# ASKING QUESTIONS IN CONTEXT: AN ELICITATION STUDY OF THE CHOICE OF QUESTION FORMS IN MANDARIN CHINESE CONVERSATION*

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## 1. Introduction

It is widely recognized that many languages, including Mandarin Chinese, have a variety of question forms that convey the same truth-conditional meaning.[1] However, these forms can only be used appropriately in different contexts, as illustrated by the contrast between Mandarin A-Not-A questions in (1) and particle questions in (2).[2]

(1) *Waimian xia-mei-xia yu?*
outside drop-NEG-drop rain
'Is it raining outside?'

(2) *Waimian xia yu le ba?*
outside drop rain SFP SFP
'It is raining outside, isn't it?'

The questions presented in examples (1) and (2) ask about the same thing essentially, that is, whether it is raining outside. However, the A-Not-A question in example (1) is restricted to neutral contexts where the speaker does not exhibit a bias towards either a positive or a negative answer, while the particle question in example (2) is appropriate only in contexts where the speaker exhibits a bias, thereby indicating a partial commitment to a positive answer.

The truth-conditional aspects of neutral question meanings have been extensively discussed in formal semantics (Groenendijk and Stokhof 1984; Hamblin 1958, 1973; Krifka 2001). In recent years, there has been a growing emphasis on the exploration of non-truth-conditional aspects of question meanings (see e.g., Guo 2000, Wu 2004, Strauss 2005, Li 2006, Sudo 2013, Lam 2014, Paul 2014, Gu and Liu 2015, Yang and Wiltschko 2016, Heim

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[1] Abbreviations used: 1, 2, 3 = first, second, and third person; A = addressee; ASP = aspect; C = copula; CL = classifier; COP = copula; DEM = demonstrative; NEG = negation; PROG = progressive aspect; Q = question; RD = rising declarative; RM = response marker; S = speaker; SFP = sentence final particle; SG = singular; V = verb.

[2] The examples provided in this paper are sourced from the elicitation data. In cases where the source is unspecified, the examples are derived from the author's introspection.

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2019). However, the data for these studies primarily come from sources such as fiction, introspection, or corpora, which may not adequately represent the diversity and patterns of question usage in real-life conversations.

Guided by the multi-functionality approach of Wiltschko et al. (2018), which posits that units of languages acquire their functions within specific syntactic, prosodic, discourse and social contexts, this study aims to explore the relationship between the grammatical forms of questions in Mandarin Chinese and the contexts in which they occur. More specifically, our research systematically examines the contexts of 12 distinct forms of Mandarin questions across three dimensions: the timing of evidence acquisition, the strength of evidence, and the relative social relations between interlocutors. The data for this study were collected through elicitation with 12 native Mandarin speakers using a subset of the Eh-lab conversation boards (available at https://syntaxofspeechacts.linguistics.ubc.ca/), following the the targeted construction storyboard methodology (Burton and Matthewson 2015).

This paper is structured as follows. Section 2 discusses the system of Mandarin questions (§2.1), previous studies on the relationship between question meanings and their contexts (§2.2), and the multi-functionality approach of Wiltschko et al. (2018) (§2.3), which forms the theoretical foundation for the design of the targeted construction storyboards used in the elicitation for this study. Section 3 introduces the methodology and the data materials used in the storyboard elicitation (§3.1), along with the criteria used for categorizing and coding the question forms and contextual factors in this study (§3.2). Section 4 presents and analyzes the quantitative results of the elicitation study. Section 5 concludes the paper.

## 2. Setting the scene

This section discusses the system of Mandarin questions, reviews previous research on questions in contexts, and introduces the multi-functionality approach (Wiltschko et al. 2018) to questions. From a pragmatic perspective, questions are prototypically associated with the illocutionary force of requesting information from the addressee. The conventional approach to understanding question meanings in formal semantics generally focuses on their truth-conditional aspects, considering the denotation of a question to be the set of propositions ($p$) that constitute the full possible answers to that question (Groenendijk and Stokhof 1984; Hamblin 1958, 1973; Krifka 2001). Based on the types of possible answers and their grammatical forms, questions can be classified into *polar questions*, *alternative questions*, or *constituent questions* (Collins 2006, Huddleston and Pullum 2002, Sadock and Zwicky 1985).

