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# ACQUISITION OF ENTAILMENT RELATIONS IN KOREAN CAUSATIVES

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This study investigates whether two Korean causative types (morphological and syntactic) have the same entailment properties in adult and child Korean. Patterson (1974) claims that only the morphological causative entails the occurrence of the caused event, while Kim's (2005) experimental study found no such entailment for either type of causatives. In this study, a Truth Value Judgment Task (Crain and McKee 1985; Crain and Thornton 1998) was conducted with sixteen Korean-speaking adults and showed that the entailment relation is required for the morphological causative. Twenty-five Korean-speaking children participated in the same task and behaved similarly to adults in that they rejected the morphological causative when the caused event did not take place. On the other hand, it was revealed that some children were sensitive to the type of causation depicted in the task, independent of the entailment properties. They showed a tendency to link the morphological causative only when it was associated with direct causation, but not with indirect causation. This observed difference between adults and children may be explained by the Iconicity Principle (Haiman 1983), which predicts the morphological causative to be associated with direct causation, and the syntactic causative with indirect causation.

**1. INTRODUCTION.** Korean has two types of causative constructions—morphological and syntactic causatives. The morphological causative is formed with suffixes such as *-i* (other allomorphs include *-li*, *-hi*, and *-ki*), as in (1a), whereas the syntactic causative requires the complementizer *-key* and the verb *ha-ta*, as in (1b).

(1) a. *The morphological causative:*

emma-ka ai-eykey pap-ul mek-i-ess-ta.  
mother-NOM child-DAT rice-ACC eat-CAUS-PST-DECL  
'The mother fed the child rice. / The mother made the child eat rice.'

b. *The syntactic causative:*

emma-ka ai-eykey pap-ul mek-key ha-yess-ta.  
mother-NOM child-DAT rice-ACC eat-COMP do-PST-DECL  
'The mother fed the child rice. / The mother made the child eat rice.'

**1.1 TWO CAUSATIVES IN KOREAN.** There is no general agreement on whether the two constructions are semantically identical or not. Yang (1974) claims that morphological causatives are in fact derived from syntactic causatives, and that the two are synonymous. In contrast, a number of researchers (e.g., Patterson (1974); Shibatani (1973); Sohn (1994)) have posited a semantic difference between the two in terms of the type of causation and the entailment relations. The next section briefly discusses the previous claims regarding these two areas, but the focus of this paper will be on the latter: the notion of entailment relations.

**1.1.1 TYPE OF CAUSATION.** Shibatani (1973) and others (e.g., Sohn (1994)) argue that the two causatives in Korean are distinct constructions with different underlying structures, based on the observation that they express different types of causation. On the one hand, the morphological causative is supposedly used to express direct causation, in which there is typically physical manipulation involving an agentive causer and a patient causee (e.g., a mother putting the rice into the child's mouth in (1a)). On the other hand, the syntactic causative is claimed to be reserved for indirect causation, where there is generally a direction-giving situation, with the causer and the causee both acting as agents (e.g., a mother ordering the child to eat the rice in (1b)).

**1.1.2 ENTAILMENT RELATIONS.** Patterson (1974) noticed that one of the properties that distinguish between morphological causatives and syntactic causatives is that only the former *entails* the caused event (data from Patterson 1974:28–29). In other words, the eating event described in the morphological causative (2a) must actually occur for the whole sentence to be felicitous, while the same requirement does not hold for the syntactic causative (2b). Therefore, Patterson notes that the syntactic causative (2b) can be continued by a contrary statement such as (3), but the morphological causative (2a) cannot be continued by such a clause.

(2) a. *The morphological causative:*

ku-ka        na-eykey    kimchi-lul        mek-i-ess-una,  
 he-NOM    I-DAT        kimchi-ACC        eat-CAUS-PST-but  
 ‘He fed me kimchi, but ...’

b. *The syntactic causative:*

ku-ka        na-eykey    kimchi-lul        mek-key    ha-yess-una,  
 he-NOM    I-DAT        kimchi-ACC        eat-COMP    CAUS-PST-but  
 ‘He caused me to eat kimchi, but ...’

(3) nay-ka        mek-ci        an(i)-ha-ess-ta.  
 I-NOM        eat-COMP    not-do-PST-DECL  
 ‘I didn’t eat kimchi.’

This is because the morphological causative (2a) entails the completion of the caused event, and thus, the sentence would become a contradictory statement if it were followed by the clause which negates the caused event. On the other hand, it is possible for the syntactic causative (2b) to be accompanied by a negated clause, since it does not require the caused event to occur.

