

# On the Acquisition of *Wh*-Scope Marking in Korean-English Interlanguage

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Il-jae Lee · Dami Lee, 2012. On the Acquisition of *Wh*-Scope Marking in Korean-English Interlanguage. *Language and Linguistics* 57, 159–196. This paper presents the data of *wh*-scope marking in Korean-English interlanguage. A cross-sectional elicited oral-translation task was carried out with sixty-seven Korean-speaking university students learning L2 English, to examine long-distance  $\bar{A}$ -dependencies in complex *wh*-questions such as *Who do you think bought the clothes?*. The findings show: (1) Nearly half of the learner population who produced a biclausal structure exclusively depended on *wh*-scope marking such as *\*What do you think who bought the clothes?* as an alternative to the intended complex *wh*-question. (2) The stage of a dual *wh*-chain of intra-clausal local  $\bar{A}$ -dependencies for *wh*-scope marking predates the stage of a single chain of inter-clausal long-distance  $\bar{A}$ -dependencies for complex *wh*-questions. (3) The learner population opting for complex *wh*-questions seems to have acquired a superior proficiency in target language to the learner population opting for *wh*-scope marking. Our data analyzed under the copy theory of movement (Chomsky 1995) fares better with the Indirect Dependency approach (IDA) proposed by Dayal (1994, 2000) than the Direct Dependency approach (DDA).

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This article reports a unique interlanguage structure that is systematically evident in the course of acquiring complex *wh*-questions in English as produced by Korean-speaking university students, and supports a theoretical approach that accounts for the emergence of the structure. Complex *wh*-questions in (1a, b) in which the *wh*-phrase *who* moves out of the embedded clause and lands into the matrix clause to mark the entire clause as a complex *wh*-question, may merely seem to be a longer kind of simple *wh*-question. Nevertheless, a consistent, grammatical production (and hence acquisition) of complex *wh*-questions like those in (1a, b) is in essence a formidable task unless otherwise highly-advanced proficiency of that language is engaged.

- (1) a. *Who<sub>i</sub>* do you think *t<sub>i</sub>* bought the clothes? [*wh*-subject extraction]  
 b. *Who<sub>i</sub>* do you think Tom likes *t<sub>i</sub>*? [*wh*-object extraction]

Of particular interest is then that if complex *wh*-questions are, as we say, easier said than done, is there an alternative structure that the L2 learner adopts to deliver the intended meaning? In other words, how does the L2 learner ask the kinds of complex *wh*-questions as in (1a, b), when he cannot generate the pertinent structures? We can come up with a number of possibilities that the L2 learner opts for to compensate the lack. Nevertheless, a population of L2 learners in our experiment selected a structure

that is 'unavailable' both in their native language, Korean, and in the target language.

The structure in question is, however, typologically born out in other languages like German, Russian, Hungarian, Hindi, *etc.* That is, the strategy to mark the structure as a complex *wh*-question when incapable of producing it is to make use of a sort of *wh*-phrase *what*, which is, however, devoid of substantial surface meanings like expletives *it* or *there*, as shown in (2) in comparison with (1).

- (2) a. \**What* do you think *who* bought the clothes?  
b. \**What* do you think *who* Tom likes?

Although the intended meanings can still be conjectured from each vocabulary item in the question, both structures in (2a, b) are nevertheless ungrammatical. Unlike in (1), the contentful *wh*-phrase *who* in the embedded clause in (2a, b) has not copied onto the matrix Spec-CP. It stopped short in the embedded Spec-CP, failing to mark the entire structure as a *wh*-question under the scope of *who*. Accordingly, the *wh*-phrase *what* merges in the matrix Spec-CP, and as a result, the matrix clause and the embedded clause each awkwardly have their own *wh*-phrase in their respective Spec-CP, the strategy of which generates what is called *wh*-scope marking in the literature. The next section reviews previous studies on the acquisition of *wh*-scope marking.

## 2. *Wh*-Scope Marking in Language Acquisition

Earlier reports on the emergence of *wh*-scope marking date back to Wakabayashi and Okawara (2003) and Yamane (2003); both

studies elicited English interlanguage data from L1 Japanese adults. Wakabayashi and Okawara carried out a repetition study of Crain and Thornton's (1998) elicited production experiment with sixteen Japanese university students who had above-average English proficiency. Various errors for complex *wh*-questions were produced from ten learners, from only four of whom *wh*-scope marking as listed in (3a-d) was one of the frequent errors, while all others did not employ it. The brackets are the participant numbers in their study.

- (3) a. \**What* do you think *who* loved Mr. Yellow? [P1]
- b. \**What* do you think *who* went to Tokyo? [P2]
- c. \**What* do you think *what* I put in the bag? [P3]
- d. \**What* do you think *who* loves Yellow? [P8]

Yamane also investigated an experiment on the acquisition of English complex *wh*-questions with thirty low-proficiency Japanese learners, eighteen of whom wrongly accepted *wh*-scope marking similar to those in (3) as a grammatical structure in the judgment tasks and nine of whom also wrongly opted for *wh*-scope marking in the elicited translation tasks. More recently, Schulz (2011) exclusively presents data of *wh*-scope marking with fifty-four Japanese adults acquiring English, and executed three different experiments: elicited production as was used in Thornton (1990), off-line, and on-line acceptability judgment tasks. After triangulating the results by three different methods with twenty of the fifty learners who produced deviant complex *wh*-questions, Schulz concludes that five (18%) of the Japanese L2 learners from her experiments fell into a group preferring *wh*-scope marking. Although the data from *wh*-scope marking learners in Wakabayashi and Okawara (2003), Yamane (2003), and Schulz (2011) can be

necessarily essential, the respective numbers being four, nine, and five are rather low to decisively support the viability of *wh*-scope marking in the English interlanguage of SOV speakers, which this study attempted to make up with a different group of SOV speakers.

Other than Japanese L2 learners, different learner populations learning L2 English have been examined. Gutiérrez and Mayo (2008) adopted Thornton's (1990) oral elicitation task to collect data of complex *wh*-questions in English from 260 bilingual Basque-Spanish school children. While 228 of them produced adult-like complex *wh*-questions, thirty-two (14%) produced a total of 106 various types of deviant structures resembling the target complex *wh*-questions, out of which forty-three errors (40.7%) were *wh*-scope marking, as in (4).

