

# Bias in Mandarin polar questions: An acceptability judgment study

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# Bias in polar questions

- (1) a. Is Jane coming? Positive PQ  
b. Is Jane **not** coming? Negative PQ: Low  
c. Isn't Jane coming? Negative PQ: High

Outer reading: Isn't Jane coming **too**?

Inner reading: Isn't Jane coming **either**?

cf. Jane 不是也要來嗎?

Jane 也不來嗎?

(2)  $[[PQ]] = \{\text{that Jane is coming, that Jane is not coming}\}$

- While (1)a-c ask about the same thing -- whether or not Jane is coming, as in (2) -- their use conditions are different.
- The truth-conditional semantics for polar questions cannot account for the use conditions of PQs (see Bolinger 1978; Ladd 1981; Gunlogson 2003; Romero and Han 2004; a.o.).

# Defining bias

- What's bias?  
"differing inferences about the speaker's mental attitude towards the question and its prospective answers" (AnderBois 2019:118)
- Factors: adverbs, minimizers, negations, particles, prosody, context, pragmatics...
- Assumption: Biases are not derived from a single source.

**Do biased PQs which appear to utilize a similar strategy form a natural class?**

嗎、吧、不是、是不是

# Decomposing bias

- Ingredients of bias
  - Two kinds of evidence – one based on **speaker belief (SB)** and the other on **contextual evidence (CE)** (Büring and Gunlogson 2000; Sudo 2013)
    - SB: speaker's private belief as well as common knowledge prior to conv. time
    - CE: "evidence that has just become mutually available to the participants in the current discourse situation" (B & G 2000:7)
  - Question intent (or concern):
    - "what exactly the speaker wishes to achieve by asking the question" (Repp & Geist, to appear)
    - "which of the two cells the speaker is interested in pursuing a conversation about" (Romero and Han 2004:642)

# Biased PQs in English: Conditions

Based on R&H(2004)		Bias condition	Example
<b>PosPQ</b>		CE: p or absent	Is Jane coming?
<b>HiNegPQ</b>	Outer	SB: p CE: $\neg$ p or absent	Isn't Jane coming?
	Inner	SB: p CE: $\neg$ p	
<b>LNegPQ</b>		CE: $\neg$ p	Is Jane not coming?

## Debates:

- Inner HiNegQ readings are not felicitous for all native speakers (Hartung 2007; Sailor 2013), and some authors argue that HiNegPQs are not ambiguous (AnderBois 2019; Goodhue 2022 ms.).
- Other proposals for the condition of outer HiNegPQs: conflicting evidence (Northrup 2014) or no evidential condition but general pragmatic reasoning (Goodhue 2022 ms.).

# Research questions

- To explore the use conditions of 4 types of PQs in Mandarin
  - *ma* PQs
  - *ba* PQs
  - *bu-shi...ma* PQs
  - *shi-bu-shi* PQs
- To compare among the PQs:
  - what form-function combination constitutes a unique PQ type?
    - the null hypothesis: ***ma* PQs, *ba* PQs, *shi* PQs**
    - differences between them?
- To compare between Mandarin and English PQs
- We conduct two acceptability experiments to identify the bias profile of each type of PQs.

# The introspective intuitions in the literature

	<i>p ma</i>	not- <i>p ma</i>	<i>p ba</i>	<i>shi p ma; bushi p ma</i>
<b>Chao 1968</b>	slight doubt about an affirmative answer	rhetorical questions	doubtful posed statements	--
<b>Li &amp; Thompson 1979, 1981, 1984</b>	neutral or non-neutral/biased contexts	--	solicit agreement (1981, p.307)	--
<b>Tang 1981, 1984</b>	open questions	conflict evidence; speaker has an assumption	higher expectation towards <i>p</i> (1981, p.223)	speaker has an assumption; focus

## Recent focal studies: *ma* PQs

- Yuan and Hara (2021 ms.): *ma* PQs are purely conditioned by CE, without involving the speaker's bias.

	Neutral contexts	Contexts biased towards p	Contexts biased towards $\neg p$
positive MAQs	✓	✓	#
negative MAQs	#	#	✓

- 下雨了嗎? 我猜下雨了\我不覺得\我完全不清楚。
- Yuan and Hara analyze *ma* as a question force head. Semantically, it takes in a proposition, and then puts the set containing this proposition and its negation onto the top of the Table.



## Recent focal studies: *ba* PQs

- *ba* in declaratives: uncertainty or low commitment on the part of the speaker (Han 1995; Chu 1998; Ettinger and Malamud 2015; Kendrick 2018)
- *ba* in interrogatives: solicits a response or confirmation from the hearer (cf. Li and Thompson 1981)
- Ettinger and Malamud (2015): “*ba* transfers the authority for the conversational move represented by the anchor away from the speaker” (p.237)
- No examination of the use condition except for Yuan and Li (2019):
  - *ba* is always chosen over *ma* when the speaker has a positive bias.
  - The acceptance of *ba* in negative CE is comparatively lower than in neutral and positive CE.

## Recent focal studies: *shi-bu-shi* PQs

- Ye (2021) shows that *shi-bu-shi* PQs carry an epistemic conjecture about *p* but “the epistemic bias is **not a prior belief**” (p.357):

Biased context: Zhangsan is curious about Lisi's research interests. In the library, he finds that Lisi is borrowing some books on pragmatics.

Q: *ni shi-bu-shi xihuan yuyongxue?* A: *dui/meicuol/shide/#xihuan*  
you SHI-not-SHI like pragmatics right/#like

‘Is it pragmatics that you like?’ ‘Yes, you are right./#Yes, I do.’

- Ye didn't examine contexts with conflicting evidence.
  - *bu-shi p ma*: 接受的資訊與自己的認知狀態有偏差(殷树林 2011)
- 陶煉(1998): 是不是問句可以帶著主觀推斷的含意
- 方梅(2003): 把已有知識拉到當前言談狀態 (cf. 蔡宜妮 2017)
- 邵敬敏、朱彥(2002): 建立在某種已知事實或已有觀點基礎上[...]表示肯定性傾向

# Hypothesis for Mandarin PQs

		Bias condition	English	Mandarin
PosPQ		CE: p or absent	Is Jane coming?	Jane要來嗎?
HNegPQ	Outer	SB: p CE: $\neg$ p or absent	Isn't Jane coming?	Jane不是要來嗎?
	Inner	SB: p CE: $\neg$ p		Jane不要來嗎?
LNegPQ		CE: $\neg$ p	Is Jane not coming?	
		? spkr commitment		Jane要來吧?
		? spkr conjecture		Jane是不是要來?