Contrary evidence is presented by Kim (2005), who conducted an acceptability judgment task with the two types of causatives to determine whether they can be followed by a “but-clause” without contradiction. Twelve native Korean speakers were asked to determine whether the given sentence could be expressed in the given context, by marking either O or X (O for acceptance and X for non-acceptance). The results of her experiment revealed their near-perfect acceptance of most of the sentences, in which each type of causative is combined with a negated clause. This shows that the two causatives do not differ in terms of entailment relations and that neither causative type requires the caused event to occur. This is surprising in that this result goes against Patterson’s claim that cause and result are fused in morphological causatives, therefore making it impossible to negate only the result. In other words, Kim’s experimental study suggests that not only syntactic causatives but also morphological causatives do not exhibit an entailment relation. Thus, it seems that there has yet been no clear answer to the question of the entailment relations in Korean causatives.

**1.2 RESEARCH QUESTIONS.** This paper reports on two experiments that address this unresolved issue: whether the two Korean causative types have the same entailment properties. One experiment was conducted with Korean adults, and the other was conducted with Korean children in order to investigate their interpretation of the two kinds of causatives with regard to entailment relations.

**2. EXPERIMENT 1.** The purpose of Experiment 1 is to examine adults’ interpretation of the two types of causatives with respect to the relation of entailment.

**2.1 PARTICIPANTS.** Sixteen native Korean-speaking adults, aged 24 to 34 (mean age: 27;5) participated in the experiment. All of them were recruited in Seoul, Korea and were paid \$5 each as compensation for their time.

**2.2 PROCEDURES.** A Truth-Value Judgment Task (Crain and McKee 1985; Crain and Thornton 1998) was used to test the participants’ judgments of the stories and sentences. A written questionnaire with stories and target sentences was provided. After reading each story, the participants were asked to judge whether

the target sentence adequately described the story by choosing true or false, and they were asked to write a justification for their answer.

**2.3 MATERIALS.** The materials consisted of twenty-four stories in total, each accompanied by a target sentence. There were twelve experimental stories and twelve fillers. Of the experimental stories, eight had a No-Effect context, where the caused event did not take place, and these were paired with six morphological and two syntactic causatives.<sup>1</sup> The other four stories each had an Effect context, in which the caused event did take place, paired with two morphological and two syntactic causatives. A sample story translated from Korean with the target sentence is given in (4).

(4) a. *Sample Story (No-Effect):*

Mom was busy preparing dinner in the kitchen while the child was sitting at the table. Mom served rice to the child and told him to eat it, but the child said he did not want to eat it. Mom said, “This is dinner time. You have to eat rice.” But the child said he wanted to eat the cookie instead. Mom said no and kept telling him to eat rice, but he didn’t listen to her. Finally, Mom said, “Fine. If you finish that rice, then I will give you a cookie.” And then Mom started to work busily in the kitchen again. While she was not looking at the child, the child gave rice to the dog who was sitting beside him. After the dog finished eating, the child said to Mom, “Mom, I finished it. Can I have a cookie now?”

b. *Target sentence (morphological causative):*

emma-ka ai-eykey pap-ul mek-i-ess-eyo.  
 mother-NOM child-DAT rice-ACC eat-CAUS-PST-REGISTER  
 ‘The mother made the child eat rice.’

c. *Target sentence (syntactic causative):*

emma-ka ai-eykey pap-ul mek-key ha-yess-eyo.  
 mother-NOM child-DAT rice-ACC eat-COMP do-PST-REGISTER