### 2.1 The system of questions in Mandarin Chinese

Considering that the classification of questions in formal semantics is traditionally grounded in English and primarily focuses on neutral questions and their truth-conditional meanings, this study utilizes the well-established classification of Mandarin questions proposed by Li and Thompson (1981), which categorizes them into four major types based on grammatical

forms: *disjunctive questions*, *particle questions*, *question-word questions*, *tag questions*, as illustrated in examples (1)-(4), respectively.

(3) *Waimian tianqi zenme yang?*
outside weather WH appearance
'What is the weather outside?'

(4) *Waimian xia yu le, shi-bu-shi?*
outside drop rain SFP yes-NEG-yes
'It is raining outside, isn't it?'

Furthermore, certain contextual factors, such as the speaker's bias and the type of evidence, can be encoded in the grammatical forms of Mandarin questions (Yuan 2019). For example, A-Not-A questions, a subtype of disjunctive questions, are suitable only in neutral contexts, while *ba*-questions are only appropriate in contexts where the speaker has supporting evidence and a positive bias. However, Li and Thompson's (1981) four-term classification of Mandarin questions does not fully capture the non-truth conditional meanings of Mandarin questions. Therefore, this study refines the classification by subdividing the four types into various subtypes based on their grammatical forms, using the coding scheme outlined in Figure 2 in the Appendix.

### 2.2 Previous studies on questions in contexts

The non-truth conditional aspects of question meanings that have been explored in previous studies include discourse particles in questions (Lam 2014, Li 2006, Paul 2014, Wu 2004), targets of confirmation, politeness (Yang and Wiltschko 2016), speaker's bias (Guo 2000, Sudo 2013), and the timing of evidence acquisition (Strauss 2005, Sudo 2013). Guo (2000) identifies four types of *ma*-questions in Mandarin Chinese that vary in the level of certainty expressed by the speaker. Yang and Wiltschko (2016) differentiates three common types of Mandarin confirmational question: *ba*-questions, A-Not-A tag questions, and *ha*-questions, which differ in the degree of commitment and politeness. Specifically, the sentence-final particle *ba* denotes positive certainty (i.e., the speaker is certain about a proposition), A-Not-A tags indicate a lack of either positive or negative certainty, and the sentence-final particle *ha* signifies negative certainty (i.e., the speaker is certain about the negation of a proposition). Sudo (2013) proposes that the biases involved in different forms of polar questions fall into two broad categories: *evidential bias* and *epistemic bias*. Building on Büring and Gunlogson (2000), Sudo (2013) defines *evidential bias* as the speaker's belief based on the evidence that has just become available to them in the current discourse situation. *Epistemic bias*, on the other hand, is the speaker's private belief or expectation prior to the current conversation.

### 2.3 The multi-functionality approach to questions

Following multi-functionality approach proposed by Wiltschko et al. (2018), which suggests that units of language acquire their functions within specific syntactic, prosodic, discourse and social contexts, the analysis of contextual factors in this study will encompass the following factors: (i) syntactic factors: the grammatical form of the question; (ii) prosodic factors: the prosodic properties of the question; (iii) discourse factors: the speaker's bias, the nature of supporting evidence, and the speaker's discourse commitment; (iv) social factors: the level of politeness and the relationship between the interlocutors.

## 3. The present study

### 3.1 Data and methods

This study is based on elicitation data drawn from a preliminary study conducted by the Eh-lab at the University of British Columbia (UBC) in 2019, involving 12 native Mandarin Chinese speakers. The storyboards used for elicitation comprise three scenarios: "You've got a dog now, eh?" (DOG), "You're working out now, eh?" (GYM), and "You swim now, eh?" (SWIM).[3] Each scenario contains five to ten storyboards that target particular contextual factors, and each conversation board is composed of two to three images with corresponding verbal context descriptions and the targeted linguistic structure in English. The resulting elicitation dataset contains a total of 185 Mandarin questions.


Mary hasn't seen her friend Greg in a long time and is wondering about him.

"I wonder how Greg is doing these days, it's been ages since I've seen him last…"

Shortly after Mary runs into Greg on the street.

Mary: "Hey Greg, how are you? I haven't seen you in ages! **You're working out now, eh?**"

**Figure 1.** Sample conversation board from the GYM scenario targeting [outOfBlue] previous evidence, [outsideGym] current evidence, and [S = A].

