

Does UG Make a Correct Prediction about L2 Acquisition?

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1. Introduction

The purpose of this study is to explore the operation of Universal Grammar in second language acquisition. The examined phenomenon is *wanna* contraction in English, whose constraint is attributed to UG. The nature of inter language (IL) grammar by high-proficiency Korean learners of English will be explored to see whether adult learners obey the contraction constraint. If the IL representation does not conform to what is explained by UG, it can be assumed that L2 learners fail to acquire the properties of L2 and that UG is not guiding the L2 acquisition process. UG availability, especially the trace effect on contraction phenomenon will be explored through an experimental task, an elicited production test.

2. Theoretical Background

In English, *want to* can be contracted to *wanna*, but not invariably. Contraction is permitted in sentences like (1b). However, *want to* cannot be contracted to *wanna* in sentences like (2b).

- (1) Object Extraction Question (OEQ)
 - a. Who do you want PRO to kiss *t*?
 - b. Who do you wanna kiss *t*?
- (2) Subject Extraction Question (SEQ)
 - a. Who do you want *t* to kiss Bill?
 - b. *Who do you wanna kiss Bill?

Why is *wanna* permitted in Object Extraction Question (henceforth OEQ), (1b), but not in Subject Extraction Question (henceforth SEQ), (2b)? *Want to* is possible in both OEQ and SEQ, while only *want to* is allowed in SEQ. In general, the theoretical account for the constraint on *wanna* contraction has made reference to the trace theory of movement rules: *Wh*-trace, intervening between *want* and *to*, blocks contraction (Chomsky and Lasnik 1977, 1978; Chomsky 1980; Jeaggli 1980; Uriagereka 1998). *Want* and *to* may become *wanna* when they are adjacent. Case-marked NPs are 'visible' for this rule, blocking contraction, but others are not. Only PRO intervenes in (1a) and since PRO is not Case-marked it does not interfere with the application of the rule. In (2a) on the other hand, the presence of the Case-marked traces of *who* means that the verb and *to* are not adjacent, so contraction is blocked.

Y_{UH} At present, there is no generally accepted theoretical account on *wanna* contraction. Despite the differences in theoretical accounts, there is substantial agreement on the facts themselves of the phenomenon. Most of the native speakers will accept such sentences as *Who do you wanna kiss?* as grammatical, whereas they reject sentences such as **Who do you wanna kiss Bill?* as ungrammatical.

3. The Study

3.1. Rationale

The rationale of this study is that, to tap the UG availability of the constraint, contraction should occur in the object extraction position, but should not in the subject extraction position. If adult L2 learners produce the non-contracted form *want to* in both structures, it is conceivable that they do so even if contraction is possible in SEQ. Thus, it is important that a contracted form *wanna* should occur in OEQ and a non-contracted form *want to* in SEQ to see whether the UG constraint is obeyed. It is reported that native speakers (both adult and children) strongly prefer *wanna* in OEQ, while they do not in SEQ (see Crain and Thornton 1998).

There are four possible patterns which learners may show contraction preference with respect to OEQ and SEQ.

Learners may produce *want to* in both OEQ and SEQ, preferring the non-contracted form in both situations. These can be categorized as conservative speakers. In this case, we cannot determine whether the contraction constraint is available to them, because no violation of the UG principle has occurred. Let us call this category I, "conservative". The existence of this 'conservative' group among L2 learners contrasts with the assumption of Crain and Thornton (1998) regarding children, all of whom use the contraction, and are assumed to apply it wherever possible. The presence of conservative learners is important for the logic of the analysis, which will become clear below.

Learners may produce *wanna* in OEQ and *want to* in SEQ. This is evidence that the constraint is available. They contract in the possible situation and do not in the impossible situation. In this case, the UG constraint is being obeyed. Let us call this category II, "correctly differential".

Learners may produce *want to* in OEQ, but *wanna* in SEQ, applying the constraint backward. This is evidence that the constraint is not available for these learners. Let us call this category III, "backward".

Learners may produce *wanna* in both OEQ and SEQ. In this case, *wanna* is overgeneralized in SEQ. This is also evidence that the constraint is not available. Let us call this category IV, "overgeneralization". Table 1 summarizes the four possible categories concerning the distribution of *want to* and *wanna* in all circumstances.

Table 1. Contraction pattern in OEQ/SEQ and UG availability in elicited production test (* means ungrammatical).

category	I. conservative	II. correctly differential	III. backward	IV. overgeneralization
OEQ	want to	wanna	want to	wanna
SEQ	want to	want to	*wanna	*wanna
UG availability	??	YES	NO	NO

Category II in table 1 suggests UG availability, while category III and IV are not supportive of UG availability by the participants. One might therefore call category II the "UG-available" category, and categories III and IV are called "UG-unavailable" category. Category I is ambiguous for UG availability, since conservative speakers can be categorized in the UG-available category under one condition, or in the UG-unavailable category.

