Stimuli

Luo et al. (2020)

- Investigated perception of Cantonese vowel length contrasts in native Mandarin speakers
- Four levels of background Cantonese experience
- Focuses on long vs short vowel minimal pairs in AXB discrimination task
- May not be the most useful, but could borrow some of the stimuli

Table 2. Examples of Cantonese minimal pairs used in the perception experiment.

Vowel	Long	Short
/a:/–/ɐ/	街 [ka:j55] "street"	雞 [kɐj55] "chicken"
	考 [ha:w35] "test"	口 [hɐw35] "mouth"
	三 [sa:m55] "three"	心 [sɐm55] "heart"
	班 [pa:n55] "class"	賓 [pɐn55] "guest"
	棚 [pʰa:ŋ21] "shed"	朋 [pʰɐŋ21] "friend"
	沓 [ta:p̚2] "pile"	搭 [tɐp̚2] "beat"
	滑 [wa:t̚2] "slip"	核 [wɐt̚2] "fruit stone"
/ɛ:/–/e/	贏 [jɛ:ŋ21] "win"	型 [jɪŋ21] "type or model"
	石 [sɛ:k̚2] "rock"	食 [sɪk̚2] "eat"
/ɔ:/–/o/	方 [fɔ:ŋ55] "square"	風 [fʊŋ55] "wind"
	度 [tɔ:k̚2] "measure"	讀 [tʊk̚2] "read aloud"

Tsui et al. (2019)

- Investigating phonetic transfer of VOT in Cantonese-English bilinguals
- Picture-naming task in language-switching paradigm
- Pseudo-minimal pairs but… not really all that similar. But can be useful if we want quasi-quasi minimal pairs
  - The onset plosives don't match up, as they're aspirated in English
  - Vowels don't match up either!
  - Neither do the codas!

Table A1. *Target Words and Their Phonetic Transcriptions*

	Cantonese		English	
Target initial stops	Target words	Phonetic transcriptions	Target words	Phonetic transcriptions
/p/	錶 *(watch)*	/piu1/	pig	/pɪg/
	冰 *(ice)*	/pɪŋ1/	pin	/pɪn/
	煲 *(pot)*	/pou1/	pet	/pɛt/
	波 *(ball)*	/pɔ1/	pen	/pen/
	爸 *(father)*	/pa1/	pot	/pɒt/
	包 *(bread)*	/pau1/	park	/pɑːk/
/t/	冬 *(winter)*	/tʊŋ1/	tea	/tiː/
	叮 *(bell)*	/tɪŋ1/	tooth	/tuːθ/
	釘 *(nail)*	/tɛŋ1/	ten	/ten/
	刀 *(knife)*	/tou1/	toe	/təʊ/
	燈 *(lamp)*	/tɛŋ1/	tie	/taɪ/
	單 *(receipt)*	/tan1/	tag	/tæg/
/k/	菊 *(chrysanthemum)*	/kʊk1/	key	/kiː/
	菇 *(mushroom)*	/ku1/	cook	/kʊk/
	乾 *(dry)*	/kɔn1/	cake	/keɪk/
	薑 *(ginger)*	/kœŋ1/	cup	/kʌp/
	雞 *(chicken)*	/kɐi1/	cat	/kæt/
	金 *(gold)*	/kɐm1/	cow	/kaʊ/

Note: English translations of Cantonese targets are shown in parentheses.

Zhang (2018)

- Behavioural/ERP study into perceptual accommodation and expectation
- Written-word/spoken-word matching paradigm in carrier phrases
- Use of T1: possible but unlikely investigation into the High flat/High falling merger that some GuangZhou dialects still preserves the split. But that's getting into philology/historical linguistics
- Any investigations on T3-T6 merger could use these word pairs

Appendix 1. List of 16 triads of Cantonese monosyllabic words with phonetic transcription and gloss.

