

# Interpreting Mandarin positive polar questions

Chenjie Yuan, Peng Li

Department of Translation and Language Sciences, Universitat Pompeu Fabra, Spain

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## Abstract

This study examined the non-truth-conditional meaning encoded by sentential-final particles and boundary tones in four Mandarin positive polar question (PPQ) patterns. Two short experiments were conducted to test (a) the role of epistemic and evidential biases (Experiment I) and (b) the antecedent and answer requirements, as well as the (non-)acceptance of the antecedent (Experiment II) in constraining the interpretation of PPQs. In each experiment, a series of situational judgment tasks (27 in Experiment I and 36 in Experiment II) were designed to elicit data from 60 native speakers. The findings suggest that the four patterns are not simple biased questions but are complex non-canonical questions whose interpretation are sensitive to the discourse configuration established by the five abovementioned contextual factors.

Key words: non-truth-conditional meaning, polar question, ending particle, boundary tone, discourse configuration

## Introduction

In the standard alternative semantics of questions (Hamblin 1973; Karttunen 1977), both positive and negative polar questions (PQs) are assigned the same denotation in terms of their alternative answers. Yet, it is widely accepted that both types of PQs are not identical by virtue that PQs may convey information regarding the questioner's bias towards a particular answer and are sensitive to contextual available information (e.g., Ladd 1981; Büring and Gunlogson 2000; Sudo 2013; Shao 2014). Two recent elaborate accounts on the non-truth-conditional interpretation of PQs are offered by Sudo (2013) and Shao (2014). Sudo (2013) proposes that PQs are exclusively biased, and that to interpret these PQs, both *epistemic bias* (i.e., whether a positive/negative answer is favoured) and *evidential bias* (i.e., whether positive/negative evidence is required) shall be considered. Shao (2014) submits that some PQs are not simply biased *à la* Sudo (2013), but are complex non-canonical questions whose interpretation is constrained by four contextual factors: *epistemic bias* (defined as Sudo's), *antecedent requirement* (i.e., whether a positive/negative antecedent is required), *answer requirement* (i.e., whether an answer is required), and *acceptance status* (i.e., whether the antecedent is likely to be accepted/rejected).

Unfortunately, Sudo's (2013) and Shao's (2014) accounts are both introspective and it remains unclear whether they are empirically valid and which offers a better predication. In this study, these two research questions are tackled via two short experiments, in which four types of Mandarin positive

polar questions (PPQs) marked by either an ending particle (i.e., *ma*, *-ba*, *-a*) or a high boundary tone (H%) were chosen as the testing targets. In view of Sudo's (2013) and Shao's (2014) preliminary analyses, we hypothesized that (i) *evidential bias*, which is not mentioned in Shao (2014), should also play a role in the construal of Mandarin PPQs, and that (ii) Mandarin PPQs or at least some of them are not simple biased PQs *à la* Sudo but are complex non-canonical questions.

## Methods

Two short acceptability judgment experiments were conducted, one aiming to test Sudo's (2013) model, and the other targeting Shao's (2014) proposal.

### Experiment I

Sixty native Mandarin speakers ( $M=25.366$ ,  $SD=1.834$ , Range 20-29) participated in Experiment I. A  $3 \times 3 \times 4$  within-subjects design is adopted with EVIDENTIAL BIAS (3 levels: *neutral*, *positive*, and *negative*), EPISTEMIC BIAS (3 levels: *neutral*, *positive*, and *negative*), and PPQ PATTERNS (4 levels: H%-, *ma*-, *ba*-, and *a*-marked PPQs) set as independent factors. Every four parallel PPQs were tested through a single situation, and for each condition, four tasks were designed. A total of 36 tasks were obtained, 9 of them being fillers. In each task, participants had to read an incomplete monologue/dialogue, preceded by a short context-setting passage, which specified the relevant contextual information. Four corresponding PPQs were later displayed, and the participants' task was to judge whether each of them is suitable (2 levels: *suitable* and *unsuitable*).

