




Cantonese Phonetic Adaptation

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Task

Escape Simulator

- Two separate rooms that require the other participant's input to proceed
- At some point, they converge into one room perhaps
- More control over the materials than offered in GeoGuessr

Stimuli

Merging Pairs are styled (**T2/T5**, *T3/T6*, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Bou	煲 Pot	簿/寶 Book/Treasure	布/報 Cloth/News			
	Dang	燈 Light		凳 Chair			
	Bun		本 Classifier for books	半 Half			
	Bei		髀 Thigh	臂 Arm			鼻 Nose
	Geoi		舉 Raise	句 Sentence			具 Tool

Stimuli

Merging Pairs are styled (**T2/T5**, *T3/T6*, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Goe			鋸 Saw			
	Dai	低 Low	底 Below, Bottom	帝 <i>King, Emperor</i>			弟 <i>Brother</i>
	Dung	東/冬 East/Winter		凍 <i>Cold</i>			棟 <i>To be stood</i>
	Gwai	龜 Turtle/Tortoise	鬼 Ghost				櫃/跪 Cupboard/Kneel
	Gwan		滾 Boil	棍 <i>Rod</i>			郡 <i>County</i>

Stimuli

Merging Pairs are styled (**T2/T5**, T3/T6, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Seoi		水 Water	歲/碎/稅 Age/Crumble/Tax			
	Jan		忍 Ninja, Withstand	印 Print	人 Human		
	Gun		管 Pipe	冠/罐 Champion/Can			
	Fan	分 Minute	粉 Powder, Noodle	瞋 Sleep			
	Dou	刀 Knife	島/賭/倒 Island/Gamble/Pour				度 Degree

Stimuli

Merging Pairs are styled (**T2/T5**, *T3/T6*, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Fu		虎 Tiger	褲 Trousers, Pants	扶 Hold		
	Ji						二 Two
	Zeoi		嘴, 咀 Mouth	醉/最 Drunk/Most			
	Zi		紙/指/子 Paper/Point/Son				自 Self
	Doi		袋 Bag				

Stimuli

Merging Pairs are styled (**T2/T5**, T3/T6, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Pei		皮 Leather	屁 Fart	皮 Skin	被 Blanket	
	Gaa	家 Home	架/假 Frame/Fake				
	Ling				零 Zero		
	Mei					尾 Tail	
	Min						麵/面 Noodle/Face

Stimuli

Merging Pairs are styled (**T2/T5**, T3/T6, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Paai		牌 Playing Card, Mahjong		排 Rows		
	Deoi		隊 Team	對 Pair			
	Po				婆 Old Lady		
	Sou		掃/數 Broom/To Count	數 Maths			
	Sung			餸 Grocery, Food			

Stimuli

Merging Pairs are styled (**T2/T5**, *T3/T6*, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Mou		帽 Hat		毛 <u>Hair/fe</u> <u>ather</u>	冇 Does not Exist	霧 <u>Fog</u>
	Gei	機 Machine		寄/記 Mail/Note			
	Taai	𠵼 Tie		太 Too		𨋖 Steering Wheel	
	Daai		帶 Belt, String				大 Big
	Waa		畫 Picture	哇 Onomatopoeia			話 Say

Stimuli

Merging Pairs are styled (**T2/T5**, *T3/T6*, T4/T6, **T3/T5**)

		Tones					
		1	2	3	4	5	6
Word Groups	Wun		碗 Bowl				換 Change
	Man				聞 <u>Smell</u>		問 <u>Ask</u>

Limitation in context of tones

- Tonal distinction/difference too obvious/large, would be hard for listener/speaker to confuse tonal pairs with different tone contours and/or levels
 - E.g. T1 and T2 sound too different to be confusable even if both are high tones since T1 is a level tone and T2 is a rising tone.
- Might only be able to work with tone pairs/triplets with similar contours/level that are established to exhibit merging (T2/T5, T3/T6, T4/T6)
 - For now, we have made a list of possible pairs/triplets that we might be able to use for our experiment

Reduced Stimuli Lists

Level Tones (1/3/6)

- pot/news/cloth
- chair/light
- arm/nose
- east/cold
- turtle/cupboard, wardrobe
- printer/diary
- street/ring
- chicken/calculator
- kiss/stone
- colour/food
- wind/phoenix
- bicycle/Santa Claus/bubble waffle
- dish-like container/tofu
- beard/maths

Rising Tones (2/5)