Word	Transcription	Tone	Gloss	Word	Transcription	Tone	Gloss
巴	/pa55/	High level	tail	燈	/tɐŋ55/	High level	lamp
霸	/pa33/	Mid level	tyrant	凳	/tɐŋ33/	Mid level	stool
罷	/pa22/	Low level	quit	鄧	/tɐŋ22/	Low level	family name
低	/tɐi55/	High level	low	邊	/pin55/	High level	boundary
帝	/tɐi33/	Mid level	emperor	變	/pin33/	Mid level	change
弟	/tɐi22/	Low level	brother	辯	/pin22/	Low level	debate
奔	/tɐu55/	High	peddle	搬	/pun55/	High	move

Lin et al. (2021)

- Investigates whether speakers will reverse a tone merger-in-progress through imitation
- Shadowing task
- All T3-T6 minimal pairs for T3-T6 merger investigation

Character	Jyut-ping	IPA	Gloss
報	bou3	/pou/	‘report’
部	bou6	/pou/	‘part’
帝	dai3	/tɐi/	‘emperor’
第	dai6	/tɐi/	‘sequence’
到	dou3	/tou/	‘arrive’
導	dou6	/tou/	‘direct’
凍	dung3	/tʊŋ/	‘freeze’
動	dung6	/tʊŋ/	‘move’
富	fu3	/fu/	‘rich’
負	fu6	/fu/	‘load’

Lin et al. (2021)

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負	fu6	/fu/	‘load’

記	gei3	/kei/	‘record’
技	gei6	/kei/	‘skill’
據	geoi3	/køy/	‘occupy’
具	geoi6	/køy/	‘tool’
貴	gwai3	/kwɐi/	‘expensive’
櫃	gwai6	/kwɐi/	‘cupboard’
意	ji3	/ji/	‘idea’
義	ji6	/ji/	‘righteousness’
最	zeoi3	/tʃøy/	‘most’
罪	zeoi6	/tʃøy/	‘crime’
至	zi3	/tʃi/	‘reach’
自	zi6	/tʃi/	‘self’
政	zing3	/tʃɪŋ/	‘government’
靜	zing6	/tʃɪŋ/	‘quiet’
代	doi6	/tɔi/	‘replace’
快	faai3	/fai/	‘rapid’
價	gaa3	/ka/	‘price’
故	gu3	/ku/	‘ancient’
限	haan6	/han/	‘boundary’

氣	hei3	/hei/	‘air’
抗	kong3	/kʰɔŋ/	‘resist’
另	ling6	/lɪŋ/	‘another’
未	mei6	/mei/	‘not yet’
面	min6	/min/	‘face’
務	mou6	/mou/	‘affairs’
派	paai3	/pʰai/	‘branch’
破	po3	/pʰɔ/	‘break’
配	pui3	/pʰui/	‘match’
素	sou3	/sou/	‘plain’
送	sung3	/sʊŋ/	‘give’
太	taai3	/tʰai/	‘too’
話	waa6	/wa/	‘speech’
壞	waai6	/wai/	‘spoiled’
換	wun6	/wun/	‘change’
問	man6	/mɐn/	‘ask’

Hong et al. (2021) and (2022)

- Hard to find the actual publication; was a conference presentation
  - Tried looking in conference program but poster from 2021 wasn't listed!
  - The poster from 2022 was listed but only the abstract is available publicly
  - Trying to request from researchers (messaged Yitian Hong the PhD student on ResearchGate, will email Si Chen from PolyU)
- Talks about phonetic convergence/entrainment on Cantonese-speaking children with ASD

Hong et al. (2022)

Abstract shows no apparent useful information that might help answer phonetic convergence of Cantonese in terms of tones.

5aSC2. Phonetic entrainment of Cantonese-speaking children with autism spectrum disorder (ASD). Yitian Hong (Dept. of Chinese and Bilingual Studies, The Hong Kong Polytechnic Univ., Hung Hom, Hong Kong, ytian.hong@connect.polyu.hk), Fang Zhou, Si Chen, Angel Wing Shan Chan, Tempo Po Yi Tang, Eunjin Chun, Bei Li, Phoebe Choi, Chakling Ng, Fiona Cheng, and Xinrui Gou (Dept. of Chinese and Bilingual Studies, The Hong Kong Polytechnic Univ., Hung Hom, Hong Kong)

Individuals with Autism Spectrum Disorder (ASD) typically show less engagement in social interactions. Previous studies in verbal communication found that they are less able to entrain the phonetic features to their interlocutors, compared to their Typically Developing (TD) counterparts. In this study, we examined the phonetic adjustment of 15 Cantonese-speaking ASD children (mean age = 8.5 years, range = 6–10.8) and 9 Cantonese-speaking TD children (mean age = 7.9 years, range = 6.4–9.6) when using the designed sentences to answer questions raised by the same experimenter. There are three main findings: (1) ASD children tended to disentrain the minimum f0 from the experimenter while TD children showed consistent minimum f0 through the experiment, possibly because TD children noticed the convergence made by the experimenter; (2) TD children significantly entrained the intensity towards the experimenter, but no entrainment was found in ASD children; and (3) both groups demonstrated an increase of speech rate, catching up with the speech rate of the experimenter. Although children at this age range might not fully acquire entrainment skills, our results suggested that compared to TD children, ASD children started to show atypicality of phonetic adjustment in conversations. This study of Cantonese speakers makes cross-linguistic contribution to the literature of ASD children's language acquisition.

