Delayed Subject Advantages in Mandarin Sluicing Acquisition

Keywords: language acquisition, Mandarin Chinese, sluicing

Nutshell. Whether Mandarin sluicing derives from TP-ellipsis after the movement of the wh-remnant[2][7] or contains a silent pronoun *pro* but no elliptical structure[1][4] is a long-standing question. This paper supports the movement-ellipsis approach with evidence from Mandarin-speaking children's acquisition of sluicing. My study further shows that both grammar and processing limitations affect children's comprehension of sluicing.

Background. Sluicing is an elliptical structure where only a wh-phrase is overtly pronounced in an embedded CP. Since English sluicing derives from wh-movement followed by TP-ellipsis[6], [5]'s finding that English-speaking children aged 3;0-6;11 (*M* = 5;3) perform better on subject sluicing than on object sluicing (a ***subject advantage***) is consistent with the predictions of the ***Intervention Hypothesis***[3], viz., that A'-dependencies that cross another potential A'-moving element (e.g., 'John' in 1b) is harder for children to comprehend:

(1) a. Subject sluicing: Someone pushed John but I don't know [$_{CP}$ who [$_{TP}$ ~~t_i pushed John~~]]

b. Object sluicing: John pushed someone but I don't know [$_{CP}$ who [$_{TP}$ ~~John pushed t_i~~]]
intervener

However, the derivation of Mandarin sluicing remains a debate. The presence of the copula or focus marker (FM) *shi* in Mandarin sluices (sluiced clauses) and the fact that Mandarin does not have overt wh-movement had lead syntacticians to two conflicting analyses of Mandarin sluicing:

(2) a. *pro* analysis (no movement nor ellipsis):

mouren$_i$ tui-le Lisi dan wo bu zhidao *pro$_i$* shi shei
someone pushed L. but I not know be who
'Someone$_i$ pushed Lisi but I don't know who (s/he$_i$ is).'

b. ellipsis analysis (focus-movement followed by TP-ellipsis):

mouren tui-le Lisi dan wo bu zhidao shi [$_{FocP}$shei$_i$[$_{Foc}$ ~~[$_{TP}$ t_i tui-le Lisi]~~]]
someone pushed L. but I not know FM who < pushed L. >
'Someone pushed Lisi but I don't know who (pushed him).'

Hypothesis. If A'-movement is involved in Mandarin sluicing derivation (2b), the subject advantage observed by [5] in English-speaking children will also be observed in Mandarin-speaking children's comprehension of sluicing.

Design and Procedure (using the materials adopted from [5]). 55 native Mandarin-speaking children aged 3;0-6;11 (*M*=5;7. *N*=11, 14, 15, 15 in each age group) were tested using a character-selection task in a 2×2 design crossing Position (subject vs. object extraction) and Type (sluices vs. embedded full wh-questions). Participants were shown pictures in which three characters perform the same action on each other (e.g., push), and were asked to answer questions like (3). Those who failed in 5 or more out of 12 full wh-questions were excluded.

(3) Subject sluicing: *wo neng kanjian yige ren zai tui lvse yifu de nanhai, ni neng kanjian shi shei ma?* 'I can see that someone is pushing the boy in green, can you see who?'

Results. I used mixed-effects logistic regression to model the dependency of correct responses to Position and Type in each group, with Verb and Subject as random effects. No significant difference between subject vs. object full wh-questions is found in any age group ($p=.87, .86, .69, .14 > .1$). Thus, Mandarin-speaking children understand subject vs. object wh-

questions equally well. Interestingly, the effects of Position on the comprehension of sluicing vary according to age (Figure 1): At age 3, children performed equally poorly on subject and object sluices (p=.67>.1). Between ages 4 and 5 there is a flip - 5 year olds show a trend (p=.08<.1) towards a subject advantage while 4 year olds trend (p=.09<.1) towards an object advantage instead. Eventually at age 6, children show a significant subject advantage in Mandarin sluicing comprehension (p=.02<.05).

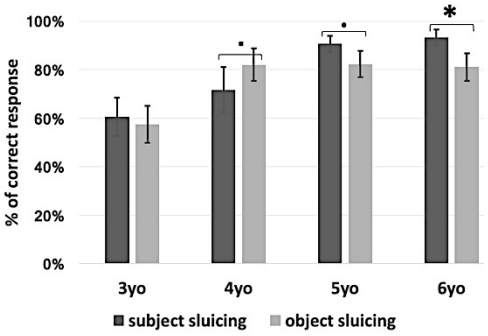

Figure 1 Comprehension Performances

Discussion. At age 3 English-speaking children start with a subject advantage in sluicing comprehension (hypothesized to be due to the ***structural intervention*** triggered by wh-movement in only object sluicing) and eventually grow out of it by age 6[5]. By contrast, Mandarin-speaking children exhibit a 'delay' in that the subject advantage is only observed, marginally or significantly, in 5-and 6-year olds but not in earlier ages. One potential reason for this delay is the ***linear distance*** between the wh-remnant in the sluiced clause and the co-indexed indefinite DP in the antecedent clause: the longer the distance, the longer the children must hold the reference of 'someone' in working memory, and the more difficult the comprehension. Therefore, younger children might find it easier to recover the reference of the wh-remnant in object sluicing (when 'who' refers to an object 'someone') than in subject sluicing (where 'who' refers to a subject 'someone').

Proposal. Both grammar and processing limitations influence Mandarin-speaking children's comprehension of sluices: their difficulty with object sluicing results from the structural intervention triggered by the focus-movement of an object wh-remnant, which affects children until at least age 6; and the difficulty with subject sluices is an effect of linear distance, which disappears with increasing age and processing capacity (around age 5).

Summary. The results of our study are consistent with a movement-ellipsis analysis of Mandarin sluicing under the hypothesis that Mandarin-speaking children aged 3-to-6 have difficulty with object sluices because of structural intervention in A'-movement. The subject-advantage is delayed as compared to English-speaking children because younger children (3-to 4-year olds) are also affected by processing limitations induced by linear distance which inflates their performance on object sluices relative to subject sluices.

Reference. **[1]** Adams, Perng Wang. (2004). The structure of sluicing in Mandarin Chinese. In *Penn Working Papers in Linguistics,* 10.1: 1-16. University of Pennsylvania. **[2]** Chiu, L. L. (2007). A Focus-movement account on Chinese multiple sluicing. *Nanzan Linguistics: Special Issue*, *1*, 23-31. **[3]** Friedmann, Naama, Adriana Belletti, & Luigi Rizzi. (2009). Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua*119. 67-88. **[4]** Li, Yen-Hui Audrey, and Ting-Chi Wei. (2014). Ellipsis. In *The Handbook of Chinese Linguistics*, ed. by Cheng-Teh James Huang, Yen-Hui Audrey Li, and Andrew Simpson, 275-310. Malden, Mass.: Wiley-Blackwell Publishers. **[5]** Mateu, Victoria E,. Nina Hyams & Lauren Winans (2017). Intervention effects in early grammar: Evidence from sluicing. Talk presented at the 42nd Boston University Conference on Language Development [BUCLD 42]. Novemeber 2017. **[6]** Merchant, Jason. (2001). *The syntax of silence: sluicing, islands, and the theory of ellipsis.* Oxford: Oxford University Press. **[7]** Wang, C. A. A., & Wu, H. H. I. (2006). Sluicing and focus movement in wh-in-situ languages. *University of Pennsylvania Working Papers in Linguistics*, *12*(1), 30.