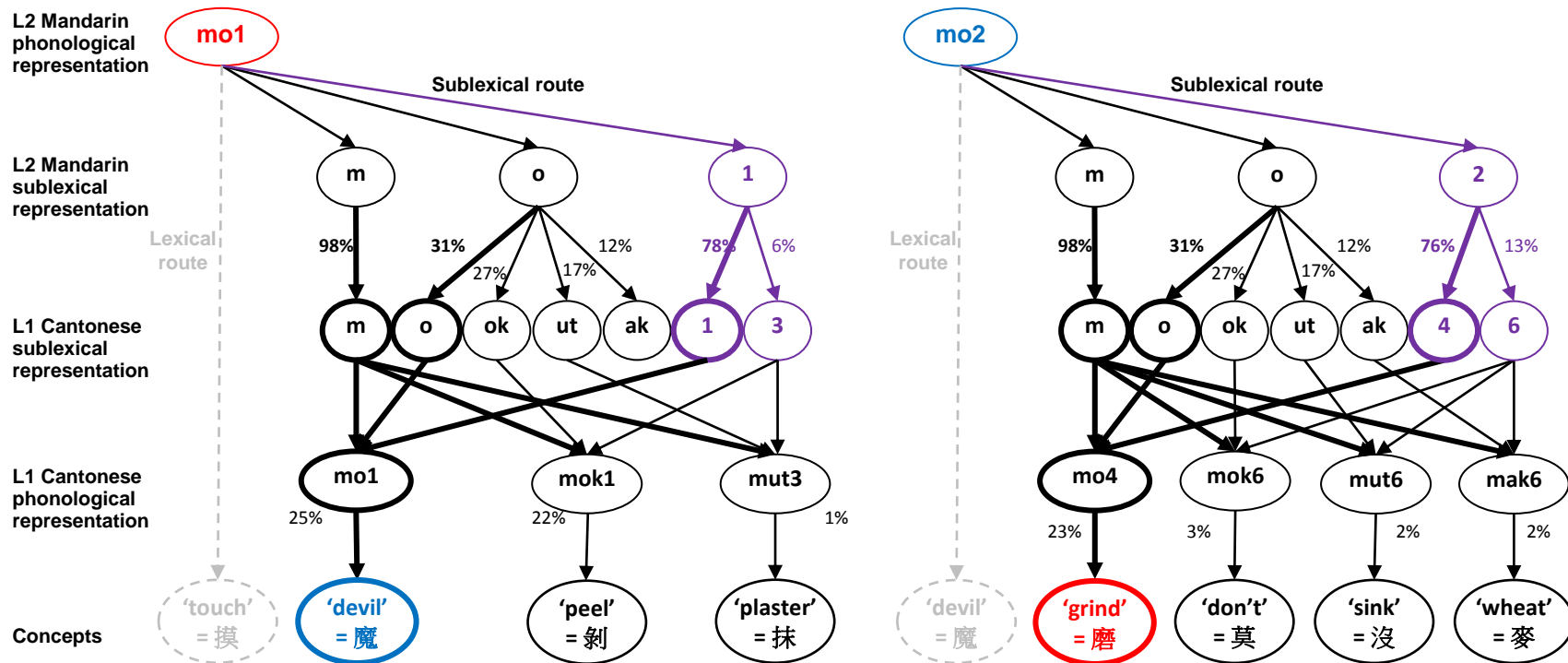
Empirical evidence for the Dual route L2 Mandarin word production model

- Mandarin *pinyin* transcription task (Chu & Taft, 2011)
 - Regular-tone word: 郊 ‘suburb’ (Cantonese: *gaau*1 Mandarin: *jiao*1)
 - Irregular-tone word: 魔 ‘devil’ (Cantonese: *mo*1 Mandarin: *mo*2)
 - Accuracy rate: Regular > Irregular-tone words

Dual Route L2 Mandarin word recognition model (Chu & Taft, 2011)

Mispronunciation
魔 'devil' *mo2* → *mo1*

Correct pronunciation
魔 'devil' *mo2*



Empirical evidence for the Dual route L2 Mandarin word recognition model

- Disyllabic word transcription task (Chu & Taft, 2011)

魔鬼 'ghost'

- Correct pronunciation: *mo₂gui₃*
- Mispronunciation: *mo₁gui₃* (nonword 摸鬼)

Accuracy rate

- Cantonese listeners (beginning Mandarin learners):
 - Mispronunciation > Correct pronunciation

Experiment

- Task
 - Chinese character - Mandarin sound matching task
- Participants
 - 34 Cantonese speakers (19-23 years old; mean: 20.6)
 - 16 Mandarin speakers (18-24 years old; mean: 19.9)
- Materials

