

# 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**? cf. Jane 不是也要來嗎?  
Inner reading: Isn't Jane coming **either**? Jane 也不來嗎?

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

- 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?**

# 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
PosPQ		CE: p or absent	Is Jane coming?
HiNegPQ	Outer	SB: p CE: $\neg$ p or absent	Isn't Jane coming?
	Inner	SB: p CE: $\neg$ p	
LNegPQ		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?
      - hypothesis: ***ma* PQs, *ba* PQs, *shi* PQs**
      - differences between them?
  - To compare between Mandarin and English PQs
  - To propose an explanation for the bias
- We conduct two acceptability experiments to identify the bias profile of each type of PQs.

# Preview of findings

- *ma* PQs
- *ba* PQs
- *bu-shi...ma* PQs
- *shi-bu-shi* PQs

# The introspective intuitions in the literature

	<i>p ma</i>	<i>not-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 quesitons	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 to-wards p	Contexts biased to-wards $\neg p$
positive MAQs	✓	✓	#
negative MAQs	#	#	✓

- 下雨了嗎？我不覺得\我猜下雨了\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 PQs: solicits a response or confirmation from the hearer (cf. Li and Thompson 1981)
- 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* 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.’

- He didn't examine contexts with conflicting evidence.
- Ye argues that *shi-bu-shi* PQs presupposes that  $p$  is a possible complete answer to the current QUD. How does this proposal extend to other *shi*-marked PQs?

# 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: ¬p or absent	Isn't Jane coming?	Jane 不是要來嗎?
	Inner	SB: p CE: ¬p		Jane 不要來嗎?
LNegPQ		CE: ¬p	Is Jane not coming?	
		?		Jane 要來吧?
		?		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?

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?

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

請問你認為在這樣的情境下，黃色對話框問「是不是有很早的班次？」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)

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

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 1 來源：<https://nc-illust.com/nc-illust/813982/76f5NA5N83Nf8N83N87Nf5N93NA1-5f4N8N8ANf5N80NAANC8N80NA834>

2. 你想起你哥有搭過早上的高鐵，於是你打電話給他…

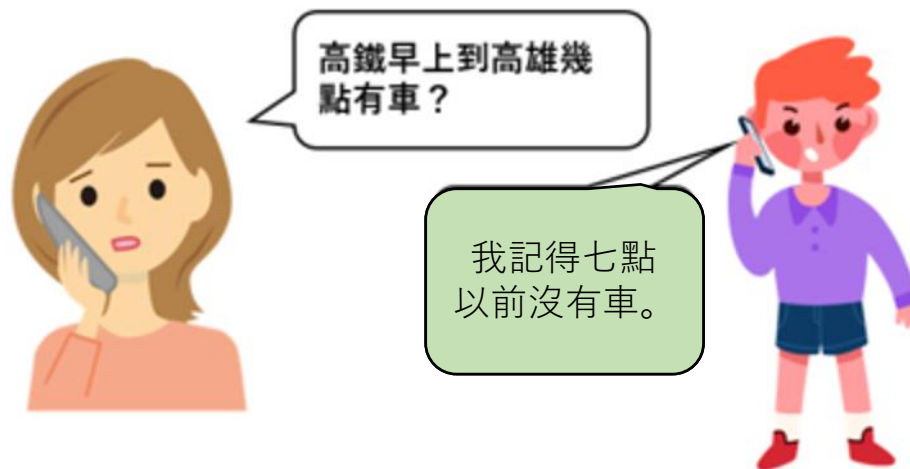


圖4來源：<https://www.shutterstock.com/ru/clip-art/18693260/woman-to-talk-on-the-phone-1>

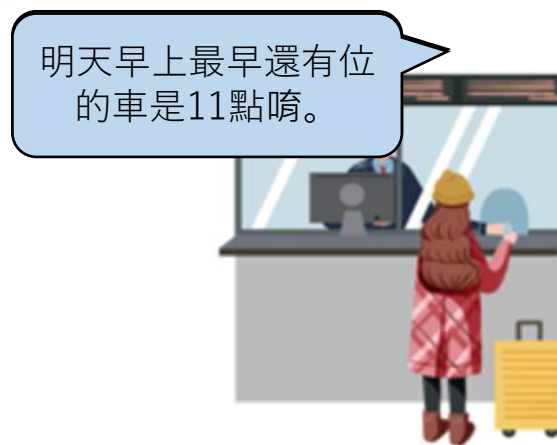
图片来源：<https://zh.hayesik.com/images/img-1123259.html>

- ### 3. 你決定直接去高鐵站詢問...



圖 4 來源：<https://zh.koyeplk.com/images/img-1475409.html>

- 4.



- 5.



# Experiment 1: Results

Link to the [numbers](#) and [statistical results](#) modelled with logistic regression

## ***ma* PQ:**

- 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* (有很早的車嗎)?

Comments suggest: (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* (沒有很早的車嗎)?
  - Comments show that positive CE is reinterpreted as negative: saying 「六點有車」 implies that no earlier trains before 6 am., so not-*p ma* is felicitous.

	positive SB	neutral SB	negative SB
positive CE	是問「更早」86 %	是問「更早」92 %	是問「更早」71 %



# Experiment 1: Results

Link to the [numbers](#) and [statistical results](#) modelled with logistic regression

## ***ba* PQ**

- Positive SB increases the use of *p ba* and reduces the use of not-*p ba*.
- Neutral contexts significantly reduce the use of not-*p ba*.
- Positive and negative CE reduce the use of *p ba*.