- (4) a. \**What* do you think *who* lived in that house? [P92]  
 b. \**What* do you think *which* boy had eaten the cake? [P180]

Slavkov (2008) summarizes *wh*-scope marking data from forty-seven Francophone adult learners of L2 English who were involved in a larger body of experiment. His experimental task was a written multiple-choice grammaticality judgment test in which the experimental tokens were to select the correct embedded clause that immediately follows the matrix clause, as in *What do you think \_\_\_\_\_ right now?* Out of 752 experimental tokens, while L2 learners selected the correct answer 571 times (76%), *wh*-scope marking was also selected ninety times (12%), rendering as the second preferred answer.

Slavkov (2011) reports another occurrence of *wh*-scope marking from twenty-six French and thirty Bulgarian adult speakers learning L2 English. Slavkov applied an elicited-production task in

the form of a guessing game used in Thornton (1990). His results present a difference between the two populations in terms of producing complex *wh*-questions with a *wh*-phrase heading each the matrix clause and the embedded clause.<sup>1)</sup> French learners produced 'medial *wh*-' twelve occasions (4%) out of 311 questions; Bulgarian learners produced 'medial *wh*-' 120 occasions (29%) out of 416 questions.

Liceras *et al.* (2011) administered a grammatical-judgment task to compare the preference between correct complex *wh*-questions and *wh*-scope marking in Spanish and German. After reading a written short-dialogue between two persons, the task was to judge three different kinds of possible questions, one of which was *wh*-scope marking, as in (5). The experimental tokens originally written in Spanish are translated into English.

- (5) a. \**What* does Beth think *who* is too busy?  
 b. \**What* does John think *where* Arthur should study?

Their results on L2 Spanish and L2 German both by English- and French-speaking adults seem to present that a certain group of learners significantly accept *wh*-scope marking in L2 Spanish when it is actually ungrammatical in that language. On the contrary, German grammar employs *wh*-scope marking along with ordinary complex *wh*-questions. L2 learners, however, tended to reject *wh*-scope marking, while accepting ordinary complex *wh*-questions,

1) Slavkov (2011) does not differentiate between *wh*-scope marking and *wh*-copy structure in his data, and treats the two the same under a category called 'medial *wh*-. While the former is the structure with *what* in the left periphery of the matrix clause and the other *wh*-phrase in the left periphery of the embedded clause, the latter concerns another form of deviant complex *wh*-question with the same *wh*-phrase fronting both the matrix clause and the embedded clause, as in \**Who* do you think *who* sent the butter? [P-FR 10] and \**Where* do you think *where* John is watching TV? [P-BG 18].

although the significance was not strong. Their study does not provide the actual counts of occurrences except the *p* values for significance among variables.

As far as we know, these studies are all there are about published studies on *wh*-scope marking in L2.<sup>2)</sup> Lee (under analysis) carried out an elicited production task and a grammatical judgment task from 114 Mongolian-speaking university students learning L2 English, and found in a preliminary examination that *wh*-scope marking seems to be a predominant strategy to counterbalance the lack of knowledge for grammatical complex *wh*-questions in their L2 English.

It is, however, L1 studies that originally report the incidents of *wh*-scope marking in languages that do not employ it in the adult grammar but is evidenced in the developing grammar of L1 children. De Villiers *et al.* (1990) tested seventeen children at the age of 3:5 to 6:0 with the interpretation of complex *wh*-questions in English, and found a possibility of a *wh*-phrase scope-marking another *wh*-phrase in the same complex *wh*-question.<sup>3)</sup> Thornton (1990, 1995) investigated complex *wh*-questions in English from twenty children aged from 2:10 to 5:5 using an elicited production task. She noticed children occasionally using *what* to mark a complex question, while leaving behind the contentful *wh*-phrase in the embedded clause as in (6).

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2) Umeda (2007) reports *wh*-scope marking used in Japanese, a *wh-in situ* SOV language, but not found in English, from the data elicited from English-speaking learners of Japanese. However, although Umeda's study is substantially intriguing, this paper will not deal with the acquisition of *wh*-scope marking in *wh-in situ* L2 languages, and limit itself to *wh*-scope marking in *wh-ex situ* L2 languages.

3) Thanks to one of the *L&L* reviewers for further clarifying that some children in De Villiers *et al.* (1990) tended to respond to the medial *wh*-word, not to the initial *wh*-word. Those children might consider the initial *wh*-word playing a role of scope-marker.

- (6) a. \**What* do you think *which* animal says “woof woof”?  
b. \**What* do you think *which* *Smurf* really has roller skates?  
(Tiffany, 4:9)

McDaniel *et al.* (1995) also carried out an elicited acceptability-judgment task from thirty-two English-speaking children with the average age of 4:7. The children accepted the structures like (7a, b), 21% and 17% of the time on the average.

- (7) a. \**What* do you think *who* is gonna climb up the steps?  
b. \**What* do you think *who* Bert kissed?

Crain and Thornton's (1998) experiment elicited oral productions of complex *wh*-questions using a guessing game, but it mainly discusses the type of *wh*-copy construction as in (8a) – as mentioned in footnote 1 – and leaves out *wh*-scope marking as in (8b) unexplained.

- (8) a. \**What* do you think *what* Cookie Monster eats?  
[*wh*-copy structure]  
b. \**What* do you think *which* boy ate the cookie?  
[*wh*-scope marking]

Thus far, cases of children's *wh*-scope marking in the course of acquiring complex *wh*-questions in their languages other than English have also been reported in Gutiérrez (2006) by a longitudinal investigation of an L1 Spanish child, in Oiry and Demirdache (2006) based on an elicitation-production task in a guessing game with twenty L1 French children, and in Jakubowicz and Strik (2008) also by an elicitation-production task inspired by Thornton (1990), with two groups of twelve French and Dutch children.



It seems, therefore, that *wh*-scope marking is an apparent phenomenon that occurs in the course of acquiring complex *wh*-questions both in L1 and L2 English as well as other *wh-ex situ* languages. In parallel, it is tantamount to making a claim that language learners necessarily seem to go through a stage of *wh*-scope marking during which they become insensible to the grammaticality of *wh*-scope marking, and produce *wh*-scope marking in an attempt to produce the intended complex *wh*-questions and accept *wh*-scope marking as a legitimate expression to the contrary. If so, *wh*-scope marking should also be evident from any random population of, for example, Korean-speaking learners who are in the course of acquiring complex *wh*-questions in L2 English. If the result supports this hypothesis, we can more substantially conclude that *wh*-scope marking is in essence substantiated in human grammar, and it may not be a consequence of language-specific or learner-specific variations. Hence, this study aims to corroborate the viability of *wh*-scope marking from a different group of population that has not been mentioned in previous studies and also from a different but more elaborated experimental design.

