Processing Speech Acts in L2: Evidence from eye movements and event-related potentials

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Introduction

Utterances in conversation are often not explicit to label regarding the verbal actions (or speech acts), and thus it is expected that listeners depend on the context to recognize the actions. *Speech Act Theory (SAT)* proposes to account for language use as its intentional meaning. An elementary feature of this theory is to conceptualize an utterance both with a propositional content which is a collection of the surface meanings of spoken words and with an illocutionary force which the hearer should identify the intention of the speaker's utterance with. The intended meaning is important, especially in a polite conversation, since the speaker may have something beyond the uttered words. Thus, indirect or polite speech acts are dominant in communication to present one's opinions. Several studies (Gisladottir, Chwilla, & Levinson, 2015; Yin & Kuo, 2013) demonstrated that people are more likely to be confused by indirect speech acts than by direct ones. Therefore, this study aims to explore how Korean learners of English comprehend indirect speech acts in English conversation by examining their eye movements and event-related brain potentials, which are reflections of the human cognitive activities.

Experiment

27 native Korean students participated in the experiment. Participants read the dialogues and were asked to classify the target utterance by *Answering, Offering,* and *Declining*. Therefore, each dialogue included the target utterances such as "*I have a credit-card*" which can represent three functionally different speech acts (*Answer, Pre-offer, Declination*; 10 items each) depending on the prior context (Gisladottir, Chwilla, & Levinson, 2015). The *Answer* condition was set as the control condition involves an offer-rejection construction (*I can lend you money for the ticket. – I have a credit card.)*. The *Pre-offer* condition consists of expressing the need or desire at the first turn followed by the prelude to an offer (*I don't have any money to pay for the ticket. – I have a credit card.)*.

Results and Discussion

The behavioral data showed significantly different accuracy rates (F=10.304, p<.01) among the *Answer* (M=93.12%, SD=8.73), *Declination* (M=71.87%, SD=8.73) and *Pre-offer* (M=80%, SD=17.24) conditions and significant different response times (F=3.562, p<.05) among *Answer* (M=689.79, SD=272.05), *Declination* (M=743.24, SD=346.93) and the *Pre-offer* (M=922.39, SD=370.18) conditions. The results showed that the participants have more difficulties in recognizing *Declination* and *Pre-offer* conditions. Especially in the total fixation duration, the participants took significantly longer in reading the *Pre-offer* condition (M=5442.72, SD=1877.38) than the other two conditions (*Answer*, M=4626.36, SD=1371.71; *Declination*, M=4800.66, SD=1366.26) (F=5.842, p<.01). The preliminary ERP results showed an early effect of context for three conditions, which were reflected by frontal positivities early in the turn when the utterance has only been partially processed, but the differential ERP patterns should be analyzed more in details. Overall, L2 learners were able to recognize the speech acts early, but the *Declination* and the *Pre-offer* may have caused more cognitive efforts than the control *Answer* condition.

- **Materials** (30 target items and 45 filler items in each list)

Condition	Context	Target utterance
Answer (control)	How are you going to pay for the ticket?	I have a credit card.
Declination	I can lend you money for the ticket.	I have a credit card.
Pre-offer	I don't have any money to pay for the ticket.	I have a credit card.

- **Results**

Comprehension accuracy & response time in comprehension

		Answer	Declination	Pre-offer	*F*
Accuracy	Mean	0.9312	0.7187	0.8000	10.504**
	Std.	0.0873	0.1424	0.1724	
Response time	Mean	689.79	743.24	922.39	3.562*
	Std.	272.05	346.93	370.18	

†p<0.1 *p<0.05 **p<0.01

Eye-tracking data

		Answer	Declination	Pre-offer	*F*
The number of fixations	Mean	23.92	24.61	27.78	6.125*
	Std.	6.06	5.46	7.04	
Total fixation duration	Mean	4626.36	4800.66	5442.72	5.842**
	Std.	1371.71	1366.26	1877.38	
Average fixation duration	Mean	198.69	196.35	194.39	0.554
	Std.	49.56	43.88	42.93	

†p<0.1 *p<0.05 **p<0.01

References

Gisladottir, R. S., Chwilla, D. J., & Levinson, S. C. (2015). Conversation electrified: ERP correlates of speech act recognition in underspecified utterances. *PloS one*, *10*(3), e0120068.
Yin, C. P., & Kuo, F. Y. (2013). A study of how information system professionals comprehend indirect and direct speech acts in project communication. *IEEE Transactions on Professional Communication*, *56*(3), 226-241.