## *ba* PQs

- Why do positive/negative CE reduce the use of *p ba* (有很早的車吧)?

	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 PQ**

- 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 that 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* (不是有很早的車嗎)?
  - Positive CE is reinterpreted as negative: saying 「六點有車」 implies that no earlier trains before 6 am.

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

- Why is *BS p ma* (不是有很早的車嗎) accepted in negative SB & negative CE?
  - NEG SB = 「七點前沒車」 & NEG CE = 「最早的车是十點」
    - 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 PQ***

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

## SBS PQs

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

- No fillers; not randomized
- When an answer to PQs is entailed, there'd no need to ask the PQs.
- The interpretive flexibility of degree adjectives interferes.
- Every type of PQs is largely subject to conversation goal, showing that pragmatic principle plays a role (van Rooy and Šafářová 2003).
- 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.

# Pragmatic utility

Van Rooy and Šafářová (2003)

- Pragmatic utility -- the information value of a proposition -- 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 likelihood of some proposition being true  
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.
    - *Is it raining?*
    - Negative PQs



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

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

### **Experiment 2:** a follow-up

- contexts on informativity
- controlling for:
  - positive vs. negative conversational goal in *ma* PQs
  - authority effect in *ba* PQs
  - contradiction vs. non-contradiction contexts for *BS* PQs
  - positive and neutral CE/SB 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)
  - positive vs. negative goal in context 1 (NEUT & NEUT)
  - purely neutral vs. absence of negative CE in context 4 (pos SB & neu CE)
  - no authority vs. speaker vs. addressee in context 6 (pos SB & neg CE)
- Each type of context is exemplified by three scenarios. [Link](#) to the questionnaire questions
- Each PQ was judged by 15 native speakers (20-30y); 90 participants in total; recruited online anonymously.

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？<sup>\*</sup>

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

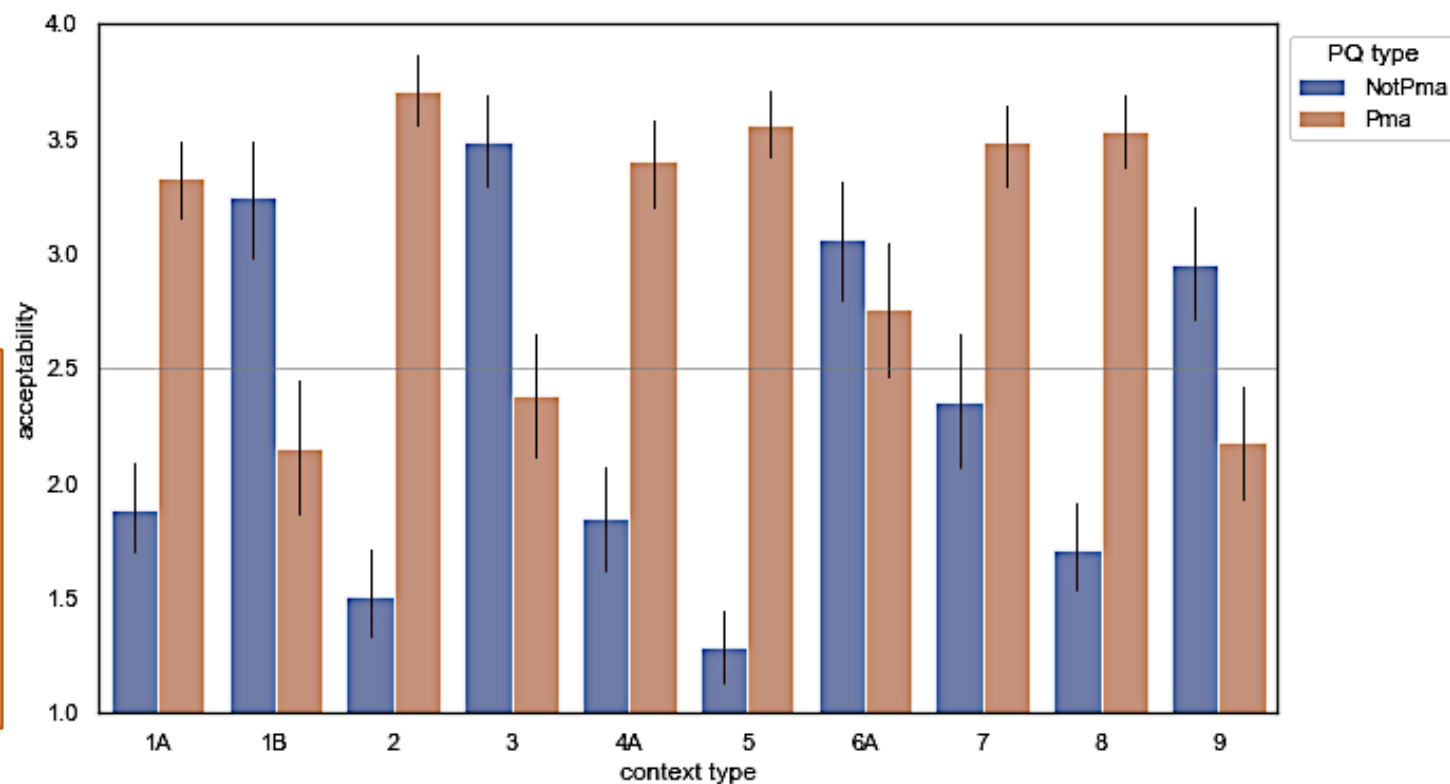
## Results: *p ma* vs. not-*p ma* (1)

