

# The Acquisition of Relative Clauses in a Third Language: Comparing Adults and Children

Inna Vinnitskaya<sup>1</sup>, Suzanne Flynn<sup>2</sup> and Claire Foley<sup>2</sup>  
<sup>1</sup>University of Ottawa and <sup>2</sup>MIT

## 1. Introduction

As is well known, the study of L2 acquisition provides essential insights about the language learning process in general. Approaching language learning through the study of L1 acquisition alone yields an incomplete and potentially erroneous view of the language faculty. For example, L2 study critically informs such debates as the "maturation of linguistic principles" proposed for L1 learning. Presumably, major cognitive development in the adult has ended, so observed L2 development cannot follow as a consequence of development or the lack of development in other domains of cognition. Thus, comparable patterns of development for L1 and L2 demand a linguistic explanation. Without the study of L2 learning, insights into essentially linguistic influences on development (rather than maturational or general cognitive influences) would be far more difficult to isolate.

In this paper, we address one of these linguistic influences on language development: the role of earlier languages on subsequent language acquisition. We pose a particular question: is the role of a first language privileged over the role of a second language in the development of a third language (L3)? We present results that suggest that language learning is cumulative. No one language maintains a privileged role with respect to next or subsequent language learning. Results will also reveal a difference between acquisition of L3 in childhood, when other languages are still under development, and in adulthood.

In this paper we focus on the acquisition of relative clauses. These structures have been well investigated in L1 acquisition research. In order to understand next language acquisition we need to have such a research anchor.

## 2. Background

### 2.1. L1 acquisition of English

Earlier research has probed the L1 acquisition of relative clauses (Hamburger and Crain 1982, Goodluck and Tavakolian 1982, and Flynn and Lust 1981, among others). In a study of monolingual children (3; 0 -7; 0 years) acquiring English as an L1, Flynn and Lust (1981) compared children's elicited imitation of three relative clause types. As shown in Table 1 here, the three types tested were (a) lexically headed relative clauses where the head has semantic content; (b) lexically headed relative clauses where the head lacks semantic content; and (c) free relatives. Results of this experimental study indicated that the free relative clause structures in (c) were significantly more productive than either of the lexically headed types.

Table 1. L1 acquisition of English: Clause types tested by Flynn and Lust (1981)

(a) Lexically headed, head with semantic content	Big Bird pushes the balloon [ which bumps Ernie ]
(b) Lexically headed, head with no semantic content	Ernie pushes the thing [ which touches Big Bird ]
(c) Free relative	Cookie Monster hits [ what pushes Big Bird ]

## 2.2. L2 acquisition of English

Subsequently, the same three types of relative clause structures were tested in Flynn's (1983, 1987) studies in adult L2 acquisition of English by L1 speakers of Japanese and Spanish. In these studies, the adult L1 speakers were tested in their elicited imitation of English relative clause structures. The L1 Japanese and Spanish speakers were at one of three levels of English proficiency as measured by the Michigan Test. (For details see Flynn, 1983, 1987. For information on elicited imitation methodology, see Lust, Chien and Flynn 1987 and Lust, Flynn and Foley 1996.) The three relative clause types investigated in these studies were identical to those used in the L1 study noted above.

Japanese is a head-final language and therefore does not match English in head direction (head-initial, right-branching).

- (1)      John-wa            [Mary-ga            kaita]                    hon-o            yonda.  
           John-theme        Mary-nom            wrote                book-acc        read  
           'John read the book that Mary wrote'                    (Saito 1985)

The speaker of Japanese is encountering in English a new and different kind of integration of language-specific and universal knowledge. Interestingly, in the acquisition of L2 English by Japanese speakers, the free relative appears to be a developmental precursor to the lexically headed form, as we saw it was in L1 acquisition.

Spanish, in contrast to Japanese, but like English, is a head-initial, right-branching language. In the structure in (2), for example, the relative clause 'that Maria wrote' *que María escribió* follows the head NP 'book' *libro*.

- (2)      Juan leyó            el libro            [que    María escribió]  
           Juan read            the book            that    Maria    wrote

Thus, it is hypothesized that speakers of Spanish acquiring English as an L2 will be encountering a language that involves a similar type of integration of universal and language-specific properties concerning directionality. In fact, previous results revealed that in the acquisition of L2 English by Spanish speakers, the free relative is not a developmental precursor to the lexically headed forms. In this respect, L2 acquisition of English by Spanish speakers appears different from L1 acquisition of English and the L2 acquisition of English by Japanese speakers.

Table 2. Summary of earlier L1 and L2 acquisition results

Target language	Group	Pattern
a. English as L1	Children	Free relative precedes lexically headed relative clause
b. English as L2	Adults, L1 Japanese (head-final)	Free relative precedes lexically headed relative clause
c. English as L2	Adults, L1 Spanish (head-initial)	Free relative does NOT precede lexically headed relative clause

The results from these previous studies, which are summarized in Table 2, suggest the following.

- (3) In L1 and L2 acquisition of relative clauses, there is linguistic development, a process by which the learner constructs a specific language grammar (i.e., a theory of the specific language).

