



The Acquisition of Demonstrative Binding by College Students

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Date of Submission: 18-03-2022

Date of Acceptance: 01-04-2022

The main goal of this paper is to provide an in-depth analysis of the L2 learners' acquisition of demonstrative binding. It is worth noting that *that* NPs are construed as a bound variable with *which*-type QPs and *every*-type QPs, whereas *that* NPs cannot yield a bound variable reading with *even*-type QPs and *whose*-type QPs. With respect to English epithets, it is interesting to note that they can be interpreted as a bound variable since they are anaphoric R-expressions. It should be pointed out, however, that in the case of English epithets, bound variable anaphora is available, depending on the c-command condition. With respect to the L2 learners' acquisition of demonstrative binding, my findings are as follows. First, positive transfer made the L2 learning easier. English and Korean have a commonality with respect to epithets. Second, the L2 learners acquired *the* NPs before *that* NPs since the latter is marked. Third, *every*-type QPs were the first acquired by the Korean learners of English, followed by *which*-type QPs, *no*-type QPs, and *even*-type QPs.

Keywords: demonstrative binding, *that* NP, the NP, c-command, QPs, long NP

I. INTRODUCTION

The main goal of this paper is to provide an analysis of the L2 learners' acquisition of demonstrative binding. There are well-known approaches to R-expressions and demonstratives. First, Hoji (1991) argues that since the Japanese *kare* 'he' and a demonstrative nominal category are demonstrative, they may not be bound by quantifiers. Second, Katada (1990) argues that this property of *kare* 'he' and demonstratives must be represented in Condition C. Third, LaTerza (2016) maintains that English and Serbian pronominal possessives are different from each other due to the LF movement of Serbian pronominal possessives. Fourth, Nidiger (2017) contends that epithets are more dependent than R-expressions. In this paper, I briefly review

the four approaches and provide an in-depth analysis of the L2 learners' acquisition of demonstrative binding. The organization of this paper is as follows. In section 2, I briefly review four approaches to demonstratives and R-expressions. In section 4, I argue that *that* NPs are construed as a bound variable with *which*-type QPs and *every*-type QPs, whereas they cannot yield a bound variable reading with *even*-type QPs and *whose*-type QPs. In section 5, I contend that positive transfer made the L2 learning easier. I also maintain that the L2 learners acquired *the* NPs before *that* NPs since the latter is marked. Finally, I argue that *every*-type QPs were the first acquired by the Korean learners of English, followed by *which*-type QPs, *no*-type QPs, and *even*-type QPs.

II. AN OVERVIEW OF DEMONSTRATIVES AND R-EXPRESSIONS

In what follows, we briefly review four approaches to R-expressions. Hoji (1991) argues that since the Japanese pronoun *kare* 'he' is demonstrative, it cannot be construed as a bound variable. Hoji (1991) observes that *the poor s.o.b.* induces a bound variable reading, whereas *that poor s.o.b.* cannot:

(1) a. No linguist_i's mother thinks that the poor s.o.b_i has chosen the wrong field.

b. *No linguist_i's mother thinks that that poor s.o.b_i

has chosen the wrong field.

(Hoji 1991)

Hoji (1991) points out that the demonstrative *kare* 'he' cannot be referentially dependent on *who*:

(2) *[dare_i-ga kare_i-no saifu-o nakusita ka]-ga

who-NOM he-GEN wallet-ACC lost Q-NOM
mondai-ni natta.



issue-DAT become
(Who_i lost his_i wallet has become an issue.)

Hoji (1991) argues that *that poor s.o.b.* and the demonstrative *kare* 'he' are all demonstrative, thus showing the same property (they cannot be interpreted as a bound variable). Similarly, Katada (1990) argues that as given in (3), demonstratives must be represented in Condition C:

- (3) a. Demonstratives must be A'-free.
b. An R-expression must be A-free.

However, a problem with two approaches is that a bound variable reading is possible with demonstratives:

- (4) No professor_i recommended that professor_i's student for a lucrative project.

More interestingly, LaTerza (2016) argues that the English possessive *his* can be coreferential with an R-expression:

- (5) His_i father considers John_i highly intelligent.

As illustrated in (5), the R-expression *John* can be associated with the English possessive *his*. LaTerza (2016) contends, on the other hand, that the Serbian possessive *njegov* 'his' cannot be coreferential with an R-expression:

- (6) *Njegov_i otac smatra Marka_i veoma pametnim.
his father considers Marko very intelligent
(Marko's father considers him_i very intelligent.)