# Experiment 1: Design

- 8 types of PQs

有很早的班次嗎? / 有很早的班次吧? / 不是有很早的班次嗎? / 是不是有很早的班次?  $p$   
沒有很早的班次嗎? / 沒有很早的班次吧? / 不是沒有很早的班次嗎? / 是不是沒有很早的班次? **not- $p$**

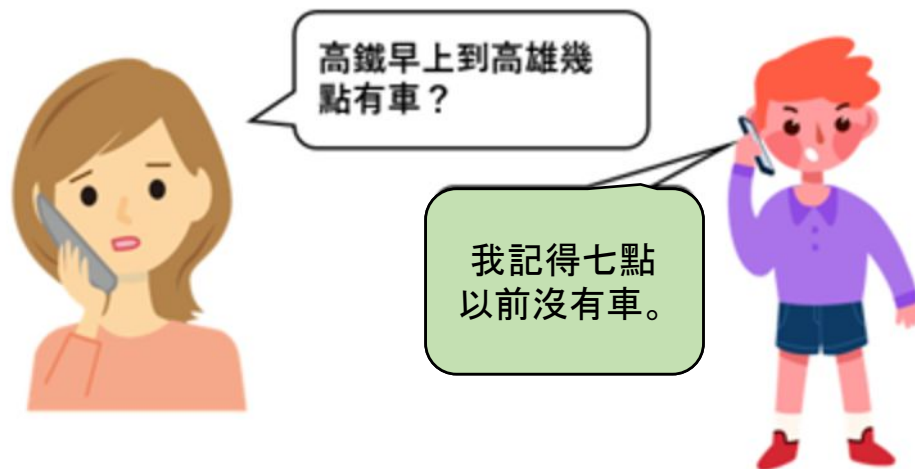
- 9 contexts: 2 variables (SB & CE), each with 3 levels (NEUT, POS, NEG) (modelling Domaneschi et al. 2017)

1. 你住在台北，明天一大早要到高雄出差，但是你不知道從台北出發的高鐵有沒有很早的班次…



圖片來源：<https://i.pinimg.com/564x/91/39/92/9139927655A59819F8837655939A176498B9A6A7C9A8D9A8F8F8A8A811>

2. 你想起你哥有搭過早上的高鐵，於是你打電話給他…



圖片來源：<https://i.pinimg.com/736x/41/86/52/418652657655A59819F8837655939A176498B9A6A7C9A8D9A8F8F8A8A811>

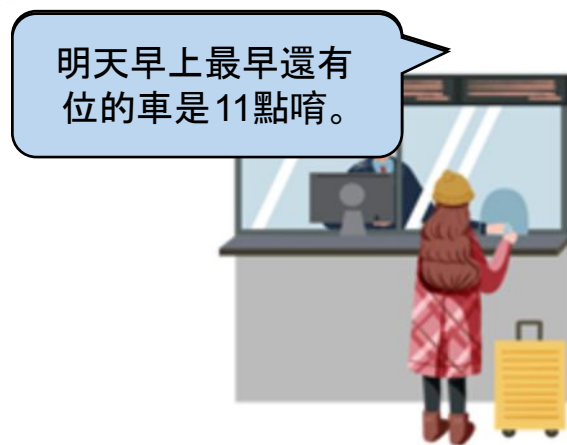
圖片來源：<https://i.pinimg.com/736x/41/86/52/418652657655A59819F8837655939A176498B9A6A7C9A8D9A8F8F8A8A811>

3. 你決定直接去高鐵站詢問…



圖片來源：<https://i.pinimg.com/736x/41/86/52/418652657655A59819F8837655939A176498B9A6A7C9A8D9A8F8F8A8A811>

- 4.



- 5.



# Experiment 1: Design

- Example

Context: negative SB + negative CE

請問你認為在這樣的情境下，黃色對話框問「**有很早的班次嗎?**」是否合適?

合適 / 不合適

請簡要說明你為什麼覺得這個問句「合適」或「不合適」: \_\_\_\_\_

請提供你自己會使用在這個情境的問句: \_\_\_\_\_ (optional)

有很早的班次嗎? / 有很早的班次吧? / 不是有很早的班次嗎? / 是不是有很早的班次?

***p***

沒有很早的班次嗎? / 沒有很早的班次吧? / 不是沒有很早的班次嗎? / 是不是沒有很早的班次? **not-p**

- Each PQ was judged by 30 native speakers (20-30y; balanced sex ratio); 90 participants in total; recruited online anonymously.

# Experiment 1: Results

Link to the numbers and statistical results modelled with logistic regression

*p/not-p ma*:

- CE significantly influences the use of *ma* PQs.
  - Positive and negative CE reduce the use of *p ma*, while neutral CE increases it.
    - Why does positive CE reduce the use of *p ma*?
  - Positive and negative CE increase the use of *not-p ma*, while neutral CE reduces it.
    - Why does positive CE increase the use of *not-p ma*?
- SB is in general not significant.

## ma PQs

- Why does positive CE reduce the use of *p ma* (有很早的班次嗎)?

Comments for **the infelicity of *p ma***: (i) alternative phrase; (ii) *p* is entailed.

	Positive SB	Neutral SB	Negative SB
Positive CE	<ul style="list-style-type: none"><li>「更早」較好 38%</li><li>6 am. 已經很早 29%</li></ul>	<ul style="list-style-type: none"><li>「更早」較好 60%</li><li>6am. 已經很早 23%</li></ul>	<ul style="list-style-type: none"><li>「更早」較好 44%</li><li>6am. 已經很早 37%</li></ul>

- Why does positive CE increase the use of not-*p ma* (沒有很早的班次嗎)?
  - Comments for **the felicity of not-*p ma*** indicate that 很早 means 更早.

	positive SB	neutral SB	negative SB
Positive CE	很早 = 更早 86 %	很早 = 更早 92 %	很早 = 更早 71 %

- Saying「六點有車」implies that no earlier trains before 6 am., so positive CE is reinterpreted as negative.



# Experiment 1: Results

*p/not-p ba:*

- Positive SB increases the use of *p ba* and reduces the use of not-*p ba*.
- Positive and negative CE reduce the use of *p ba*.
  - Why does positive CE reduce the use of *p ba*?
- Neutral contexts significantly reduce the use of not-*p ba*.
- *ba* PQs are mostly accepted in completely neutral contexts. Why?

## *ba* PQs

- Why does positive CE reduce the use of *p ba* (有很早的班次吧)?

	Positive SB	Neutral SB	Negative SB
Positive CE	<ul style="list-style-type: none"><li>• 已得到答案 44%</li><li>• 「更早」39%</li><li>• 語氣不適合 17%</li></ul>	<ul style="list-style-type: none"><li>• 已得到答案 48%</li><li>• 「更早」45%</li></ul>	<ul style="list-style-type: none"><li>• 已得到答案 62%</li><li>• 「更早」13%</li></ul>
Negative CE	<ul style="list-style-type: none"><li>• 「更早」53%</li><li>• 已得到答案 27%</li><li>• 語氣不適合 13%</li></ul>	<ul style="list-style-type: none"><li>• 語氣不適合 48%</li><li>• 已得到答案 19%</li><li>• 「更早」14%</li></ul>	<ul style="list-style-type: none"><li>• 已得到答案 65%</li><li>• 語氣不適合 15%</li></ul>

- *Ba* PQs are mostly accepted in neutral contexts.
  - Speaker may import their own assumption or common knowledge.
  - Yet this effect is not seen with the other PQs, suggesting that *ba* is epistemic.

# Experiment 1: Results

*BS p/not-p ma:*

- Positive SB increases the use of *BS p ma*.
- Positive and negative CE increase the use of *BS p ma*, while neutral CE reduces it.
  - But *BS p ma* usually requires negative CE. Why does positive CE increase the use of *BS p ma*?
- *BS p ma* is best accepted in the context of positive SB and negative CE, but also accepted in the context of negative SB and negative CE.
- *BS not-p ma* is best accepted in the context of negative SB and positive CE.