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

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

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 vs. 7, 8: negative

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

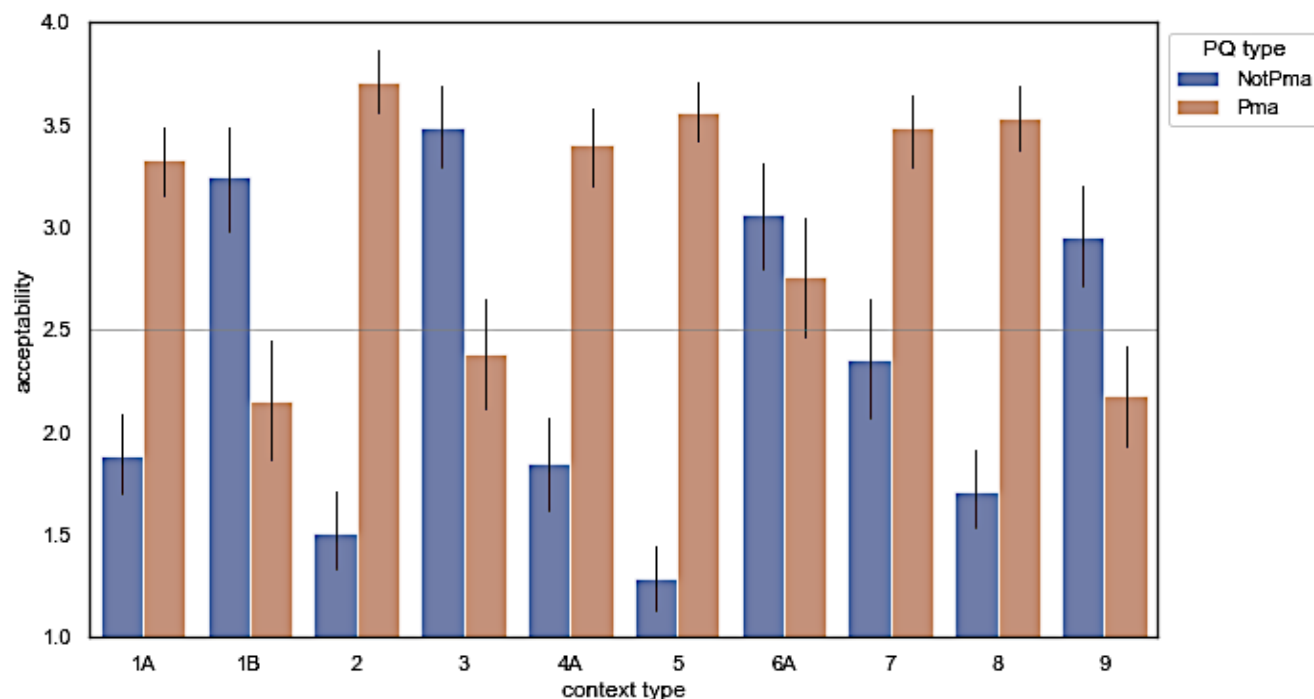
#張三不喜歡數學嗎？ 1.7

- 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。」

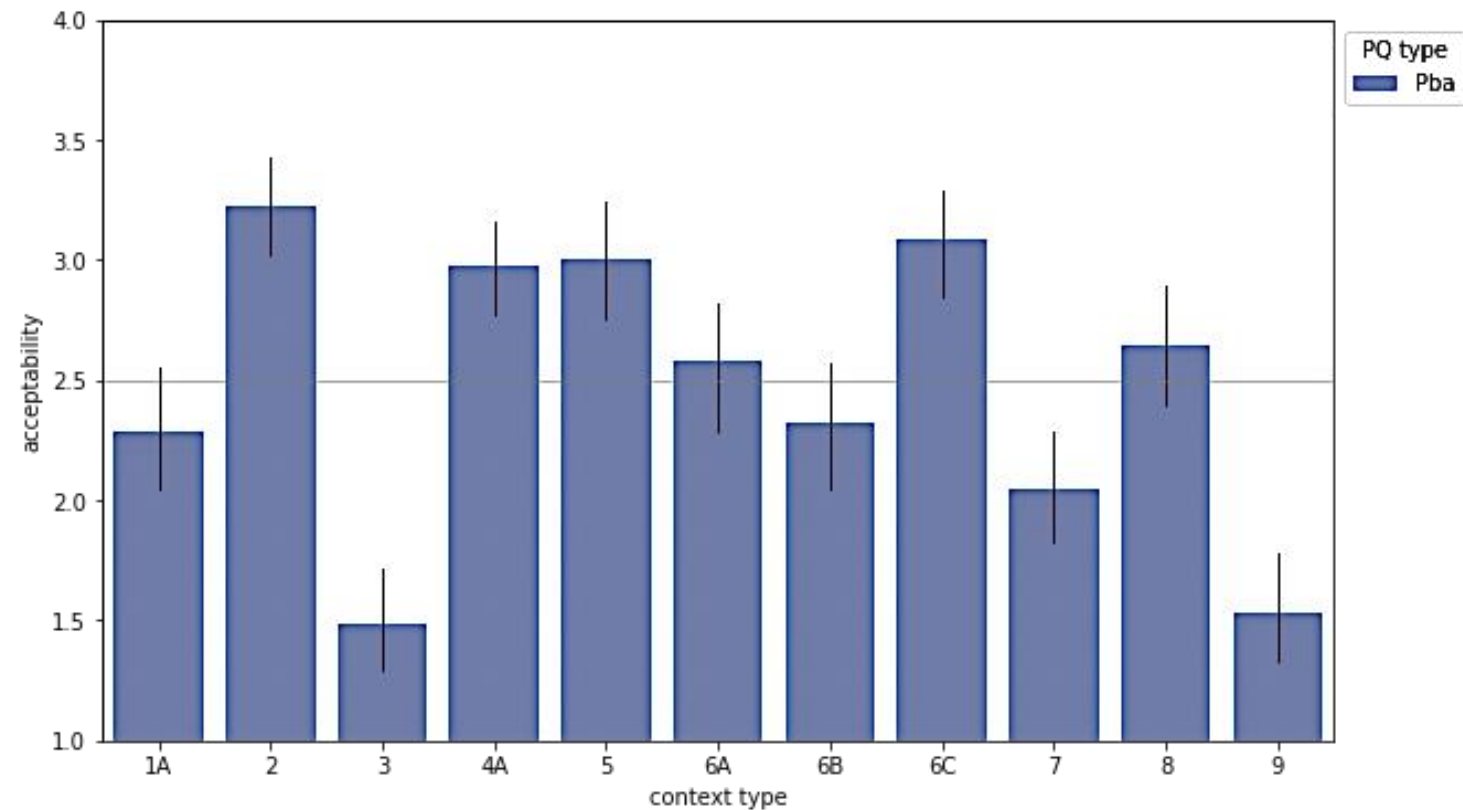
#你的小孩注意力充足嗎？ 2.0

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.
- 6 and 8 are 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.