Figure 1 displays a sample storyboard from the GYM scenario, designed to create a context where the interlocutors have equal social status ([S=A]), and the speaker has no previous evidence ([outOfBlue]) about whether the addressee has started working out before

[3] The complete set of Eh-lab storyboards are available at https://syntaxofspeechacts.linguistics.ubc.ca/.

they meet outside of a gym ([outsideGym]). The evidences [outOfBlue] and [outsideGym] are assigned strength values of "None" and "Indirect" respectively. During the elicitation, participants were instructed to imagine themselves in the context depicted in the storyboard and write down the corresponding Mandarin question they would ask in that context, based on the provided English question highlighted in bold.

### 3.2 The coding

To examine the relationship between the grammatical forms of Mandarin questions and their contexts, this study systematically codes questions according to their grammatical forms and contexts of use. This subsection will elucidate the coding scheme used for Mandarin question forms and detail the coding for the contextual factors involved in the storyboards in this study.

#### 3.2.1 The coding of question forms

This study divides the four major types of Mandarin questions proposed by Li and Thompson (1981) into various subtypes based on their grammatical forms, following the coding scheme in Figure 2 in the Appendix with examples (Yuan 2019). (i) Mandarin question-word questions, marked by question-words such as *shenme* 'what' and *zenme* 'how', are typically used as either neutral questions or biased rhetorical questions. (ii) Disjunctive questions, composed of two or more constituents joined by the conjunction *haishi* 'or', can be divided into two general categories: A-Not-A questions and X-or-Y questions. The former juxtaposes the positive and negative forms of the predicate verb or adjective of a sentence, while the latter connects two or more possible answers exhaustively. Mandarin A-Not-A questions can be subdivided into V-Not-V questions and C(-Not-C) questions, where C stands for the copula *shi*. Both V-Not-V and X-or-Y questions are generally considered neutral questions, while C(-Not-C) questions are typically used as verum questions with a narrow focus on truth value. (iii) Mandarin tag questions combine declaratives with response markers. Those containing the response markers *shi*/*dui* ('yes') are typically used as biased questions, whereas those containing the response makers *xing*/*hao* ('okay') are usually used as requests. (iv) Mandarin particle questions consist of either an ordinary declarative, an A-Not-A question, or a question-word question, followed by a de-stressed and neutral-toned particle.

#### 3.2.2 The coding of contextual factors

The contextual factors are investigated along three dimensions in this study: the timing of evidence acquisition, the strength of evidence, and the relative social relations between interlocutors. The timing of evidence is categorized based on the proposal by Büring and Gunlogson (2000) and Sudo (2013) that the bias of polar questions can be captured by the parameters of epistemic bias and evidential bias. Accordingly, this study classifies the timing of evidence acquisition into two categories: *previous evidence* and *current evidence*.

Previous evidence refers to evidence that is available to the speaker before the conversation to support their belief, while current evidence refers to evidence that just becomes available to the speaker in the current conversational context. Previous evidence is rooted in the speaker's private belief and need not be shared by the addressee, whereas current evidence is accessible to all interlocutors and is inherently public.

The strength of evidence is examined at six levels for previous evidence: *Counter*, *None*, *Weak indirect*, *Counter + Strong indirect*, *Strong Indirect*, and three levels for current evidence: *None*, *Indirect*, and *Direct*. Tables 1 and 2 summarize the types of previous and current evidence in this study, their assigned strengths, and a brief description of the context based on the anticipated question form (e.g., *You've got a dog now, eh?*). Finally, the social relation between interlocutors is categorized based on the speaker's social status relative to the addressee. [S=A] denotes equal social status between interlocutors, while [S<A] denotes a lower social status for the speaker compared to the addressee.

**Table 1.** Classification of previous evidence.

| Previous evidence | Strength | Description (Question form: *p, eh?*) |
|---|---|---|
| [Counter] | Counter | Pre-existing evidence for $\neg p$ |
| [OutOfBlue] | None | No pre-existing evidence for $p$ or $\neg p$ |
| [Talked] | Weak indirect | Someone has asked the speaker whether $p$ or $\neg p$ is true before the conversation. The speaker did not know the answer |
| [Hearsay] | Strong indirect | Someone has told the speaker that $p$ is true before the conversation |
| [SeeSwimming] | Direct | The speaker saw the addressee swimming before the conversation |