### Experiment II

Another group of sixty native Mandarin speakers (Age range 18-26,  $M=21.100$ ,  $SD=2.343$ ) participated in Experiment II. A total of 48 ( $2 \times 2 \times 3 \times 4$ ) judgment tasks (12 of them being fillers) were created, distributed in two groups: Group 1 targeted the correction of POSITIVE ANTECEDENT  $\times$  NEGATIVE EPISTEMIC BIAS but differed with respect to RESPONSE CONDITION (2 levels: *required* and *unrequired*) and ACCEPTANCE STATUS (3 levels: *accepted*, *rejected*, and *neither*); Group 2 targeted the other correlation of NEGATIVE ANTECEDENT  $\times$  POSITIVE EPISTEMIC BIAS, and also differed with respect to the two same factors. The rest of the experimental setting and procedure were similar to that of Experiment I.

## Results

Rating data from both experiments were submitted to several generalized linear mixed models using SPSS 25. The detailed results are spared here due to space limitations, but are retrievable from the following figures:

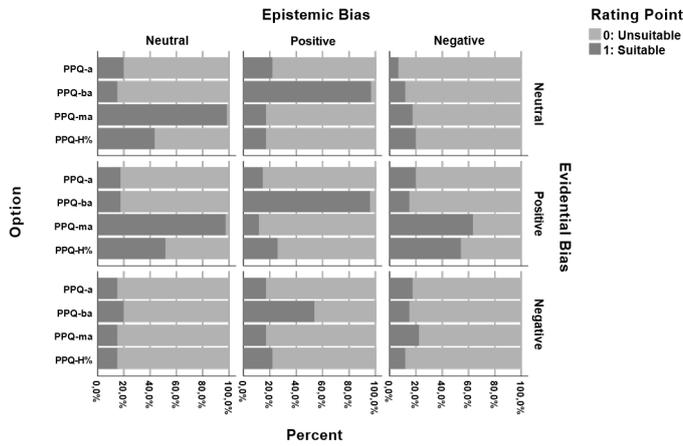


Figure 1. Distribution of data points in different conditions of Experiment I.

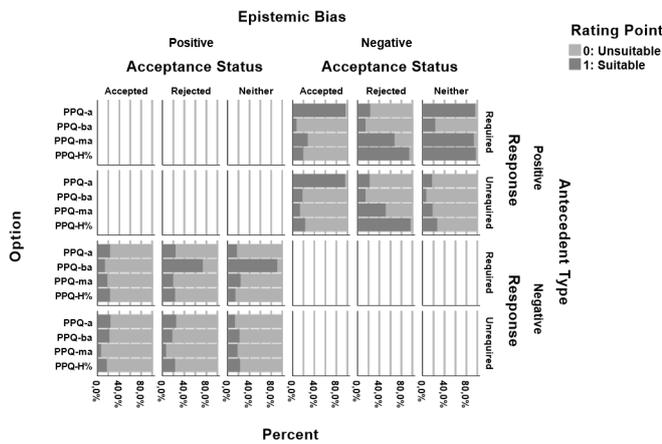


Figure 2. Distribution of data points in different conditions of Experiment II.

### Discussion and conclusions

The results suggest a hybrid picture, as shown in Table 1. In a nutshell, the empirical findings reveal that Mandarin PPQs are not exclusively simple biased PQs – only *ma*- and *ba*-marked PPQs can be characterized in terms of evidential and epistemic biases, and the other two patterns – PPQ-H% and PPQ-*a* – cannot. Interestingly, all of the four patterns can be used to respond to an antecedent. Some require to be answered whereas some others can be left unaddressed. The acceptance status of antecedent is also relevant for the interpretation of Mandarin PPQs, especially in distinguishing between H%- and *a*-marked PPQs. Five marginal patterns were also reported but are not presented here due to space limitations. A modified feature-based model

integrating both Sudo (2013) and Shao (2014) is therefore motivated and is shown to be fine-grained enough to describe Mandarin PPQs.

Table 1. Dominant interpretation patterns of Mandarin PPQs.

Pattern	Evidential	Epistemic	Antecedent	Answer	Acceptance
PPQ-H%	×	+negative	+positive	±	-accepted
PPQ-ma1	-negative	-positive&-negative	×	+	-accepted&-rejected
PPQ-ma2	×	+negative	+positive	+	-accepted
PPQ-ba1	-negative	+positive	×	+	-accepted&-rejected
PPQ-ba2	×	+positive	+negative	+	-accepted
PPQ-a	×	+negative	+positive	±	-rejected

(Notation: × indicates that the feature is irrelevant).

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