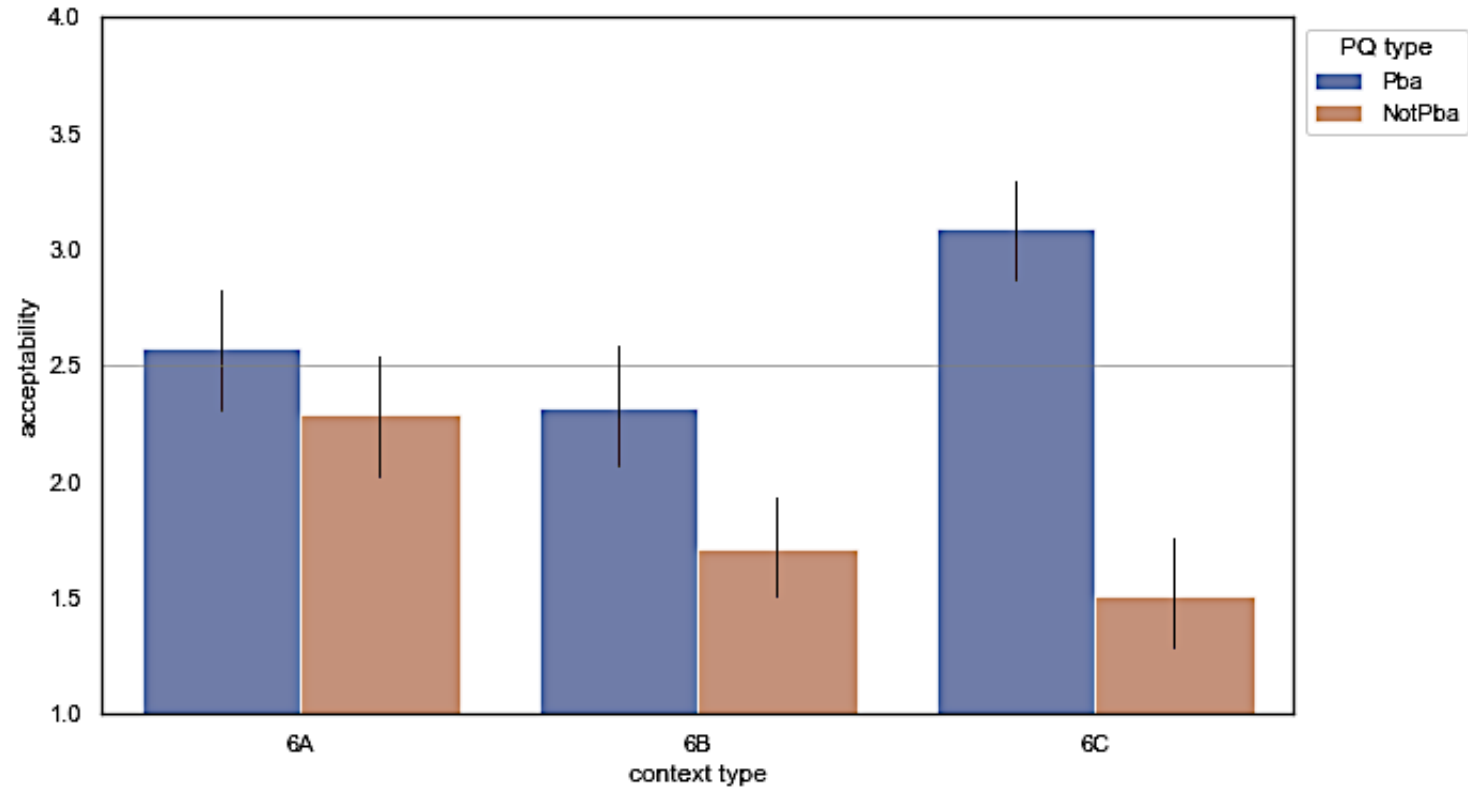


## Results: *p ba* vs. *not-p ba*

- Not-*p ba* is in general not accepted in three sub-contexts of 6.
- There is significant difference between 6A vs. 6B&C.