- leather/blanket

How to induce repetition

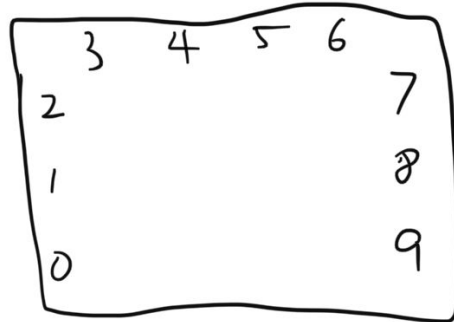
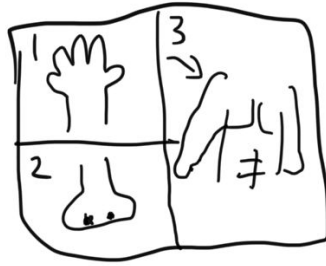
- Split participants into two rooms with information that is only accessible to each participant respectively, and only through collaboration will the puzzle be solved.

How to induce eye-contact

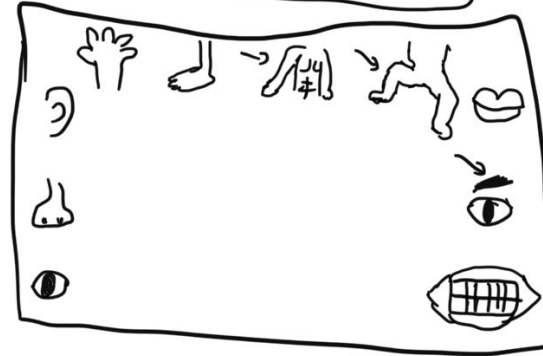
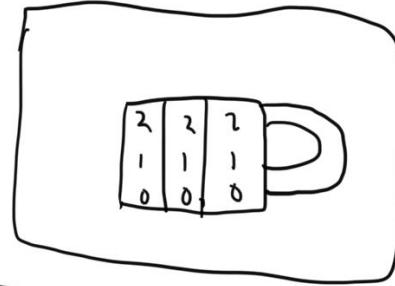
1. Dedicated blocks of time
 - Give participants 30-60 seconds of exploration time, and then 30-60 seconds of discussion time.
 - Afterwards, go back and solve the puzzle.
2. Muted speech/speech-in-noise
 - Force participants to look up from the screen and lip-read
3. Video icons
 - Have video icons on the screen, similar to a Zoom call
 - Induced latency/noise in video call

Task No. 1: Number Room

Person A (Merger)



Person B (Non Merger)









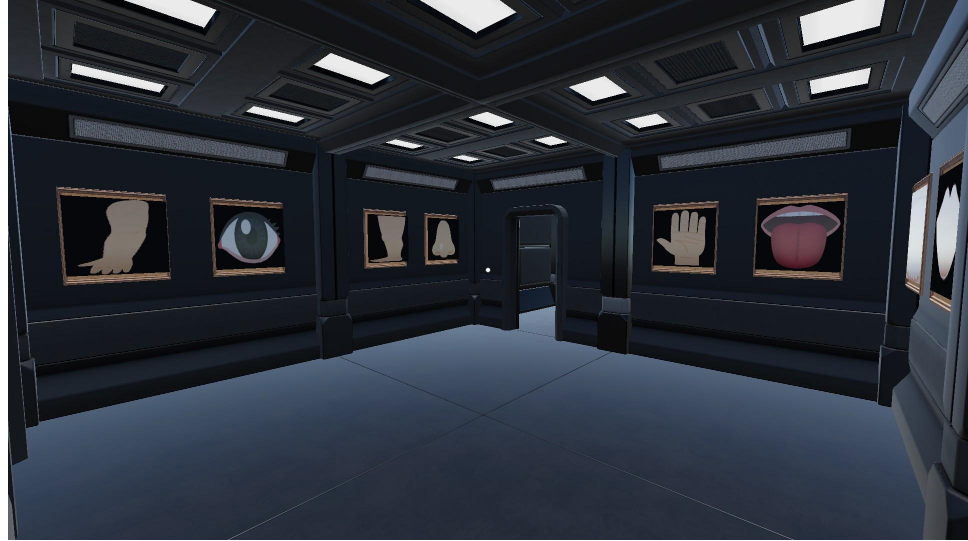
Task No. 2 Matching Room

- Dias and Rosenblum (2011)
- Participants have to match where they place each pair of pictures
- Once all the items match, the door opens
- Use level tones in this type of task