## BS PQs

- Why does positive CE increase the use of *BS p ma* (不是有很早的班次嗎) ?
  - Comments for the felicity of *BS p ma* show that 很早 means 更早.

	Positive SB	Neutral SB	Negative SB
很早＝更早	93%	93%	60%

- Saying「六點有車」implies that no earlier trains before 6 am., hence negative CE.
- Why is *BS p ma* accepted in negative SB & negative CE?
  - Recall: negative SB = 七點前沒車, and negative CE = 最早的車是十點
    - Most comments (52%) suggest that this context is reinterpreted as **POS SB** (there are trains between 7 and 10 am.) & NEG CE.
  - A matter of common sense: normally, there are trains before 10 am.

# Experiment 1: Results

## *SBS $p$ /not- $p$ :*

- Positive and negative CE significantly reduce the use of *SBS  $p$* , while NEUT CE increases it.
  - Why does positive CE reduce the use of *SBS  $p$* ?
- Negative CE increases the use of *SBS not- $p$* , while positive CE reduces it.
- *SBS  $p$*  is best accepted in the context of positive SB and neutral CE.
- *SBS not- $p$*  is best accepted in the context of neutral SB and negative CE.

## SBS PQs

- Why does positive CE reduce the use of *SBS p* (是不是有很早的班次) ?

Comments for the infelicity of *SBS p*: (i) alternative phrase; (ii) *p* is entailed.

positive SB	neutral SB	negative SB
<ul style="list-style-type: none"><li>• 「更早」53%</li><li>• 已得到答案 32%</li></ul>	<ul style="list-style-type: none"><li>• 已得到答案 53%</li><li>• 「更早」47%</li></ul>	<ul style="list-style-type: none"><li>• 已得到答案 75%</li><li>• 「更早」25%</li></ul>

# Experiment 1: Discussion

- General principles on all PQs:
    - Positive PQs (*p ma*, *p ba*, *SBS p*) are infelicitous due to an entailment of *p/not-p*, whereas negative PQs (*not-p ma*, *not-p ba*, *BS p ma*) force a re-interpretation of context.
      - Positive and negative forms are conditioned differently.
  - However, each type of PQs has a different bias profile:
    - *ma*: CE only
    - *ba*: speaker's attitude
    - *BS*: conflicting evidence
    - *SBS*: Both SB and CE seem relevant.
- When an answer to PQs is entailed, there'd no need to ask the PQs.
  - The interpretive flexibility of degree adjectives interferes.
  - No fillers; not randomized

# Pragmatic utility

- Van Rooy and Šafářová (2003): Pragmatic utility -- the information value of a proposition (i.e., the likelihood of some proposition being true) -- explains biases in PQs.

## **Type 1: The conversation goals of the speaker**

**After learning  $q$ , it is more likely that one reaches a desirable world than when its negation is true.**

- pleas or requests: *Can you help me carry these boxes?*
- invitation: *Do you want something to drink?*
- conversation starters: *Do you like to play golf?*

## **Type 2: Informativity**

The information value of  $q$  being higher than the information value of its negation.

**Information is more useful if it would trigger a major revision of the previous belief state.**

- negative PQs
- *Is it raining?*



**Experiment 1:** an exploration of the bias profile

- The contexts are centered around a conversational goal
- positive goal

,

**Experiment 2:** a follow-up

- most contexts on informativity
  - controlling for positive vs. negative conversational goal in *ma* PQs
- also controlling for:
  - authority effect in *ba* PQs
  - contradiction vs. non-contradiction contexts for *BS* PQs
  - positive and neutral SB/CE for *SBS* PQs

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	



## Experiment 2: Design

		p ma	not-p ma	p ba	not-p ba	BS p ma	SBS p
1 neu SB, neu CE	goal: $p$	x	x	x			x
	goal: not- $p$	x	x				
2 neu SB, pos CE		x	x	x			x
3 neu SB, neg CE		x	x	x			
4 pos SB, neu CE	neutral	x	x	x		x	x
	suggestion					x	x
5 pos SB, pos CE		x	x	x		x	x
6 pos SB, neg CE	no authority	x	x	x	x	x	x
	authority: A			x	x	x	
	authority: S			x	x	x	
7 neg SB, neu CE		x	x	x			x
8 neg SB, pos CE		x	x	x			x
9 neg SB, neg CE		x	x	x		x	

## Experiment 2: Design

- 6 types of PQs
- 13 contexts:
  - 9 context: 2 variables (CE & SB), each with 3 levels (NEG, NEUT, POS)
  - Context 1 (NEUT & NEUT): **positive vs. negative goal**
  - Context 4 (pos SB & **neu CE**): purely neutral vs. absence of negative CE (**suggestion**)
  - Context 6 (pos SB & neg CE): A: no authority issue / B: addressee / **C: speaker**
- Each type of context is exemplified by three scenarios.
- Each PQ was judged by 15 native speakers (20-30y); 90 participants in total; recruited online anonymously.

[Link](#) to the full questionnaire.

你印象中張三喜歡小狗，因為他常在臉書上分享小狗的圖片。今天你們一群人出去玩，路上有人牽著一隻狗經過，張三立刻彈開，你跟旁邊的朋友說：「\_\_\_\_\_」

請考慮以下幾個問句使用在此情境中的合適度。

張三不是喜歡狗嗎？

\*

- ☐ 非常合適
- ☐ 合適
- ☐ 不合適
- ☐ 非常不合適
- ☐ 無法判斷

您覺得無法判斷的原因是？（選擇「無法判斷」者必填此欄）

簡答文字

.....

# Results: *p ma* vs. not-*p ma* (1)

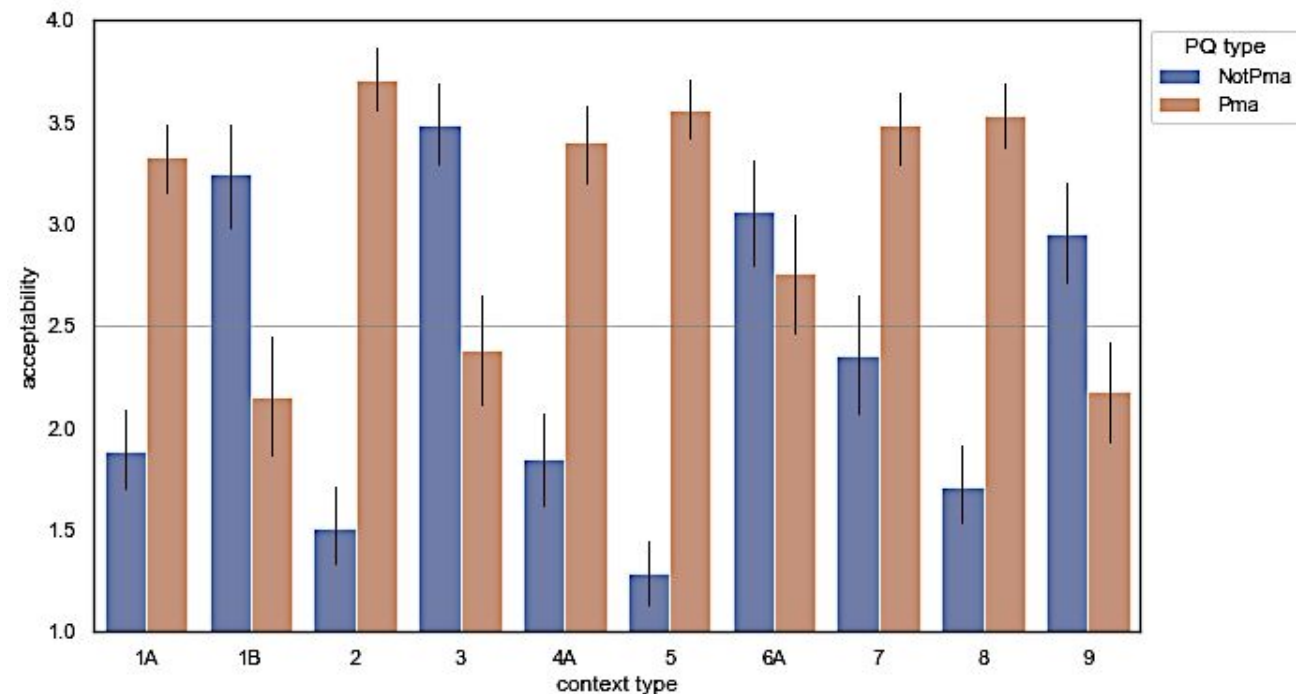
- Except **context 6A**, *p ma* and not-*p ma* are in complementary distribution.