3.2. Research Question and Hypotheses

Q: What is the distribution of participants in each of the four possible categories, that is, are there more people in UG-available category than in UG-unavailable category?

a. We consider category II as the only UG-available category: If UG is available for Korean learners of English, there will be more people in category II than in the other categories.

b. We consider category I and category II together as a UG-available category: If UG is available, there will be more people in categories I and II than in categories III and IV.

3.3. Experimental Design

The elicited production test in this study was similar to that used in Crain and Thornton (1998), where children were tested throughout act-out tasks. In this experiment, the elicitation protocol was recorded and all contexts were designed to elicit either OEQ or SEQ from a subject. The experiment consists of 12 stimuli, six OEQ and six SEQ, respectively. There were two practice stimuli before the main test. Examples are shown below.

Protocol for eliciting object extraction questions (OEQ)

Robert: We are cooking in the kitchen now. I am making *pulkoki*, my sister is making pizza, and my brother is making *capchae*.

[I bet Emily wants to help someone. Can you ask Emily who?]

Subj: Who do you want to/wanna help?

Emily: You!

Protocol for eliciting subject extraction questions (SEQ)

Robert: I am thinking about cooking *pulkoki* for Emily's birthday and my sister is, too. I think I am a better cook than my sister.

[I think Emily wants one of us to cook. Can you ask Emily who?]

Subj: Who do you want to/**wanna* cook?

Emily: You.

While a subject could use *want to* and *wanna* optionally in OEQ, he/she should not use *wanna* in SEQ. It is necessary to control other factors which can cause differences in producing either construction. For instance, sentence length, familiarity of the verbs, number of argument structures of the verbs, and ease of the eliciting context were controlled. Verbs used in OEQ sentences do not take direct objects, because the direct object position is left with a trace after the *wh*-movement. To balance the OEQ structure, verbs used in SEQ do not take direct objects, either. Therefore, verbs used in SEQ were either intransitive verbs (e.g. *come*) or transitive verbs, which take an optional direct object (e.g. *start*).

3.3.1. Analytic Concept

In this study, UG availability for adult learners in contraction phenomenon will be discussed by considering the number of participants who fall in each of the four logically possible categories. Participants are grouped into different categories according to their contraction patterns. In the test, each condition is represented by six tokens. We set a criterion of consistency which permits one case of the six to be ignored. We use a cutoff point of 80%, which translates into at least five out of six (83.33%). That is, for example, if a participant uses *want to* in five out of six tokens of OEQ and of SEQ at the same time, we say that that participant consistently does not contract in these cases. Thus, this participant will fall in the "conservative" category. Table 2 shows the frequency distribution of contraction preference, that is, number of *want to* produced in OEQ and SEQ using 80% criterion.

Table 2. Token frequency with respect to OEQ and SEQ with 80% criterion.

(# of <i>want to</i>)		(n=6)	
I. OEQ \geq 80%	5,6	II. OEQ <80%	0-4
SEQ \geq 80%	5,6	SEQ \geq 80%	5,6
III. OEQ \geq 80%	5,6	IV. OEQ <80%	0-4
SEQ <80%	0-4	SEQ <80%	0-4

"Conservative" speakers prefer *want to* more than 80% in both OEQ and SEQ. People in the "correctly differential" cell prefer *want to* in OEQ below 80% and prefer *want to* in SEQ above 80%. Put differently, they correctly differentiate the constraint in terms of OEQ and SEQ. Participants in the "backward" cell prefer *want to* in OEQ above 80%, but in SEQ below 80%. In other words, they do not contract in OEQ, but contract in SEQ. Finally, participants in "overgeneralization" prefer *want to* below 80% in both OEQ and SEQ.

The "expected frequency" of participant distribution in each cell can be calculated using the 80% criterion based on table 2. Table 3 indicates the expected proportion of participants in each cell under the assumption that participants will show chance distribution in their production

Table 3. Expected proportion of participant distribution based on contraction pattern in each cell.

percentage of participant		OEQ	
		non-contractor	contractor
SEQ	non-contractor	I. conservative 14%	II. correctly differential 25%
	*contractor	III. backward 25%	IV. overgeneralization 36%

If participants are distributed 'by chance' for their contraction patterns in each possible category, the 'conservative' cell will represent 14% of the participants. The 'correctly differential' and 'backward' cells will hold 25% of participants, respectively. The percentage of participants who will fall into the 'overgeneralization' cell will be 36%. The question will be raised later whether the distribution of expected frequency is similar to the distribution of observed frequency, which will be calculated based on participant behavior. UG availability will be asked by comparing the observed frequency in UG-available cell(s) with the frequency in UG-unavailable cells.

