Presupposition of AltQs Revisited : The View from Child Language

This study investigates how Mandarin-speaking children respond to alternative questions (AltQs), with a special focus on the spectrum of their responses. Unlike English, Mandarin employs two disjunctors to distinguish between AltQs **(1)** and polar questions with embedded disjunction **(2)** (Erlewine 2024; Li & Thompson 1989), and intonation merely plays a trivial role in differentiating these two types of questions and the responses they seek (Yuan & Hara 2019; 2021).

(1)   John he-le   kafei   *haishi* cha   (*ma)?   **Alternative Question (AltQ)**
        John drink-$_{PST}$ coffee or-$_{INQ}$ tea   Q
        "Did John drink coffee$_{H*}$ or tea?$_{H*L–L\%}$"

(2)   John he-le   kafei   *huozhe* cha (ma?)   **Declarative / Polar Question**
        John drink-$_{PST}$ coffee or-$_{DEC}$ tea   Q
        "John drank coffee or tea."/ "Did John drink coffee or tea?$_{L*H–H\%}$"

Background. The status of responses to an AltQ remains contested, and the core of the debate lies in the semantic and pragmatic structure of AltQs, particularly its requirement for the exhaustivity of the alternatives. According to a traditional **view I** towards English AltQs such as **(3)**, responses like **B″** ad **B‴** are considered non-standard answers because of a strong exhaustivity presupposition of AltQs, which is derived from the interaction between the *falling contour* of AltQs and pragmatics of questioning (Zimmerman 2000; Biezma & Rawlins 2009, a.o.). And cooperative speakers may produce these responses by *accommodating* propositions beyond the presupposed set. The challenging **view II** from more recent studies show that the semantics of AltQs can be interpreted as *inclusive*, while its exclusive interpretation is merely a result of pragmatic reasoning, so 'both' is not logically contra to the semantics of AltQs, and 'neither' could be accommodated to satisfy the requirement of QUD (Karttunen 1977; Groenendijk & Stokhof 1984; Groenendijk & Roelofsen 2009). However, there is a lack of direct empirical evidence to support either view; in particular, empirical evidence from a cross-linguistic perspective is needed, as not all languages employ intonational cues as compositional materials, such as Mandarin.

(3)   A: Did John drink coffee$_{H*}$ or tea$_{H*L–L\%}$?   B: He drank coffee.   B′: He drank tea.
        B″: (Actually,) He drank both.   **B‴: (Actually,) He drank neither.**

More importantly, the availability of accommodation complicates examining the notion of presuppositions as *admittance conditions* (Stalnaker 1974; Karttunen 1974) in adult experiments. Aravind et al. (2023) demonstrated that while adults readily accommodate presuppositions, young children often fail to do so. This provides us a good starting point for unravelling the nature of AltQs and their answer sets: In children, who are a population where the interference from accommodation is lacking, the impact of failing to satisfy the *admittance conditions* would become directly observable.
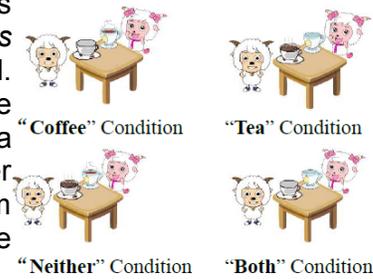

Fig.1 Last frame of the animated video clips at the end of the story of XiYangyang visiting his friend MeiYangyang.

Experiment I & Predictions. Fifty-seven Mandarin-speaking children (3;3–6;7, M_{age}=4;10; Four age groups: N_{3yro}=12, N_{4yro}=17, N_{5yro}=14, N_{6yro}=14,) completed a **Question-Answering Task** crossing AltQ × 4 State of Affairs (SoA, "Coffee", "Tea", Neither, and Both). Children were shown corresponding slides on a screen, listening to stories narrated by experimenters and answering pre-recorded questions by a puppet after each story. **Fig.1** is an example of the stimuli. Each participant received 4 target sentences, 2 training and 8 fillers. Responses were categorized and analyzed by **response type** and **accuracy**. If **View I** predicts correctly, we should expect a delay in children's 'Both'/'Neither'-responses during early development, with such delays disappearing in older children. Alternatively, if **View II** holds true, children should be able to produce 'Both'/'Neither'-responses at an early age without difficulty.