**Table 2.** Classification of current evidence.

| Current evidence | Strength | Description (Question form: *p, eh?*) |
|---|---|---|
| [NoContext] | None | No current evidence for $p$ or $\neg p$ in the conversation |
| [OutsideGym] | Indirect | The speaker and the addressee meet outside a gym |
| [BeingToldToPool] | Indirect | The addressee tells the speaker that he is going to pool |
| [SeeDog] | Direct | The speaker sees that the addressee is walking a dog |
| [SeeInPool] | Direct | The speaker sees that the addressee is sitting on the edge of pool |

## 4. Results and Discussion

Table 3 presents a breakdown of the frequencies of all question forms in our dataset, arranged in descending order based on their total occurrences (raw frequencies). As indicated

in Table 3, our dataset consists of a total of 185 Mandarin questions. Among the 12 question forms, rising declaratives are the most frequent, occurring 57 times and accounting for 30.8% of all questions. In contrast, *ne*-questions are the least common, occurring only once in our dataset. The group of particle questions, including *ma*-questions, *a*-questions, *ya*-questions, *ha*-questions, *la*-questions, *ba*-questions, and *ne*-questions, collectively amount to 87 instances, representing nearly half of the dataset.

**Table 3.** The distribution of question forms.

| Rank | Question form | Freq. (%) |
|---|---|---|
| 1 | RD | 57 (30.8%) |
| 2 | *Ma*-question | 40 21.6%) |
| 3 | Tag question | 19 10.3%) |
| 4 | *A*-question | 17 (9.2%) |
| 5 | *Ya*-question | 13 (7.0%) |
| 5 | C-Not-C Q | 13 (7.0%) |
| 7 | *Ha*-question | 7 (3.8%) |
| 8 | *La*-question | 6 (3.2%) |
| 8 | Assertion | 6 (3.2%) |
| 10 | *Ba*-question | 4 (2.2%) |
| 11 | Q-word question | 2 (1.1%) |
| 12 | *Ne*-question | 1 (0.5%) |
| Total | | 185 |

### 4.1 Question forms and previous evidence

Table 4 presents a contingency table for all 12 forms of Mandarin questions in our dataset. The strength of previous evidence escalates from the lowest degree "counter" to the highest degree "counter + direct" across the table. Although none of the question forms consistently correlate with previous evidence, rising declaratives have the highest proportions among all levels of previous evidence, except in the "weak indirect" and "counter + strong indirect" categories. The proportions of rising declaratives in contexts with "counter" previous evidence are significantly higher than in contexts without it. Additionally, the proportion of rising declaratives (12 occurrences, 60%) is twice as high as the second most common question form, that is, the *ma*-question in "counter" contexts, suggesting that rising declaratives are more likely to be used when speakers have pre-existing counter evidence against the positive answer.

**Table 4.** The distribution of questions forms according to previous evidence types.

| Question form | Counter | None | Weak indirect | Counter + Strong indirect | Strong indirect | Counter + Direct | Total |
|---|---|---|---|---|---|---|---|
| RD | 12 (60%) | 11 (32.4%) | 12 (23.1%) | 4 (40%) | 14 (23.7%) | 4 (40.0%) | 57 |
| *Ma*-Q | 6 (30%) | 6 (17.6%) | 16 (30.8%) | 5 (50%) | 6 (10.2%) | 1 (10.0%) | 40 |
| Tag Q | 0 | 3 (8.8%) | 6 (11.5%) | 1 (10%) | 8 (13.6%) | 1 (10.0%) | 19 |
| *A*-Q | 1 (5%) | 3 (8.8%) | 3 (5.8%) | 0 | 9 (15.3%) | 1 (10.0%) | 17 |
| *Ya*-Q | 0 | 2 (5.9%) | 3 (5.8%) | 0 | 8 (13.6%) | 0 | 13 |
| C-Not-C Q | 0 | 3 (8.8%) | 6 (11.5%) | 0 | 3 (5.1%) | 1 (10.0%) | 13 |
| *Ha*-Q | 0 | 1 (2.9%) | 0 | 0 | 6 (10.2%) | 0 | 7 |
| *La*-Q | 1 (5%) | 1 (2.9%) | 2 (3.9%) | 0 | 2 (3.4%) | 0 | 6 |
| Assertion | 0 | 2 (5.9%) | 2 (3.9%) | 0 | 2 (3.4%) | 0 | 6 |
| *Ba*-Q | 0 | 1 (2.9%) | 0 | 0 | 1 (1.7%) | 2 (20.0%) | 4 |
| Q-word Q | 0 | 1 (2.9%) | 1 (1.9%) | 0 | 0 | 0 | 2 |
| *Ne*-Q | 0 | 0 | 1 (1.9%) | 0 | 0 | 0 | 1 |
| Total | 20 | 34 | 52 | 10 | 59 | 10 | 185 |