### 3. Current Study

Our study primarily intended to confirm previous findings aforementioned that *wh*-scope marking is likely to occur also from Korean-English interlanguage via a more direct oral translation than previous studies. Furthermore, if a number of studies on Japanese-English interlanguage have put forth data of *wh*-scope marking, then it may be that Korean-English interlanguage would evince *wh*-scope marking as well because Korean and Japanese

share the same syntactic structure of complex *wh*-questions, as compared in (9) – Korean in (9a) and Japanese in (9b).

- (9) a. *ne-nun John-i nwukwu-lul salanghanda ko sengkakhapnika?*  
       b. *anata-wa John-ga dare-o aisiteriu to omoimasu ka?*  
           You-Top John-Nom who-Acc love-Dec C think-Dec Q  
           ‘Who do you think John loves?’

Moreover, upon confirming the fact that *wh*-scope marking is evident in Korean-English interlanguage, the exhaustive list of elicited data on the acquisition of complex *wh*-questions can be meticulously examined to understand the syntactic motivation for the universal emergence of *wh*-scope marking.

### 3.1. Language Selection

Since the experiment intended to examine the extractability of *wh*-phrase out of the embedded clause to the left periphery of the matrix clause in L2, a linguistic prerequisite was that *wh*-movement in L2 had to be not interfered by a similar kind of *wh*-movement strategy in the learner’s L1. For that reason, the desirable L1 language group was actually the one whose grammar does not exhibit overt *wh*-movement as in simple and complex *wh*-questions, relative clause, *etc.* for which the Altaic languages like Turkish, Mongolian, Japanese, and Korean were a fine instance because they are *wh-in situ* languages. The target language must, conversely, employ overt *wh*-movement, for which the Indo-European languages like German, French, English, Italian, *etc.* were preferred contenders because they are *wh-ex situ* languages. We believed that an ideal juxtaposition of languages was chosen, for the reasons of accessibility to potential experimental participants and convenience

for carrying out the experiment, with L1 Korean-speakers learning L2 English. Hence, Korean-English interlanguage was the target of our experiment.

### 3.2. Participant Selection

In order to elicit a sufficient amount of quantitative data, the target participant population had to be Korean adults who have at least had a number of years of schooling with English education and have possibly acquired working knowledge of *wh*-movement in English; that is, they should know in English, unlike in Korean, that *wh*-phrases target the front position in the clause they are originally selected (den Dikken 2009). The researchers contacted English classes at a four-year university in Seoul, Korea, and informed about 100 students enrolled in those classes. Within a period of week, sixty-seven of them participated on their own initiative, and nine Korean heritage or near-native speakers were also participated as a control group.<sup>4)</sup>

A self-reported questionnaire was given to collect bio-data on sex (male: forty-one, female: twenty-six), year-in-university (freshmen: thirty-five, sophomore: six, junior: ten, senior: sixteen), years-of-English learning, communicative confidence, interest in English culture, motivation in English learning, KSAT (Korean SAT), *etc.*, which can be used for independent and dependent variables.<sup>5)</sup>

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4) After having been pointed out by *L&L* reviewers, the experiment extended the size of the control group to nine members originally from two heritage speakers.

5) English proficiency is not, however, an independent variable considered in the present analysis so that the participants did not need to be categorized according to the scores of a general English test, proficiency levels, *etc.* It does not matter here, since all we want to examine were, first, the evidence of *wh*-scope marking in Korean-English Interlanguage and, second, a systematicity among the participants.

### 3.3. Data Collection Method

A cross-sectional elicited oral-translation method was employed to acquire sufficient data for the target structures within a single experimental session. The cross-sectional elicitation task enables the experiment to evoke intricate syntactic structures such as complex *wh*-question, which occur quite infrequently in both L1 and L2 spontaneous speech. In naturalistic settings, speakers may avoid the intended construction by choosing an alternative, simpler means of expressions. Instead of producing a biclausal structure containing a complex *wh*-question such as *Who do you think bought the clothes?*, for example, speakers might opt for a series of mono-clausal structures such as *Who do you think? Who bought the clothes?* to deliver the intended meaning as dispensing with the endeavor to merge two individual mono-clauses into a biclausal structure. Korean speakers in low or intermediate proficiency level are likely to (intentionally or unintentionally) avoid or be unable to produce English complex *wh*-questions which require long-distance *wh*-movement from the embedded clause to the matrix clause. For that reason, a controlled experiment has been determined to fare better than a naturalistic, spontaneous experiment.

Furthermore, a production task has been selected because it can elicit the intended structure more directly than, say, a language processing or comprehension task, as Crain and Thornton (1998) claim that correct derivations from the lexicon do not take place by accident. There are two other potential advantages of the elicited production task over other tasks. One is that it can acquire readily replicable results and the other is that the acquired data entail greater confidence and precision with respect to what participants meant in producing complex *wh*-questions. Results substantiate

that the elicited production task seems to help uncover language learners' grammatical knowledge probably more directly than other language processing tasks.<sup>6)</sup>

Liceras *et al.* (2011) also indicate that the experiment based on a grammatical judgment task might have distorted the likely outcomes; thereby, not only the impracticable data from Spanish but the viable data from German alluded to a trivial skepticism in their entire study.

In our experiment, the experimental setting and linguistic environments during all sessions were managed in order to produce circumstances which were as similar as possible for each participant.<sup>7)</sup> Irrelevant but immediate extraneous variables may be possibly the time of the day for data collection and participants' motivation and sincerity in the experiment.

### 3.4. Data Collection Instrument

The experiment has prepared a series of twenty-four video-scenes<sup>8)</sup> each of which was thoughtfully formulated with particular content and functional words in Korean in order to draw out the specific target structure in L2,<sup>9)</sup> and showed on the computer monitor a

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6) One of the *L&L* reviewers showed a regret that an eye-tracking method could have been better to understand if *wh*-scope marking was due to the delay in reaction time or processing, and hence that our data analysis could have been much more specific and convincing. This comment is quite true and insightful, but our primary intent of the experiment was to examine *wh*-scope marking in oral production.

7) Similar practices have also been implemented in Dolgormaa and Lee (2011) and Lee (2012).

8) This series of video scenes has been principally designed to elicit not only complex *wh*-questions but also other structures irrelevant to the present study. All scenes were recorded on video-tape using a Sony portable camcorder PJ580 model.