3.4. Subject

The subjects were 104 Korean native speakers in Korea who enrolled in the advanced English conversation classes at the language institute of a University in Korea. The average age of the participants was 26.

3.5. Result

Table 4 summarizes the distribution of participants based on their production of contraction with respect to OEQ/SEQ and UG availability.

Table 4. Contraction pattern in OEQ/SEQ and UG availability in elicited production test (N=104) (* means ungrammatical).

participants	I. conservative	II. correctly deferential	III. backward	IV. overgeneralization
OEQ	want to	wanna	want to	wanna
SEQ	want to	want to	*wanna	*wanna
	43 (41.3%)	16 (15.4%)	9 (8.7%)	36 (34.6%)
UG availability	??	YES	NO	NO

As shown in table 4, most people either contract none of the time (conservative speakers) or all of the time (liberal speakers). In other words, most participants fall into either category I or IV. As a result, the number of people in category II, who obey the UG principle and category III, who apply the constraint backward is relatively small. Conservative speakers will be dealt with separately with respect to the possibility of obeying the constraint below.

3.6. Analysis

The distribution of participants in the four possible categories and subsequent UG availability will be considered by comparing the observed frequency with the expected (chance) frequency for corresponding cells. In doing so, three relevant points can be raised. First, I would like to see whether the observed participant distribution follows the pattern of expected frequency. Second, the frequency of participants in each category will be compared with the expected frequency to see whether the distribution is what is expected by UG. Third, how many of the participants are compatible with UG? We will see whether participants who are guided by UG are significantly more than those who are not.

Table 5. Expected and observed frequency for each category in elicited production test (N=104) (*means ungrammatical).

# of participants (N=104)	OEQ					
	non-contractor			contractor		
		expected	observed	expected	observed	
SEQ	non-contractor	I. 15	43	II. 26	16	
	*contractor	III. 26	9	IV. 37	36	

The result of the Chi-square test points out that there is a relationship between OEQ and SEQ with respect to the production patterns ($\chi^2 = 26.4798$, $df=1$, $p<.05$).

The frequency in category II, which is 'correctly differential' (i.e. UG-available) category, is smaller than expected by chance. In addition, the frequency in category III, which represents speakers who apply the constraint backward, is also smaller than expected. The results show most people either contract all the time (category IV, overgeneralization) or never (category I, conservative speakers). This relationship is not what is expected from the UG hypothesis.

When the observed pattern is not the pattern that UG might predict, it is reasonable to see how many are in the UG-compatible category. The null hypothesis is that the probability that UG is available for participants will be 50%. Here, a very lenient probability is used to test the null hypothesis. This means that we would say that participants are guided by UG if they occupy just more than half in the pool. I will employ two analyses in accounting for the UG-available category. First, people in category II, which is the 'correctly differential' cell, will be considered to test the null hypothesis. Second, people in category I, who are supposed to be conservative speakers, and people in category II will be considered together. The reason for including people in category I into category II is that the UG availability is ambiguous for conservative speakers. Because they never contract, they never violate the constraint. Thus, these conservative speakers can belong to either the 'UG-available' category or the 'UG-unavailable' category. By classifying the conservative speakers into the UG-available category, we are being generous for the possibility of their obeying the contraction constraint in testing the null hypothesis.

3.6.1. z-test with category II only

One-sample z-test with people in category II shows that we can reject the null hypothesis ($z = -7.065$, 2-tail, $p < .05$). This means that the number of people who are compatible with UG is less than those who are not.

3.6.2. z-test with category I and category II

One-sample z-test with people in category I and II combined shows that we fail to reject the null hypothesis ($z = 1.373$, 2-tail, $p > .05$). This means that the number of participants who seem to be guided by UG are at most the same as those who are not.

It is worthwhile to remember that including conservative speakers into the UG-available category is just to allow a generous possibility for their potential unconscious knowledge.

3.7. Discussion

It is a mystery why only a few people fit the UG-expected pattern and why so many either always contract or never contract in the elicited production test. If UG is 'universal', it should be 'universal'. We can ask three questions about this lack of universality of UG: 1) Why are there many who never contract? 2) Why are there many who always contract? 3) Why are there "differential contracters", who either obey the constraint or apply the constraint backward?