LaTerza (2016) contends that the difference between (5) and (6) is due to the LF movement of Serbian pronominal possessives. Note, however, that the c-command condition plays a crucial role in the following sentences:

- (7) a. In Scarsdale, every single boy_i's mother sends the twerp_i off to summer camp.
b. *Every single boy_i thought the twerp_i would hate summer camp.
(Higginbotham 1992)

As indicated in (7), the c-command condition applies to (7b), whereas it does not apply to (7a), hence the ungrammaticality of (7b). Thus, the difference between (5) and (6) is due to the presence vs. absence of the c-command condition in two

languages.

Finally, Nediger (2017) argues that epithets are antilogophoric pronouns which must be anteceded by an individual, as illustrated in (9):

- (8) An epithet in the sentential complement of an attitude verb cannot corefer with the subject of that verb.

(Nediger 2017)

- (9) *Annie_i claimed that the rascal_i did not know anything about the prank.

Nediger (2017) concludes that epithets cannot corefer with an R-expression. However, the following Korean sentence does not show the antilogophoric effect. That is to say, the Korean epithet *ku pabo* 'the fool' can refer to the subject *Tom*. Thus, Nediger's (2017) condition cannot extend to Korean:

- (10) Tom_i-i ku-papo_i-uy ai-ka
toktokhata-ko
NOM the fool-GEN child-NOM
intelligent-COMP
cwucanghayssta.
claimed
(Tom_i claimed that the fool_i's child is intelligent.)

III. METHODS

3.1. The Goals of Experiments

In this paper, I aim to answer the following questions: Do my subjects have the knowledge of English demonstrative binding? Does transfer have to do with L2 learning? Do they know the correlation of demonstrative binding with c-command? Do they know the correlation of demonstrative binding with quantifiers? Is there any acquisition order with respect to quantifiers and demonstrative NPs?

3.2. Subjects

Twenty eight EFL university students participated in our experiments. These students are attending my class (global English: 3 credits). I carried out a survey in terms of Zoom. The survey was performed without providing information about demonstrative binding. I asked twenty eight students whether ten sentences are grammatical or not. The survey lasted for an hour without feedback.

IV. RESULTS

In my experiment, I included the following sentence to evaluate the fact that English epithets can be



construed as a bound variable:

(11) Every linguist_i's mother thinks that the poor s.o.b._i has chosen the wrong field.

Note that epithets have been treated as exceptions to Principle C. Higginbotham (1992) points out that in the case of anaphoric R-expressions, bound variable anaphora can be available. According to Higginbotham (1992), "these anaphoric R-expressions include incomplete definite descriptions, *the man*, *that donkey*, and epithets like *the twerp*, *that piece of foolishness*, etc." (Higginbotham 1992). Thus, in (11), the epithet *the poor s.o.b.* can be interpreted as a bound variable since English epithets are anaphoric R-expressions. Quite interestingly, the L2 learners' correct responses to (11) were 57.14%, whereas their incorrect responses to (11) were 42.85%. That the L2 learners' correct responses to (11) were 57.14% suggests that more than two fourths of the Korean learners of English acquired epithet binding. From all of this, it is clear that more than half acquired the binding behavior of epithets that have been treated as exceptions to Principle C.

In my experiment, I included the following sentence to assess the fact that a demonstrative NP cannot induce a bound variable reading with no-type QPs:

(12) *No linguist_i's mother thinks that that poor s.o.b._i has chosen the wrong field.

Hoji (1991) argues that if *that poor s.o.b.* replaces *the poor s.o.b.*, a bound variable reading is impossible even with *every*-type QPs:

(13) *Every linguist_i's mother thinks that that poor s.o.b._i has chosen the wrong field.

More interestingly, the L2 learners' correct responses to (13) were 21.42%, whereas their incorrect responses to (13) were 78.57%. This in turn indicates that more than three fourths of the L2 learners did not acquire demonstrative binding including *no*-type QPs.

In my experiment, I included the following sentence to evaluate the fact that *that* NPs are interpreted as a bound variable with *which*-type QPs:

(14) Which man_i's mother thinks that that man_i is a genius.

Hoji (1995) presents an analysis of demonstrative binding that assumes dependency. He posits demonstrative binding as follows:

(15) Dem (α) is formally dependent upon Dem (β) where Dem (α) is a demonstrative that is in the checking domain of β .

