Amusing or aggressive? A cross-cultural study in sarcasm interpretation and use

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There is some debate regarding whether sarcasm mutes the negativity of criticism [1] or enhances condemnation [2]. Previous research suggests that the emotional impact of sarcasm may depend on the perspective taken by the rater [3]. However, the findings are mixed so far. There is also some evidence that, besides linguistic factors, individual differences factors influence sarcasm interpretation and use (e.g., [4]). For example, research in children suggests that theory of mind ability (ToM) might be associated with sarcasm interpretation [5]. However, studies examining neurotypical adults' ToM and sarcasm comprehension are relatively rare. While some studies suggest that there might also be cultural differences in sarcasm interpretation and use [6] [7] [8], relatively little is known about how these differ across Western and Eastern cultures. To address these gaps in the literature, the present study investigated individual differences in sarcasm interpretation and use in participants in the UK and China.

Experiment 1 (with UK participants) had a 2 (comment type: literal, sarcastic) * 3 (perspective: speaker, recipient, reader) within-subjects design. We created 48 experimental scenarios in six conditions (see Table 1 for an example) and combined them with 16 filler scenarios. We collected ratings on sarcasm, aggression, amusement, and politeness of the target comment. We also examined effects of ToM (assessed by the Faux Pas test [9]), empathy (assessed by the interpersonal reactivity index [10]), and sarcasm use tendency (indicated by scores on the sarcasm self-report scale [4]) in sarcasm interpretation, and effects of ToM and empathy in sarcasm use. Experiment 2 was a replication of Experiment 1, but with Chinese participants.

We used linear mixed models in R to analyse the rating data, with *comment type* and *perspective* as fixed factors, and intercepts and slopes for all the fixed effects (including interactions) across participants and scenarios as random effect structure [11]. We conducted two-tailed Pearson correlations to assess the relationship between individual differences factors (e.g., ToM) and the rating measures. We used independent samples *t*-tests to examine cultural differences across the UK and China.

Key results from Experiment 1 showed that UK participants rated sarcasm as being more amusing and polite than literal criticism, supporting the Tinge hypothesis [1], which suggests that sarcasm mutes the negativity of criticism. Theory of mind ability positively predicted sarcasm use and interpretation (in ratings of sarcasm and amusement). Sarcasm use tendency had positive correlations with ratings of amusement and politeness, and negative correlation with ratings of aggression. Key results from Experiment 2 showed that Chinese participants rated sarcasm as being more amusing, but also more aggressive than literal language. Theory of mind ability positively predicted sarcasm interpretation (in ratings of sarcasm). Sarcasm use tendency had positive correlations with ratings of amusement and politeness, and also ratings of sarcasm. Compared with UK participants, participants from China rated sarcasm as being more aggressive and less amusing and they were less likely to use sarcasm in daily life.

We found that sarcasm interpretation and use tendency varied across cultures. Whereas Western participants tended to consider sarcasm as amusing, participants from Eastern cultures tended to view sarcasm as also being aggressive, which in turn affects their use of sarcasm. In relation to theoretical accounts, that is, whether sarcasm mutes the negativity of criticism [1] or enhances condemnation [2], we suggest that it may depend on the cultural background of the perceiver. Thus, the Tinge Hypothesis [1] may need to be modified to take culture into account. Practical implications of the findings include the need for speakers to consider the recipients' cultural background when using sarcasm, in order to avoid confusion over speaker intent.

Table 1

Example Experimental Scenario in All Conditions

Condition		Scenario
Perspective-speaker	Literal	You were building a very complicated structure out of Lego. Person B came over to help. Unfortunately, Person B unintentionally knocked some of it down. You said to Person B: 'You are a bad helper.'
	Sarcastic	You were building a very complicated structure out of Lego. Person B came over to help. Unfortunately, Person B unintentionally knocked some of it down. You said to Person B: 'You are a good helper.'
Perspective-recipient	Literal	Person A was building a very complicated structure out of Lego. You came over to help. Unfortunately, you unintentionally knocked some of it down. Person A said to you: 'You are a bad helper.'
	Sarcastic	Person A was building a very complicated structure out of Lego. You came over to help. Unfortunately, you unintentionally knocked some of it down. Person A said to you: 'You are a good helper.'
Perspective-reader	Literal	Person A was building a very complicated structure out of Lego. Person B came over to help. Unfortunately, Person B unintentionally knocked some of it down. Person A said to Person B: 'You are a bad helper.'
	Sarcastic	Person A was building a very complicated structure out of Lego. Person B came over to help. Unfortunately, Person B unintentionally knocked some of it down. Person A said to Person B: 'You are a good helper.'

References. [1] Colston, 1997. *Discourse Processes.* [2] Dews & Winner, 1995. *Metaphor and Symbol.* [3] Pexman & Olineck, 2002. *Discourse Processes*. [4] Ivanko et al., 2004. *Journal of Language and Social Psychology*. [5] Happé, 1993. *Cognition*. [6] Blasko et al., 2021. *Canadian Journal of Experimental Psychology*. [7] Oprea & Magdy, 2020. *Proceedings of the ACM on Human-Computer Interaction*. [8] Rockwell & Theriot, 2001. *Communication Research Reports*. [9] Stone et al., 1998. *Journal of Cognitive Neuroscience.* [10] Davis, 1980. *JSAS Catalog of Selected Documents in Psychology.* [11] Barr et al., 2013. *Journal of Memory and Language.*