It is possible to expect two kinds of learners. One group is not aware of the structural differences between OEQ and SEQ, thus, contraction may occur all over or not at all in their production, depending on which pattern they prefer. This group can be referred to as "insensitive". The other group differentiates the structural differences with respect to the contraction possibility. Learners in this group can be referred to as "sensitive". To put it slightly differently, participants whose behavior patterns fit question (1) and (2) can be identified as "insensitive" speakers, while participants who correspond to question (3) can be called "sensitive" speakers. Let us assume, for a possible explanation, a "Sensitivity Hypothesis" to account for questions above.

The "insensitive" learners can show two kinds of behavior pattern: they will either never contract, or contract all the time, providing answers for (1) and (2), respectively.

"Sensitive" speakers can be categorized into two groups: One group is sensitive in the right way, that is, obeying the constraint, and the other group is sensitive, but in the wrong way. If some speakers are sensitive to the structural difference between OEQ and SEQ and if they take the right way for contraction preference in production, they belong to category II, "correctly differential". They show the same behavior as those who are guided by UG. If, however, some speakers are sensitive, but in the wrong way, they will end up applying the constraint backward and consequently are not said to be guided by the UG principle.

The "Sensitivity Hypothesis" explains participant behavior in the "correctly differential" category as follows: One may only hear contracted-versions of OEQ construction from the input, but no contracted-versions of SEQ construction, because they do not occur in English. If one is sensitive enough to notice the difference between OEQ and SEQ constructions, one would feel unfamiliar and consequently, uncomfortable with the contracted-versions of SEQ construction. Here, the perceived differences do not necessarily have to be the difference in extraction site, but can be other possible factors: transitivity of the verb, transitive verbs usually forming OEQ construction and intransitive verbs forming SEQ construction, or the kind of *wh*-word (mostly *what* for OEQ and *who* for SEQ). This might lead one to produce contractions in OEQ, since it is familiar from the input, but avoid contraction in SEQ, partly because they are not sure about the occurrence of the form, since one has never heard of it.

The other group, who are sensitive enough, but take the wrong way in applying the constraint, can be said to be doing it backward. It is conceivable

that these people do not know what is going on between different structures and the contraction constraint. It is open to question why they apply the constraint backward, even though they know the difference between OEQ and SEQ. We may speculate on a possible explanation: They say "want to" in a possible situation, OEQ, may be because they just do not want to contract. Then, when the time comes when they use SEQ, they notice that this structure is different from OEQ, where they use "want to". They, then, just turn to a phonetic variant form of *want to*, which is "wanna" for this different structure, assuming that a different structure may employ a different form associated with it. Thus, they say "wanna" for SEQ. They seem to use a different-forms-for-different-structures strategy. In all, they are sensitive but not enough to apply the constraint correctly.

These "sensitive", but not "correctly differential" speakers seem to suggest that the sensitivity of structural difference is learned independent of the knowledge of the constraint on contraction. That is, to know whether a sentence is OEQ or SEQ is one thing and to apply the constraint correctly is another.

The conservative pattern accumulation theory (Bley-Vroman 1996, 1997) shares the same idea as the Sensitivity Hypothesis: Learners have stored a contracted version of OEQ as well as a non-contracted version in their structure-store. Since the learners are not aware of the constraints, they depend heavily on input. If one sets his mind to contract, he will fall into the overgeneralization category, but if he is determined to not contract, he falls into the conservative category. Depending heavily on input and noticing ability (Bley-Vroman 1996, 1997), one will contract in OEQ, because he may have heard it, but not in SEQ, because he has never heard of the contracted versions. Thus, one falls into a correctly differential category, not directed by UG, but by something else. Bley-Vroman (in personal communication) has suggested that the correctly differential learners can be thought of as having noticed that *wanna* occurs only with bare-infinitive VPs (e.g. What do you *wanna* eat?) That is, they reject **Who do you wanna go?* for the same reason that they reject **I wanna Mary go.*

In an extended line, it is also conceivable to incorporate some of the insight of lexicalization accounts suggested by Bolinger (1980a, 1981) and Pullum (1997). It is possible to assume that *wanna* is perceived as an independent word and becomes lexicalized in their grammar. Maybe the "correctly differential" learners have simply "noticed" that *wanna* is an auxiliary. Thus, they think **Who do you wanna come?* is ungrammatical by the same reason **Who can you come?* is ungrammatical. The subcategorization of *wanna* as an auxiliary leads one eventually to contract in OEQ, but not contract in SEQ, which shows convergent results as might be derived by UG.

4. Conclusion

The primary research question of the present study is this: Whether UG guides the L2 learning processes. UG-availability relating to the constraint on

contraction was considered. The results yield that there is no general support for UG-availability.

This study suggests that it is not a UG driven strong deductive process, but rather an inductive process with sufficient input and noticing ability that plays the major role in the adult language learning processes, at least for the grammatical structures under investigation in this paper, the contraction phenomenon in English.

Endnote

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