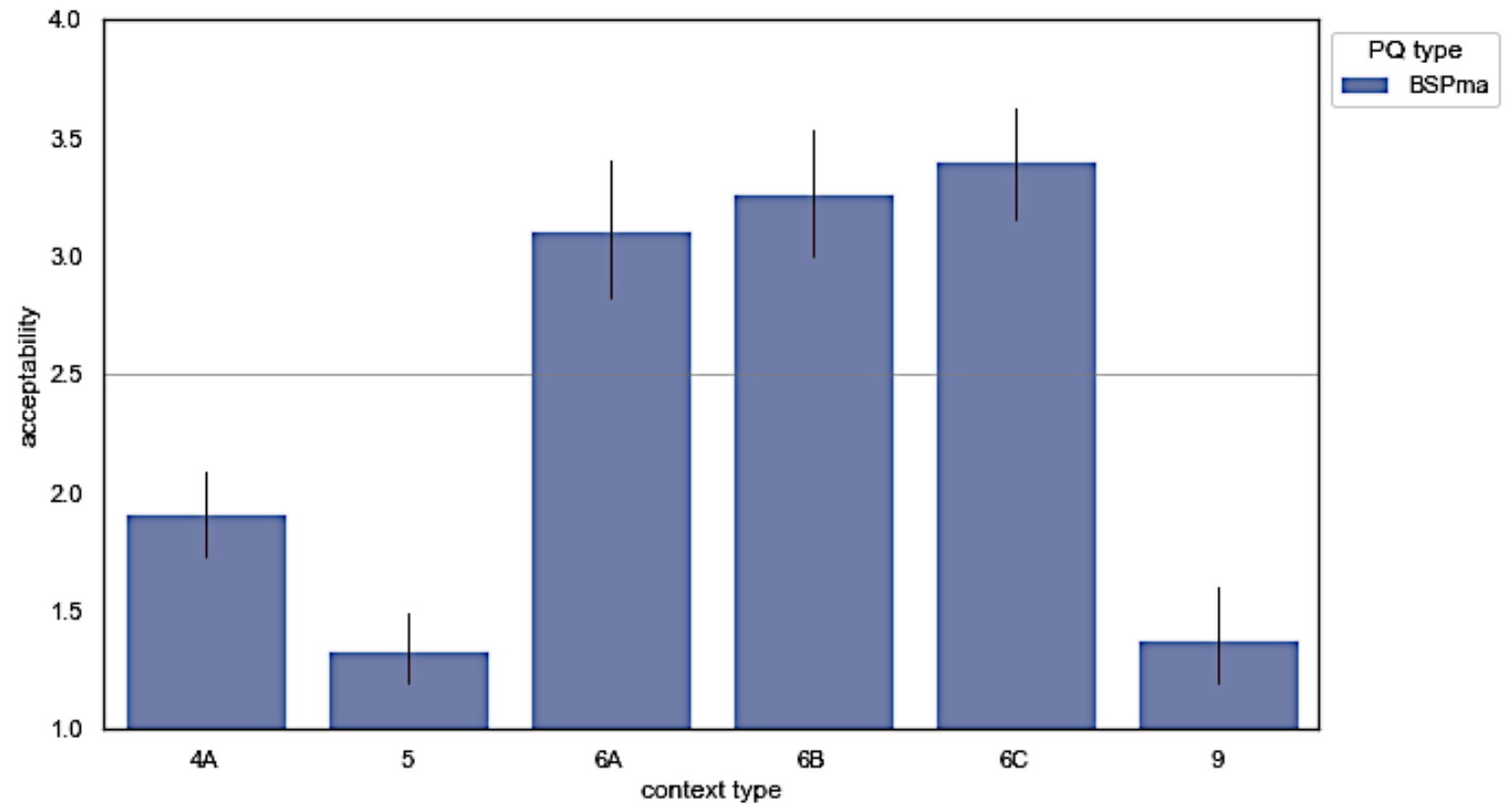
- 6A: no authority difference
- 6B: Addressee > speaker

Speaker can shift 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)