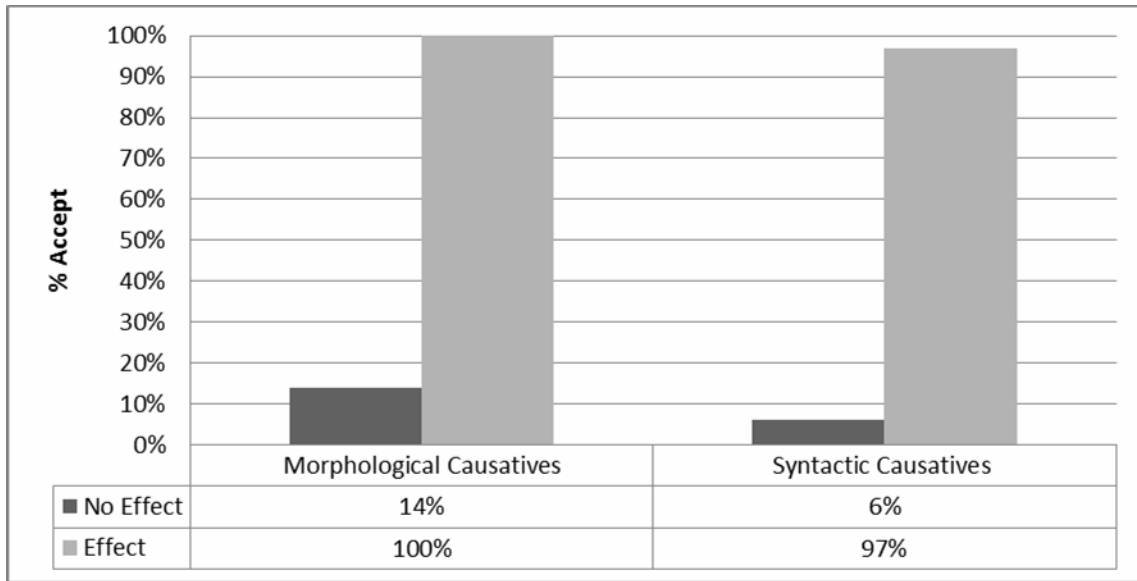
**2.4 PREDICTIONS.** In contexts where there is no effect, a “true” response to a target causative sentence would indicate that the result of the causative is not entailed, whereas a “false” response would indicate that the result is entailed. Following Patterson’s claim (1974) about entailment relations in Korean causatives, a “false” response is expected for the morphological causative, while the syntactic causative should elicit a “true” response. In control contexts, however, where there is an effect (i.e., the result actually occurs), a “true” response was expected for both types of causatives.

**2.5 RESULTS AND DISCUSSION.** Figure 1 shows the mean percentage acceptance of the target sentences in each condition. The results show that Korean adults mostly reject both the morphological and syntactic causatives when there is no effect, while they accept both patterns 100% of the time in the Effect condition. Paired *t*-tests were performed to compare mean percentage acceptance between the two conditions (No-Effect vs. Effect) within each causative type, and there was a significant difference in both causatives (morphological:  $t(15)=31.674$ ;  $p=0.000$ , syntactic:  $t(15)=17.985$ ;  $p=0.000$ ).

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<sup>1</sup> The reason for having the different number of items only for the Morphological No-Effect condition was to counterbalance the true/false answers for the entire experiment. Thus, out of twelve experimental items, there were six items in the Morphological No-Effect condition, and two items in each of the three other conditions.

FIGURE 1. Interpretation of Causatives by Adults



The result for the morphological causative is consistent with Patterson’s claim in that it entails the realization of the caused event. However, the result for the syntactic causative is indeed surprising. As noted earlier, previous work on Korean causatives has suggested that it is not a requirement in syntactic causatives for the caused event to have actually occurred. Yet, the result of the present experiment points in the opposite direction. That is, adults rejected the syntactic causative in the No-Effect condition, treating it just like the morphological causative. This is an intriguing matter that calls for further investigation, especially if we consider the following special property of the syntactic causative that has been overlooked in the current experiment and that could provide a possible explanation for the unexpected results.

The syntactic causative differs from the morphological causative with respect to the possible case alternation of the causee argument. In general, both types of causatives can use the dative case marker *-eykey* or the accusative case marker *-lul* to mark the causee argument. The syntactic causative, however, has an extra option of using the nominative marker *-ka* instead of the other markers. As illustrated in (5), the causee argument *ai* in the morphological causative can only be marked with either the dative or accusative marker, whereas the syntactic causative allows one more option, which is the nominative marker.

(5) a. *The morphological causative:*

emma-ka ai-eykey/-lul/\*-ka pap-ul mek-i-ess-ta.  
 mother-NOM child-DAT/-ACC/\*-NOM rice-ACC eat-CAUS-PST-DECL  
 ‘The mother fed the child rice.’

b. *The syntactic causative:*

emma-ka ai-eykey/-lul/-ka pap-ul mek-key ha-yess-ta.  
 mother-NOM child-DAT/-ACC/-NOM rice-ACC eat-COMP do-PST-DECL  
 ‘The mother made the child eat rice.’

The existence of an extra case-marking option suggests that it may be the nominative case marker that signals the supposed difference in entailment relations between the two causatives. In other words, one hypothesis would be that it is, in fact, the case marker on the causee argument, rather than the type of causative, which matters to the entailment relations of the sentence. It may be the case that using a dative or an accusative marker always implies that the caused event has occurred. That is, even the syntactic causative would require an entailment relation as long as it shares the same case marker with the







morphological causative. Yet, it is only when the causee argument is marked with the nominative marker that an entailment relation that is supposedly required for such causative sentences disappears, and thus, the caused event does not necessarily occur. If this were indeed the case, then the result of the current experiment would not be unexpected, since all of the target causative sentences had the same case marker, the dative marker *-eykey*. Therefore, it would be no surprise that the adults treated the two causatives identically with respect to the entailment relation. At present, however, there has been no previous work that speaks to this issue, and thus, the results of the syntactic causative will not be discussed any further in this paper, since it is a tentative conclusion that needs to be questioned and explored further.