It is noteworthy that the distribution of question forms in contexts with "weak indirect" previous evidence is distinct from other contexts. In these contexts, the most frequently used question form is the *ma*-question (16 occurrences, 30.8%), rather than the rising declarative. Comparing the proportions of *ma*-question in other degrees of contexts (30% in "counter", 17.6% in "none", 50% in "counter + strong indirect", 10.2% in "strong indirect", and 10% in "counter + direct"), it becomes apparent that *ma*-questions are more likely to be used when speakers have counter or weak indirect previous evidence. Tag questions, on the other hand, maintain similar proportions across all contexts, except for "counter" contexts, where there are no tag questions. The occurrences of *a*-questions and *ya*-questions in "weak indirect" contexts are both low, each appearing three times (5.8%). Our earlier study suggests that these question forms require direct and witness evidence (Yuan 2019), which is partially supported by our current data. The proportions of these two question forms are considerably higher in "strong indirect" (28.9%) contexts than in contexts with less direct previous evidence. However, our data indicate that *a*-questions and *ya*-questions tend to be used in contexts with relatively direct previous evidence but do not necessarily require witness evidence, as they are also used in [talked] "weak indirect" and [hearsay] "strong indirect" contexts.

According to previous studies by Li and Thompson (1981) and Schaffar and Chen (2001), C-Not-C questions are typically used as verum questions with a narrow focus on truth value, and are presumably more likely to be used when the speaker has strong evidence and biases. This is supported by our data showing a higher proportion of C-Not-C question in contexts with more direct previous evidence (10% in "counter + direct") compared to contexts with less direct evidence (5.1% in "strong indirect"). However, the pro-

portion of C-Not-C questions in "none" (8.8%) and "weak indirect" (11.5%) contexts is also high. This might be explained by the hypothesis that some participants use C-Not-C questions similarly to regular V-Not-V questions, considering them as neutral questions suitable for use in contexts with minimal evidence. In addition, Yang and Wiltschko (2016) and Yuan (2019) indicate that *ha*-questions require direct evidence, and *ba*-questions are only felicitous in contexts where the speaker is certain about the positive answer. Our data supports these fundings, showing no *ha*-questions or *ba*-questions occurring in "weak indirect" contexts, and *ba*-questions being the second most frequently used question form in the most direct contexts.

In "strong indirect" contexts, the distribution of question forms is more discrete than in other contexts. Rising declaratives and *ma*-questions account for 33.9%, which is notably lower than in all other contexts. The distribution of other question forms appears relatively even, with *a*-questions, tag questions, and *ya*-questions all having relatively high proportions. Compared to the low proportion of *a*-questions and *ya*-questions in contexts with less direct previous evidence, their high proportion in "strong indirect" (28.9%) contexts suggests that their use requires at least hearsay previous evidence. Tag questions, however, do not seem to have a strict requirement for previous evidence as they occur in all contexts, except for "counter" contexts. Finally, the proportion of *ha*-questions in "strong indirect" (10.2%) is considerably higher than in other contexts with less direct previous evidence, suggest that its use requires at least hearsay evidence but does not necessarily require witness evidence.

In "counter + direct" contexts, rising declaratives account for 40%, while other question forms have notably lower proportions. However, the proportion of *ba*-questions (20%) is significantly higher than in all other contexts. This suggests that the use of *ba*-questions requires direct witness previous evidence, supporting Yang and Wiltschko's (2018) claim that *ba*-questions are used when speakers hold a strong bias towards a positive answer.