- *BS p ma* is only accepted in so-called suggestion context.
  - **High negation PQs require conflicting evidence (supporting Northup 2014).**

### 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：

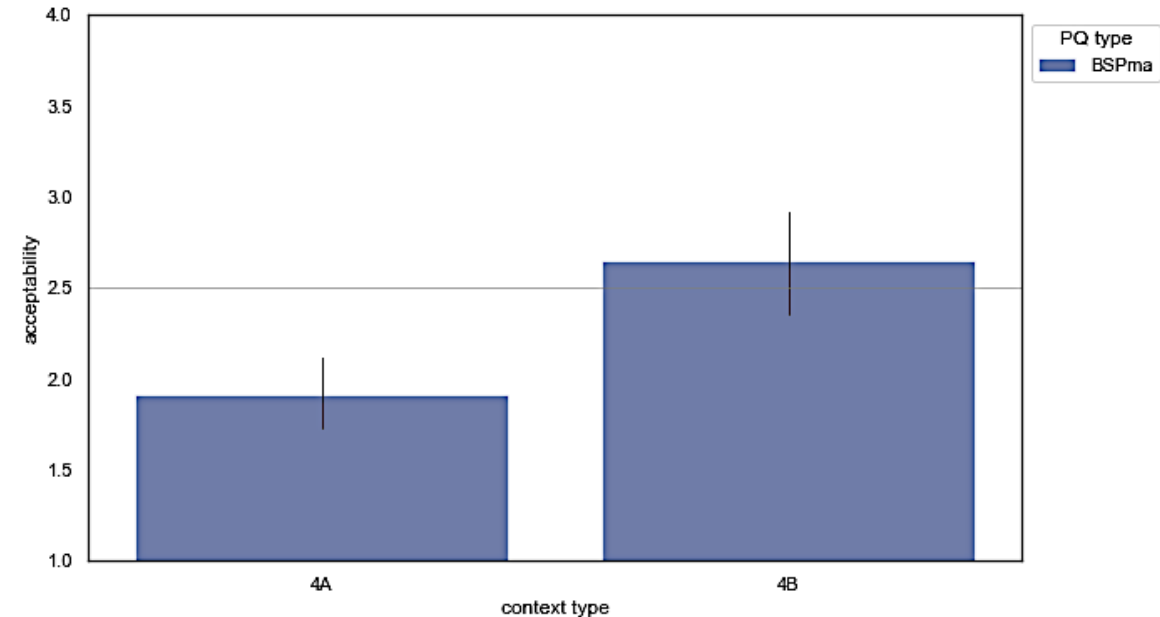
李四不是有去嗎？ 1.7

### 4. Positive SB, Neutral CE

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

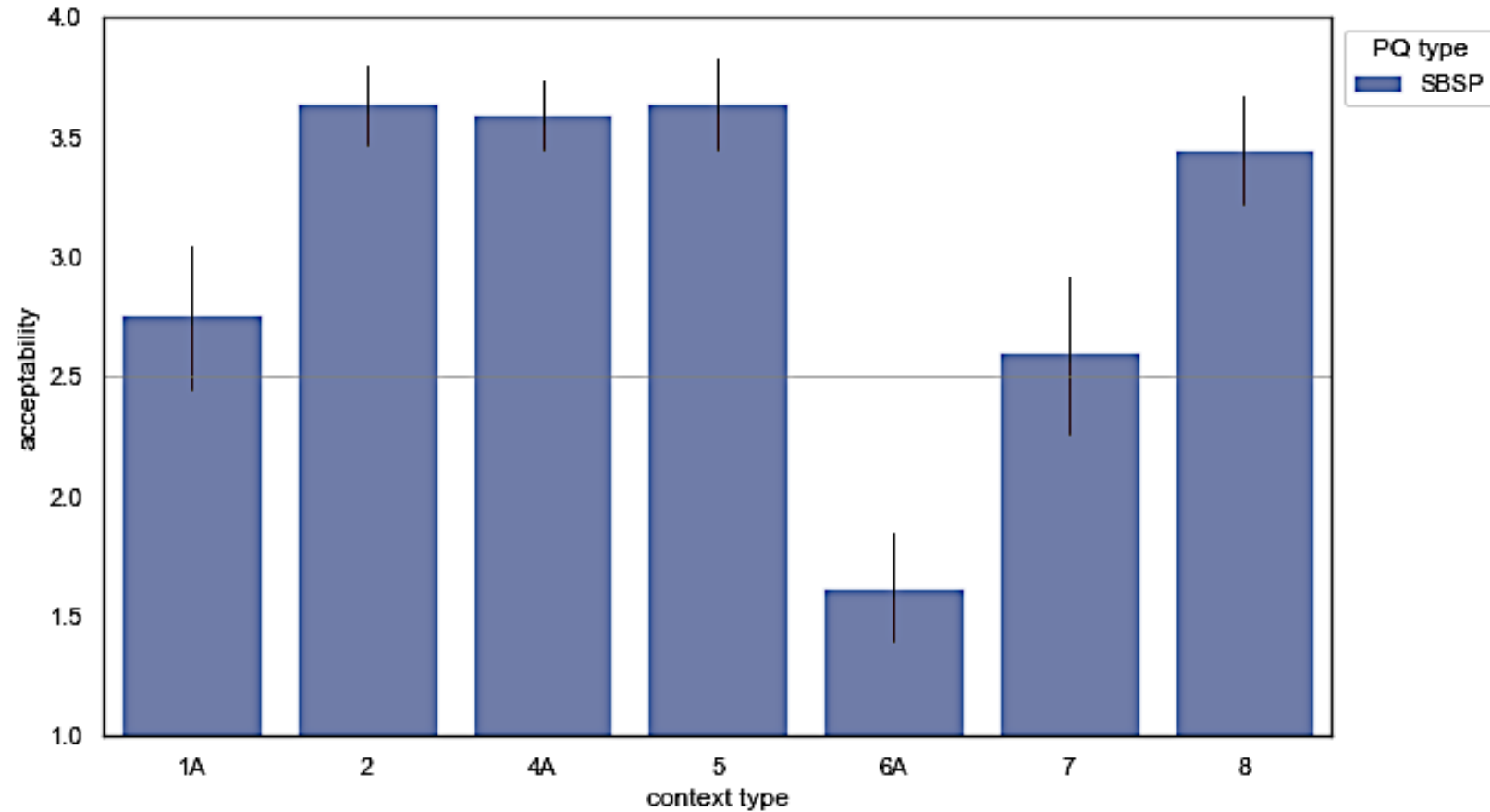
你們在討論一篇文章要請誰來審查。主編說：「我想要找比較有經驗的審查人。」。你剛好知道幾位有經驗的審查人，你建議：「\_\_\_\_\_，他會是不錯的人選。」