- (4) Consistent with analysis of language within a generative framework, CP architecture varies across languages. This variation is finite, and it results from lexical and feature differences.
- (5) Free relatives are developmental precursors to lexically headed relatives when the learner develops a new CP architecture. However, learners can draw upon earlier experience in constructing CP architecture if a target language matches earlier languages in key features, including branching direction.

### 3. Predictions

The conclusions in (3)-(5) lead us to probe the role of earlier language acquisition in more depth. Here, we pursue the question of whether the first language has a privileged role, or whether all earlier experience influences later development in the domain of CP architecture. In particular, we test the hypothesis in (6).

- (6) a. **If there is a privileged role for the L1 in all subsequent language acquisition**, then L3 acquisition of English by L1 speakers of Kazakh should resemble L2 acquisition of English by **Japanese** speakers (since Kazakh is similar to Japanese in a head direction). This prediction should hold even if the learner has experience with an L2 matching English in head direction.
- b. On the other hand, **if the role of the L1 is not privileged**, and if the L3 learner of English has experience with an L2 matching English in head direction, then L3 acquisition of English by L1 speakers of Kazakh should resemble L2 acquisition of English by **Spanish** speakers.

If the hypothesis in (6b) is correct, then we would have new evidence that development of CP structures in a prior language or languages influences the course of future specific language development. We would also have new evidence that the learner, having integrated language-specific CP features with universal knowledge of CP in earlier language acquisition, is able to draw upon that developmental process in later acquisition.

To test these predictions, we studied the acquisition of relative clauses by Kazakh speakers who acquired Russian as an L2 and English as an L3.

## 4. New research with Kazakh speakers

### 4.1. Syntactic background

Kazakh does not match English in its head direction. Thus, in Kazakh, relative clauses appear to the left of their heads. For example, in (7), the relative clause appears to the left of the head ‘girl.’ In Kazakh, there are no overt *wh*-operators or overt complementizers in relative clauses. The boundary between the relative clause and the main clause is indicated in the verbal morphology—for example, in (7), by the participial form of the verb ‘drink,’

- (7) [ **Sut-**                    **isken** ]                    **kyz**                                    bolmege kirdi  
       milk-acc                drink-part                    girl-nom                                room-dat enter-past  
       ‘(A/the) girl who drank (the) milk entered (a/the) room.’

The Kazakh speakers in our study had all acquired Russian as an L2 before acquiring English as an L3. Unlike Kazakh, Russian is a head-initial, right-branching language. Its basic SVO word order is illustrated in (8); the relative clause appears to the right of the NP head, ‘professor.’

- (8) **Professor**                [ **kotory priglasil**                    **lektora** ]                    predstavil                    vraca  
       professor-nom    who    invite-past                    speaker-acc                    introduce-past                    doctor-acc  
       ‘The professor who invited the speaker introduced the doctor.’

#### 4.2. Methods and design

The design of the new study varied along three factors, as seen in Table 3.

Table 3. Experimental design for the Kazakh study

Type	Head position: Subject		Head position: Object	
	Gap position: Subject	Gap position: Object	Gap position: Subject	Gap position: Object
<b>Lexically headed, specified</b>	The lawyer who criticized the worker called the policeman.	The student who the professor introduced answered the man	The boss introduced the gentleman who questioned the lawyer	The woman instructed the lawyer who the policeman called.
<b>Lexically headed, unspecified</b>	The person who criticized the engineer greeted the man.	The person who the engineer answered criticized the man.	The boss introduced the person who instructed the lawyer.	The janitor questioned the person who the student greeted.
<b>Free relative</b>	Whoever entered the office introduced the professor.	Whoever the policeman greeted questioned the gentleman.	The professor introduced whoever greeted the lawyer.	The doctor answered whoever the policeman criticized.

First, as seen in the left-hand column of Table 3, we included the three relative clause types from previous L1 and L2 studies: lexically headed relative clauses whose heads are specified for semantic content, lexically headed relative clauses whose heads are not specified for semantic content, and free relatives. Second, as seen across the top of Table 3, we included sentences where the main clause subject or the main clause object was the head of the relative clause. Finally, within each of those categories, we varied the gap position, allowing either the subject or object to be empty within the relative clause. Two coordinate structures were also included as controls in the sentence batteries.

We tested these sentences using an elicited imitation methodology as in the other studies. In this task, the participants hear a sentence and are asked to repeat it. Responses can be studied to determine which structures participants will change significantly in their production. Before beginning the actual testing, we verified that participants were familiar with the vocabulary used in the test sentences. Next, they were tested on a short set of pre-training sentences to familiarize them with the procedure. Finally, they were tested on three batteries of sentences, independently randomized, with battery order varying randomly across participants.

#### 4.3. Participants

As shown in Table 4, we tested thirty-three adults at three levels of English proficiency. All participants were asked to complete the Michigan test as an independent measure of their English proficiency. The mean score for each group is presented in the third column in the table.

Table 4. Subject information, adults

Level	N	Mean ESL Score
Low	7	11
Mid	14	19
High	12	26
Total	33	20

We also tested thirty-one children who almost simultaneously acquired English as an L3 and Russian as an L2.