**3. EXPERIMENT 2.** Experiment 2 was conducted with children in order to examine how children interpret the two causatives with respect to the relation of entailment and to compare their interpretations with those of the adults in the previous experiment.

**3.1 PARTICIPANTS.** Twenty-five Korean children aged 4;3 to 6;11 (mean age 5;4) were recruited for the study. They were from a kindergarten in Seoul, Korea and were compensated with a gift of \$5 value for their participation.

**3.2 PROCEDURES.** The same truth-value judgment task was employed as in Experiment 1, but the stories were presented with pictures via Powerpoint. The pictures and the corresponding texts are shown in Figure 2. After each story, a puppet appeared on the screen and made a statement about what happened in the story. The child was asked to judge whether the puppet’s statement was true or false and to give a justification for their choice.

FIGURE 2. Sample pictures (with texts) shown in the task

1.	2.	3.
		
<p>1. Mom was busy preparing dinner in the kitchen while the child was sitting at the table. Mom served rice to the child and told him to eat it.                  2. but the child said he did not want to eat it.                  3. Mom said, “This is dinner time. You have to eat rice.” But the child said he wanted to eat the cookie instead. Mom said no and kept telling him to eat rice, but he didn’t listen to her.</p>		
4.	5.	6.
		
<p>4. Finally, Mom said, “Fine. If you finish that rice, then I will give you a cookie.” And then Mom started to work busily in the kitchen again.                  5. While she was not looking at the child, the child gave rice to the dog who was sitting beside him.                  6. After the dog finished eating, the child said to Mom, “Mom, I finished it. Can I have a cookie now?”</p>		

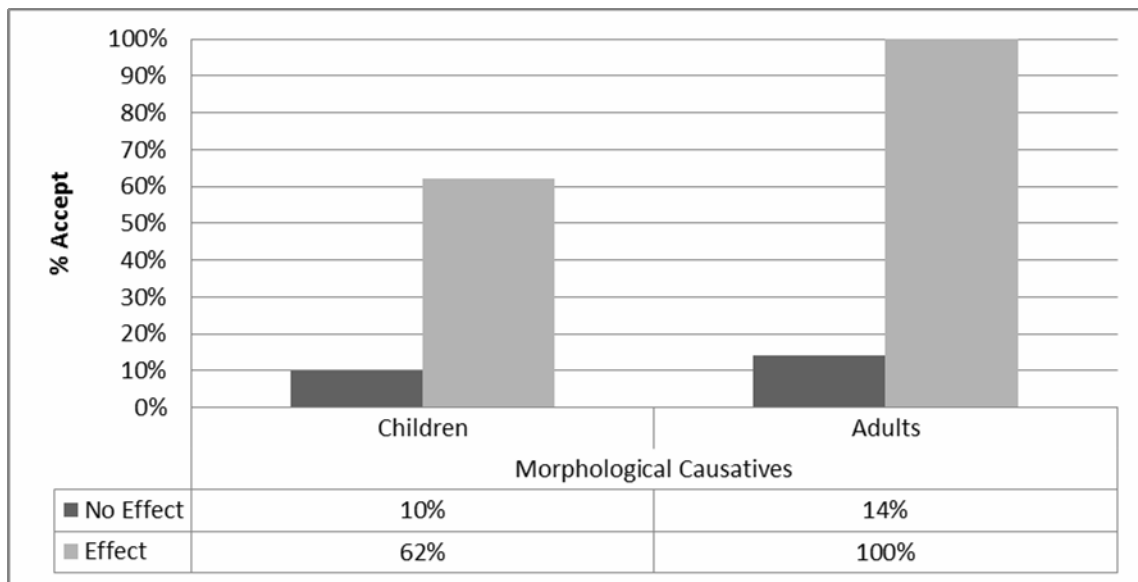
**3.3 MATERIALS.** The materials and the arrangement of the materials were identical to those used in Experiment 1, except that the total number of stories was reduced, presenting eight experimental stories and eight fillers. Of the eight experimental stories, four had a No-Effect context, where the result does not occur and the other four had an Effect context; each context was paired with two morphological and two

syntactic causatives.<sup>2</sup> Thus, four conditions were created (Morphological No-Effect, Morphological Effect, Syntactic No-Effect, Syntactic Effect), each with two tokens.

