Considering an issue: The doubt-suspect ambiguity of Mandarin *huaiyi*

Introduction The Mandarin attitude verb *huaiyi* exhibits ambiguity between 'doubt' and 'suspect', as documented in prior studies (Li 1987; Yuan 2014; Lu 2016; a.o.). Taking (1) as an example, *huaiyi* is interpreted as 'doubt' in context (2a), and as 'suspect' in context (2b).

(1) wo huaiyi Lisi you zhe ge nengli.
  I HUAIYI Lisi have this CL ability
  'I doubt/suspect that Lisi has such an ability.'

(2) a. Everyone thinks that Lisi is most likely to have stolen the painting, but (1).
    Interpretation of (1): I [doubt]$_F$ that Lisi has such an ability.
  b. Q: Who do you think is capable of stealing this painting?   A: (1).
    Interpretation of (1): I suspect that [Lisi]$_F$ has such an ability.

While previous research has focused on the declarative-embedding cases of *huaiyi*, this study offers a novel observation that in addition to declarative complements, *huaiyi* selects biased interrogatives as its complement. To account for the doubt-suspect ambiguity and selectional restrictions, we provide a unified semantics for *huaiyi*: it asserts that the agent believes the issue denoted by its complement is on the Table (cf. Farkas & Bruce 2010), and presupposes that the agent holds a biased belief about its complement. Based on this semantic core, the 'doubt' and 'suspect' interpretations can be derived via certain pragmatic reasoning.

Selectional restrictions In addition to declaratives, *huaiyi* can also embed A-not-A questions (a type of polar questions) and alternative questions. When embedding interrogatives, *huaiyi* selects only biased questions, and its interpretation depends on the bias of its complement. First, for A-not-A questions, *huaiyi* rejects the neutral ones (3) while allowing for the biased ones (4) – (6). The interpretation of *huaiyi* aligns with the bias of its complement. According to Ye's (2021) observation, A-not-A questions formed with the focus marker *shi* are positively biased, whereas stressed A-not-A questions (with the first 'A' stressed) are negatively biased. Correspondingly, *huaiyi* is interpreted as 'suspect' when embedding positively biased questions (4), and as 'doubt' when embedding negatively biased questions (5) – (6).

(3) *ta huaiyi zheli you-mei-you   jiushiqi   renlei wenhua.
  he HUAIYI here have-not-have Paleolithic human culture
  Int.: 'He doubted whether there was Paleolithic civilization here.'   (*Neutral AnAQ)

(4) Context: The man was ashamed of his behaviors in front of his son.
  ta huaiyi ziji shi-bu-shi   you-shi   jiandian.
  he HUAIYI self FOC-not-FOC have-lack discretion
  'He suspected that he had behaved indiscreetly.'   (Positively biased AnAQ)

(5) Context: No human fossils had been found in the Three Gorges of Yangtze River.
  ta huaiyi zheli (daodi) YOU-mei-you jiushiqi   renlei wenhua.
  he HUAIYI here at.all have-not-have Paleolithic human culture
  'He doubted whether there was Paleolithic civilization here.' (Negatively biased AnAQ)

(6) Context: The man thinks that Junqiao, a woman who is the same age as him, is childish.
  ta zhen huaiyi junqiao (daodi) SHI-bu-shi gen ta   tong-nian.
  he really HUAIYI Junqiao at.all FOC-not-FOC as him same-year
  'He really doubts whether Junqiao is the same age as him.'   (Negatively biased AnAQ)

Second, for alternative questions, *huaiyi* does not take the neutral ones (e.g. '*I *huaiyi* [he wants coffee or tea]'), but selects the biased ones. In these cases, *huaiyi* is interpreted as doubting one alternative and suspecting the other, as shown by (7). The dual interpretation of *huaiyi* suggests that the 'doubt' and 'suspect' interpretations share a common semantic core.

(7) Context: There are so many people in the garden that the speaker cannot see the view.
  wo huaiyi renmen shi zai guan jing   haishi guan ren.
  I HUAIYI people FOC PROG watch scenery or   watch people
  'I doubt that people are watching the scenery and suspect that they are watching the crowd.'

Semantics of *huaiyi* To account for the doubt-suspect ambiguity and selectional restrictions, we propose (8) as a lexical entry for *huaiyi*, where *huaiyi* takes a set of propositions φ as its complement and an entity x as its agent. To wit, (i) *huaiyi* presupposes that the agent x assigns different subjective probabilities to different propositions in φ (cf. Davis et al. 2007), i.e., the agent's epistemic state is partitioned in an unbalanced way; (ii) it asserts that the agent x believes that φ is an issue on the Table, i.e., the agent has an unresolved issue in mind.