9) Successful elicitation of all target structures was evinced in pilot studies with a

short dialogue in Korean between two persons: the first part of the dialogue presents the schema to generate the discourse appropriateness and sincerity, and the ensuing second part of the dialogue provides the experimental sentence that the participant listened to and needed to be translated in English in an allowed time, as in (10).

(10) wh-subject extraction

- a. Oh, the clothes must be sold out. I really wanted to buy that!
- b. Which person do you think bought the clothes?

wh-object extraction

- c. All look good on Jack. Red is good. Yellow is good.  
Which one do you want to buy?
- d. Which color do you think he likes?

wh-adjunct extraction

- e. Oh, the boy is gone. I know he went to that store!
- f. Which store do you think he went to?

The response time was set for ten seconds before the next scene came up. The given time – which has been adjusted a few times after pilot studies – has been determined to be enough to produce a complex *wh*-question. The time could also allow the participant to have an afterthought to monitor and repair the rather just-uttered, spontaneous construction since the experiment checks the final output: that is, the ultimate capability of *wh*-movement. In order to eliminate the ordering effect, video-scenes were set up in three different orders to three different groups.<sup>10)</sup>

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number of advanced speakers.

10) Twenty-five participants viewed Footage Set A; twenty-one participants viewed Footage Set B, and another twenty-one participants viewed Footage Set C.

### 3.5. Results

Each participant was given five experimental sentences (one for *wh*-subject, two for *wh*-object, and two for *wh*-adjunct); hence, a total of 335 experimental sentences were elicited from sixty-seven participants. The first part of data coding singled out seventeen participants who did not show a structural preference toward selecting one kind of structure more than three occasions. The preference rate we considered in this experiment was subjective; however, among five possible structures, selecting one kind over the others four out of five occasions (80%) would be rather strict. On the other hands, selecting one kind over the others two out of five occasions (40%) would be rather trivial. Following the acceptance criterion rate at or above 67% adopted in Schulz' (2011) study of acceptability judgment of *wh*-scope marking, we believed three out of five occasions (60%) would be fair enough to be set as a preference rate. Further data analysis was carried out, hence, with the remaining fifty participants who showed a structural preference toward one kind over the others three out of five possible chances (60%). The controlled group all used the grammatical complex *wh*-questions in English.

The next part of coding categorized the data from the fifty participants according to five kinds of preferred structures shown in the first row in Table 1: complex *wh*-question, *wh*-scope marking, embedded *wh*-movement, mono-clause, and fail. Below in (11) to (15) are the samples elicited from the experimental sentences. Errors are intact.

- (11) Complex *wh*-question: Only one *wh*-phrase appears in the left periphery of the matrix clause in the biclausal structure

- a. *Who* do you think bought the clothes? [A7]
  - b. *Which color* do you think he likes? [B6]
  - c. *Which hotel* do you think they stay? [C13]
- (12) Wh-scope marking: *What* is in the matrix clause and the contentful *wh*-phrase is in the embedded clause.
- a. *What* do you think *which person* buy this clothes? [A1]
  - b. *What* do you think *which color* he likes? [B2]
  - c. *What* do you think they stay *which hotel*? [C12]
- (13) Embedded wh-movement: *Wh*-phrase fails to appear in the matrix clause.
- a. Do you think *who* bought this clothes? [A23]
  - b. Do you think *which* she like *which color*? [B8]
  - c. Do you think they are placed *which hotel*? [A19]
- (14) Mono-clause: Only mono-clauses are produced.
- a. *What kind of person* buying the clothes? [B16]
  - b. *What color* do you think ... ah ... does he like? [B19]
  - c. *Which store* did she go? [C9]
- (15) Fail: Either no responses or gibberish expressions are produced.
- a. (*no response*) [A5]
  - b. What do you ... uh ... what do you think ... uh [B14]
  - c. You know where [C9]

Table 1. Results of Elicited Oral-Translation of Complex *Wh*-Questions for Korean-English Interlanguage (n=50)

Participants		Complex <i>wh</i> -question	<i>Wh</i> -scope marking	Embedded <i>wh</i> -movement	Mono-clause	Fail
1	A7	5	1			
2	B1	5				
3	A9	4			1	
4	A14	4			1	
5	A17	4				
6	A25	4			1	
7	B6	4				1 (copy) <sup>11)</sup>



8	C1	4	1		
9	C20	4			1 (copy)
10	C21	4			1 (copy)
11	A2	3		2	
12	A4	3	1		1
13	B4	3		2	
14	C13	3	1	1	
15	C19	3	1		1
16	A1	5			
17	A10	5 (How) <sup>12)</sup>			
18	B3	5			
19	B13	5 (How)			
20	C4	5			
21	C12	5			
22	A16	1	4		
23	A20		4 (How)	1	
24	B2		4	1	
25	C15	1	4		
26	A22		3		2
27	C10		3	2	
28	A23		5		
29	B8		4		1
30	A19		3		2
31	C14		1	3	
32	B19	1		4	
33	A11	1		3	1
34	A18	2		3	
35	B12		1	3	1
36	B16		1	3	1
37	B17		1	3	1
38	C7		1	3	1
39	A24				5
40	B5				5
41	B7				5
42	A5	1			4
43	B15	1			4
44	A6	1		1	3
45	A8			2	3

46	B11			2	<b>3</b>
47	B14	1		1	<b>3</b>
48	B18		1	1	<b>3</b>
49	C9			2	<b>3</b>
50	C17			2	<b>3</b>
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Total=190*		57 (30%)	52 (27%)	15 (8%)	22 (12%)
					44 (23%)

\*The total counted only the occurrences in shaded shells.

Table 1 shows the results of elicited oral-translation of complex *wh*-questions for Korean-English interlanguage, with a total of 190 tokens as necessary data (*i.e.* those in shaded shells). Among the five predominant preferred structures, the first two kinds (57%; complex *wh*-question (30%) and *wh*-scope marking (27%)) are

11) Three occurrences of *wh*-copy structure as mentioned in footnote 1 were also elicited.

- a. \*Where do you think which store he ... [B6]
- b. \*Which customer do you think who bought the clothes? [C20]
- c. \*Who do you think who bought the clothes? [C21]

While (c) is a full *wh*-copy structure with the same *wh*-phrase *who* occupying both of the most left peripheries of the clauses, (a, b) can be considered a sort of partial *wh*-copy structure in the sense that only partial features of the *wh*-phrase appears in the other clause. This paper will not attempt to analyze the motivation for these structures. Cf. Felser (2004), Fanselow (2006), den Dikken (2009). Schippers (2012), *inter alia* for partial movement and medial *wh*-copy structures.