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/CE: 2, 4, 5, 8, **except for 6 (pos SB & neg CE)**.

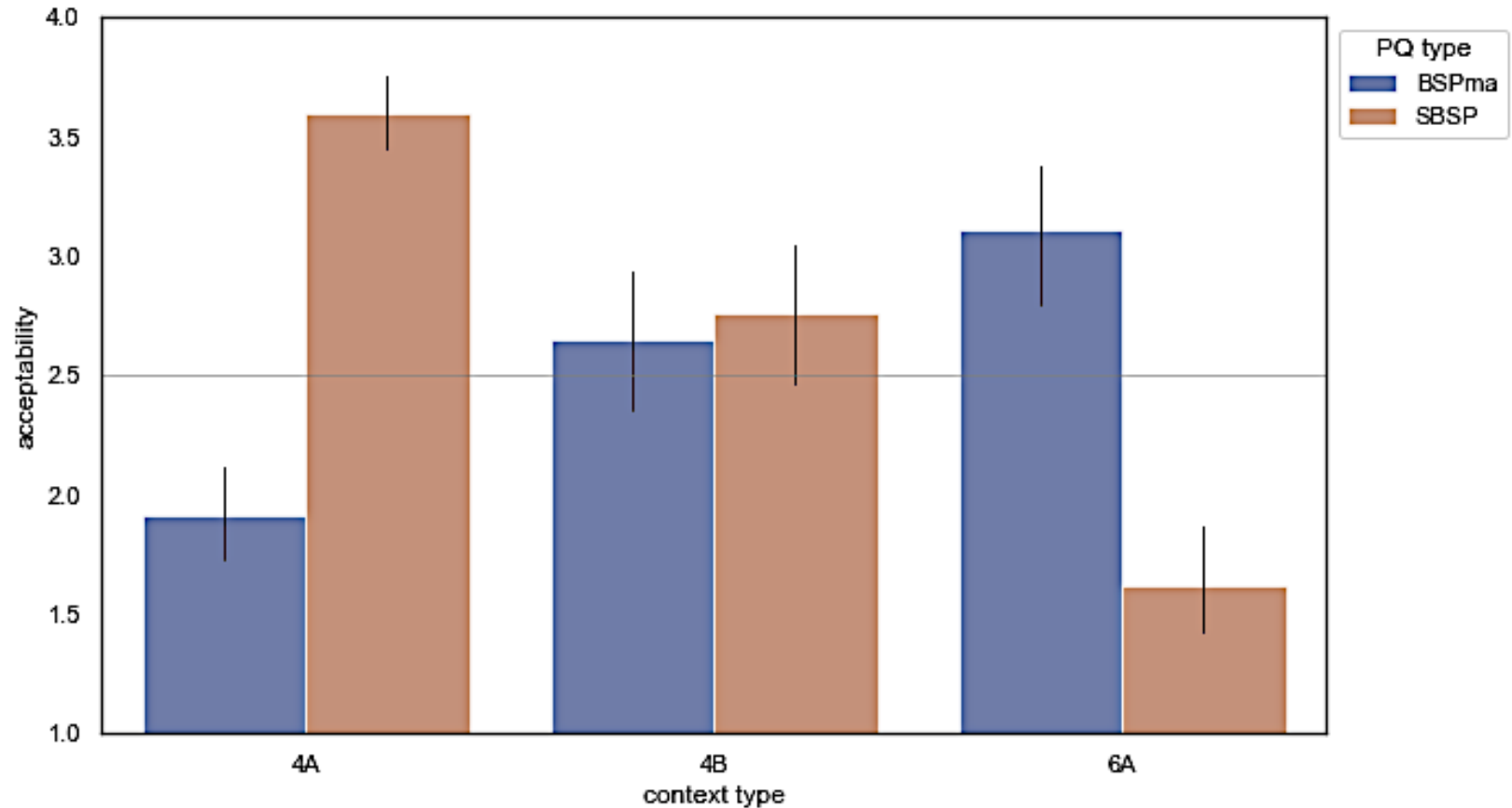


# Results: *SBS p* vs. *BS p ma*

- Compare 4A and 6:  
4A: positive SB & **neutral CE**  
6: positive SB & **negative CE**

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

- No significant difference between *SBS p* and *BS p ma* in 4B.



