Acquisition of the numerical *wh*-pronoun *ji* 'how many' in Mandarin Chinese

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Abstract

Mandarin Chinese *wh*-pronouns are often analyzed as Negative Polarity Items (NPIs). The present study shows that Chinese *wh*-pronouns are not uniformly interpreted as NPIs. We focus on the interpretation of the *wh*-pronoun *ji-ge* 'how many-Classifier', which gives rise to a different interpretation in simple negative statements, which we call the 'small-amount' reading. To explain the availability of the 'small-amount' reading, we propose that *ji-ge* functions as both a singular existential quantifier and as a plural existential quantifier. When *ji-ge* is singular, it receives what we call a 'proform-N' reading. When *ji-ge* is plural, it either receives an 'at least two' reading or an 'a few' reading, depending on the linguistic context. On the proposed analysis, *ji-ge* is assigned the 'at least two' reading in simple negative statements, and the 'small-amount' reading is derived through a conversational implicature. To investigate the acquisition of these various readings of the *wh*-pronoun *ji-ge*, we conducted a comprehension study using simple negative statements. We found that children proceed through three developmental stages, each stage corresponding to different meanings of *ji-ge*. In two of the three stages, children assign non-adult interpretations, suggesting that children's analyses are not entirely determined by the linguistic input. This study sheds new light on the semantics of *wh*-pronouns in Mandarin Chinese.
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Keywords: Wh-pronouns; Mandarin Chinese; *ji* 'how many'; First language acquisition, Negative polarity items

1. Introduction

Wh-pronouns such as *shenme* 'what' and *shei* 'who' in Mandarin Chinese show interesting variations in interpretation. Not only do *wh*-pronouns generate an interrogative reading, as in (1), they can also receive non-interrogative readings, including an indefinite reading, as in (2), or a universal reading, as in (3).

(1) *Zhangsan chi le* **shenme** *ne*?   Interrogative
     Zhangsan eat Asp what Q_{wh}
     'What did Zhangsan eat?'

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(2) *Zhangsan chi le* **shenme** *ma*?   Indefinite
   Zhangsan eat Asp what Q_{yes-no}
   'Did Zhangsan eat anything?'

(3) *Zhangsan* **shenme** *pingguo dou chi*   Universal
   Zhangsan what   apple   all eat
   'Zhangsan eats any kind of apples.'

The variation in quantificational force of *wh*-pronouns in sentences such as (1)–(3), has resulted in analyses of Mandarin *wh*-pronouns either as existential quantifiers or as variables that are bound by covert operators (Huang, 1982; Cheng, 1991, 1994; Li, 1992; Aoun and Li, 1993; Tsai, 1994; Shi, 1994; Hua, 2000; Liao, 2011). Typically, non-interrogative *wh*-pronouns are licensed in the same linguistic contexts that license negative polarity items, e.g., English *any* or Mandarin *renhe* 'any'. These contexts include negation, the antecedent of conditionals, *yes-no* questions, negative predicates, and the restriction of the universal quantifier, among others (Huang, 1982; Li, 1992; Cheng, 1991, 1994; Lin, 1996, 1998; cf. Klima, 1964; Baker, 1970; Ladusaw, 1980; Giannakidou, 1998). Because *wh*-pronouns are the semantic equivalents of English *any* or Mandarin *renhe*, they are often analyzed as Negative Polarity Items (Huang, 1982; Li, 1992; Cheng, 1991, 1994; Lin, 1996, 1998). As expected on such an account, *wh*-pronouns combine with negation to generate a 'none' reading in simple negative statements, on a par with the 'none' meaning assigned to the negative polarity item *renhe* 'any' in the same contexts. Examples are given in (4) and (5).

(4) *Yuehan mei jian* **shei**
   John   Neg meet who
   'John did not meet anyone.'

(5) *Yuehan mei jian* **renhe** *pengyou*
   John   Neg meet any   friend
   'John did not meet any friends.'

   Not all Mandarin Chinese *wh*-pronouns are the same (cf. Tsai, 1994; Hua, 2000; Cheng and Giannakidou, 2013). The particular outlier we discuss in the present paper is the numerical *wh*-pronoun *ji-ge* 'how many-Classifier'.[2] We will focus in particular on the interpretation of *ji-ge* in simple negative statements such as (6).

(6) *Yuehan mei jian* **ji   ge** *pengyou*.
   John   Neg meet how-many CL friend
   'John did not meet many friends.'

Sentence (6) expresses the proposition that John did not meet many friends, with an implicature that John did meet a small number of his friends. We call this the 'small-amount' reading. Crucially, (6) does not mean that John did not meet any of his friends - the 'none' reading. Although the 'none' reading is available for negative sentences containing the *wh*-pronouns *shenme* 'what' and *shei* 'who', this reading is absent in negative sentences with *ji-ge*. This is one way in which *ji-ge* departs from other *wh*-pronouns.

   In traditional Chinese grammar, the interpretation of *ji-ge* is partitioned into two readings. One is the 'how-many' reading observed in questions, such as (7). The other is the 'a few' reading observed in affirmative statements such as (8). On the 'a few' reading, *ji-ge* denotes quantities with a cardinality of about 2 to 9. This meaning is roughly equivalent to the English expression *a few* (Lü, 1980/1999:290; Lü, 1985).

(7) *Yuehan chi le* **ji   ge** *pingguo*?   Question
   John   eat Asp how-many CL apple
   'How many apples did John eat?'

(8) *Zhangsan mai le* **ji   ge** *pingguo*.   Statement
   Zhangsan buy Asp how-many CL apple
   'Zhangsan bought a few apples.'

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[2] In Mandarin Chinese, a full-fledged numeral quantified expression consists of a number word, a classifier and an NP (e.g., *yi ge pingguo* 'one-CL-apple'). Being a proform for number words, *ji* is followed by a classifier and an NP (e.g., *ji-ge pingguo* 'how many-CL-apple'). *Ji* can attach to any classifier. For the sake of simplicity, we use *ji* in combination with the general classifier *ge*, namely, *ji-ge*, to refer to this numerical *wh*-pronoun.