10 th Tsukuba International Conference on Memory: Functional Neuroimaging of Episodic Memory, Tokyo, Japan, March 4-6, 2012.

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

Ryuta ISEKI and Takashi KUSUMI
Kyoto University, Japan. e-mail: riseki@educ.kyoto-u.ac.jp

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: **sentense-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 _____."

Complete the sentence!!

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

[**Predictive Variable A**]
Averaging the socres procuded **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 Difinitely likely

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

Not likely 1 2 3 4 5 6 7 8 9 Difinitely 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**

β = -.26 | -.20 | .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**

β = .22 | .12 | -.21

$F(1, 62) = 3.04$, $p = .09$ | $F(1, 61) = 3.10$, $p = .08$ | $F(1, 61) = 2.17$, $p = .15$

$_{adj}R^2 = .03$ | $_{adj}R^2 = .05$

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-compretion demands participants to create the **overall situation** described in sentences.

*This research was supported by the Japan Society for the Promotion of Science.

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

Ryuta ISEKI & Takashi KUSUMI, Kyoto University, Japan

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.

Author Contact Information

Ryuta ISEKI	––––––––	riseki@educ.kyoto–u.ac.jp
Takashi KUSUMI	––––––––	kusumi@educ.kyoto–u.ac.jp

Reference Citation

Iseki, R., & Kusumi, T. (2012, March). Which task is more predictive for implicit–causality bias during reading, sentence–completion or rating tasks? Poster presented at the 10th Tsukuba International Conference on Memory: Functional Neuroimaging of Episodic Memory, Tokyo, Japan.