Matching Room

- Dias and Rosenblum (2011)
- Participants have to match where they place each pair of pictures
- Once all the items match, the door opens
- Use level tones in this type of task



Task No. 3 Escape Simulator + Diapix

- Could have participants find differences among the items in their separate rooms (e.g. colour, number of items, etc.)
- Could also include a puzzle aspect



Escape Simulator + Diapix

- Specifying an item's properties

Example Interaction:

你頂帽係唔係用皮做 㗎？

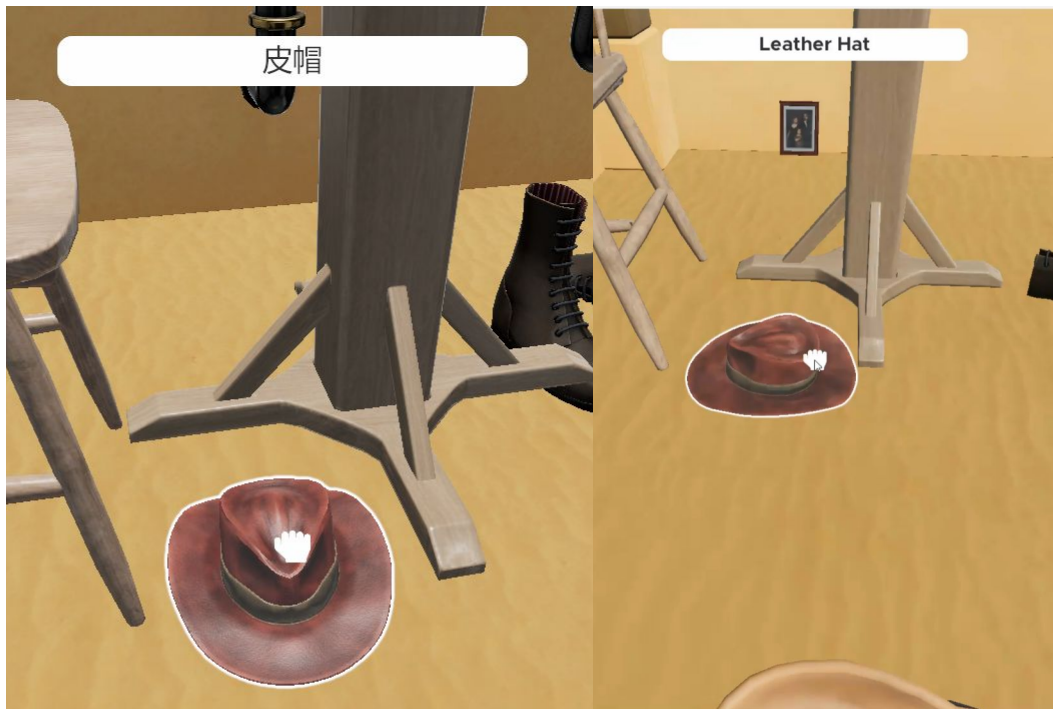
nei5 deng2 mou2 hai6 m4 hai6 jung6
pei2 zou6 gaa3

"Is your hat made of leather?"

唔係㗎，係藍色 㗎㗎。

m4 hai6 wo3, hai6 laam4 sik1 gaa3 wo3

"No, it's blue."



Escape Simulator + Diapix

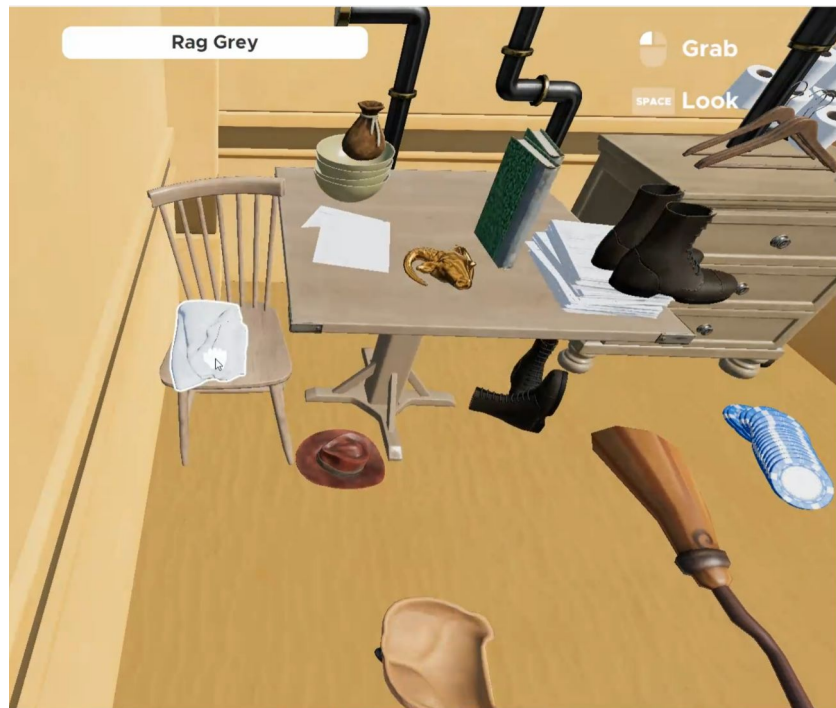
- Using spatial relations to elicit multiple target stimuli

