

Do children know that PolQs are *not* AltQs? Evidence from Mandarin Chinese

English and Mandarin adopt different strategies to distinguish between **Polar Questions (PolQs)** and **Alternative Questions (AltQs)** (Table 1): English **PolQs** (1)/(3) and **AltQs** (2) are distinguished by intonation (Biezma & Rawlins 2015); while in Mandarin, **PolQs** are marked by PolQ-particle *mā* (5), and **AltQs** are formed with the interrogative disjunctor *háishì* (6), which differs from the declarative disjunctor *huòzhě* (Erlewine 2017). No salient effect of intonation is found in distinguishing the two kinds of questions in Mandarin (Yuan & Hara 2019), leaving morpho-syntactic distinctions as the *only* cues for children. Moreover, unlike English, where **PolQs** require “yes/no” responses (Hamblin 1973), Mandarin **PolQs** (5) are *also* compatible with verb-echo answers p “(John) likes (coffee)” and $\neg p$ (Yuan & Hara 2021). To distinguish **PolQs** from **AltQs**, Mandarin-acquiring children must grasp the different speech acts associated with the two disjunctors; especially, when *mā* co-occurs with declarative *huòzhě*, it yields **PolQs** instead of **AltQs**.

Previous longitudinal studies have shown that Mandarin-speaking children started to form **PolQs** with PolQ-particle *mā* early and productively in their naturalistic speech ($1.0 \leq \text{MLU}_w \leq 1.75$, Cheng 1991), preceding **AltQs** ($2.5 \leq \text{MLU}_w \leq 3.0$, Li & Chen 1997). In terms of comprehension, children accept declarative *huòzhě* under *if*-conditionals in a boolean sense early at age two (Su 2014). However, it remains to be ascertained when Mandarin-acquiring children begin to distinguish between declarative and interrogative disjunctors, and are able to distinguish **PolQs** from **AltQs**.

Forty-eight Mandarin-speaking children (3;3-6;7, $M_{age}=4;10$) completed a within-subject **Question-Statement Task** (Zhou & Crain 2011) with a 4×4 design, crossing **4** Sentence Types (Table 2) and **4** Contexts (“Coffee”, “Tea”, **Neither**, and **Both**). The children were shown corresponding videos on a screen and then listened to stories narrated by experimenters and pre-recorded sentences by a puppet. Participants were asked to first decide whether the puppet made a statement or posed a question, and then to judge whether the statement was true or answer the question based on the story. **Fig.1** is an example of the stimuli. Each participant received 16 target sentences, 2 training and 16 filler trials, evenly inserted in four stories. The type and accuracy of children's responses were tallied separately.

Our results (**Fig.2**) clearly show that Mandarin-speaking preschoolers *are* able to distinguish **PolQs** from **AltQs** at least from 3;3, as evidenced by: a. Four groups of children responded to **AltQs** with Alternative-Responses significantly more than Yes/No-Responses ($p < .001$), although accuracy showed age differences (54%(3), 63%(4), 73%(5), 94%(6); $r = .98$). Their Yes/No-Responses responses to **DisDec** were significantly more than Alternative-Responses ($p < .001$). b. When responding to **PolQs**, children's Yes/No-Responses are significantly more than Alternative-Responses ($p < .001$), with no significant differences in accuracy between the four groups (90%(3), 92%(4), 98%(5), 98%(6); $p > 0.1$). c. Four groups of children answered **DisPolQ** with significantly more Yes/No-Responses than Alternative-Responses ($p < .001$), although they show significantly lower accuracy than they did on **PolQs** (48%(3), 40%(4), 44%(5), 52%(6), $p < .001$).

- (1) Does John like coffee?_{L*H-H%}
- (2) Does John like tea_{H*} or coffee?_{H*L-L%}
- (3) Does John like tea or coffee?_{L*H-H%}
- (4) John likes tea_{H*} or coffee._{H*L-L%}

Polar Question (PolQ)
Alternative Question (AltQ)
Disjunctive Polar Question (DisPolQ)
Disjunctive Declarative (DisDec)

- (5) John xīhuān kāfēi *mā*?
 John like coffee Q
 “Does John like coffee?_{L*H-H%}”
- (6) John xīhuān kāfēi *háishì* chá?
 John like coffee or tea
 “Does John like coffee_{H*} or tea?_{H*L-L%}”