Table 5. Subject information, children

Age Range	N
10,0-10,11	7
11,0-11,11	14
12,0-12,11	10
Total	31

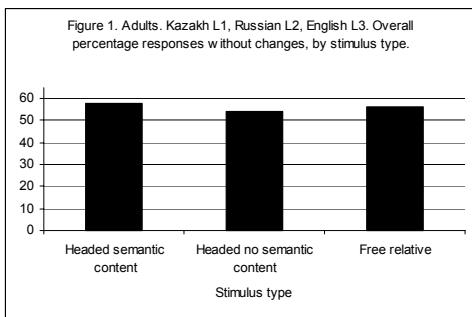
4.4. Results

Responses were coded as “correct” if they matched the stimulus form and as “incorrect” if the respondent significantly changed the stimulus form. Results for percent correct (0-100%) indicate that the Kazakh L1/Russian L2/English L3 adult speakers pattern with the L1 Spanish/ English L2 speakers, as hypothesized. These results are shown in Figure 1 below. Results indicate that the Kazakh L3 speakers of English did not evidence the free relative as a significant developmental precursor to the lexically headed relative clause structures. In other words, all three relative clause structures were equally accessible to the adult Kazakh L3 learners of English.

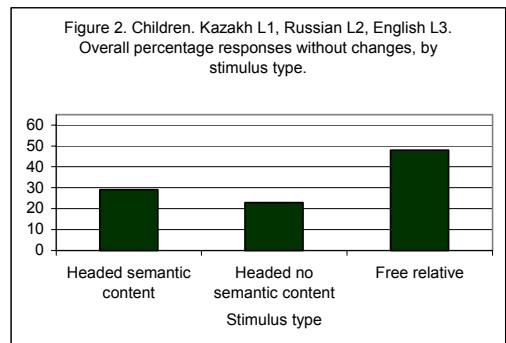
These results vividly contrast with the Japanese results. Since Kazakh is like Japanese in its SOV, left-branching structure, this contrast would have been surprising if these speakers had not also had experience with a right-branching language, Russian, as an L2.

In addition, analysis of the “errors,” or changes respondents made to the stimulus sentences, also suggest that the free relative does *not* occur developmentally prior to the lexically headed relative clauses for the Kazakh speakers. Results from the study of Japanese speakers' acquisition of English as an L2 revealed significant spontaneous conversions of the lexically headed relative clauses to free relative clause structures. In contrast, the Japanese speakers rarely converted free relative clause structures to lexically headed relatives. This is an interesting result, given the fact that the stimulus sentences were all equalized in terms of number of words and syllables. The results of L1 acquisition of English revealed similar conversions. However, the results for the Spanish speakers' L2 acquisition of English indicated no such preference. Important for the purposes of this paper is the fact that the Kazakh speakers rarely converted the lexically headed to free relatives or the free relatives to lexically headed relatives. These results, as hypothesized, pattern with those for L1 Spanish acquisition of L2 English.

In contrast, children differentiated three major types of relative clauses in their imitation (F=5.074; p=0.036). As is shown in the graph in Figure 2, their performance was better on free relatives, while it was lower for the other two types (21-27%). In other words, free relatives were more productive than the other two types.



Three-way contrast is not significant: F(2,60)=1.549, p=0.221



Three-way contrast is significant: F=5.074, p=0.036

Example of a response without change:

Stimulus sentence: The gentleman greeted the person who answered the lawyer  
 Response: The gentleman greeted the person who answered the lawyer.

Example of a response with change:

Stimulus sentences: Whoever entered the office introduced the professor.  
 Response: Who entered the office called the professor.

These results resemble those from Japanese speakers and English children and contrast with those from the adult L3 English learners. We suggest that this difference may be due to the fact that these children were acquiring Russian and English at almost the same time. The Russian experience could not be drawn upon in the same way it could for the adult L3 speakers.

## 5. Conclusions

In general, the results confirm our prediction. Patterns for the L1 Kazakh/L2 Russian/L3 English speakers match those for L1 Spanish/L2 English, rather than L1 Japanese/L2 English, as predicted in (6b) above. In the case of children, L3 acquisition matches patterns seen in L1 Japanese/L2 English speakers and monolingual children. The adult-child difference may be due to the fact that children were acquiring the L2 and L3 almost simultaneously.

These results suggest that prior CP development can influence acquisition of CP structure in subsequent languages. Taken together, these results suggest that experience in any prior language can be drawn upon in subsequent acquisition. Results are consistent with the Minimalist emphasis on formal features of the functional category CP: UG seems to demand that learners of an L1, an L2 and beyond use these features in mapping to language-specific clausal architecture. Results have implications for the representation of knowledge in the mind. In particular, they support Gelman's (1999) view that domain-specific structure for learning may exist, and that "movement along a domain-relevant learning path" (1) characterizes L1, L2, and L3 acquisition. Finally, our results suggest that language acquisition is cumulative. There appears to be no privileged role for the L1. Instead, all prior language experience can be either neutral or enhancing in subsequent language acquisition.

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