

Which Task is More Predictive for Implicit-Causality Bias during Reading, Sentence-Completion or Rating Tasks?



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Implicit Causality Bias

Some of transitive verbs have implicit information to influence **perceived cause** in the described events.

"Ken **admired** Jack."

"Ken **apologized** Jack."

"Ken **blamed** Jack."

The above sentences have the same grammatical form, but offer different impression about a potential cause of the events.

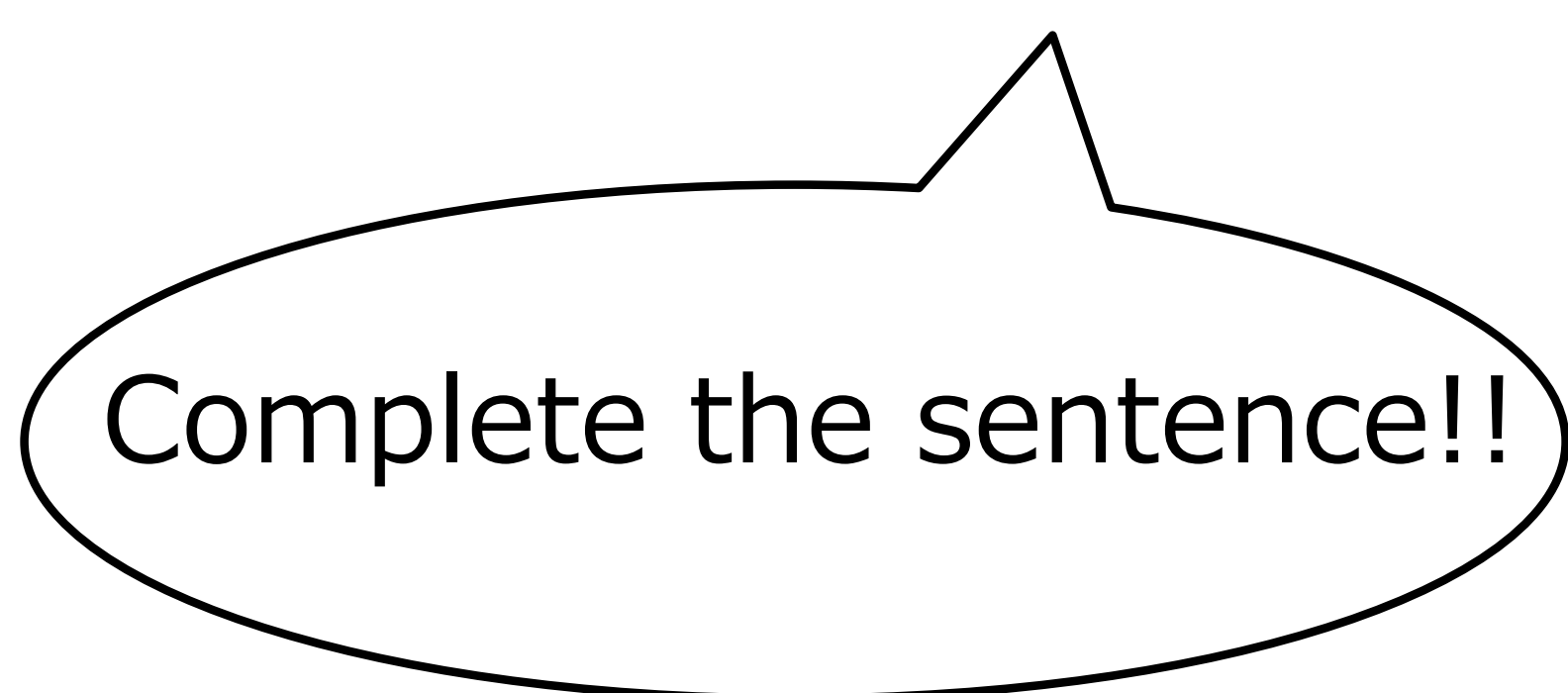
Two types of task were used in the norming studies on implicit causality verbs: **sentence-completion** (e.g., Koornneef & van Berkum, 2006) and **causal rating** (e.g., Greene & McKoon, 1995).

Usually, only one of the tasks was used in single study, and their capabilities were unclear.

Thus, **this study examined which the task was more suitable for predicting implicit causality bias during reading.**

Sentence-Completion

"Ken admired Jack because he _____."



Scoring

- 1 = first person choice
e.g.,) "... was his teacher."
- 2 = second person choice
e.g.,) "... had the courage."

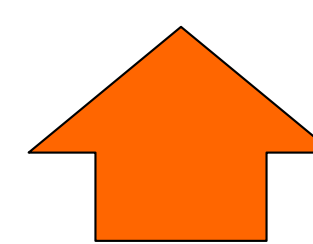
[Predictive Variable A]

Averaging the scores produced **Causal Preference**.

N = 91, Undergraduates

Causal Rating

"Ken admired Jack."



How likely is it that this is because:
a) Ken is the kind of person that admires people.

Not likely 1 2 3 4 5 6 7 8 9 Definitely likely

b) Jack is the kind of person that people admires.

Not likely 1 2 3 4 5 6 7 8 9 Definitely likely

[Predictive Variable B] Rating differences was calculated.

Causal Weight = Rating for first person (a) - Rating for second person(b)

N = 92, Undergraduates

Self-Paced Reading

"Ken admired Jack because he won the race."

Participants read the sentences in their own paces.



[Criterion Variable] Reading time differences between two type of sentences.

a) NP2-inducing sentence
"Ken admired **Jack** because he won the race."

b) NP1-inducing sentence
"**Ken** admired Jack because he lost the race."

Congruency Effect = NP2-inducing - NP1-inducing

N = 34, Undergraduates

Results

Table 1 Correlations, Mean and SD for 3 scores.

	Preference	Weight	Congruency
Weight	-.48**		
Congruency	-.26*	.22+	
Mean	1.71	.44	-155.1
SD	.25	1.41	357.1

N = 64 verbs

Regression on Congruency Effect.

Preference → Preference + Weight

$\beta = -.26$ $\beta = -.20$ $\beta = .12$
 $F(1, 62) = 4.60, p = .04$ $F(1, 61) = 4.58, p = .04$ $F(1, 61) = .80, p = .41$
 adj. $R^2 = .05$ adj. $R^2 = .08$

Weight → Weight + Preference

$\beta = .22$ $\beta = .12$ $\beta = -.21$
 $F(1, 62) = 3.04, p = .09$ $F(1, 61) = 3.10, p = .08$ $F(1, 61) = 2.17, p = .15$
 adj. $R^2 = .03$ adj. $R^2 = .05$

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Conclusion

◆ **Causal preference** still accounted for variance in **congruency effect** when **causal weight** was controlled.

◆ Sentence-completion and causal rating produced similar results. However, **sentence-completion** might be **better predictor** for implicit causality bias during reading.

◆ This finding may be due to the fact that sentence-completion demands participants to create the **overall situation** described in sentences.

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Abstract

Implicit causality is a property of interpersonal verbs, preferring one person to another as the causal agent in a discourse. In norming studies of implicit causality, sentence-completion and rating tasks were often used independently, though their predictive performance on implicit-causality bias was not evaluated. For 64 Japanese verbs, three tasks were conducted: sentence-completion, rating, and self-paced reading. The context-congruency effect in reading times was treated as the index of implicit-causality bias. Both score of sentence-completion and rating predicted the reading-time performance independently. However, when the two variables were entered simultaneously, only the sentence-completion predicted the reading-time performance significantly.

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