[Link](#) to the comparison plots of results and the details of T-test for significant difference

你印象中張三喜歡閱讀各種書籍，包括文學類。  
今天你們一群同學去圖書館，你發現張三借了各類的書籍，但沒有借任何文學的書，你好奇問身邊的同學：

張三喜歡文學嗎？ 2.7      goal (out of curiosity?)

張三不喜歡文學嗎？ 2.5      informativity



## Results: *p ma* vs. *not-p ma* (2)

- SB plays no role in *p ma*.
  - 4, 5: positive SB vs. 7, 8: negative SB

你聽說張三是社會組，不愛數理科目。今天你們一群同學去圖書館，你發現他借了很多數學的書，你問旁邊的同學：

張三喜歡數學嗎？ 3.3

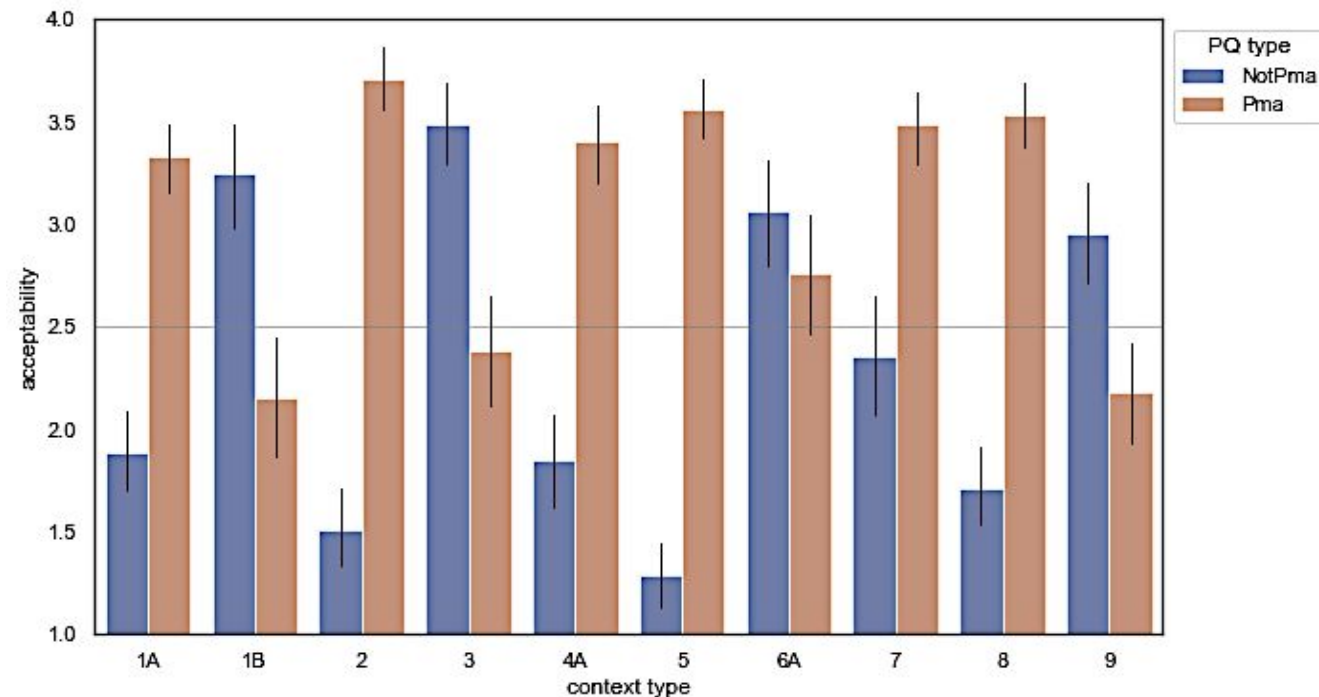
#張三不喜歡數學嗎？ 1.7

- Conversation goal influences *ma* PQs: 1A vs. 1B