PolQ

AltQ

Table 1. The ways of distinguishing PolQs from AltQs in English and Mandarin

	Q-Particle	Q-Disjunctor	Intonation
English	✗	✗	✓
Mandarin Chinese	✓	✓	✗

Table 2. Four target sentence types with corresponding answer sets*

Sentence Type	Token	Expected Answers
<i>PolQ</i> (control)	John hē-le kāfēi <i>mā</i> ? John drink- _{ASP} coffee Q “Did John drink coffee? _{L*H-H%} ”	“Yes”/“No”-Response (Verb-echo included)
<i>AltQ</i>	John hē-le kāfēi <i>háishì</i> chá? John drink- _{ASP} coffee or tea “Did John drink coffee _{H*} or tea? _{H*L-L%} ”	Alternative-Response (“Coffee”/ “tea”/ “Neither” / “Both”)
<i>DisDec</i>	John hē-le kāfēi <i>huòzhě</i> chá. John drink- _{ASP} coffee or tea “John drank coffee _{H*} or tea. _{H*L-L%} ”	“Yes”/ “No”-Response
<i>DisPolQ</i>	John hē-le kāfēi <i>huòzhě</i> chá <i>mā</i> ? John drink- _{ASP} coffee or tea Q “Did John drink coffee or tea? _{L*H-H%} ”	“Yes”/“No”-Response (Verb-echo included)

*The grayed “Neither”/“Both” alternatives are marked responses, they are logically possible answers that are presupposed away. (Biezma & Rawlins, 2012)

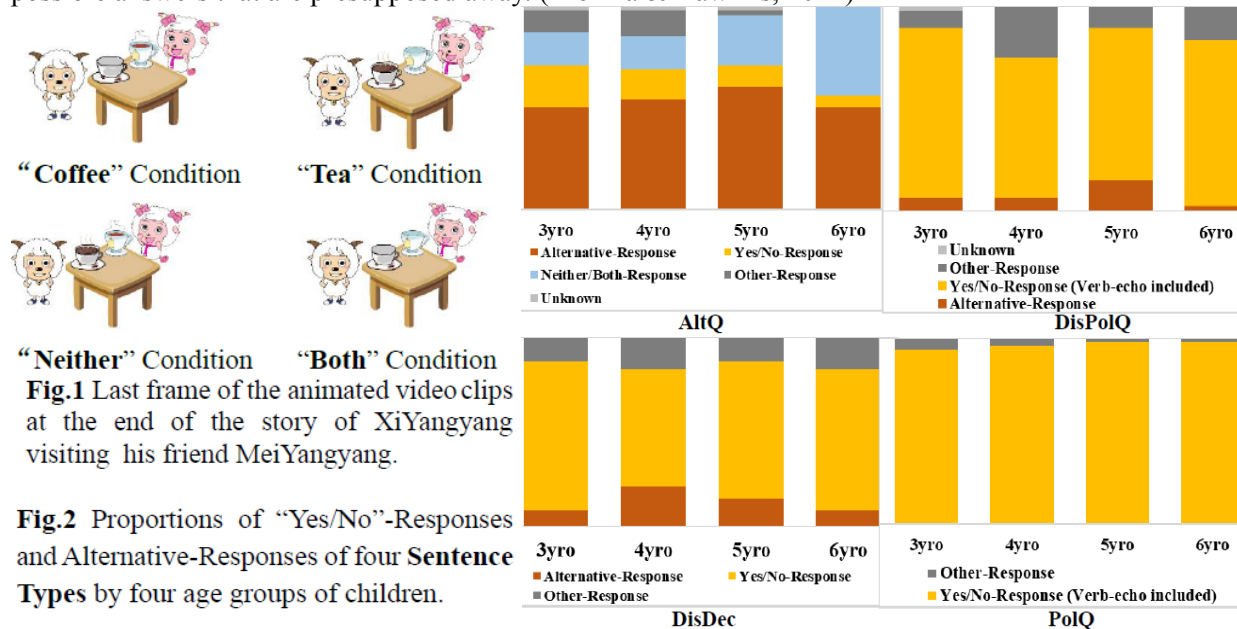


Fig.1 Last frame of the animated video clips at the end of the story of XiYangyang visiting his friend MeiYangyang.

Fig.2 Proportions of “Yes/No”-Responses and Alternative-Responses of four Sentence Types by four age groups of children.

Sel. Ref. Biezma, M., & Rawlins, K. (2012) Responding to alternative and polar questions. Biezma, M., & Rawlins, K. (2015) Alternative questions. Cheng, S.W. (1991) The development of questions in Mandarin. Erlewine, M. Y. (2017) Two disjunctions in Mandarin Chinese. Hamblin, C. L. (1973) Questions in Montague English. Li, Y., & Chen, Q. (1997) Comprehension and production of Mandarin children’s questions. Su, Y. (2014) The acquisition of logical connectives in child Mandarin. Yuan, M., & Hara, Y. (2019) The semantic distinction between Chinese *ma*-questions and A-not-A questions. Yuan, M., & Hara, Y. (2021) How contextual bias rules the distribution of Mandarin polar questions and their answers. Zhou, P., & Crain, S. (2011) Children’s knowledge of the quantifier *dou* in Mandarin Chinese.