### 4.2 Question forms and current evidence

Similar to the presentation of previous evidence, Table 5 displays a contingency table where the strength of current evidence ascends from the lowest degree "none" to the highest degree "direct". As shown in Table 5, the patterns of question forms in current evidence contexts are more consistent and discernible compared to previous evidence contexts. Of the 185 Mandarin questions in our dataset, 76 occur in "none", 56 occur in "indirect", and 53 occur in "direct" current evidence contexts. The distribution demonstrates that the use of rising declaratives positively correlates with the strength of current evidence, while the use of *ma*-questions and tag questions show a negative correlation. This suggests that rising declaratives are more likely to be used when current evidence is available to the speaker, while *ma*-questions and tag questions are more likely to be used when there is no current evidence available. Given the high proportions of *ma*-questions and tag questions in "none" contexts, it can be inferred that these question forms are more neutral than other biased questions and can thus be used appropriately in neutral contexts.

**Table 5.** The distribution of questions forms according to current evidence types.

| Question form | None | Indirect | Direct | Total |
|---|---|---|---|---|
| RD | 19 (25.0%) | 19 (33.9%) | 19 (35.8%) | 57 |
| *Ma*-Q | 21 (27.6%) | 11 (19.6%) | 8 (15.1%) | 40 |
| Tag Q | 12 (15.8%) | 4 (7.1%) | 3 (5.7%) | 19 |
| *A*-Q | 6 (7.9%) | 4 (7.1%) | 7 (13.2%) | 17 |
| *Ya*-Q | 3 (3.9%) | 5 (8.9%) | 5 (9.4%) | 13 |
| C-Not-C Q | 6 (7.9%) | 5 (8.9%) | 2 (3.8%) | 13 |
| *Ha*-Q | 3 (3.9%) | 2 (3.6%) | 2 (3.8%) | 7 |
| *La*-Q | 1 (1.3%) | 3 (5.4%) | 2 (3.8%) | 6 |
| Assertion | 1 (1.3%) | 2 (3.6%) | 3 (5.7%) | 6 |
| *Ba*-Q | 3 (3.9%) | 1 (1.8%) | 0 | 4 |
| Q-word Q | 1 (1.3%) | 0 | 1 (1.9%) | 2 |
| *Ne*-Q | 0 | 0 | 1 (1.9%) | 1 |
| Total | 76 | 56 | 53 | 185 |

Additionally, the proportion of *a*-questions in "none" (7.9%) and "indirect" (7.1%) contexts is similar and significantly lower than in "direct" (13.2%) contexts. This implies that *a*-questions tend to be used when the speaker has direct current evidence. In contrast, C-Not-C questions are more likely to be used in contexts with either no current evidence or only indirect evidence, as evidenced by their similarly higher proportions in "none" (7.9%) and "indirect" (8.9%) contexts compared to "direct" (3.8%) contexts. The use of *ha*-questions does not seem to correlate with the strength of current evidence, as their proportions remain consistently low across all contexts. Lastly, *ya*-questions (3.9%) and *la*-questions are more likely to be used in contexts with at least indirect current evidence, as their proportions in "none" contexts (3.9% and 1.3% respectively) are significantly lower than in "indirect" (8.9% and 5.4%) and "direct" (9.4% and 3.8%) contexts.

The proportion of *ba*-questions decreases from 3.9% in "none" contexts to 1.8% in "indirect" contexts, and ultimately drops to 0% in "direct" contexts. This negative correlation between *ba*-questions and the strength of current evidence contradicts the research conducted by Yang and Wiltschko (2016), which suggests that *ba*-questions are used when the speaker has affirmative evidence and is certain about a positive answer.

### 4.3 Question forms and social relations

Similar to both previous and current evidence, Table 6 presents a contingency table that illustrates the distribution of Mandarin questions in our dataset across two different degrees of social relation between interlocutors.

**Table 6.** The distribution of questions forms according to S vs. A.

| Question form | S=A | S<A | Total |
|---|---|---|---|
| RD | 39 (31.2%) | 18 (30.0%) | 57 |
| *Ma*-Q | 21 (16.8%) | 19 (31.7%) | 40 |
| Tag Q | 16 (12.8%) | 3 (5.0%) | 19 |
| *A*-Q | 13 (10.4%) | 4 (6.7%) | 17 |
| *Ya*-Q | 9 (7.2%) | 4 (6.7%) | 13 |
| C-Not-C Q | 9 (7.2%) | 4 (6.7%) | 13 |
| *Ha*-Q | 5 (4.0%) | 2 (3.3%) | 7 |
| *La*-Q | 4 (3.2%) | 2 (3.3%) | 6 |
| Assertion | 5 (4.0%) | 1 (1.7%) | 6 |
| *Ba*-Q | 2 (1.6%) | 2 (3.3%) | 4 |
| Q-word Q | 1 (0.8%) | 1 (1.7%) | 2 |
| *Ne*-Q | 1 (0.8%) | 0 | 1 |
| Total | 125 | 60 | 185 |