你走在路上，抬頭看到牆壁上的廣告看板：「\_\_\_\_\_，試試我們的團體心理治療。」

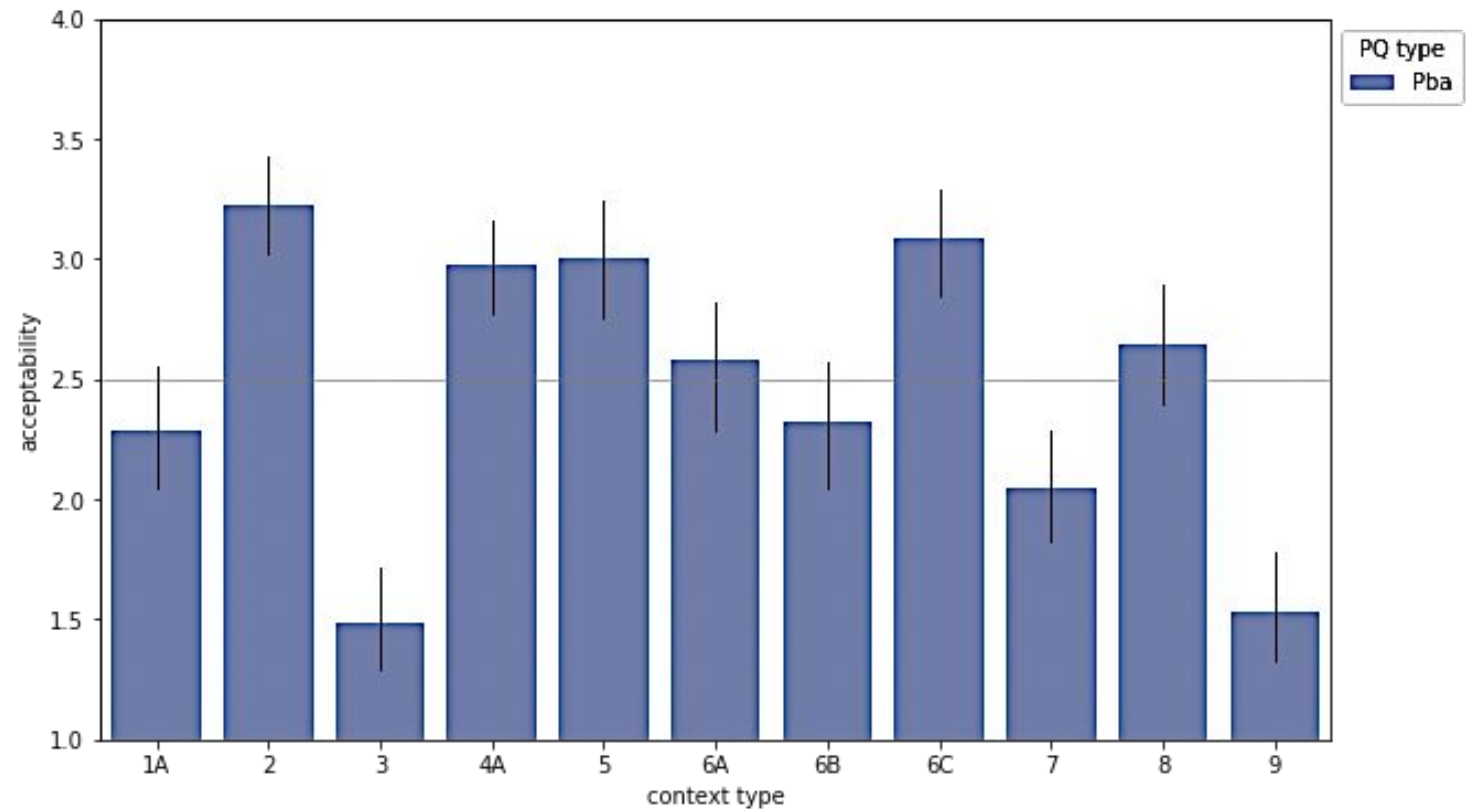
#你的小孩注意力充足嗎？ 2.0

你的小孩注意力不足嗎？ 3.7



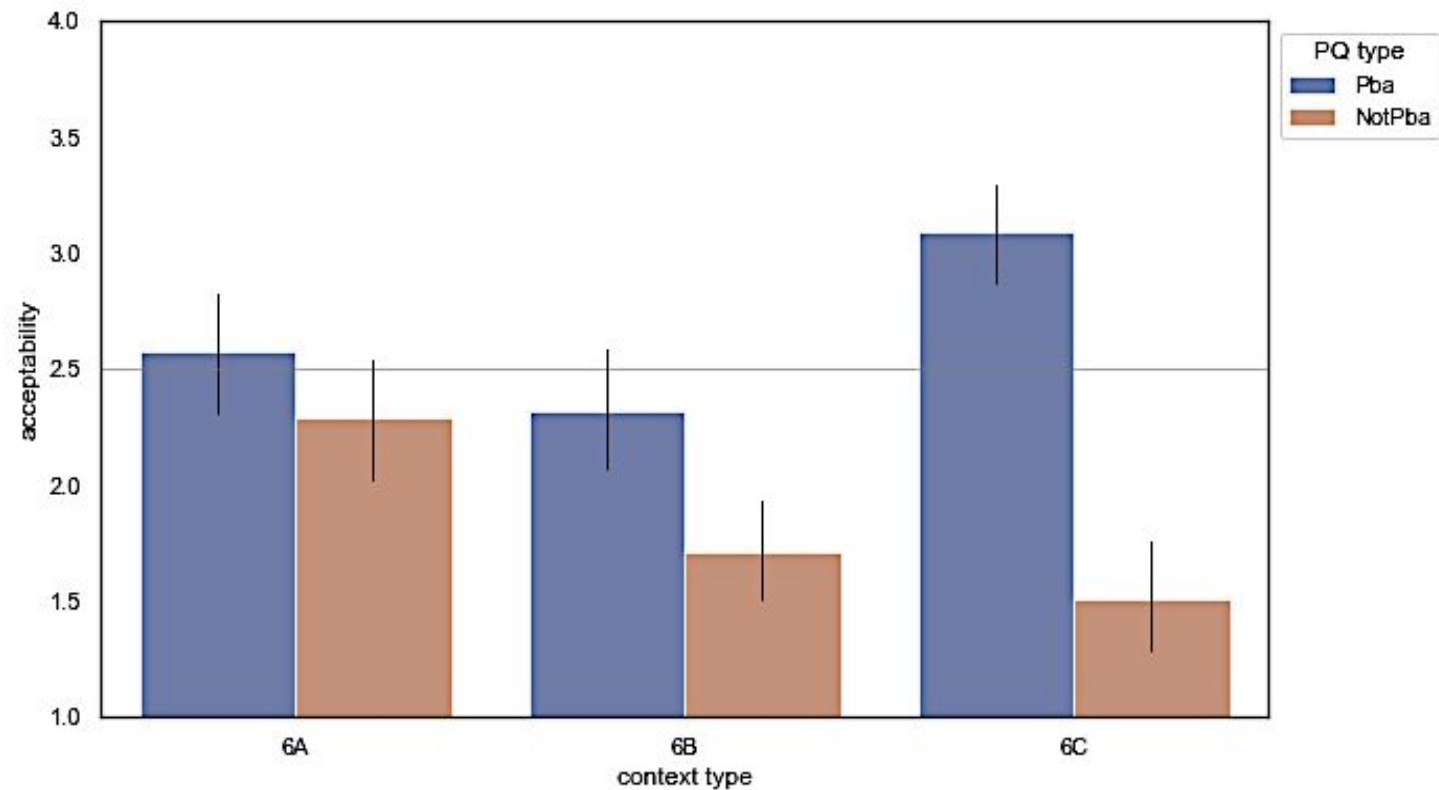
# Results: *p ba*

- *p ba* is good as long as there's a positive SB or CE: 2, 4, 5, 6C, 8
  - Both SB and CE matter.
- 6A, 6B and 8 have a lower rate. They're contradiction scenarios.
  - 6: positive SB & negative CE
  - 8: negative SB & positive CE
- *P ba* is better accepted in 6C than 6A & 6B, where the speaker is the authority.