Example Interaction:

張被喺張凳上面,頂帽喺張枱下面。

zoeng1 pei5 hai2 zoeng1 dang3 soeng6
min6, deng2 mou2 hai2 zoeng1 toi2
haa6 min6

“The blanket is on top of the chair, the
hat is under the table.”



Escape Simulator + Diapix

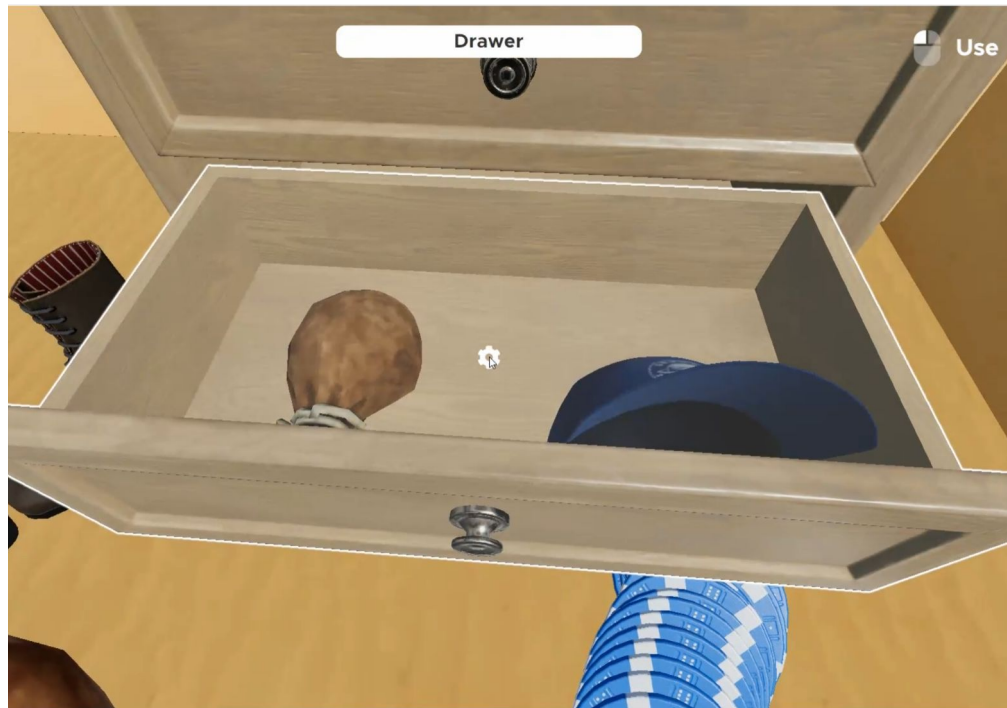
- Hiding things inside a drawer, again to elicit multiple target stimuli

Example Interaction:

個櫃桶入面有一袋嘢同一頂帽。

go3 gwai6 tung2 jap6 min6 jau5 jat1
doi6 je5 tung4 jat1 deng2 mou2

“Inside the drawer, there is a bag of things and a hat.”



Escape Simulator + Diapix

- Hiding items under other items, once again to elicit target stimuli

Example Interaction:

個櫃桶入面得一條牛仔褲咋喎。

go3 gwai6 tung2 jap6 min6 dak1 jat1 tiu4 ngau4 zai2
fu3 zaa3 wo3

"Inside the top drawer there is only a pair of jeans."

你肯定？

nei2 hang2 ding6

"Are you sure?"