As indicated in Table 6, out of the 185 Mandarin questions within our dataset, 125 occur in "S=A" contexts, while 60 occur in "S<A" contexts. The proportions of rising declaratives are nearly identical in both contexts. In contrast, the proportion of *ma*-questions in "S=A" contexts (21 occurrences, 16.8%) is roughly half of that in "S<A" contexts (19 occurrences, 31.7%). This suggests that speakers are more likely to use *ma*-questions when their social statuses are lower than their addressees. This noticeable difference provides supporting evidence for the previous hypothesis that *ma*-questions are more neutral than other biased questions and can be used in contexts where speakers are biased about the question as a politeness strategy.

Tag questions occur more than twice as often in "S=A" contexts (16 occurrences, 12.8%) compared to "S<A" contexts (3 occurrences and 5.0%). This observation implies that, unlike *ma*-questions, tag questions tend to be perceived as more neutral but not necessarily more polite than other forms of biased questions. The proportion of *a*-questions is much higher in "S=A" contexts (13 occurrences, 10.4%) than in "S<A" contexts (4 occurrences, 6.7%), indicating that *a*-questions are considered less polite and therefore less likely to be used when the social status of the speaker is lower than that of the addressee. In addition, there is no significant difference in the proportions of *ya*-question, C-Not-C question, *ha*-question, and *la*-question between the two contexts.

## 5. Conclusion

In conclusion, Table 7 provides a comprehensive summary of the relationship between the grammatical forms of Mandarin Chinese questions in our dataset and their context of use.

**Table 7.** Relationship between question forms and their context of use.

| Question form | Previous evidence | Current evidence | S vs. A |
|---|---|---|---|
| RD | + counter evidence | + current evidence | NA |
| *Ma*-Q | + counter evidence<br>+ weak indirect evidence | − current evidence | + neutral<br>+ polite |
| Tag Q | − counter evidence | − current evidence | + neutral |
| *A*-Q | + more direct evidence | + direct evidence | − polite |
| *Ya*-Q | + more direct evidence | + direct evidence<br>+ indirect evidence | NA |
| C-Not-C Q | + direct evidence<br>+ weak indirect<br>+ no evidence | + no evidence<br>+ indirect evidence | NA |
| *Ha*-Q | + more direct evidence | NA | NA |
| *La*-Q | NA | + direct evidence<br>+ indirect evidence | NA |
| *Ba*-Q | + direct evidence | negative correlation | NA |

As shown in Table 7, the use of Mandarin questions is notably influenced by the contextual factors investigated in this paper. Rising declaratives are more often used in contexts with counter previous evidence or direct/indirect current evidence. *Ma*-questions are preferred in contexts with counter or weak indirect previous evidence, or when there is no current evidence available. They are generally perceived as more neutral and polite. In contrast, tag questions are less likely to occur in contexts with counter previous evidence or any current evidence. Similar to *ma*-questions, they are also considered more neutral than other forms of biased questions, however, there is no definitive evidence to suggest they are any more polite.

In addition, *a*-questions are more commonly used in contexts with relatively higher degree of direct previous evidence or direct current evidence. However, they are perceived as less polite compared to other question forms. Similarly, *ya*-questions also tend to be used in contexts with more direct previous evidence, but they are less likely to occur in contexts without any current evidence. Furthermore, in contrast to our earlier findings that *a*-questions and *ya*-questions require direct and witness evidence (Yuan 2019), the present study indicates that although they are both more likely to be used in contexts with relatively direct previous and current evidence, only *a*-questions require direct current evidence.

C-Not-C questions are more frequently used in contexts where the speaker either has direct previous evidence or barely has any previous evidence or current evidence. These contradictory patterns indicate the potential existence of two distinct types of C-Not-C questions. One plausible explanation is that certain participants use C-Not-C questions similarly to regular neural V-Not-V questions, and thus consider them appropriate in contexts with minimal available evidence. Furthermore, different from the earlier findings that *ha*-questions require witness evidence (Yuan 2019), our current study demonstrates that

*ha*-questions do not necessarily require witness evidence, but they require at least hearsay evidence. In addition, *la*-questions are less likely to occur in contexts where there is no current evidence available. Finally, according to Yang and Wiltschko (2016), *ba*-questions are used when the speaker is certain about a positive answer. Our results suggest that *ba*-questions are only more likely to be used in contexts with direct previous evidence, however, they display a negative correlation with the strength of the current evidence.