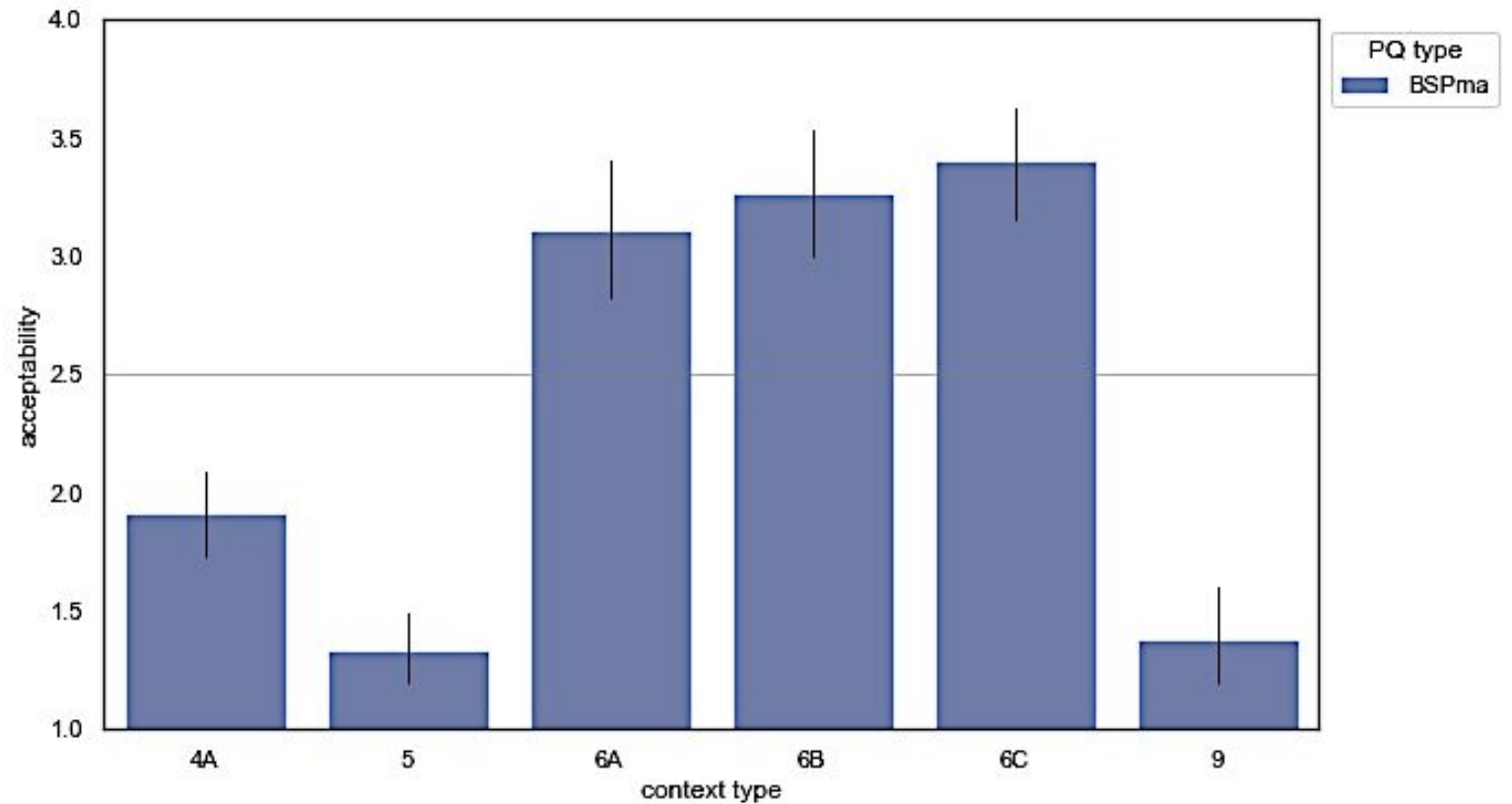
## Results: $p$ *ba* vs. not- $p$ *ba*

- Not- $p$  *ba* is in general not accepted in three sub-contexts of 6 (pos SB, neg CE).
- There is significant difference between 6A (no authority difference) vs. 6B&C.
  - In 6A, speaker may change their belief from  $p$  to not- $p$ , and check not- $p$  with the addressee.



## Results: *BS p ma* (1)

- *BS p ma* is significantly accepted in contradiction scenarios.
  - **A high negation PQ!**





## Results: *BS p ma* (2)

- Compare two sub-contexts of 4 (**positive SB, neutral CE**): *BS p ma* is only accepted in 4B.
  - High negation PQs require conflicting evidence (supporting Northup 2014).

### 4A: purely neutral CE

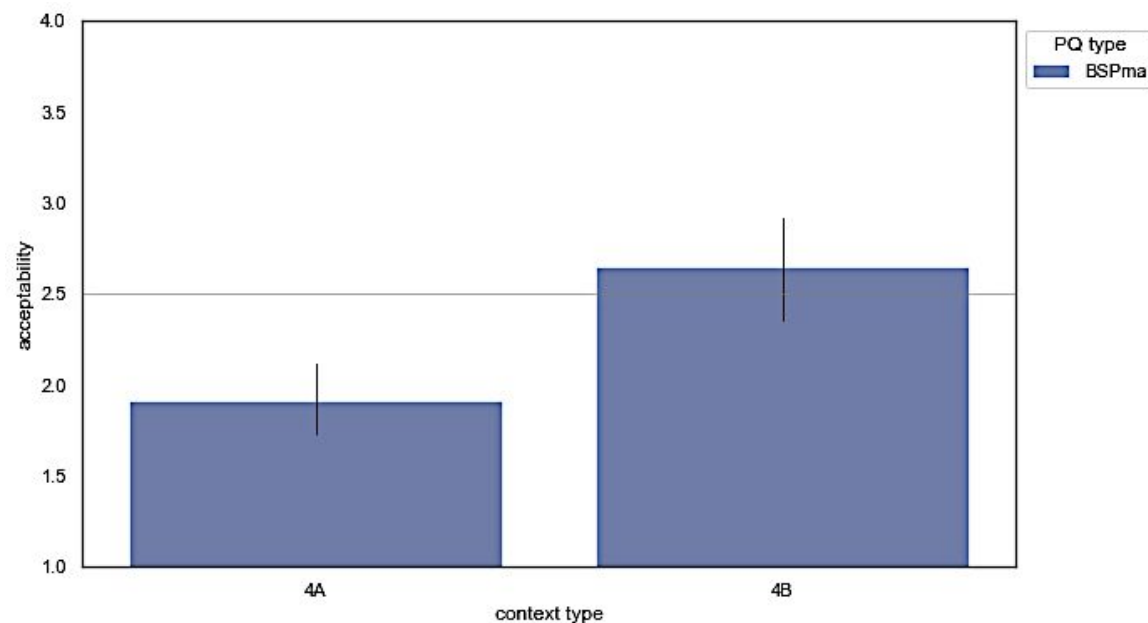
一個朋友跟你聊上週末去張三家開派對的情況。你不知道還有誰去，只知道李四是張三的好朋友，猜想他應該有受邀，所以你問你的朋友：