12) 'How' indicates that these participants (A10, A20, B13) employed *how* (a total of fourteen tokens) in place of the usual *what* in all incidents of *wh*-scope marking, as shown below.

- a. \*How do you think which room they stay? [A10]
- b. \*How do you think where they arrive in hotel? [B13]
- c. \*How do you think which color she likes? [A20]

Some cases of *how*-scope marking have been reported in the production data of L1 children and L2 learners in the aforementioned studies, but none found such an exclusive use of *how* in preference to *what*. Although this fact will be mentioned in a later section, the semantic difference between *how* and *what* in scope marking will be beyond the scope of this paper. Cf. *how*-scope marking to Stepanov (2000) for Slavic, Bruening (2006) for Passamaquoddy, and Legate (2011) for Warlpiri.

*wh*-fronting biclausal structures that are at issue here, and the other three kinds (43%; embedded *wh*-movement (8%), mono-clause (12%), and fail (23%)) are out of our concern in the present study. Along this analysis, out of the total sixty-seven participants, twenty-seven (No. 1 to No. 27) seem to be capable of consistently producing biclausal structures (that is, complex *wh*-question and *wh*-scope marking) with a *wh*-phrase in the left periphery of the matrix clause. Of particular interest is that the two groups of participants strictly preferred different structures ( $Z = 1.610$ ,  $p = .011$ ): either for ordinary complex *wh*-questions (fifteen participants, 56%, No. 1 to No. 15) or for *wh*-scope marking (twelve participants, 44%, No. 16 to No. 27).

From now on, the former group is called 'CWQ' and the latter group is called 'WSM' for convenience. Below in Table 2 is the comparison of the two groups, CWQ and WSM.

Table 2. Comparison of the Groups: CWQ and WSM (n=27)

	No. of participants	No. of occurrences	Average out of five tokens	Average TOEIC <sup>13)</sup>
CWQ	15	57	3.8/5	830 (high 985, low 625)
WSM	12	52	4.3/5	709 (high 850, low 585)

On the group level, it is apparent that although *wh*-scope marking is an ungrammatical structure in descriptive grammar, yet it seems to be a legitimate, systematic, substantial structure in Korean-English interlanguage of, at least, our participants, and at

13) TOEIC (Test Of English for International Communication), which is administered by the Educational Testing Service (ETS), is probably the most widely used and recognized English test for professional English. The test examines listening, grammar, and reading comprehensions, with the highest possible score of 990.

no time is it an accidental, trivial, individual-exclusive structure. While the participants in CWQ (No. 1 to No. 15 in Table 1) selected the grammatical complex *wh*-questions on the average of 3.8 out of five tokens, the participants in WSM (No. 16 to No. 27 in Table 1) selected the alternative but ungrammatical structure, *wh*-scope marking, on the average of 4.3 out of five tokens.

The statistics result shows a group difference on this variable ( $Z = -2.000$ ,  $p = .046$ ). Although the significance is somewhat weak, this average difference can also be interpreted that WSM seems to build on *wh*-scope marking more enthusiastically or devotedly than CWQ does with complex *wh*-questions. The difference on the average TOEIC scores signifies that CWQ and WSM have attained different levels of English comprehension for communication. According to the TOEIC descriptors, CWQ with the average of 830 possesses advanced working proficiency and WSM with the average of 709 possesses basic working proficiency ( $Z = -1.867$ ,  $p = .062$ ).<sup>14)</sup> By and large, although CWQ still falls short of being on par with native speakers, the group still accurately grasps vocabulary, grammar, and structure and commands a fluent communication in English. WSM has individual discrepancies in accuracy and fluency, and errors can be evident in grammar and structure but not to the extent of hindering the communication. As matters stand here, the group result gives the impression of a developmental continuum: the stage of *wh*-scope marking preceding the stage of complex *wh*-questions.

Before going into the discussion of the study, the next section based on the elicited data analyzes the syntax of *wh*-scope marking in Korean-English interlanguage.

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14) Inferential statistics shows no difference between two groups, but a descriptive difference of 120 points can be by no means discounted in TOEIC.

## 4. Data Interpretation

Our experiment corroborated the actual existence of *wh*-scope marking, rather legitimately and also squarely, in Korean-English interlanguage, whether it be an alternative structure or as an equivalent structure to complex *wh*-questions. In what follows, the syntax of *wh*-scope marking will be discussed with the data elicited from our experiment, in comparison with those of complex *wh*-questions.

An assumed characteristic of complex *wh*-questions in English is that the *wh*-phrase initially merged into a theta-theoretic position in the embedded clause successively copies onto the matrix Spec-CP, with stopovers in the embedded Spec-CP; hence, creating a *wh*-chain of long-distance  $\bar{A}$ -dependencies (den Dikken 2009). Let's take an experimental item for complex *wh*-question in (11b) shown in (16).

- (16) [<sub>CP</sub> Which color [<sub>C</sub> do [<sub>TP</sub> you think [<sub>CP</sub> ~~which color~~ [<sub>TP</sub> he likes ~~which color~~?]]]]] (B6)

While adopting the copy theory of movement in Chomsky (1995) that movement leaves behind a full copy of the moved constituent in the tail of the chain, the *wh*-phrase *which color* in (16) originally merges as a direct complement of the verb *likes* in the embedded clause, subsequently copies onto the embedded Spec-CP and then to the matrix Spec-CP, and leaves its phonetically-null copy in the tail. The *wh*-phrase *which color* in the matrix CP plays a syntactic role and marks the scope of complex *wh*-question, while the lower copy ~~*which color*~~ in the embedded TP preserves the theta-theoretic properties of the copied *wh*-phrase, forming a *wh*-chain of

long-distance  $\bar{A}$ -dependencies.<sup>15)</sup> This is a very brief summary of the derivation of complex *wh*-question, typically assumed in generative linguistics.

On the contrary, the L2 learner's interlanguage circumvents this sort of derivation for long-distance  $\bar{A}$ -dependencies, but instead takes on *wh*-scope marking as in (12b) shown in (17).