Results of Exp I (Fig. 2 & 3). As for **Response Type (RT)**, when the context supports only one of the two disjuncts (coffee or tea), children behave highly adult-like ($p < .001$). However, when the context supports both alternatives or neither, younger children exhibit delays in their corresponding responses ($p < .001$). **Response Accuracy (RA)** demonstrates a marked age-related pattern: For

'Both': 3yro: 33.33% 4yro: 17.65% 5yro: 50%, 6-yro: 92.86%, $r = .84$; For 'Neither': 3yro: 25%, 4yro: 52.94% 5yro: 57.14%, 6-yro: 78.57%, $r = .97$ (see **Fig. 3**).

Discussion. The results of **Exp I** appear to support **View I**, namely that 'Both'/'Neither'-responses are not standard answers to AltQs in early language development. Even in languages lacking intonation as a component of compositional semantics of AltQs, children still exhibit difficulty producing 'Both'/'Neither'-responses when confronted with AltQs with only two disjuncts. This is less surprising given Dayal's (1996; 2016) prediction, since 'Both'/'Neither' are not in the *denotation* of AltQs. And the results suggest that children are acquiring accommodation from 3yro to 6yro. A follow-up **Exp II** involving 112 children (3;5–6;7, M_{age} = 4;11; between-subject) tested if explicitly spelled-out alternatives **(4b–d)** would improve children's production of 'Both'/'Neither'-responses. **Results of Exp II** (see **Fig. 4**) confirmed this hypothesis by the fact that younger children produce significantly higher rate of such responses under given conditions ($p < .001$).

(4) a. Does John like coffee $_{H^*}$ or tea?$_{H^*L- L\%}$ (**G1**)
   b. Does John like coffee$_{H^*}$, tea$_{H^*}$, or both coffee and tea?$_{H^*L- L\%}$ (**G2**)
   c. Does John like coffee$_{H^*}$, tea$_{H^*}$, or neither of the two?$_{H^*L-L\%}$ (**G3**)
   d. Does John like coffee$_{H^*}$, tea$_{H^*}$, both coffee and tea$_{H^*}$, or neither of the two?$_{H^*L- L\%}$ (**G4**)

We thus conclude that children do not acquire accommodation until the age of 6, attributing their lower accuracy to not being able to respond to AltQs when their presupposition fails, as being verified by the fact that children's production of 'Both'/'Neither'-responses has been improved by the explicitly spelled-out alternatives of AltQs.
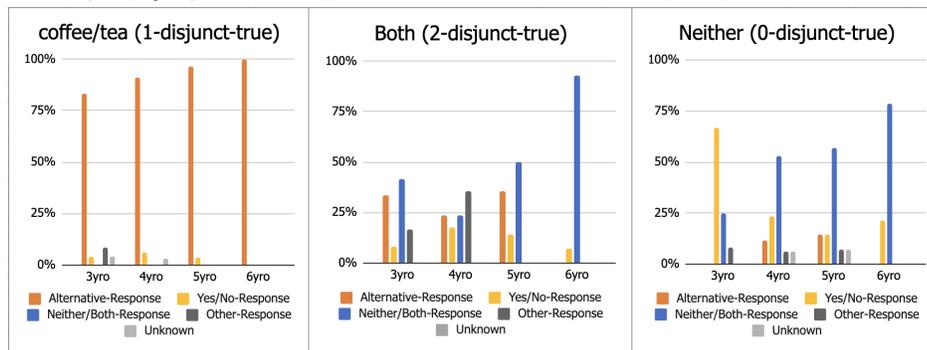

