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## (In)sensitivity to incoherence in human communication

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## ABSTRACT

Human sensitivity to conversational coherence is often taken as a given, but there is reason to suppose that tolerance of incoherence is greater than assumed. In Galantucci and Roberts's (2014) laboratory study, participants showed surprising insensitivity to incoherence introduced by randomly crossing their conversations. In that study, however, it was impossible to control the nature of the incoherence. Here, we present a study in which we replaced genuine messages with messages guaranteed not to fit well with the conversation. Inserted messages were incoherent either with respect to task-relevant information or with respect to a salient social category, the interlocutor's gender. More than a third of participants failed to notice the incoherence. This provides evidence that the transmission of information in linguistic interaction is, contrary to widespread assumptions, not subject to reliable monitoring or regulation.

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## 1. Introduction

The main theoretical approaches to human communication have been developed under the implicit assumption that the transmission of informational content in communicative exchanges can be (and indeed usually is) regulated in an orderly fashion (Grice, 1957; Sacks, 1992; Shannon and Weaver, 1949; Wilson and Sperber, 2004). This seems a very reasonable assumption to make because such exchanges involve two or more people interacting in real time in rich and noisy contexts. If the exchanges were not subject to orderly regulation, conversational chaos might be expected to arise rapidly. Hence, people should monitor the coherence of the conversations they are holding, and failures of coherence should be salient to them. Indeed, there is evidence suggesting not only that people are sensitive to communicational coherence (Black, 1988; Bublitz, 1988) but that they also attempt repairs when it seems to be lacking (e.g., Schegloff et al., 1977). In general, work on conversational coherence has focused primarily on either describing and categorizing coherence (see Halliday and Hasan, 1976, for a classic example) or on how cases of incoherence are repaired (Hayashi et al., 2013). Nevertheless, early research on spontaneous conversation encourages caution with regard to the assumption that it is routinely repaired, as people seem to have some degree of tolerance for incoherent exchanges (Cicourel, 1964; Garfinkel, 1967; Schutz, 1962). But these early findings did not lead to systematic research, leaving essentially unaddressed the question of how sensitive to conversational coherence people really are. To address this question, Galantucci and Roberts (2014; henceforth GR) conducted two laboratory studies involving spontaneous conversations in which moments of incoherence were inserted. Pairs of

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participants chatted with each other for 15 min, using an instant-messenger program, about a cartoon image of five famous people. Incoherence was inserted into these conversations by crossing them four times — for a total duration of 2 min — with other conversations in which different participants chatted about a different cartoon, depicting different famous people (Fig. 1).

In one study, intended to investigate narrowly focused conversation, each participant was told that their partner had the same picture, colored differently, and that their task was to find the color differences. In a second study, intended to investigate more broadly focused conversation, participants were simply told to chat about which of the famous people depicted they would most and least like to spend a day with. Across the two studies, about a third of participants failed to notice that their conversations had been crossed.

This was a striking result, and the interruption of spontaneous conversations with other spontaneous conversations ensured that the interruptions contained random lines from genuine conversations. However, this procedure led to interruptions that were inherently uneven; it was possible that a conversation would be interrupted by a line that happened to fit into the context of the conversation, or even that no messages would be sent during the period in which the conversations were crossed. To address this issue, GR performed post-hoc analyses of the transcripts to ascertain whether the conversation crossing had indeed produced detectable moments of conversational incoherence. These analyses confirmed that, overall, the crossed conversations contained such moments. Nevertheless, there remain disadvantages to this approach to studying conversational coherence. First, for those participants who were exposed to detectable incoherence, there was considerable variation in its severity, and this was outside the experimenters' control. In other words, GR provides only a relatively rough estimate of how sensitive people are to conversational coherence. Second, about 20% of GR's participants were not exposed to clearly detectable incoherence. Not only did these participants have to be excluded from the analysis, but the process of identifying them required recruiting naïve judges, making this a rather inefficient approach. Third, as GR documented (pp. 2, 4), it was likely that some of the participants in the study did not actually detect the crossing of the conversations but merely guessed their existence on the basis of general suspiciousness about psychological experiments (Kelman, 2007; MacCoun and Kerr, 1987). In other words, GR likely overestimated how well people detect conversational incoherence.