Possible Tasks

Telephone-game type storytelling task

- More controlled, but not quite a shadowing task
- Must be novel stories, to keep participants from reciting Little Red Riding-Hood from memory, for example, and stop paying attention to the storyteller
- Potential speakers:
  - Native vs heritage Cantonese speakers?
  - Mergers vs non-mergers
  - Will need to be careful with language background
  - Quite a few non-mergers in the Cantonese-speaking community
  - May need to do background studies/experiments to sort different speakers into merger vs non-merger groups

DiapixLABLab

- Diapix but have a third picture
- Participant A has Picture A, Participant has Picture B, but they’re actually discussing a Picture C
- Difficulties with finding relevant/usable words
- Might cause more arguments than actual discussion
- Too much lying/gaslighting? Psychology experiments

GeoGuessr

- GeoGuessr is a game where you are placed somewhere in the world and you must guess where you are, based only on what you can get from Google Street View
- Maybe have two participants work together; one has access to a map (but not Street View), and takes notes on what the other finds, the other can only see the Street View and communicates what they can find
- Would it really be that different from a Map task or Diapix task? Does it solve the issues that we've already noted?
    - Probable issues with balance of utterances
    - Can be mitigated/minimalised by having set places with target words being the landmark

Chor (2018)

- Recorded interviews between native Cantonese speakers
- Participants given pictures of different buildings and attractions
- Asked to talk about where they thought the pictures were taken
- Would need to support claims with reasons

Diapix + GeoGuessr

- Place participants in two different locations on a map, and have them find each other
- VR headsets?

The weakest idea of them all

- Taking from database recordings
- Luke, K.K., & Tanaka, H. (2016). Constructing agreements with assessments in Cantonese conversation: From a comparative perspective. *Journal of Pragmatics, 100*, 25–39. https://doi.org/10.1016/j.pragma.2016.01.014
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Terms to consider/consolidate

Phonetic **Adaptation**/
Accommodation/Alignment/Entrainment
/Convergence/Resonance
vs
Perceptual Flexibility/Perceptual
Learning/Phonetic Variation/Global
Adaptation/Phonetic Returning

References

Chor, W. (2018). Sentence final particles as epistemic modulators in Cantonese conversations: A discourse-pragmatic perspective. *Journal of Pragmatics, 129*, 34–47. https://doi.org/10.1016/j.pragma.2018.03.008

Hong, Y., Zhou, F., Chen, S., Chan, W. S. A., Tang, P. Y., Chun, E., Li, B., Choi, P., Ng, C., Cheng, F., & Gou , X. (2021). *Investigation on Phonetic Convergence of Cantonese-speaking Children with ASD. First International Conference on Tone &Intonation (TAI). 06-09 Dec, Sonderborg, Denmark. First International Conference on Tone & Intonation (TAI). 06-09 Dec, Sonderborg, Denmark*.

Lin, Y., Yao, Y., & Luo, J. (2021). Phonetic accommodation of tone: Reversing a tone merger-in-progress via imitation. *Journal of Phonetics, 87*, 101060. https://doi.org/10.1016/j.wocn.2021.101060

Luo, J., Li, V. G., & Mok, P. P. K. (2020). The perception of Cantonese vowel length contrast by Mandarin speakers. *Language and Speech, 63*(3), 635–659. https://doi-org.proxy.lib.sfu.ca/10.1177/0023830919879471

Tsui, R. K.-Y., Tong, X., & Chan, C. S. K. (2019). Impact of language dominance on phonetic transfer in Cantonese–English bilingual language switching. *Applied Psycholinguistics, 40*(1), 29–58. https://doi.org/10.1017/S0142716418000449

Zhang, C. (2018). Online adjustment of phonetic expectation of lexical tones to accommodate speaker variation: a combined behavioural and ERP study. *Language, Cognition and Neuroscience, 33*(2), 175–195. https://doi-org.proxy.lib.sfu.ca/10.1080/23273798.2017.1376752