Fig. 2. Type of children's responses to target sentence under three context types
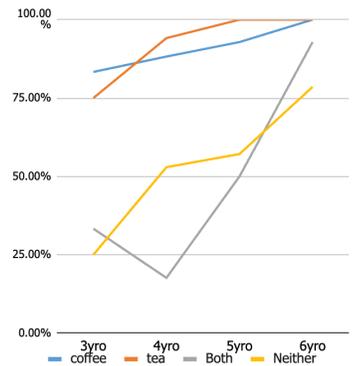

Fig. 3. Accuracy of children's responses to Target Sentence under four Context Conditions
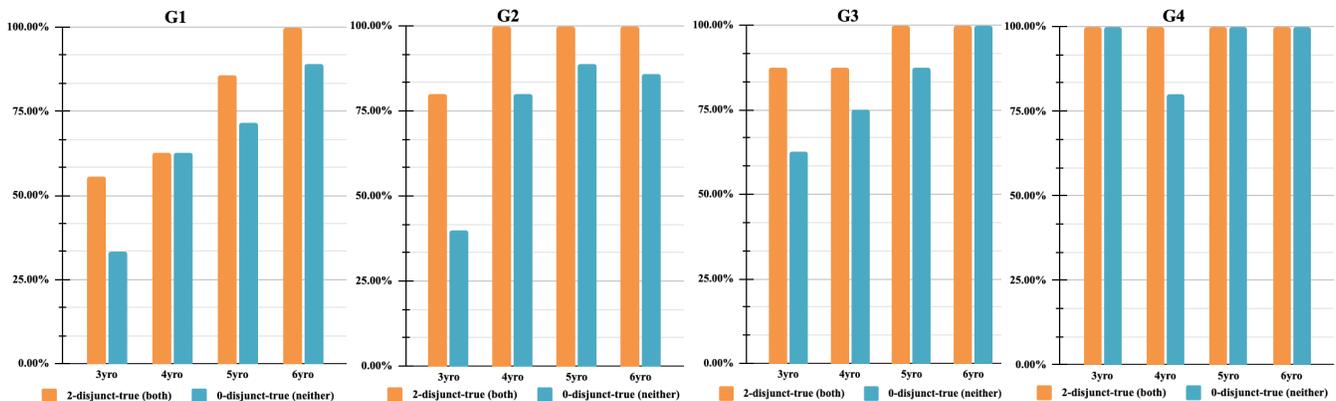

Fig. 4. Proportions of "Both"/"Neither"-responses from four age groups of children to four Sentence Types (G1, G2, G3, G4) under two Context Conditions (2-disjunct-true & 0-disjunct-true).

Selected References ■ **Aravind, A., Fox, D., & Hackl, M. (2023)**. Principles of presupposition in development. ■ **Biezma, M., & Rawlins, K. (2012).** Responding to alternative and polar questions. ■ **Biezma, M., & Rawlins, K. (2015).** Alternative questions. ■ **Dayal, V. (2016)**. Questions. ■ **Erlewine, M. Y. (2024).** Interrogative and standard disjunction in Mandarin Chinese. ■ **Geurts, B. (2024).** Common ground in pragmatics. ■ **Hamblin, L. (1973).** Questions in Montague English. ■ **Klochowicz, T., Sbardolini, G., & Aloni, M. (2025).** Cognitive bias approach to the acquisition of disjunction. ■ **Nicolae, A. C., Petrenco, A., Tsilia, A., & Marty, P. (2024).** Do languages have exclusive disjunctions? ■ **Rawlins, K. (2008).** (Un) conditionals: An investigation in the syntax and semantics of conditional structures. ■ **Roelofsen, F. (2015).** The semantics of declarative and interrogative lists. ■ **Zimmermann, T. (2000).** Free choice disjunction and epistemic possibility.