#### **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

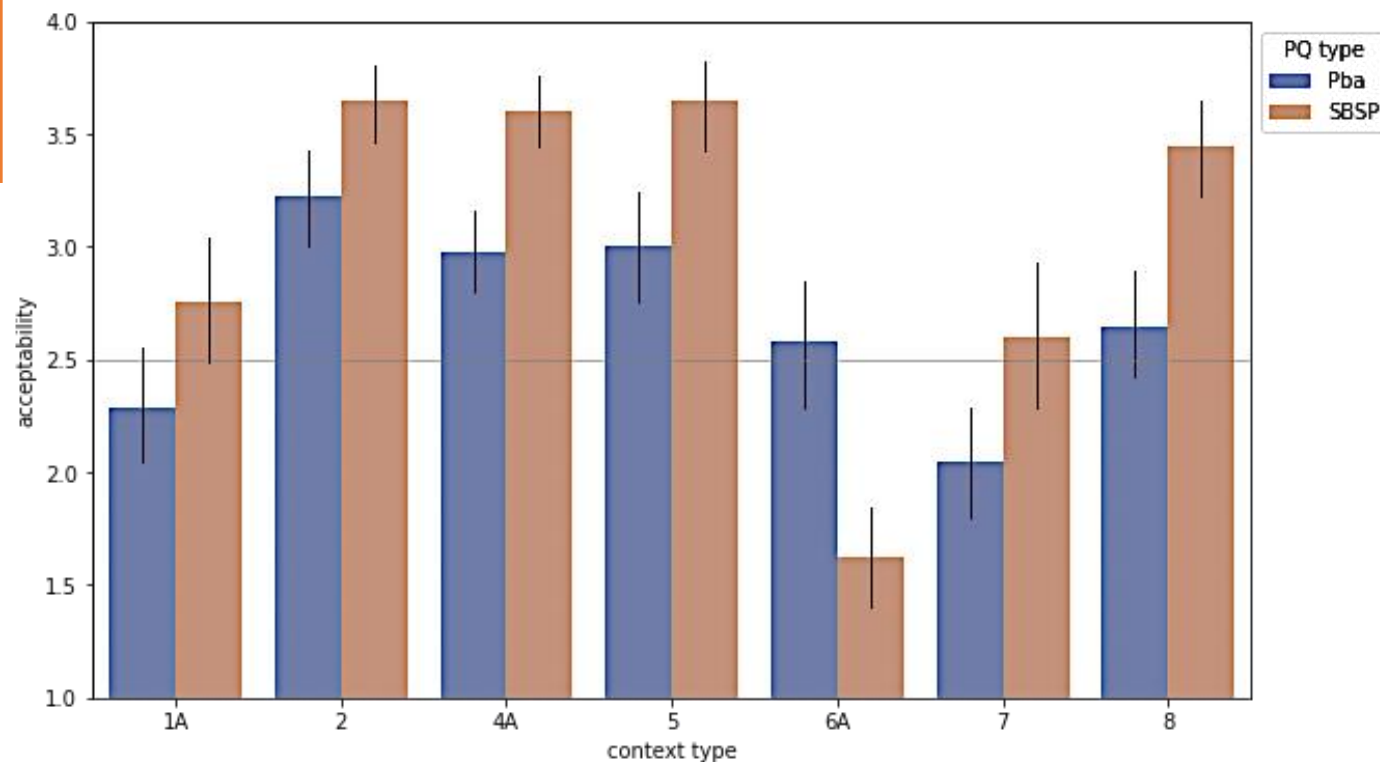
你印象中張三一直是單身。有一天你在路上看到他和一位女生很親密。你問他的好朋友：

? 張三有女朋友吧? 2.6

張三是不是有女朋友? 3.6

### Possibilities

- It's not easy to change your prior assumption, so *p ba* is infelicitous for some speakers.
  - *ba* PQs are less accepted in contradiction contexts.
- It's perfect to check CE upon confronting the info, so *SBS p* is felicitous.



## 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

### Possibilities

- It's not easy to change your prior assumption, so  $p\ ba$  is infelicitous for some speakers.
  - $ba$  PQs are less accepted in contradiction contexts.
- It's perfect to check CE upon confronting the info, so  $SBS\ p$  is felicitous.

# Experiment 2: Summary of the results

## *ma* PQs:

- are neutral PQs that are subject to pragmatic utility.
- Contextual conditions (Yuan and Hara 2021) can be explained by pragmatics too.

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

## *ba* PQs:

- Both SB and CE influence the use of *ba* PQs, but less accepted in contradiction contexts.

## *bu-shi p ma*:

- Always requires conflicting evidence.

## *shi-bu-shi p*:

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

# Implicaitons



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