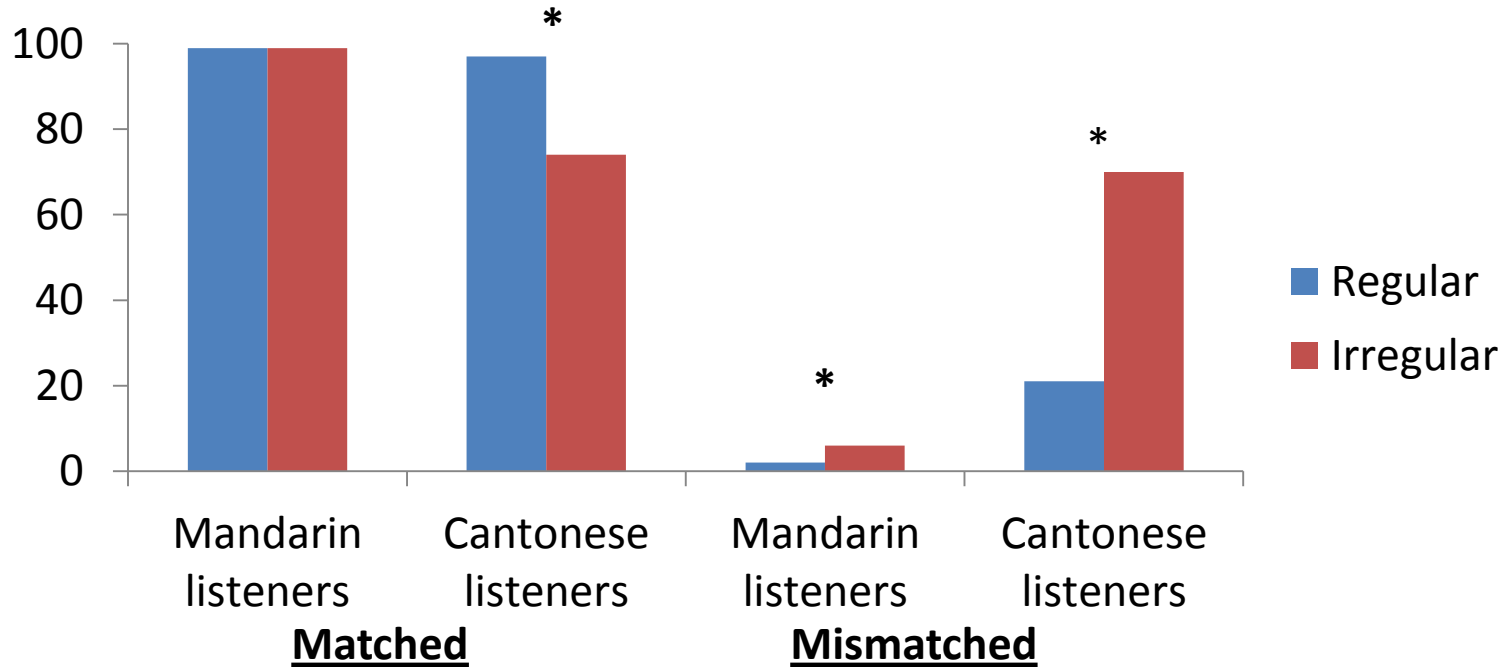
Word Type	Matched	Mismatched
Regular-tone words (e.g. 郊 'suburb' Cantonese: <i>gaau</i> <u>1</u>)	<i>jiao</i> <u>1</u> >	<i>jiao</i> <u>2</u> <
Irregular-tone words (e.g. 魔 'devil' Cantonese: <i>mo</i> <u>1</u>)	<i>mo</i> <u>2</u>	<i>mo</i> <u>1</u>

- Dependent variables
 - Percentage of 'yes' responses

Result

- Percentage of 'yes' responses

Word Type	Matched	Mismatched
Regular (e.g. 郊 'suburb' Can: <i>gaau</i> <u>1</u>)	<i>jiao</i> <u>1</u>	<i>Jiao</i> <u>2</u>
Irregular (e.g. 魔 'devil' Can: <i>mo</i> <u>1</u>)	<i>mo</i> <u>2</u>	<i>mo</i> <u>1</u>



Conclusion

- Cantonese speakers' knowledge about the tone pronunciation of Mandarin words is influenced by L1-L2 tone correspondence.
- Provide further evidence for the use of the sublexical route in Mandarin word production and recognition.
- Knowledge about L2 words are influenced by L1 phonological as well as **lexical** system.

Acknowledgement



Thank you!