Context effects in irony processing

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Can the intended meaning of ironic language be understood directly or is it necessary to interpret the literal meaning first? The direct access view (Gibbs, 1986) postulates that given a strong enough context, ironic language can be processed as directly as literal language (interactive view). In opposition, the graded salience hypothesis (Giora, 1997) states that the most salient – usually the literal – meaning will always be interpreted first. (modular view). Research so far has produced mixed results on the effects of context on irony comprehension. We present evidence from two visual world eye-tracking experiments for the presence of context effects in early processing of ironic utterances.

Previous literature has established the importance of shared social norms and attitudes (Massaro et al., 2014) in the processing of irony. Echoic mention (Sperber & Wilson, 1981) – the repetition of a previously uttered phrase – is another important factor. We implemented these contextual cues in a 2x2 factorial design with *irony* and *echoic mention* as within-subject factors. Forty-three participants were presented with pictures stories, each a sequence of three short scenes with four interest areas (IA). The first scene introduced the situation with two speakers (IA: *speakers*) and a person in the background behaving according to the literal meaning of the target utterance (IA: *background*). In the second scene two more people entered the situation: the target character (IA: *target*) and a visual distractor (IA: *distractor*). The third scene contained the target utterance (e.g. "Today he is really lucky"). The intended meaning of the target utterance was either ironic or literal (factor *irony*), which was to be inferred from the visual context. The crucial content word (e.g. *lucky*) had either been spoken or not spoken in the preceding dialogue (factor *echoic mention*). We used the same audio recordings in both the *literal* and the *ironic* condition to exclude effects of prosody and syntax. Participants were instructed to select the person the target utterance referred to in each trial.

Following the direct access view one would expect participants pay equal attention to the correct target in both the literal and the ironic condition when echoic mention is realized. Following the graded salience hypothesis one would expect participants to be slower to identify the correct target in the ironic condition, regardless of context strength, dividing attention between *target* and *background* IAs in early processing.

Participants performed significantly better on the selection task in the literal condition. Gaze analysis only for correctly answered trials revealed that participants began focusing primarily on the target shortly after the sentence start in all conditions, indicating that early reference building was successful for both literal and ironic items. We observed a significant interaction of irony and echoic mention 500 to 1000 ms after the onset of the content word (e.g. *lucky*) with participants being faster to look away from the target in the irony condition only without echoic mention. Participants appeared to have identified the target figure from visual salience alone in all conditions, but irony and echoic mention interacted reliably during integration of the literal/ironic content word with the preceding model.

We conducted a follow-up experiment (29 part.) with the aim to replicate results of the first experiment, and to determine whether worse performance in the selection task was due to irony being harder to comprehend or it being less expected in a lab setting, leading to active suppression of the ironic interpretation. Some particularly difficult to comprehend items were altered for clarity, and audio stimuli were re-recorded with better quality. Stimuli were tested in norming studies to ensure no bias for irony in the target sentences. We added explicit instruction that some utterances were meant to be non-literal.

Gaze analysis results of the pilot study were replicated, and participants were equally accurate in all conditions in the selection task in experiment 2. Together, results suggest that context strength influences the integration of ironic utterances into a conversational context.

References:

Gibbs, R.W. (1986) On the psycholinguistics of sarcasm. Journal of Experimental Psychology: General, 115(1), 3-15.

Giora, R. (1997). Understanding figurative and literal language: The graded salience hypothesis. Cognitive Linguistics, 8(3). 183-206.

Massaro, D., Valle, A., & Marchetti, A. (2014). Do social norms, false belief understanding, and metacognitive vocabulary influence irony comprehension? A study of five- and seven-year-old children. European Journal of Developmental Psychology, 11(3), 292-304.

Sperber, D., & Wilson, D. (1981). Irony and the use-mention distinction. In Cole, P. (ed.), Radical Pragmatics (pp. 295-318). Academic Press, Inc.

Example Stimulus (only scene 3 pictured, text translated from German)

Ironic condition

Literal condition
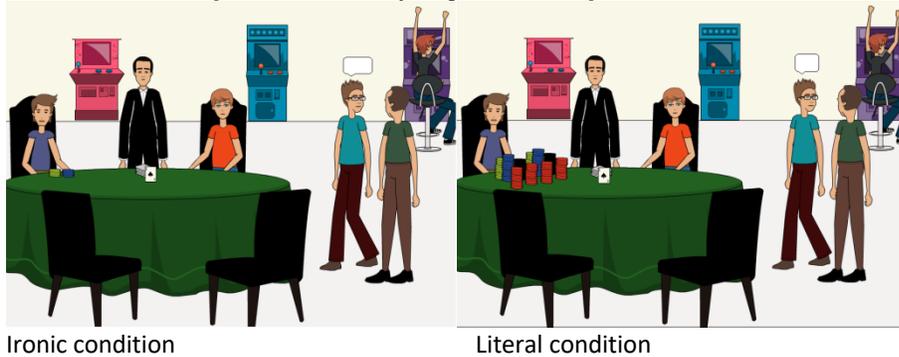
Scene 1
Context: Daniel and Gregor are spending their vacation in Las Vegas. Upon arrival they go to the closest casino to meet their gambling addicted friend Jonas.
Speaker 1: Do you know where we were supposed to meet Jonas?
Speaker 2: At the Blackjack table. He says that's where he's the most *lucky*. (echoic mention)
OR
Speaker 2: At the Blackjack table. He says that's where he usually wins. (no echoic mention)

Scene 2
Context: At the Blackjack table they see their friends Jonas and Martin.

Scene 3
Speaker 1: Today he is really *lucky*. (target sentence)
Speaker 2: Right. He should be careful to not overdo it.

Probability of look to interest areas 500ms to 1000ms post content word onset (Experiment 2):