(8) $[\![huaiyi]\!] = \lambda\varphi . \lambda x . \lambda w : \forall p, q \in \varphi[p \neq q \to \mathrm{CRED}_x^w(p) \neq \mathrm{CRED}_x^w(q)] . \mathrm{DOX}_x^w \subseteq [\varphi \in \mathrm{Table}]$

$\qquad$ where $\mathrm{CRED}_x^w(p) \stackrel{\text{def}}{=} \mathcal{P}(p \cap \mathrm{DOX}_x^w)/\mathcal{P}(\mathrm{DOX}_x^w)$

The selectional restrictions of *huaiyi* follow directly from the presupposition. A declarative complement denotes a singleton set, and as such trivially satisfies the presupposition. An interrogative complement, on the other hand, denotes a set of possible answers. Given that the presupposition requires different subjective probabilities for each possible answer, the agent is relatively biased towards one possible answer. As a result, *huaiyi* selects biased interrogatives.

Reasoning about the Table Drawing upon Farkas & Bruce (2010), we assume that an agent's epistemic state is dynamically updated and can be structured with three elements: the Table_x (an ordered stack of issues to be resolved), DC_x (the set of propositions which the agent is committed to), and DC_x^* (sets of projected/tentative commitments of the agent). The ambiguity of *huaiyi* can be attributed to the status of its complement. In particular, we propose two types of pragmatic reasoning for the interpretation of *huaiyi*.

I. Questioning the commitment of others

a. When $p \in \mathrm{DC}_a$, a believes that p is true.
b. If $\{p\} \in \mathrm{Table}_x$, then x believes that p is to be resolved.
c. If x believes that p is to be resolved, then x believes that p is not necessarily true ($\neg\square_x p$).

	Other agents	$\ulcorner x\ huaiyi\ p \urcorner$
Table_x	<>	< $\{p\}$ >
DC_x^*	$\{\{\}\}$	$\{\{\}\}$
DC_x	$\{p\}$	$\{\}$

The **questioning-as-doubting reasoning** accounts for the negative belief reading of *huaiyi*. In (2a), 'Lisi can steal the painting' is a commitment held by others, but the agent considers it an issue yet to be resolved, as she believes that it is not necessarily true. The same mechanism applies to the interrogative-embedding cases – if $\{p, \neg p\} \in \mathrm{Table}_x$, then x believes that p is not resolved. As in (5) and (6), the agent checks the truth of the proposition that other agents have committed to, and thus holds a negative belief. This reasoning can also derive the 'doubtful' reading of *questionable* in English.

II. Proposing a possible answer

a. When $p \in \mathcal{Q}$, $\mathcal{Q} \in \mathrm{Table}_x$, p is a possible answer.
b. If $\{p\} \in \mathrm{Table}_x$, and p is a possible answer, then $\{p\} \in \mathrm{DC}_x^*$.
c. If $\{p\} \in \mathrm{DC}_x^*$, then x believes p is likely to be true ($\Diamond_x p$).

	Other agents	$\ulcorner x\ huaiyi\ p \urcorner$
Table_x	< $\{p, q, r, \dots\}$ >	< $\{p\}$ >
DC_x^*	$\{\{\}\}$	$\{\{p\}\}$
DC_x	$\{\}$	$\{\}$

The **proposing-as-suspecting** reasoning accounts for the positive belief reading of *huaiyi*. In (2b), the question under discussion (QUD, Roberts 1996) is 'who can steal the painting?', and the agent considers 'Lisi can steal the painting' as a possible answer. Since the agent intends to close the *wh*-question, she expects the possible answer to be true. The same holds for *shi-bu-shi* questions like (4) – the agent checks in mind the truth of a possible complete answer 'he behaved indiscreetly' to the QUD 'how did he behave?', and thus expects it to be true. As for the dual interpretation of *huaiyi* in (7), the QUD is 'what are people watching?', and it is commonly assumed that people are watching the scenery. The agent questions this assumed commitment and proposes a new possible answer 'people are watching the crowd'. Thus, the agent holds a negative belief about the former and a positive belief about the latter.

Under negation We will further demonstrate that the negative counterpart $\ulcorner x\ not\ huaiyi\ p \urcorner$ should be interpreted as 'x does not believe that p is an issue', although in certain contexts, this can be strengthened to 'x believes p'.