- (17) [<sub>CP</sub> *What* [<sub>C</sub> do [<sub>TP</sub> you think [<sub>CP</sub> *which color* [<sub>TP</sub> he likes ~~*which color?*~~]]]]] [B2]

In (17), the *wh*-phrase *which color* merges in the embedded TP as the direct complement of verb and also subsequently copies onto the embedded Spec-CP, just as in the complex *wh*-question in (16), but this *wh*-movement to the embedded Spec-CP is terminal and no further movement to the upstairs clause ensues (den Dikken 2009). Instead, the numeration draws out from the lexical array another *wh*-phrase *what* and merges it into the matrix clause. The Direct Dependency approach (DDA), introduced by McDaniel (1989) and supported by a number of authors in Lutz *et al.* (2000), claims that *what* in *wh*-scope marking is a sort of *wh*-expletive devoid of semantic meanings just like *weather-it* (e.g., *It is cold.*) or *day-it* (e.g., *It is Sunday.*), and externally merges directly into the matrix Spec-CP. Afterwards, the *wh*-expletive *what* in the matrix Spec-CP and the contentful (or true) *wh*-phrase *which color* are associated with each other and form a *wh*-chain (*what* - *which color* - ~~*which color*~~) of long-distance  $\bar{A}$ -dependencies. Its concept is similar to the

15) Questions have been raised about the role of embedded Spec-CP and the motivation for the movement to embedded Spec-CP, which argues against successive-cyclic *wh*-movement. Details on this issue are not a concern in this paper, but refer to Felser (2004), Boeckx (2008), and especially den Dikken (2009) for an uncertain role of embedded Spec-CP in successive-cyclic *wh*-movement.

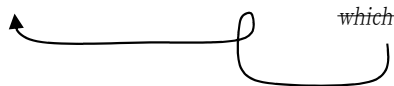
*there*-associate construction as in *There are cats in the living room*, where *There* sits in the subject position, while the verb *are* agrees with *cats*, the syntactic and semantic subject.

On a similar venue, Beck and Berman (2000), Cheng (2000), and Cole and Hermon (2000) support the DDA with partial movement of the contentful *wh*-phrase in the embedded Spec-CP to the matrix Spec-CP. According to them, in (17), only the indefiniteness feature [Indef] and the *wh*-feature [WH] of the contentful *wh*-phrase *which color* in the embedded Spec-CP have been partially copied onto the matrix Spec-CP, and Spell-out assigns the bundle of features the phonetic representations of *what* in English: *what* is then syntactically sufficient enough to mark the scope of a question in the matrix clause, while *which color* sustains its full-fledged semantic properties in the embedded Spec-CP. As a result, a *wh*-chain of long-distance  $\bar{A}$ -dependencies for complex *wh*-question as in (16) under the DDA, hence, bears the identical semantic meaning with the one for *wh*-scope marking as in (17).

There are, however, two sets of data acquired from our experiment that might not be accounted for under the DDA. One is the case of *how*-scope marking (a total of fourteen tokens) in (18) – as mentioned in footnote 11 – exclusively produced by three participants A10, A20, and B13.

- (18) a. \**How* do you think *which room* they stay? [A10]
- b. \**How* do you think *where* they arrive in hotel? [B13]
- c. \**How* do you think *which color* she likes? [A20]

The DDA assumes a direct relationship between the scope marker *what* in the matrix Spec-CP and the contentful *wh*-phrase in the embedded Spec-CP. It is then inexplicable why *how* appears in place of *what* and forms a *wh*-chain as in (19)<sup>16</sup> for (18a).

- (19) [<sub>CP</sub> *How* [<sub>C</sub> *do* [<sub>TP</sub> *you think* [<sub>CP</sub> *which room* [<sub>TP</sub> *they stay*  

~~*which room*~~?]]]]] [A10]

In essence, it is generally believed that the elements from the head to the tail in a *wh*-chain must be identical except that the tail lacks the phonological features of the chain head (Chomsky 2004). In particular, the chain of *what* – *which color* – ~~*which color*~~ in (17) under the view of the DDA violates the chain condition because the syntactic copies in the chain are different although a series of *wh*-features [WH] on each copy, *prima facie*, respects the condition. Yet, the *wh*-chain of *how* – *which room* – ~~*which room*~~ in (19) does not seem to form a legitimate *wh*-chain of long-distance  $\bar{A}$ -dependencies of any kind at all because the chain is not a sequence of occurrences of a single element (Chomsky 2000). Moreover, semantic dependencies between *how* as the head and ~~*which room*~~ as the tail cannot be imagined either in a syntactic chain. The DDA can merely deviate this paradox by setting aside *how* as a minor lexical variation on the surface among individuals in the course of copying for a *wh*-chain of long-distance  $\bar{A}$ -dependencies.

The following set of data in (20) poses a greater dilemma for the DDA. The *wh*-chain with the elements in matrix Spec-CP, embedded Spec-CP, and theta position seen above may not be held in some cases because there are two different sets of copies in a single *wh*-chain. Errors below are intact.

- (20) a. \**What* do you thinking *about* where they are stay in hotel?  
 [A13]  
 b. \**What* are you thinking *about* where she's gone? [A21]

16) One arrow in a sentence means a single *wh*-chain of long-distance  $\bar{A}$ -dependencies, while two arrows in a sentence shown later in this section show a dual *wh*-chain of local  $\bar{A}$ -dependencies.



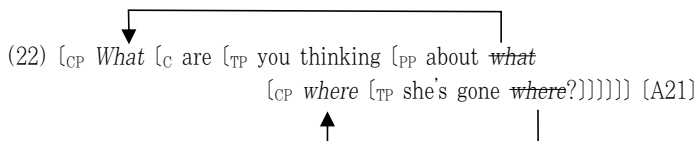
- c. \*What do you think *about* which hotel they stay? [C6]  
d. \*What do you think *about* who buy the clothes? [C6]  
e. \*What do you think *about* he likes color? [C6]  
f. \*What do you think *about* which shops the girl went? [C18]

Unlike other previous data of *wh*-scope marking, all experimental tokens in (20a-f) contain the preposition *about* in the post-verbal position in the matrix clause. What this points out is unquestionably unexpected under the DDA: *What* as an argument, not an expletive, may have been originally merged as the complement of *about*, licensing the role of theta-theoretic properties, and subsequently copies onto the matrix Spec-CP, leaving behind a full copy, as illustrated in (21a) for (20b).

