

## Causal Agents and the Individuation of Events in English, Chinese, and Korean

Phillip Wolff ([pwolff@emory.edu](mailto:pwolff@emory.edu))  
 Ga-hyun Jeon ([gjeon@LearnLink.Emory.Edu](mailto:gjeon@LearnLink.Emory.Edu))  
 Kathy Yeh ([kyeh@LearnLink.Emory.Edu](mailto:kyeh@LearnLink.Emory.Edu))  
 Department of Psychology, 532 N. Kilgo Circle  
 Atlanta, GA 30322 USA

### Introduction

As we learn more about the semantics of different languages, we are faced with an interesting problem: different languages seem to be telling us different stories about the nature of the mind, including the way in which we construe agents and individuate causal chains into events.

It is widely known that single- and bi-clausal expressions of causation describe different kinds of causation. Single-clause expressions (e.g., lexical causatives), such as *The mother moved her child*, tend to be used for causal chains that involve a single agent and that can be construed as a single event. Bi-clausal expressions (e.g., periphrastic causatives), such as *The mother caused her child to move*, tend to be used for chains that involve two agents and that cannot be viewed as a single event. This difference in meaning is present in many languages (Comrie, 1981; Song, 1988), but the exact nature of this difference may vary (van Voorst, 1996), as in the case of English, Chinese, and Korean.

The difference between these three languages appears to be related to the kinds of agents that can serve as the subject of a clause. English and Chinese (both analytic, SVO languages), appear to view a wider range of entities as possible causal agents than Korean. For example, a falling branch can serve as a subject in English (*A falling branch broke the window*) and Chinese (*diào xià le de shù zhī dǎ pò le chē zhuāng*), but not in Korean (*\*Ddeoleojineun makdaegiga cha changmun-eul busu-eotda.*). In Korean, unlike English and Chinese, causal agents must be able not only to generate their own energy but also to initiate that energy. This possibility is explored in the following three experiments.

### Experiment 1

While English, Chinese, and Korean seem to differ in how they describe causal chains involving non-sentient causers, the three languages encode causal chains involving sentient causers in very similar ways. Consider, for example, the situation depicted in Figure 1a. Here a woman closes a door by pushing on it. There is only one agent (the woman) and that agent is able to initiate her own energy. We predicted that all three languages would describe scenes like this in a single clause, as in (1).

- (1) a. The mom closed the door. (English)  
 b. mā ma guān shàng le mén. (Chinese)  
 Mom closed up door  
 c. Umma-ga mun-eul dat-atda. (Korean)  
 Mom -NOM door-ACC close-PAST.

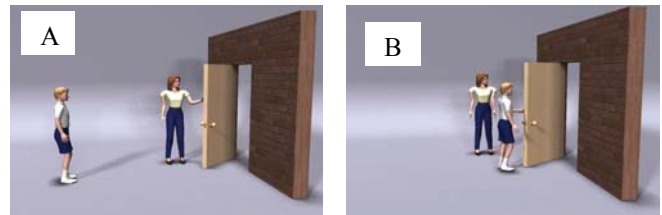


Fig. 1: Direct (A) and indirect (B) causal chains used in Exp. 1

In Figure 1b, a woman tells her son to close the door. The scene involves two causal agents capable of initiating their own energy and the causation is indirect. As a consequence, we predicted that all three languages would describe this scene with a bi-clausal description, as in (2).

- (2) a. The mother caused the son to close the door.  
 b. mā ma shì de é rzi guān shàng le mén  
 Mom cause son closed door  
 c. Umma-ga aadeul-ege mun-eul dat-key haetda.  
 Mom-NOM son-DAT door-ACC close-CAUSE do-PAST

**Participants** The participants were 48 native speakers of English (Atlanta), Chinese (Taitung), and Korean (Seoul), 16 from each language.

**Materials** Ten pairs of animations were constructed like the one in Figure 1, with one member of each pair depicting direct causation and the other, indirect causation.

**Procedure** Participants watched the animations in one of two random orders and rated the acceptability of single- and bi-clausal descriptions for each animation on a 0-to-100 scale (0 = not acceptable; 100 = completely acceptable).

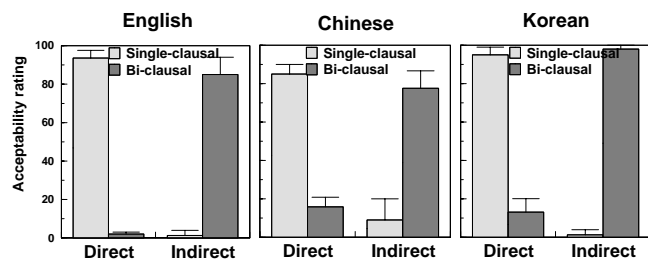


Fig. 2: Acceptability ratings with 95% confidence intervals

**Results** As predicted, all language groups preferred single-clause expressions for the animations depicting direct causation and bi-clausal expressions for the animations depicting indirect causation (see Figure 2).

**Discussion** The results support the hypothesis that self-initiating agents can serve as subjects of both main and embedded clauses in English, Chinese, and Korean.