#李四不是有去嗎？ 1.7

### 4B: absence of negative CE / suggestion

你們在討論一篇文章要請誰來審查。主編說：「我想要找比較有經驗的審查人。」。你剛好知道幾位有經驗的審查人，你建議：「\_\_\_\_\_，他會是不錯的人選。」

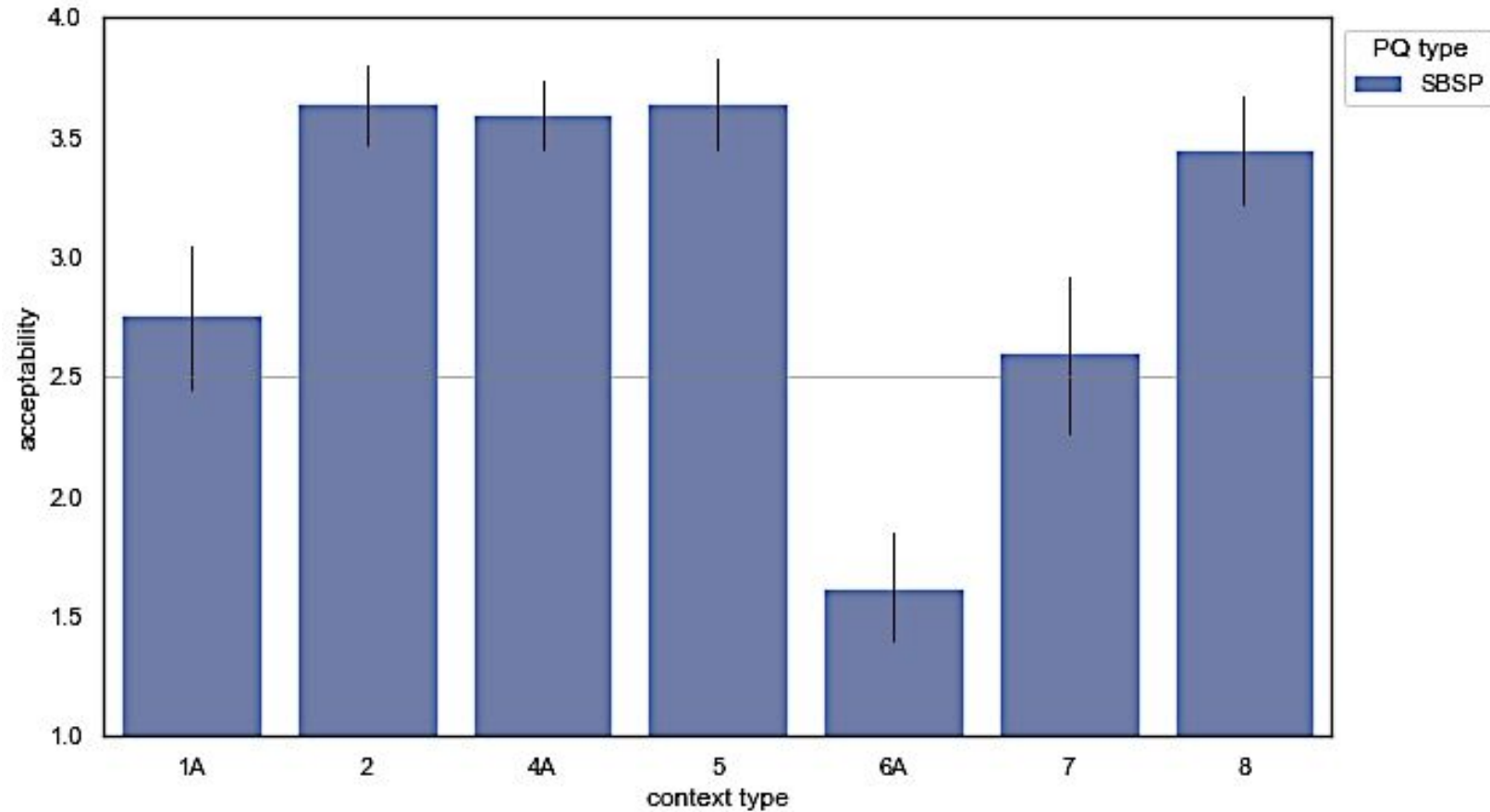
王院士不是幫我們審查過文章嗎？ 3.1



## Results: *SBS p*

- SBS p is accepted as long as there is positive SB or CE: 2, 4, 5, 8, **except for 6 (pos SB & neg CE)**.

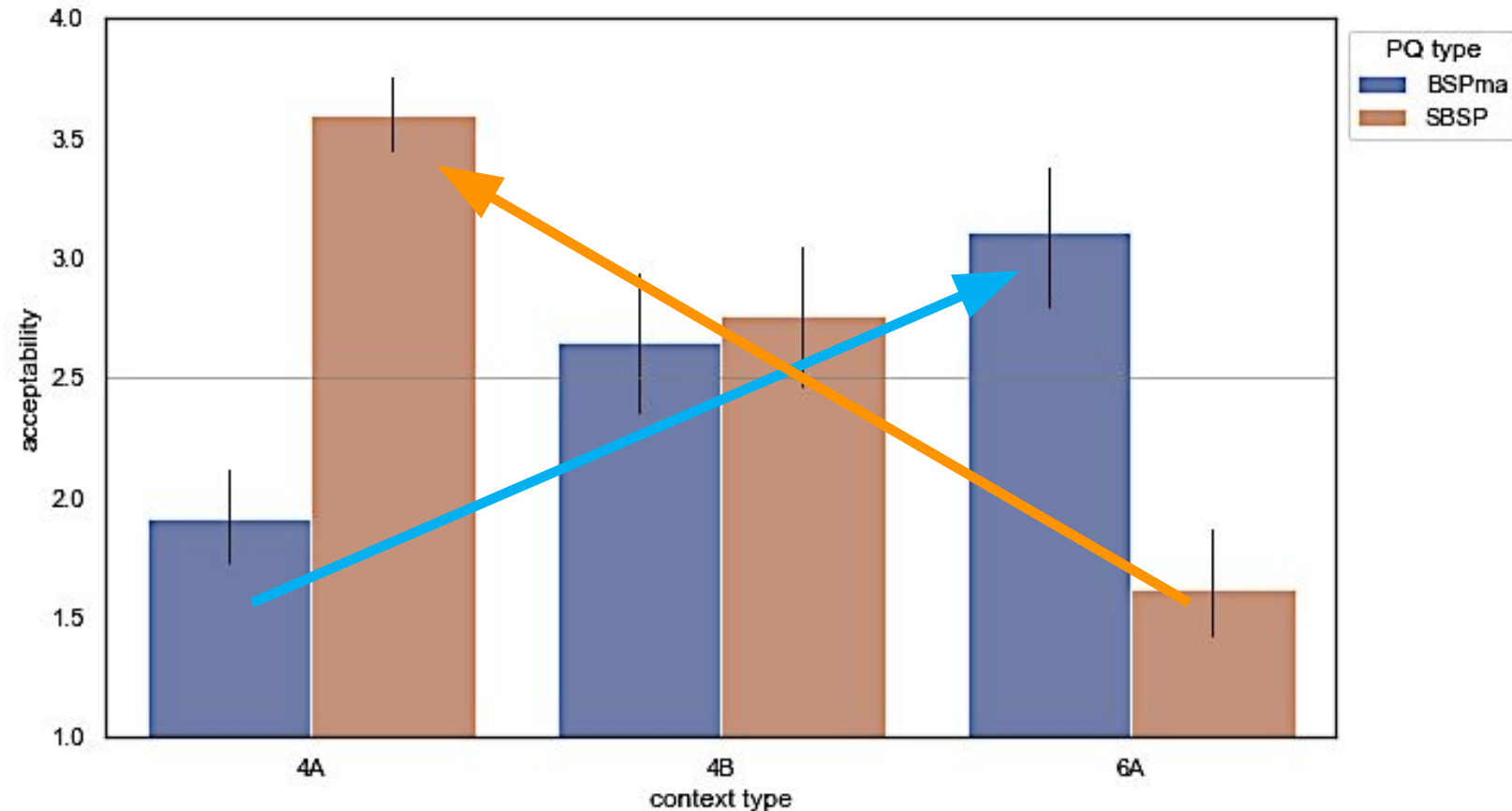
Why?