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## Appendix

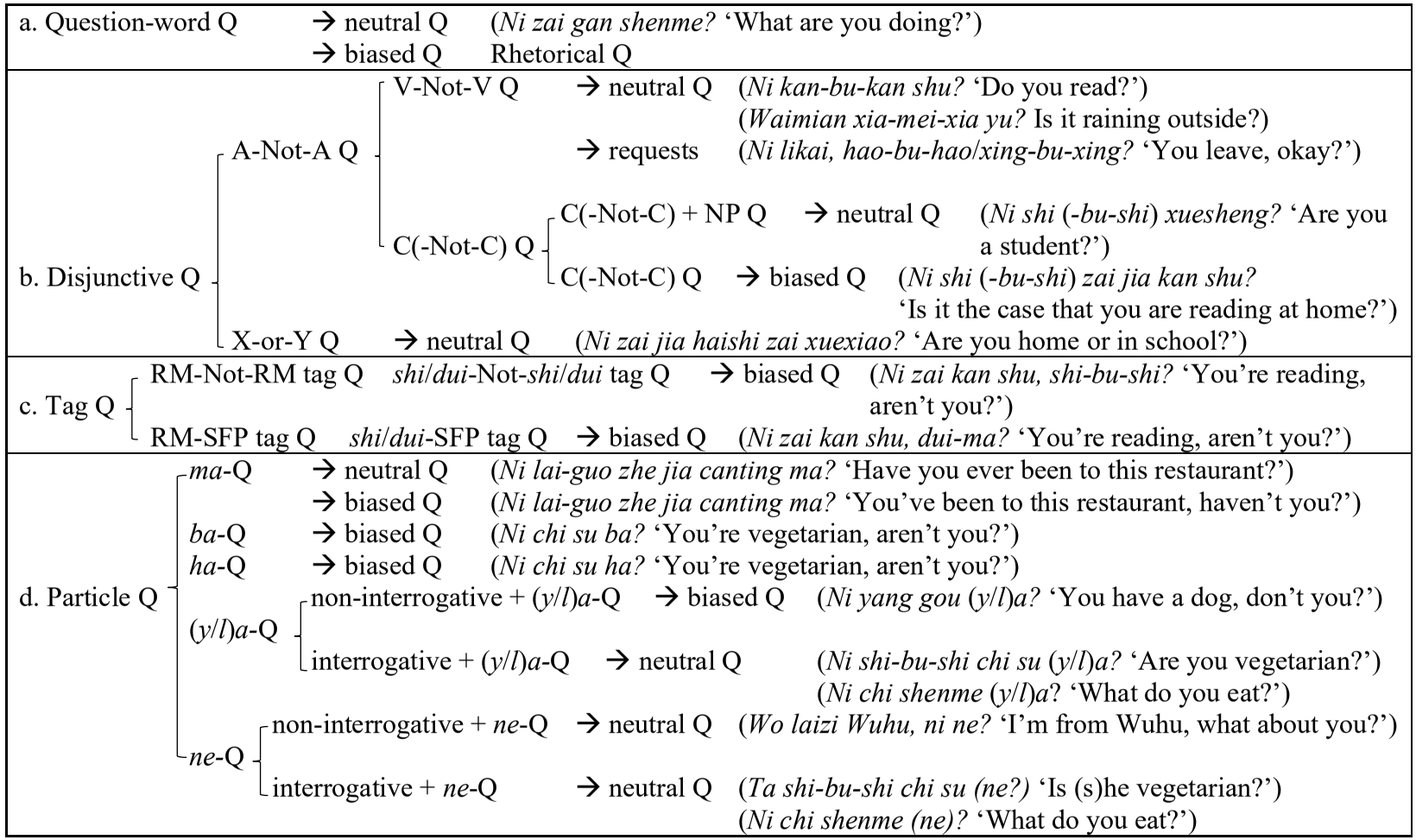


**Figure 2.** The coding scheme for questions in Mandarin Chinese.