Demonstrative binding is claimed to obey the following structural condition:

(16) α is formally dependent upon β only if α is in the syntactic domain of β .

Hoji (1995) argues that in (14), a bound variable reading is due to demonstrative binding. The same applies to (17):

(17) Which linguist_i recommended that linguist_i for a big project?

In fact, structures like (17) are well-formed since the *wh*-phrase in (17) is discourse-linked. According to Pesetsky (1987), "*wh*-phrases are discourse-linked, whereas *who* and *what* are not discourse-linked. When a speaker asks a question like *which book did you read*, the range of felicitous answers is limited by a set of books both speaker and hearer have in mind" (Pesetsky 1987: 107). Thus, the demonstrative NP *that linguist* is interpreted as a bound variable since the *which*-phrase in (17) is discourse-linked. More interestingly, the L2 learners' correct responses to (14) were 28.57%, whereas their incorrect response to (14) were 71.42%. On the other hand, the L2 learners' correct responses to (17) were 39.28%, whereas their incorrect responses to (17) were 60.71%. This in turn suggests that nearly one thirds of the L2 learners acquired the fact that *which*-phrases allow demonstrative binding.

Also, I included the following sentences to evaluate the fact that English epithets must not be c-commanded by *every*-type QP for them to be interpreted as a bound variable:

(18) In Scarsdale, every single boy_i's mother send the twerp_i off to summer camp.

(19) *Every single boy_i thought that the twerp_i would hate summer camp.

(Higginbotham 1992)

The well-formedness of (18) is due to the fact that the antecedent *every single boy* does not c-command *the twerp*. This is a reasonable assumption since English epithets can be interpreted as a bound variable, depending on the c-command condition. The same can be said of (19). In (19), a bound variable reading is impossible since the antecedent *every single boy* c-commands the epithet *the twerp*. Quite interestingly, the L2 learners' correct



responses to (18) were 46.42% and their correct responses to (19) were 32.14%. This in turn suggests that more than half of the Korean learners of English did not acquire the fact that English epithets must not be commanded by QPs for them to be interpreted as a bound variable.

In this experiment, I included the following sentences to assess the fact that long NPs cannot induce a bound variable reading with *even*-type QPs:

- (20) a. *Even this professor_i was talking with a student near that nice professor_i's office.
b. *Even A-company_i has sued that nice company_i's subsidiary.

(20a) and (20b) sound weird if long NPs are interpreted as a bound variable. More specifically, if long NPs are associated with *even*-type QPs, the dependent terms do not induce a bound variable reading. More interestingly, the L2 learners' correct responses to (20a) were 14.28% and their correct responses to (20b) were 42.85%. This in turn indicates that less than half of the L2 learners acquired the fact that long NPs do not yield a bound variable reading with *even*-type QPs.

In this experiment, I included the following sentence to evaluate the fact that long NPs induce a bound variable reading with *every*-type QPs:

- (21) Every professor promotes her students; no, every professor_i promotes that professor_i.
(Higginbotham 1992)

Higginbotham (1992) argues that demonstrative NPs (long NPs) can yield a bound variable reading if they are associated with *every*-type QPs. As observed earlier, long NPs cannot induce a bound variable reading if they are associated with *even*-type QPs. From all of this, it is clear that *even*-type QPs and *every*-type QPs show a different property with respect to long NPs. Quite interestingly, the L2 learners' correct responses to (21) were 35.71%, whereas their incorrect responses to (21) were 64.28%. This in turn implies that one thirds of the Korean learners of English acquired the fact that long NPs can induce a bound variable reading with *every*-type QPs.

Finally, I included the following sentence to assess the fact that *who*-phrases are not discourse-linked:

- (22) *Whose mother_i thinks that that poor s.o.b._i has chosen the wrong field?

A demonstrative nominal category cannot induce a bound variable reading if QPs are not discourse-

linked. In (22), the long NP *that poor s.o.b.* cannot yield a bound variable reading since *whose*-phrases are not discourse-linked. Note that *which*-phrases are discourse-linked, whereas *who*-phrases are not discourse-linked. Thus, in (22), if *which*-phrases replace *whose*-phrases, then the long NPs can give rise to a bound variable reading. Simply put, *which*-type QPs and *who*-type QPs show a different property with respect to a bound variable reading. More interestingly, the L2 learners' correct responses to (22) were 25%, whereas their incorrect responses to (22) were 75%. This in turn suggests that more than two thirds of the Korean learners of English did not acquire the fact that *who*-type QPs cannot induce a bound variable reading with long NPs.