Escape Simulator + Diapix

- Showing the discovered item

Example Interaction:

哦，條牛仔褲下面我搵到把一鋸喎。

o3, tiu4 ngau4 zai2 fu3 haa6 min6 ngo5 wan2
dou2 jat1 baa2 goe3 wo3

"Oh! Under the pair of pants I found a saw!"

噃，我反而搵到一張紙喎。

ji2, ngo5 faan2 ji4 wan2 dou2 jat1 zoeng1 zi2 wo3

"Oh? I found a sheet of paper instead!"



Escape Simulator + Diapix

Note the boots/shoes!

Example Interaction:

你個度有幾多對靴啊？

nei5 go2 dou6 jau5 gei2 do1 deoi3 hoe1 aa3

“How many pairs of boots do you have over there?”



Escape Simulator + Diapix

- Wheel deliberately leaned against the wall

Example Interaction:

呢度有個軚盤棟左喺度㗎。

ngo5 nei1 dou6 jau5 go3 taai5 pun4 dung6 zo2 hai2 dou6 wo3

"There is a steering wheel standing up here."

邊度啊?

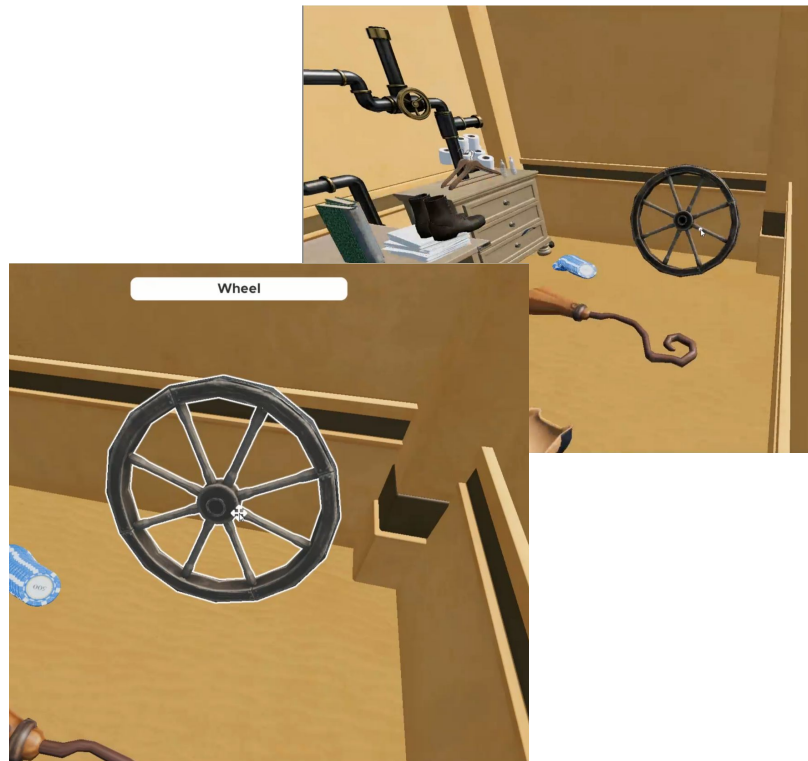
bin1 dou6 aa3

"Where?"

憑咗喺墜牆度囉。

bang6 zo2 hai2 bung6 coeng4 dou6 lo1

"It's leaned up against the wall!"



Escape Simulator + Diapix

To create repetitions, find a number of items with at least one syllable that sound similar (differed by tones) and present them to the lock to complete the task.

Room 1 has

- Pot [bou1]
- Chair [dang 3]
- Leather [pei2]
- Turtle [wu1 **gwai1**]
- Printer [jing2 jan3 **gei1**]
- Street [**gai1**]

Room 2 has

- Cloth [bou3]
- Light [dang1]
- Blanket [pei5]
- cupboard, wardrobe [ji1 **gwai6**]
- Diary [jat6 **gei3**]
- Ring [**gai3** zi2]

Possible Problems

- Participants might be able to bootstrap info through classifier instead of purely through tone
 - Possible solution: Ask participants to only use the universal classifier 個, but would sound unnatural
- How would merger vs merger speakers accommodate each other if they have the same merged pairs?
- Task length, and thus sufficient number of target repetitions
- Regarding repetition of stimuli - would participants catch on with only 6 tones to work with?
- How do we get enough repetition of a tone to induce accommodation without it being too obvious for the participants to catch on and over-/under-correct themselves?