## Experiment 2

For non-self-initiating agents, however, the semantics of single- and bi-clausal expressions of causation may differ across the three languages. The difference is exemplified by the pair of scenes in Figure 3. In Figure 3a, a girl throws a ball at a vase and breaks it. Because the ball's motions are controlled by the girl, we predicted that the causation would be construed as direct and the scene would be described by single-clause expressions in all three languages, as in (3).

- (3) a. The girl broke the vase.  
 b. nǚ hái dǎ pò le huā ping (Chinese)  
 Girl broke vase  
 c. Sonyeo-ga ggotbyoung-eul ggaetda. (Korean)  
 Girl-NOM vase-ACC broke-PAST



Fig. 3: Direct (A) and indirect (B) causal chains used in Exp. 2

In Figure 3b, a girl accidentally bounces a ball off her foot, and the ball hits the vase, breaking it. In this case, the ball's motion is relatively independent of the girl; hence, we predicted that the causation would be construed as indirect. In English and Chinese, girls and balls can both serve as the subject of a clause. We predicted these speakers could describe this causal chain with a bi-clausal expression, as in 4a and 4b. In Korean, however, entities that cannot self-initiate (e.g., the ball) cannot serve as subjects; thus, we predicted that Korean speakers would be unwilling to describe this chain with a bi-clausal expression (4c).

- (4) a. The girl caused the ball to break the vase.  
 b. nǚ hái shì de qiú dǎ pò le huā ping  
 Girl caused ball broke vase  
 c.\*Sonyeo-ga gong-ege ggotbyoung-eul ggae-ge haetda.  
 Girl-NOM ball-DAT vase-ACC break-CAUSE do-PAST

**Participants** Same as in Experiment 1.

**Materials** Ten pairs of animations were constructed like the one shown in Figure 3. All animations depicted causal chains that began with a person and were mediated by a non-sentient object (e.g., ball, stick, wind, remote control).

**Procedure** The procedure was the same as in Experiment 1.

**Results and Discussion** As predicted, all language groups preferred single-clause expressions for the animations depicting direct causation. However, only the English and Chinese speakers gave high ratings for the bi-clausal sentences in the case of the indirect chains (see Fig 4).

## Experiment 3

According to Davidson (1969/2001) people may individuate events with respect to causal agents. If so, Korean speakers may be less likely than English and Chinese speakers to view causal chains with non-sentient intermediaries as two events because in Korean such entities are not typically treated as independent, self-initiating, causal agents.

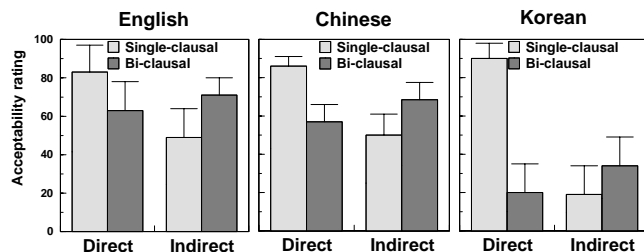


Fig. 4: Acceptability ratings with 95% confidence intervals

**Participants** The participants were a new group of English (N=20), Chinese (N=16), and Korean speakers (N=16) from Atlanta, Taipei, and Seoul.

**Procedure** We measured events by having participants map the animations used in Experiments 1 and 2 onto drawings of either one or two arrows. A single arrow was intended to imply a single event, and two arrows, two events. Pilot experiments showed that arrows elicited stronger responses than, for example, drawings of one or two boxes. Participants were not told the intended meaning of the arrows.

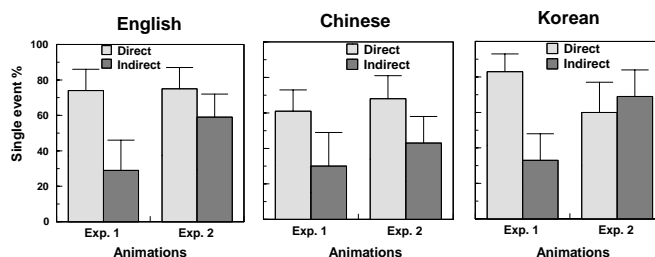


Fig. 5: Single event judgments with 95% confidence intervals

**Results and Discussion** As predicted, participants' event judgments mirrored how the chains were described. For the animations used in Experiment 1, all participants preferred a single arrow (implying one event) for the direct chains and two arrows (implying two events) for the indirect chains. For the animations used in Experiment 2, English and Chinese once again prefer single arrows for the direct chains and two arrows for the indirect chains. In contrast, Koreans did not differentiate direct from indirect chains when the intermediate causal agent was nonsentient.

## Conclusions

The kinds of entities that can serve as causal agents in Korean appear to differ from those in English and Chinese. These differences have consequences for the way causal chains are described as well as divided into events.

## References

- Comrie, B. (1981). *Language universals and linguistic typology*. Chicago, IL: University of Chicago Press.  
 Davidson, D. (2001). The individuation of events. In D. Davidson (Ed.), *Essays on actions and events* (2nd ed.). Oxford: Clarendon Press. (Original work published 1969)  
 Song, S. C. (1988). *Explorations in Korean syntax and semantics*. Berkeley, CA: Institute of East Asian Studies.  
 Van Voorst, J. (1996). Some systematic differences between the Dutch, French, and English transitive construction. *Language Sciences*, 18, 227-245.