V. DISCUSSION

Does L2 learning happen through positive transfer (Ellis 2015)? It is worth pointing out that the L2 learners relied on their L1 to acquire epithet binding. Note that the L2 learners' correct responses to (23) were 57.14%, whereas their incorrect responses to (23) were 42.85%. Quite interestingly, in (24), the Korean epithet *ku pabo* 'the fool' can be interpreted as a bound variable:

- (23) Motun enehakca_i-uy emeni-nun ku pabo_i-ka
every linguist-GEN mother-TOP the fool
olta-ko sayngkakhanta.
right-COMP think
(Every linguist_i's mother thinks that the fool_i is right.)

As the status of (23) suggests, Korean epithets are as dependent as Korean pronouns:

- (23) Motun enehakca_i-uy emeni-nun ku_i-ka
every linguist-GEN mother-TOP he
olta-ko sayngkakhanta.
right-COMP think
(Every linguist_i's mother thinks that he_i is right.)

This suggests that English and Korean share a commonality with respect to epithets. It is thus reasonable to assume that positive transfer made the L2 learning easier. This in turn indicates that the L2 learners did not entertain Chomsky's UG theory (1982, 1986). In Chomsky's UG theory, there is no transfer since L2 learners are supposed to rely on not their L1 but UG (Universal Grammar). The same can be said of the c-command condition:

- (24) a. In Scarsdale, every boy_i's mother send the twerp_i off to summer camp.



b. Motun sonyen_i-uy emeni-nun ku elkani_i-lul
every boy-GEN mother-TOP the twerp-
ACC
yelumhakkyo-e ponaynta.
summer camp-to send
(Ever boy_i's mother send the twerp_i off to
summer camp.)

The reason why (24a) and (24b) are grammatical is that the epithet *the twerp* is not c-commanded by the QP. Again, English and Korean share a commonality with respect to epithet binding. Note that the L2 learners' correct responses to (24a) were 46.42%, whereas their incorrect responses to (24a) were 53.57%. The reason why nearly half of the Korean learners of English acquired the knowledge of epithet binding may be that they relied on their L1. It can thus be inferred that they did not respect Chomsky's UG theory. Chomsky (1982, 1986) does not take transfer in his theory. Simply put, in Chomsky's theory, L2 learners acquire L2 in terms of UG (Universal Grammar). According to Ellis (2015), "learners acquire less marked structures before more marked ones" (Ellis 2015). Now we point out that the Korean learners of English acquired *the* NPs before *that* NPs. This in turn indicates that the L2 learners acquired less marked NPs before more marked NPs. Let us consider the following examples, repeated here:

- (25) a. In Scarsdale, every single boy_i's mother send the twerp_i off to summer camp.
b. *Every single boy_i thought that the twerp_i would hate summer camp.
(Higginbotham 1992)

As observed earlier, (25a) is grammatical since the NP *the twerp* is not c-commanded by the QP. On the other hand, (25b) is not grammatical since *the twerp* (*the* NP) is c-commanded by the QP. More interestingly, the L2 learners' correct responses to (25a) were 46.24% and their correct responses to

(25b) were 32.14%. Quite interestingly, the percentage of the L2 learners' correct responses to *the* NPs is higher than that of their correct responses to *that* NPs:

- (26) Which man_i's mother thinks that that man_i is a genius.

