An Analysis of Data Collection Tasks Used in Studies on Scope Ambiguity in English Involving Universal Quantifiers and Negation∗

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This study examines types and characteristics of data collection tasks used in studies on scope ambiguity in English involving a universally quantified noun phrase and negation, and investigates any differences in comprehension patterns across studies using different tasks. Since Musolino’s seminal 1998 study using a truth value judgment task, several other studies on English scope ambiguity have used the same task type or variations on it, while others have tested different tasks. Through a keyword search of relevant databases, the present study found a total of 13 studies dealing with the topic of universal quantification and negation in English published since 1998. Based on tasks’ key characteristics and how they were conducted, seven different basic task types were identified. A comparison of the results of the studies found a difference in the overall comprehension patterns of English native speakers for sentences containing a universally quantified noun phrase in subject position between the truth value judgment task with one type of context story and the other tasks. The results are discussed in terms of their methodological implications, and some suggestions for further research from methodological perspectives are provided.

Keywords: universal quantifier, negation, scope ambiguity, data collection task, task effect

1 Introduction

In English, universal quantifiers such as *all* and *every* can interact with a negation word in the same sentence to produce ambiguity, as in (1).

(1) Universally quantified noun phrase (NP) in subject position and negation
    Every boy didn’t cut down the apple tree.

∗ I am very grateful to the three reviewers for their valuable comments.

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a. Meaning 1 (every > not reading)
   None of the boys cut down the apple tree.

b. Meaning 2 (not > every reading)
   Some of the boys cut down the apple tree but others didn’t.

The sentence in (1) containing the universal quantifier every in subject position is ambiguous, because it can mean that none of the boys cut down the apple tree or that not every boy cut down the apple tree. The former interpretation is called the quantifier wide scope reading (i.e., every > not reading) and the latter is called the negation wide scope reading (i.e., not > every reading).

The topic of scope ambiguity involving universal quantifiers and negation in English was first systematically investigated by Musolino in a 1998 doctoral dissertation. Since then, it has been examined from various perspectives including first language (L1) acquisition, second language (L2) acquisition, and sentence processing. Musolino compared the comprehension of sentences involving quantified NPs and negation by children and adult native English speakers, exploring why children’s comprehension patterns are different from those of adults and how children develop the adult-like interpretation system. Building on Musolino’s study, later L1 acquisition studies (Conroy, 2008; Musolino & Lidz, 2006) investigated various factors that might influence L1 children’s comprehension patterns in comparison to those of adult native speakers of English.

Following the L1 acquisition studies, several L2 acquisition studies (Chung, 2012; Kim, 2010; Lee, 2010a, 2018; O’Grady et al., 2009; Wu & Ionin, 2019) also focused on English scope ambiguity, comparing comprehension patterns of EFL or ESL learners at different English proficiency levels to those of native English speakers. These studies have examined the roles of factors such as learners’ native languages, the relative processing difficulty of the two interpretations, and pragmatic ability in English as a second language. One L3 acquisition study (Jo et al., 2021) investigated the comprehension patterns of target sentences by 11- or 12-year-old children with different L1 backgrounds who were learning Korean as a second language and English as a third language, and also examined the nature of transfer in L3 acquisition. A couple of studies (Kim, 2011; Lee et al., 2011) have investigated the possibility of crosslinguistic influences on Korean-English bilingual speakers’ interpretive preferences for sentences involving scope ambiguity.

It has been more than 20 years since Musolino’s (1998) pioneering work inspired subsequent scholars to investigate the topic of scope ambiguity. Musolino adopted the truth value judgment task (TVJT) developed by Crain and Thornton (1998) to investigate the comprehension of meaning at the sentence level. Many of the follow-up studies on the interpretation of sentences involving quantifiers and negation have likewise employed the TVJT, with some variations. However, others have employed different types of data