Inverse scope reading in Q-Neg sentences in heritage Chinese

Jennifer Shen
Yunchuan Chen
Duke University

Q-Neg sentences are like (1) and (2), where a universal quantifier precedes *not* on the surface. Previous studies have found that in English (1), either the surface scope (SS) or the inverse scope (IS) reading is possible (e.g., May, 1985) while in Chinese, only SS is possible (Huang, 1982). Several experimental studies have confirmed this proposed difference (e.g., Wu & Ionin, 2019), but whether heritage Chinese speakers disallow IS in Chinese has never been tested. Additionally, in studies where two languages differ in a syntactic representation, it is argued that heritage speakers tend to select the simplest system for both languages (i.e. *representational economy*) (Scontras et al., 2017, 2018). If this is true, English-dominant heritage Chinese speakers are predicted to disallow IS in both English and Chinese Q-Neg sentences.

This study explored this issue with a Truth Value Judgment Task. Lists were created in both English and Chinese. Each list contained 20 critical items, and each item had two conditions: SS (all>not) and IS (not>all) (See (3)). Participants responded with 'Yes'/'No' for each item. Two lists were created where each critical item was presented in only one condition. By doing so, participants viewed 10 items per condition in one list. Additionally, each list included 40 fillers with audio recordings added to the Chinese lists. A total of 30 English-dominant heritage Chinese speakers participated, and their performance on Chinese fillers indicated sufficient Chinese proficiency for this experiment. The English list was presented before the Chinese list.

The group results are summarized in Figure I. Based on binomial distribution, if a participant accepted/rejected 8 or more out of 10 items, he/she is considered to have consistently accepted/rejected the items in that condition. The individual results show that all participants consistently accepted SS in both languages. Meanwhile, 6 (20%) participants consistently rejected IS in both languages, supporting the representational economy hypothesis. Participants seemed to choose the simpler system for both English and Chinese. In contrast, there were 9 (30%) participants who consistently accepted IS in both languages, which means they allow IS in their Chinese. Moreover, there were 10 (33.3%) participants who consistently accepted IS in English and simultaneously consistently rejected IS in Chinese, indicating that IS is allowed in their English but prohibited in their Chinese. This finding goes against the representational economy hypothesis for heritage speakers.

(1) All teachers did not use Donald's car.
    a. Surface-scope (all>not): for every teacher, he/she did not use Donald's car.
    b. Inverse-scope (not>all): It is not the case that all teachers used Donald's car.

(2) suoyou laoshi   dou meiyou   yong   Tanglaoya-de che. (Chinese)
    all   teacher all not   use   Donald-GEN car
    'All teachers did not use Donald's car.'
    a. Surface-scope (all>not): for every teacher, he/she did not use Donald's car.
    b.* Inverse-scope (not>all): It is not the case that all teachers used Donald's car.

(3) The experiment starts with the following background story: Mickey, Donald and Minnie are students studying at school. Their teachers are Pooh, Tigger and Stitch.
Sample SS item: a. introduction: One day, the students each bought their own car. Afterward, the three teachers used Mickey's car. Pooh also used Minnie's car. b. picture and sentence shown below.

Sample IS item: a. introduction: One day, the students each bought their own car. Afterwards, the three teachers used Mickey's car and Minnie's car. Pooh also used Donald' car. b. picture and sentence shown below.

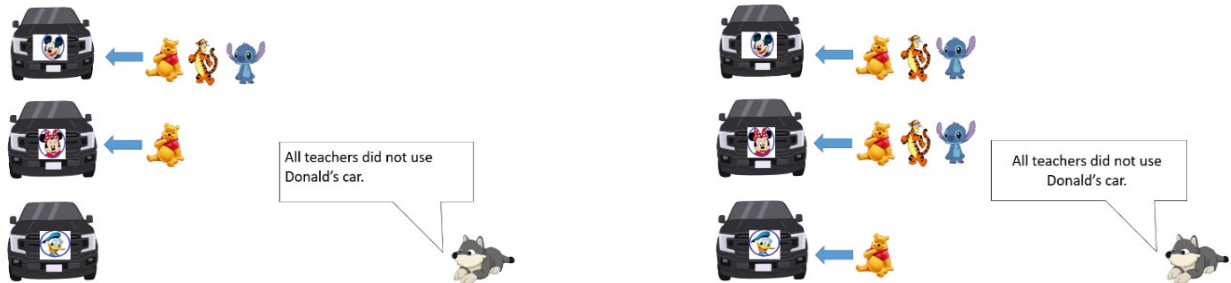Surface Scope (SS) condition   Inverse Scope (IS) condition

Figure I Mean proportion of 'true' judgments in each critical condition of the English and Chinese tasks