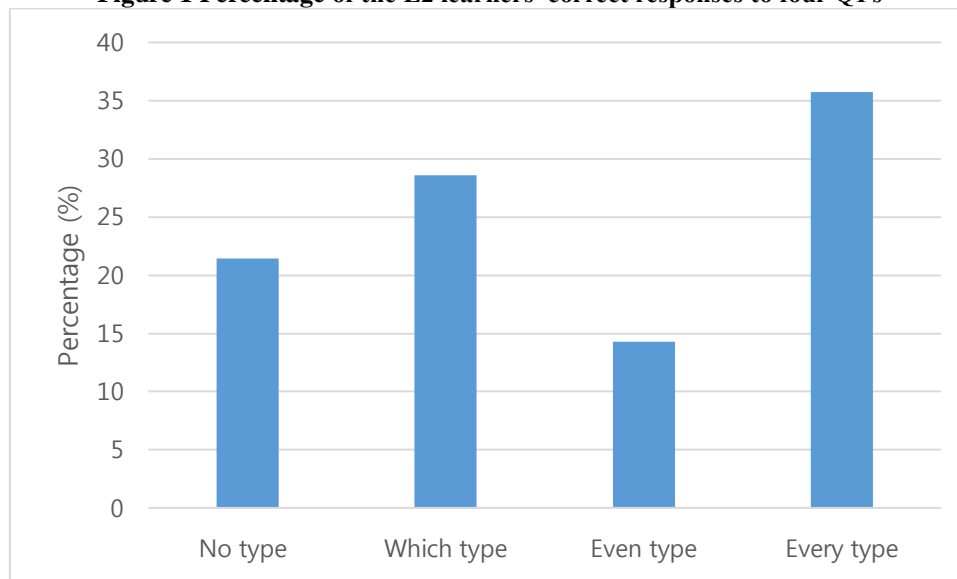
As observed earlier, the L2 learners' correct responses to (26) were 28.57%. This in turn suggests that the L2 learners acquired *the* NPs before *that* NPs since the latter is more marked. Thus, the Korean learners of English entertain Ellis's (2015) hypothesis that "learners acquire less marked structures before more marked ones" (Ellis 2015). Finally, I consider the L2 learners' acquisition order with relation to QPs and demonstrative NPs. Especially, attention is paid to *that* NPs and QPs. Let us consider the following examples:

- (27) a. *No linguist_i's mother thinks that that poor s.o.b._i has chosen the wrong field.
b. Which man_i's mother thinks that that man_i is a genius.
c. *Even this professor_i was talking with a student near that nice professor_i's office.
d. Every professor promotes her students; no, every professor_i promotes that professor_i.

In (27), demonstrative NPs are associated with *no*-type QPs, *which*-type QPs, *even*-type QPs, and *every*-type QPs. Note that demonstrative NPs are bound to *which*-type QPs and *every*-type QPs, whereas they are not bound to *no*-type QPs and *even*-type QPs. As observed earlier, the Korean subjects' correct responses to (27a), (27b), (27c), and (27d) are 21.42%, 28.57%, 14.28%, and 35.71%, respectively. The following graph shows the percentage of the Korean learners' correct responses to *no*-type QPs, *which*-type QPs, *even*-type QPs, and *every*-type QPs:



Figure 1 Percentage of the L2 learners' correct responses to four QPs



We assume that if the L2 learners' correct responses are higher, then the higher one is the first acquired by them. Conversely, we further assume that if the L2 learners' correct responses are lower, the lower one is acquired later.

It is thus reasonable to assume that *every*-type QPs were the first acquired by the Korean learners of English, followed by *which*-type QPs, *no*-type QPs, and *even*-type QPs, in that order. We thus conclude that *every*-type QPs was the first acquired by the Korean learners of English.

VI. CONCLUSION

To sum up, I have provided an analysis of the L2 learners' acquisition of demonstrative binding. In section 2, I have reviewed four approaches to demonstratives and R-expressions. In section 4, I have shown that *that* NPs are interpreted as a bound variable with *which*-type QPs and *every*-type QPs. I have shown, on the other hand, that *that* NPs cannot induce a bound variable reading with *even*-type QPs and *whose*-type QPs. In section 5, I have maintained that the L2 learners relied on their L1 to acquire epithet binding. That is to say, positive transfer made the L2 learning easier. I have also contended that the L2 learners acquired *the* NPs before *that* NPs. That is, marked structures impeded the L2 learners' learning. Finally, I have argued that *every*-type QPs were the first acquired by the Korean learners of English, followed by *which*-type QPs, *no*-type QPs, and *even*-type QPs, in that order.

A Survey

Write whether the following sentences are grammatical or not.

1. Every linguist's mother thinks that the poor s.o.b. has chosen the wrong field.
2. No linguist's mother thinks that that poor s.o.b. has chosen the wrong field.
3. Which man's mother thinks that that man is a genius.
4. In Scarsdale, every single boy's mother send the twerp off to summer camp.
5. Every single boy thought the twerp would hate summer camp.
6. Even this professor was talking with a student near that nice professor's office.
7. Which linguist recommended that linguist's student for a lucrative project.
8. Every professor promotes her students; no, every professor promotes that professor.
9. Whose mother thinks that that poor s.o.b. has chosen the wrong field?
10. Even A-company has sued that nice company's subsidiary.

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