Complexity in the acquisition of relative clauses: Evidence from school-age Chinese-Italian bilingual children

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Introduction. Relative clauses (henceforth RCs) are often considered as representations of complexity in child language. It has been well-established that object RCs are harder to comprehend than subject RCs by monolingual children (see Hu 2014, and reference in), and the asymmetry has been confirmed in head-final RCs such as Chinese RCs (see (1)) and in head-initial RCs such as Italian RCs (see (2)). By contrast, there are not many studies on bilingual children's acquisition of RCs (see Kidd et al. 2014, and reference in).

In the current study, we investigate Chinese-Italian bilingual children's comprehension of RCs, which has not been examined yet. The aims of this study were the following: first, to test whether the subject/object asymmetry found in previous research on monolingual children would also obtain in school-age bilingual children, and to see what extent this asymmetry emerges in the course of development; second, to examine whether the comprehension pattern of bilingual children is identical to that of their monolingual peers and if not, to show their difference; third, to investigate how specific properties of two languages influence bilingual children's acquisition of RCs.

Method. A total of 48 Chinese-Italian speaking children, 64 Chinese-speaking children, and 41 Italian-speaking children were tested. They were aged from 6 to 9, and were further divided into a younger (6;0-7;11) and an older (8;0-9;11) group. All the bilingual children received systematic exposure to Italian no later than the age of 4 years. We examined the comprehension of Chinese RCs (1) and Italian RCs (2) by means of a character-sentence matching task; the answer was judged correct if the correct character was pointed at, and the others were coded as Errors with different labels (e.g., reversal error); for each sentence type, there were 8 experimental sentences.

(1) a. Na   yi-ge   shi da xiaogou de xiaomao?   (subject RCs)
    which one-CL is hit dog   DE cat
    'Which one is the cat that hits the dog?'
  b. Na   yi-ge   shi qingwa da de laoshu?   (object RCs)
    which one-CL is   frog   hit DE   child
    'Which one is the mouse that the frog hits?'

(2) a. Fammi vedere le tartarughe che rincorrono la gallina.   (subject RCs)
    show me   the turtle-pl that chase-pl   the hen-sg
    'Show me the turtles that chase the hen.'
  b. Fammi vedere i leoni che il cavallo   rincorre. (object RCs with a preverbal subject)
    show me   the lion-pl that the horse-sg chase-sg
  c. Fammi vedere i leoni che rincorre il cavallo.   (object RCs with a postverbal subject)
    show me the lion-pl that chase-sg the horse-sg
    'Show me the lions that the horse chases.'

Results. We used mixed-effects models for the analyses relying on the R environment (Bates et al., 2012). There are four findings. First, subject RCs were significantly more accurate than object RCs in both languages (all $p < .001$), in line with the findings from their Chinese and Italian monolingual peers.

Second, although they show the same asymmetry, their performance on all sentence type was much poorer than their monolingual peers' (all $p < .001$) and the course of development was not identical. Specifically, the accuracy rates of comprehending Italian object RCs with a postverbal object increased as Italian monolingual children grew up, but not so in bilingual children ($p < .001$).

Third, bilingual children had difficulty in comprehending Chinese subject RCs, but not Italian subject RCs. There is a significant difference between two sentence types in bilingual younger age group ($p < .05$), but not in bilingual older age group.

Fourth, the distribution of error types in the two groups was similar to their monolingual peers, but differed in two languages, e.g., the most common error in Chinese RCs was the 'agent' interpretation error, contrary to the 'reverse' error in Italian RCs.

Discussion. The findings of our study shed new light on the comprehension of Chinese and Italian RCs. We found that both bilingual and monolingual children, regardless of whether RCs are head-final (i.e., Chinese RCs) or head-initial (i.e., Italian RCs), showed more difficulty in comprehending object RCs than in subject RCs. Such a subject/object asymmetry can be explained by the Relativized Minimality approach expressed in terms of features (Friedmann et al. 2009; Guasti et al., 2012; Hu, 2014).

We also showed that the competence of RC comprehension requires more years of exposure to be completely acquired by bilingual children and object RCs with a postverbal subject are particularly taxing for bilingual children. We propose that learning two languages may slow down the acquisition of each language in some circumstances for structures that are different in the two languages.

In addition, we observed the influence of the language-specific properties, namely, the difficulty of Chinese subject RCs and the different error types in two languages. We conjure that when children have not mastered the modifying nature of the RC, they failed in reanalyzing the structure and accordingly, they chose the character depending on the cue of the word order. This study also reveals that Chinese RCs may be more complex than Italian RCs, as shown by the case of subject RCs.

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