**2. Enhancing GR's method: message replacement**

Here, we present two studies that replicate GR while addressing the issues identified above. In both studies, as in GR, we had two participants chat over IM. However, instead of crossing two unrelated conversations, we swapped two messages in

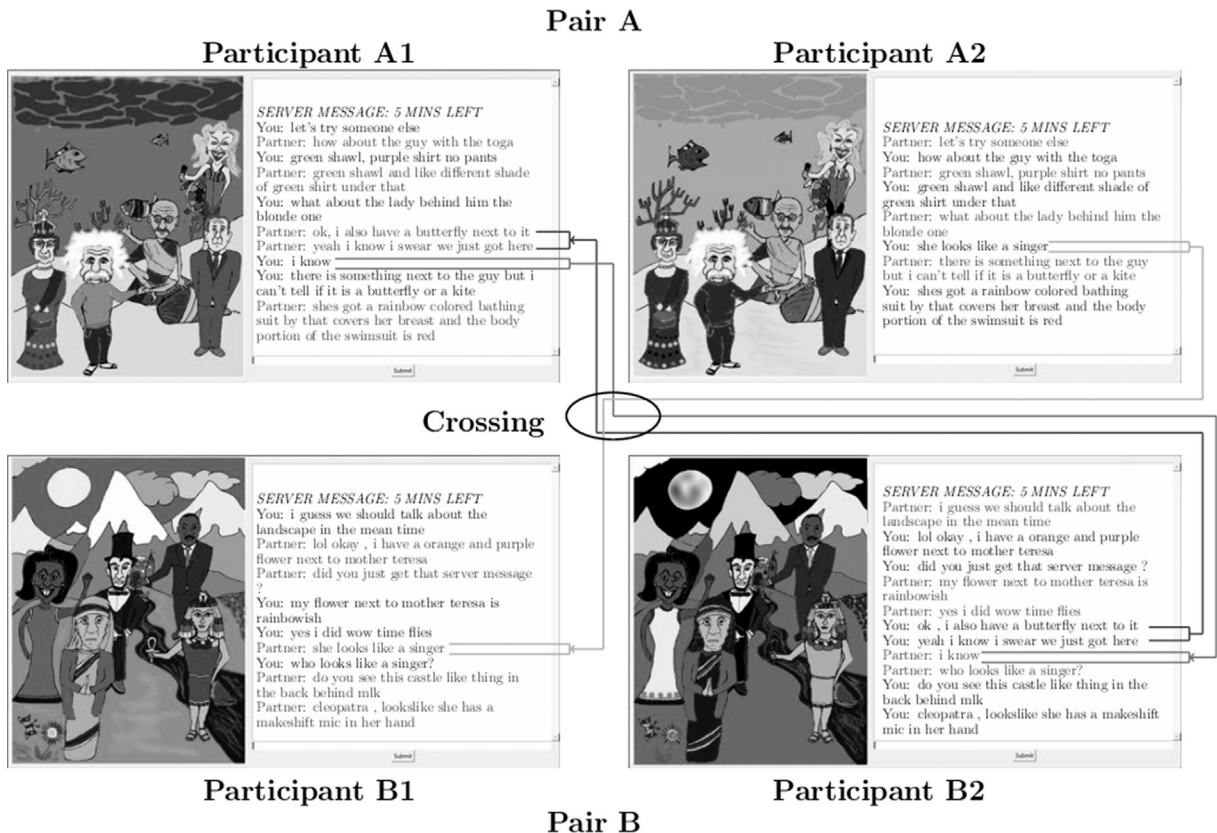


Fig. 1. (From Galantucci and Roberts, 2014) Diagram of concurrent conversations with crossed messages highlighted.

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