## Results: *SBS p* vs. *BS p ma*

- Compare 6 with 4
  - 6: pos SB & **negative CE**
  - 4B: pos SB & **absence of neg CE**
  - 4A: pos SB & **purely neutral CE**

*SBS p* competes with *BS p ma*!



#### 4. Positive SB, Neutral CE

##### A: purely neutral CE

一個朋友跟你聊上週末去張三家開派對的情況。  
你不知道還有誰去，只知道李四是張三的好朋友  
，猜想他應該有受邀，所以你問你的朋友：

#李四不是有去嗎？ 1.7

李四**是不是**有去？ 3.5

#### 6. Positive SB, Negative CE

你印象中張三喜歡小狗，因為他常在臉書上分享小狗的圖片。今天你們一群人出去玩，路上有人牽著一隻狗經過，張三立刻彈開，你跟旁邊的朋友說：

張三**不是**喜歡狗嗎？ 3.7

#張三是不是喜歡狗？ 1.5

# Results: *SBS p* vs. *p ba*

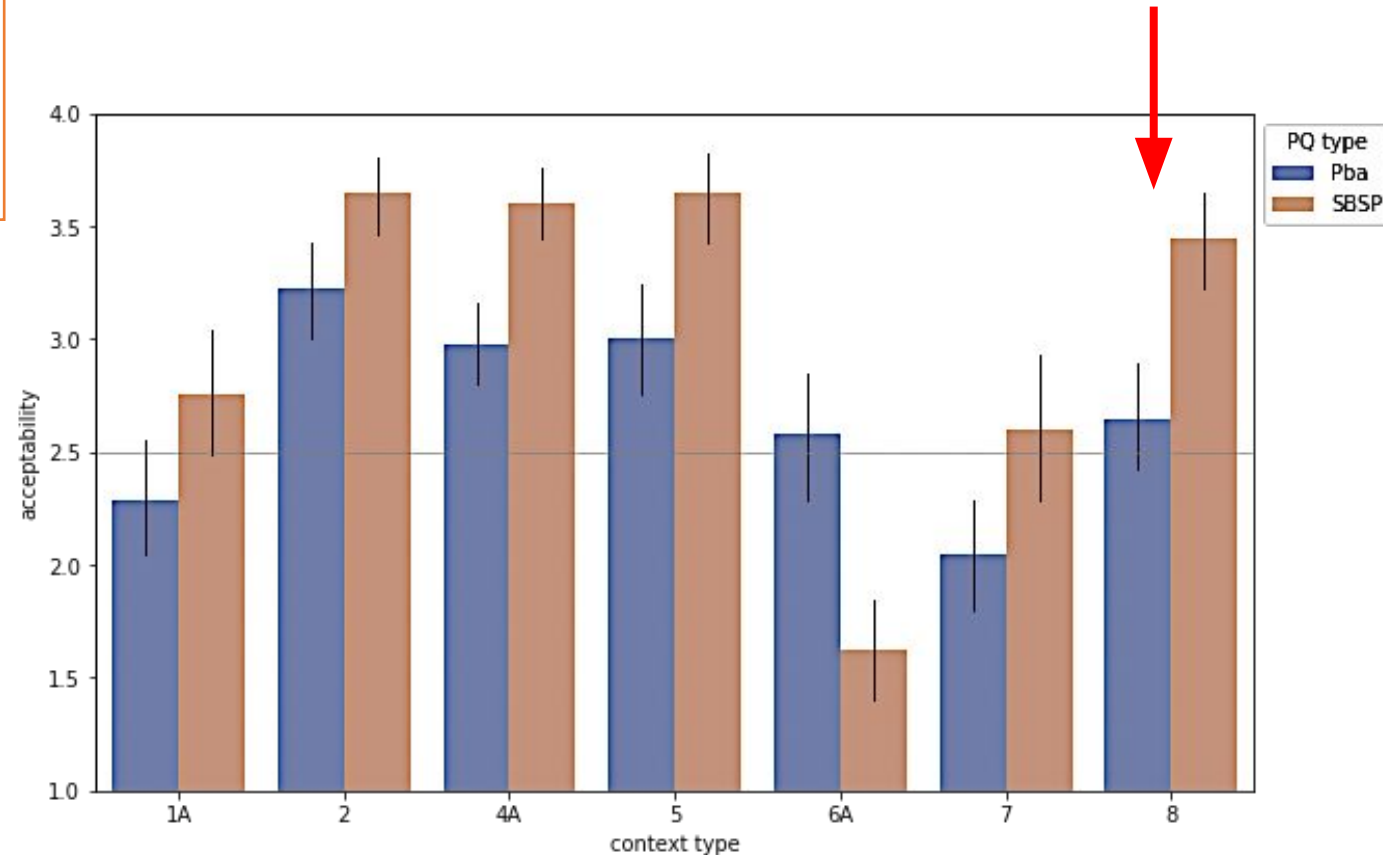
## 8. Negative SB, Positive CE

你印象中張三一直是單身。有一天你在路上看到他和一位女生很親密。你問他的好朋友：

? 張三有女朋友吧? 2.6

張三是不是有女朋友? 3.6

- Why is *p ba* infelicitous for some speakers?  
It's not easy to change one's prior belief.
  - Recall: *ba* PQs are less accepted in contradiction contexts.
- By contrast, it's perfect to check new CE by using *SBS p*.
  - The use of *SBS p* is wider than *p ba*.



# Experiment 2: Summary of the results

## *ma* PQs:

- are neutral PQs that are subject to pragmatic utility (PU).
- Contextual conditions can be explained away by PU (informativity) too.

## *ba* PQs:

- Both SB and CE influence the use of *ba* PQs; yet *ba* PQs are less accepted in contradiction scenarios.
- Speaker authority largely enhances the use of *p ba*.

## *bu-shi p ma*:

- Always requires conflicting evidence.

## *shi-bu-shi p*:

- Is sensitive to either positive SB or CE, and competes with *BS p ma*.

# The use condition of the Mandarin PQs

		Condition	English	Mandarin	Bias condition
PosPQ		CE: p or absent	Is Jane coming?	Jane要來嗎?	--
High NegPQ	Outer	SB: p CE: ¬p or absent	Isn't Jane coming?	Jane不是要來嗎?	SB: p CE: ¬p
	Inner	SB: p CE: ¬p		Jane不要來嗎?	--
Low NegPQ		CE: ¬p	Is Jane not coming?	Jane要來吧?	all evidence culminated at UT
				Jane是不是要來?	SB/CE: p (in complementary w/ <i>BS p ma</i> )

# Implications

- All PQs are guided by similar pragmatic principles, albeit with their own bias profile. A balanced view of the existing proposals in the literature (cf. Domaneschi et al. 2017)!
- *Ma* PQs are neutral PQs without bias (clause-typing PQs, see Bhatt and Dayal 2020).
- *Ba* PQs are influenced by authority, where speaker authority greatly facilitates their uses. This is not predicted by Ettinger and Malamud (2015), who argue that the core meaning of *ba* is submission of the authority to the addressee.
- What do the various *shi*-related forms of PQs and their complementary uses tell us about the semantic nature of high negation PQs?



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