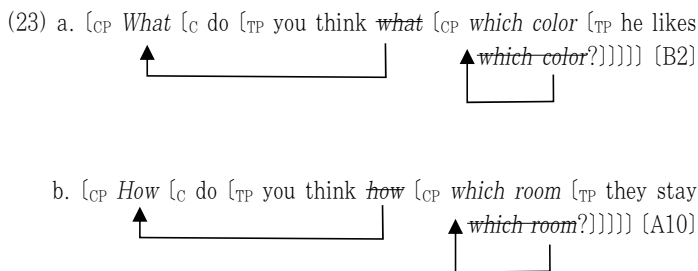
- (21) a. [<sub>CP</sub> *What* [<sub>C</sub> *are* [<sub>TP</sub> *you* *thinking* [<sub>PP</sub> *about* *what*  
           [<sub>CP</sub> *where* [<sub>TP</sub> *she's* *gone* *where?*]]]]]] (A21)  
       b. CHAIN: *what*<sub>(head)</sub> ... *what* ... *where* ... *where*<sub>(tail)</sub>

The DDA has to assume the *wh*-chain of long-distance  $\bar{A}$ -dependencies in (21a) to be (21b), but it does not appear to be a legitimate chain of any kind because simply the elements in the *wh*-chain are different. More specifically, the head *what* and the tail *where* have different theta-theoretic properties because *what* is licensed by the preposition *about* and *where* is licensed by the verb *gone*. Based on Safir (1999), if *a* and *b* are in the same copy set and *a* is a copy of *b*, then *a* must be in an  $\bar{A}$ -position from which *a* must c-command *b*. In (21b), the copy *what* is not in an  $\bar{A}$ -position and it is structurally uncertain if the copy *what* c-commands the copy *where* in the embedded Spec-CP.

Along this line, the *wh*-chain in (21b) is not a single chain of long-distance  $\bar{A}$ -dependencies. A close look at the *wh*-chain brings a dual *wh*-chain in *wh*-scope marking to light, as in (22).



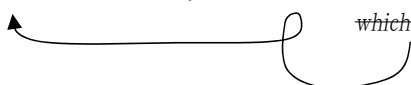
The dual *wh*-chain analysis in (22) refutes the DDA because the direct relationship between the *wh*-phrase *what* in the matrix Spec-CP and the contentful *wh*-phrase *where* in the embedded Spec-CP cannot be realized. As an alternative, the assumed *wh*-chain of long-distance  $\bar{A}$ -dependencies for *wh*-scope marking turns out to be a set of two distinct local  $\bar{A}$ -dependencies with two different sets of copies. On the same vein, the *what*-scope marking in (17) and the *how*-scope marking in (19) can also be understood to have a dual *wh*-chain of local  $\bar{A}$ -dependencies also with two different sets of respective copies, as shown in (23a, b), respectively.



This analysis of dual *wh*-chain is on the same track as the Indirect Dependency approach (IDA), first developed and further worked on from the semantic approach in Dayal (1994, 2000) and, still very recently, syntactically supported in Bruening (2006), Haida (2007), den Dikken (2009), Legate (2011) and empirically evidenced in acquisition studies mentioned in section 2. The IDA

assumes for *wh*-scope marking that *what* in (23a) or *how* in (23b) is an argument selected by the matrix verb *think* which also assigns it a theta role, and then subsequently copies onto its clause-initial position to mark the clausal scope while leaving its identical, full copy behind. In the case of (22), the preposition *about* selects *what* as a *wh*-argument and assigns it a theta role. It is then sure that, in *wh*-scope marking, any *wh*-movement to Spec-CP seems to be terminal and no subsequent *wh*-movement is possible, which seems to be the proper analysis of our data in (20).

Den Dikken (2009) asserts an argument that, not only in *wh*-scope marking but in all structures, any movement to Spec-CP is terminal.<sup>17</sup> Note that we are not opposing the existence of long-distance  $\bar{A}$ -dependencies. What we argue is that *wh*-scope marking does away with long-distance  $\bar{A}$ -dependencies but instead exploits a dual *wh*-chain of local  $\bar{A}$ -dependencies. Complex *wh*-questions are strictly operative with an inter-clausal *wh*-chain of long-distance  $\bar{A}$ -dependencies, and possibly in a successive-cyclic manner as in (24) for earlier (16).

- (24) [<sub>CP</sub> *Which color* [<sub>C</sub> do [<sub>TP</sub> you think [<sub>CP</sub> ~~*which color*~~ [<sub>TP</sub> he likes ~~*which color?*~~]]]]] [B6]
- 

To summarize the syntax of *wh*-scope marking in comparison with

17) Den Dikken does not presume a stopover in the embedded Spec-CP, but argues that a successive-cyclic *wh*-movement targets the edge of vP in the matrix clause, as in (a), instead. On the other hand, Craenenbroeck (2010) argues that a complex *wh*-phrase like *which color* in (24) directly targets the matrix Spec-CP, as in (b), while a simple *wh*-phrase in (1) with *who* stops over in the embedded Spec-CP, as in (24). This is a lively ongoing debate in syntax.

a. [<sub>CP</sub> *Which color* do [<sub>TP</sub> you [<sub>vP</sub> ~~*which color*~~ think [<sub>CP</sub> [<sub>TP</sub> he likes ~~*which color?*~~]]]]] [B6]

b. [<sub>CP</sub> *Which color* do [<sub>TP</sub> you think [<sub>CP</sub> [<sub>TP</sub> he likes ~~*which color?*~~]]]]] [B6]

that of complex *wh*-questions. While complex *wh*-questions mark the scope of the entire biclausal structure via long-distance  $\bar{A}$ -dependencies, *wh*-scope marking only marks the scope of the local clause each *wh*-phrase belongs to. To put it another way, complex *wh*-questions involve an inter-clausal *wh*-chain – the head in the highest Spec-CP and the tail in the lowest TP; *wh*-scope marking involves two local *wh*-chains – each distinct, unrelated head in its local Spec-CP and also each distinct, unrelated tail is in its local TP. Hence, the conditions on the copy theory of movement are uniformly maintained for both complex *wh*-question and *wh*-scope marking.

Along this approach, the IDA (Dayal 1994, 2000) can better account for the data elicited from our experiment than the DDA, and it seems apparent that there is no direct relationship between the matrix *wh*-chain and the embedded *wh*-chain. In line with the IDA, we need to understand in *wh*-scope marking how the matrix clause and the embedded clause are semantically related. We'd like to borrow a concept of 'NP-shells' first introduced in Stepanov (2000) and fine-tuned in Stepanov and Stateva (2006). An 'NP-shell', borrowing its term from 'vP-shells' is like a clausal 'correlative' element that takes the finite CP as a complement, which can be translated as that, in *wh*-scope marking, the *wh*-phrase merged as a verbal complement in the matrix clause instantly c-commands the embedded clause; not just the *wh*-phrase in the embedded Spec-CP, but the entire embedded CP, as illustrated in (25) for (23a).