**3.4 PREDICTIONS.** If the children have acquired the required entailment relation for the morphological causative, they should reject the target sentence in the Morphological No-Effect condition, whereas they should accept it in the Morphological Effect condition. Regarding the syntactic causative, it is difficult to make a clear prediction, since the exact nature of the entailment relation in syntactic causatives has yet to be determined.

**3.5 RESULTS AND DISCUSSION.** Of the twenty-five participants, every child answered correctly on more than five of the eight filler items, and thus, no child was excluded in the analysis. Figure 3 summarizes how the children and adults from Experiment 1 interpreted the morphological causative in terms of entailment relations. In the No-Effect condition, children rarely accepted the target morphological causative, as shown by the low acceptance rate in this condition. This pattern contrasts with that in the Effect condition, in which children accepted the morphological causative at significantly higher rates (paired *t*-test,  $t(24)=5.850$ ;  $p=0.000$ ).

FIGURE 3. Interpretation of Morphological Causatives by Adults and Children



The results from the children suggest their awareness of the required entailment relation for the morphological causative. That is, the realization of the caused event is necessary for them to accept the target sentence; they thus reject it in the No-Effect condition, behaving like adults. However, what is surprising in the results is how children responded to the Effect condition. As can be seen in figure 2, the children’s acceptance rate in the Effect condition was only 62%, which is much lower than that of adults. This is especially striking, given that the Effect condition included a context in which the caused event did in fact take place. To put it another way, it was presumed that there would be no reason for anybody, either adults or children, to reject the target causative in this condition, regardless of the type of causative and even regardless of the entailment relation it is associated with. Therefore, the results are puzzling, at first glance, which makes one wonder about the reason behind the unexpected behavior of some children. However, based on a review of the previous work on the semantics of Korean causatives, as well as careful examination of the materials used in the experiment, I hypothesize the following: Some children

<sup>2</sup> Following the results of the previous experiment as the baseline, there was the same number of items in each condition this time, to counterbalance the “true” answers for the whole experiment.



reject the morphological causative in the Effect condition at a higher rate than adults because they are focusing on the directness of the causation rather than on the result. As briefly mentioned earlier, Shibatani (1973) has claimed that the difference in the meaning of the two causatives in Korean is that the morphological causative is associated with direct causation and the syntactic causative with indirect causation. Such a difference brings up another important factor, namely, the type of causation, which was not controlled in the current experiment. Upon inspection, it turned out that all the contexts used in the experiment happen to be depicting indirect causation, where the causer had no physical contact with the causee. Given that the causation type constitutes a potential confounding factor, it is highly likely that the incorrect mapping of the causative type and the directness of causation led some children to reject the sentence, even when the required entailment relation was satisfied in the Effect condition. This hypothesis receives further support from some of the justifications that children gave after they rejected the morphological causative in the Effect condition. The sample justifications are reported in (6), suggesting that these children were rejecting any sentence that was incorrectly matched with the context depicting indirect causation because they were linking the morphological causative only with direct causation.

(6) a. *Sample justification after a false response #1:*

“But Dad did not actually put the carrot in child’s mouth.”

b. *Sample justification after a false response #2:*

“Because Mom just told Pooh to wear the socks. Pooh was the one who put them on.”

Based on these justifications, the proposed hypothesis seems reasonable to explain the results. However, since the current experiment was not properly designed to address this matter, it remains an open question to be tested by manipulating the different types of causation.

**4. CONCLUSION.** The results of the two experiments reported in this paper can be summarized as follows: (1) Korean adults accepted the morphological causative when the caused event took place, but rejected it when it did not, indicating the required entailment relation for the morphological causative. (2) Korean children also rejected the morphological causative when the caused event did not take place, suggesting that they had acquired the entailment relation associated with it. (3) Independent of entailment, Korean children appear to notice the type of causation, in that they showed a tendency to link the morphological causative with direct causation, but not with indirect causation. This distinction may be explained by the Iconicity Principle (Haiman 1983), which posits a direct correspondence between linguistic distance and conceptual distance. This predicts that the morphological causative should express direct causation given the short distance of the causative affix *-i* to the verb. In contrast, the causative morpheme in the syntactic causative is an independent word *ha-ta*, making its distance to the verb further because of the intervening complementizer *-key*, and thus, it should express indirect causation. However, the issue of children’s sensitivity toward the type of causation in causatives is left for future research.

Finally, the results of the syntactic causative were not discussed thoroughly, due to the unexpected results from Experiment 1. Yet, the case alternation was suggested as a potential explanation for such results, which may be manipulated as a separate factor in later studies in order to shed some light on the entailment relations associated with Korean causatives in general.

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