- (25) [<sub>CP</sub> Q do you think [<sub>NP</sub> *what* [<sub>CP</sub> which color he likes?]]] [B2]

In (25), the NP *what* in an NP-shell takes the finite embedded CP as a complement, not only the DP *which color* but the entire CP containing the DP. The semantic implication is that the interrogative NP *what* is not asking the kind of color, but the entire proposition of the clause – whether he likes A, B, or C. That is, we have to understand what the matrix question is exactly asking. Take a look at the question-answer pair in the following:

- (26) a. What do you think?  
      b. \*Black!  
      c. (I think) he likes black!  
      d. \*Anything!  
      e. He likes anything!

(26) demonstrates that semantically the *wh*-phrase *what* is not quantifying over DP *Black!* in (26b) or *Anything!* in (26d) for the question in (26a). It must quantify over propositions as in (26c, e). A question in *wh*-scope marking as in (26a) denotes a set of possible propositions in the form of *I think x*, where the value of *x* is limited to the DP he likes, not just the DP *per se*. In order for the CP complement to provide a restriction on a quantifier in the matrix clause, the quantifier must immediately take the CP complement in order to inherit the exact meaning pertained within the CP (Stepanov and Stateva, 2006). The knowledge of the NP-shell is actually quite similar to a head noun taking a relative clause as a complement in the following:

- (27) I found the [<sub>NP</sub> book [<sub>CP</sub> which you lost.]]

In a familiar structure of relative clause in (27), the CP complement restricts the NP *book* to a certain book you lost, and

not any other arbitrary books (Van Kampen 2009). Without the CP restricting the NP *book* for the possible answers, the matrix proposition *I found the book*. would only be clueless. As Stepanov (2000:26) posits that “the situation with *wh*-scope marking is thus reduced to usual semantic properties of interrogation understood as existential quantification,” it is then that when the L2 learner employs the strategy of *wh*-scope marking, he may simply use the readily-available existing grammar of quantification as used in the formation of restrictive relative clause.

## 5. Summary

Our experiment based on the elicited oral-translation task has demonstrated the lively existence of *wh*-scope marking, the use of which is available neither in the learner’s L1 nor in the target language. Such a syntactic structure is nevertheless typologically born out in some other languages that the L2 learner had not had any means of linguistic contacts to make use of *wh*-scope marking in his interlanguage. This peculiar, observable linguistic fact in Korean-English interlanguage lends support of the similar findings in other interlanguages of L2 learners and the developing grammar of L1 children mentioned in section 2. What is even more noteworthy is that there would likely be two distinct groups split up based on the types of complex *wh*-questions: One group (*i.e.*, CWQ) possessing advance working proficiency correctly selecting the grammatical complex *wh*-questions, the other group (*i.e.*, WSM) possessing basic working proficiency, alternatively and also exclusively, selecting *wh*-scope marking.

Adopting the copy theory of movement (Chomsky 1995) that

movement leaves behind a full copy of the moved element, it seems that the highly proficient learner like CWQ tends to employ inter-clausal successive-cyclic *wh*-movement via the embedded Spec-CP by leaving behind the phonetically-stripped copy with theta-theoretic properties in the embedded clause as a tail and forming a *wh*-chain of long-distance  $\bar{A}$ -dependencies with its phonetically-realized copy in the matrix Spec-CP as a head. On the other hand, the (approximately) intermediate proficient learner like WSM rather utterly opts for intra-clausal *non*-successive-cyclic *wh*-movement for forming a *wh*-chain of inter-clausal local  $\bar{A}$ -dependencies; that is, simple *wh*-movement. Hence, the L2 learner takes advantage of simple *wh*-movement strategy and draws on two discrete chains of  $\bar{A}$ -dependencies: one chain in the matrix clause and the other chain in the embedded clause.

The copy theory of movement, however, cannot hold up any accounts on the direct relationship between the *wh*-phrase in the matrix Spec-CP and the *wh*-phrase in the embedded Spec-CP, mainly because the elements in the two chains are neither syntactically nor semantically identical, but are partially similar or disparate, violating the foremost condition on the copy theory. The data like *how*-scope marking in (18) seriously undermine such an approach of direct relationship. In contrast, our data, by and large, seem to fare better with the Indirect Dependency approach (IDA) proposed by Dayal (1994, 2000) than the Direct Dependency approach (DDA) primarily argued by McDaniel (1989). Also refer to the entire volume (Lutz *et al.* 2000) devoted to *wh*-scope marking and other papers aforementioned in the earlier sections. Although a number of studies have attempted to elucidate the indirect relationship in *wh*-scope marking, we believe that Stepanov and Stateva (2006) most brilliantly demonstrate it with the concept of

'NP-shells' - [<sub>NP</sub> *what* [<sub>CP</sub> *wh* ... *wh*]] - that the embedded clause as a whole, not just the *wh*-phrase in the embedded Spec-CP, restricts the *wh*-phrase *what* (or *how*) playing like a clausal 'correlative' element in the matrix clause which quantifies over possible propositions. Stepanov and Stateva further argue that the grammatical knowledge of 'NP-shells' is similar to (or, in our view, remnant possibly of) a head noun restricted by a relative clause.

Lastly, to put forth some comments on the processing motivation for *wh*-scope marking in L2, Schulz (2011) alleges that the interlanguage grammar may experience 'a parse failure' causing a processing overload which breaks down the processing of the intended structure, a complex *wh*-question.<sup>18)</sup> Schulz then sees *wh*-scope marking as a result of 'simplification strategy' for not overtaxing the learner's processing resources and consequently ending up simplifying the intended processing. Slavkov (2011) calls *wh*-scope marking as a result of 'avoidance strategy' that the learner resorts to an alternative, derivationally simpler utterance when long-distance *wh*-movement is difficult at some level of acquisition process. Such a processing perspective in relation to syntactic options can potentially provide more explanatory accounts in the studies of language acquisition, which we believe should be the goal of future works.

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18) One of the *L&L* reviewers thankfully points out that the view of 'parse failure' should also be put side by side with the Constituency Hypothesis in the sense that processing can sometimes fail continuously to parse the same constituent during movement like topicalization and *wh*-movement.



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