



Fooling the Nice Guys: Explaining receiver credulity in a public good game with lying and punishment[☆]



Bernd Irlenbusch, Janna Ter Meer^{*}

Chair of Corporate Development and Business Ethics, University of Cologne, 50672 Cologne, Germany

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ABSTRACT

We demonstrate that receiver credulity can be understood through a false consensus effect: the likelihood with which individuals believe messages about the behavior of others can be explained by their own behavioral tendencies in a comparable situation. In a laboratory experiment, subjects play a public good game with punishment in which feedback on actual contributions is obscured. Instead, subjects communicate what they have contributed through a post hoc announcement mechanism. Using subjects' social value orientation as a proxy for their contribution tendency, we show that those high on the measure have inflated beliefs about the contribution of others. This, in turn, impacts their contribution and punishment decisions.

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1. Introduction

Deception can be described as intentionally causing another person to believe what is false (Oxford English Dictionary). It thus involves two parties: the person doing the deceiving ('the sender') and the target of the deception ('the receiver'). Attempts at deception are largely successful because receivers tend to believe the message of the sender more often than they should. They are, in other words, overly credulous. Overcredulity appears a systematic and robust phenomenon across a wide range of settings, such as the sender–receiver game (Gneezy, 2005; Sutter, 2009; Wang et al., 2010; Erat, 2013; Besancenot et al., 2013), trust game (Charness and Dufwenberg, 2006) and prisoner's dilemma (Serra-Garcia et al., 2011). Further, credulity persists even under repeated play (Blume et al., 2001) and role reversal (Sheremeta and Shields, 2013). Despite this evidence, the exact drivers of receiver credulity seem to be poorly understood.

In this paper we argue that receiver credulity (i.e. believing the messages of others) can, in part, be explained by the individual's own behavioral tendencies in a comparable situation. Under this so-called false consensus effect (Ross et al.,

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^{*} Corresponding author at: University of Cologne, Chair of Corporate Development and Business Ethics, Venloer Strasse 151-153, Room 912, 50672 Cologne, Germany. Tel.: +49 221 470 1844; fax: +49 221 470 1849.

E-mail address: termeer@wiso.uni-koeln.de (J. Ter Meer).

1977), individuals project their own behavior, which they deem common and appropriate, onto the behavior of others.¹ The public good game offers an appropriate setting to evaluate this claim, since players decide on their own contribution as well as perceive the contribution decision of others. In addition, we can assess how subjects' beliefs about the messages of others influence subsequent decisions. Imagine an employee who needs to decide how many hours to invest in a group project. The false consensus effect suggests that someone who has a tendency to work hard herself is more likely to have the prior belief that others in the group will do likewise. If co-workers communicate to her that they are indeed putting in significant effort, we hypothesize that she is more likely to believe these messages compared to someone who is less inclined to work hard.²

We study receiver credulity in a repeated public good game with lying and punishment. In the experiment, subjects do not receive accurate contribution feedback, but instead communicate their contribution to the others in the group through an announcement mechanism. These announcements are cheap talk and subjects can lie by announcing a lower or higher number than what they actually contributed. By eliciting subjects' beliefs about these announcements, we can assess the degree to which individuals are skeptical about the messages they receive and how this influences subsequent decisions. To obtain an independent proxy of an individual's contribution tendency, we measure subjects' social value orientation (SVO) after the public good game. Higher scores on the measure reflect stronger other-regarding preferences, which, in turn, are correlated with higher contributions to the public good. This measure has been used in a wide range of public good experiments, most notably Offerman et al. (1996), Sonnemans et al. (1998) and Van Dijk et al. (2002), as well as other social dilemmas (see Balliet et al., 2009; Van Lange et al., 2007, for reviews). According to the subject's SVO angle, we classify them as 'high' or 'low' types.

The experimental results support our claim. We find that individuals with a high tendency to contribute to the public good ('high types') believe announcements of others to be largely accurate. These inflated beliefs, in turn, impact their contribution and punishment decisions, resulting in significantly lower earnings compared to those low on the SVO measure.

The rest of the paper is structured as follows. Section 2 discusses the experimental design. Section 3 covers the experimental analysis, focusing on belief formation and subsequent contribution and punishment decisions. Section 4 concludes.

2. Method

Subjects play a 4-player repeated public good game with punishment. The game consists of 15 periods and subjects stay in the same groups through the duration of the game. There are two treatments: STANDARD and ANNOUNCE. We describe the STANDARD treatment first. At the start of each round every subject is endowed with 20 points, which can either be kept for oneself or allocated to a group project. Each point invested in the project is multiplied by 1.6 and split over all group members, irrespective of contribution. After the investment decision subjects enter a feedback stage where they learn about the individual contributions of the others in the group. These are displayed in random order as to prevent subjects from tracking individual behavior across periods. Furthermore, subjects also have the possibility to assign punishment, for which they receive 10 additional points per period. Each point invested in punishment reduces the earnings of the targeted subject by three points. Any points not used for punishment are added to the subject's individual earnings, thus making punishment costly to administer. Each subject is consequently informed about how many punishment points they received (if any) before starting the next period. The payoff π_i for each subject i in each period can be expressed as follows: $\pi_i = (20 - c_i) + \left(0.4 \sum_{k=i}^4 (c_k) - (3 \sum_{k \neq i} p_k^i)\right) + (10 - \sum_{k \neq i} p_i^k)$, where C_i represents the contribution of subject i to the group project and P_j^i indicates how much punishment subject i receives from subject $j \neq i$; $i, j \in \{1, \dots, 4\}$. After the public good game, a second part commences in which subjects complete an adapted version of Liebrand's (1984) to measure their social value orientation. In this separate task, subjects are presented with 32 binary allocation decisions where they divide points between themselves and a randomly selected other participant. Each of the 32 preferred allocations can be considered as a vector, where the sum describes an angle with the horizontal axis reflecting how much the individual cares about the other. After completing these two parts, subjects provide demographics and general comments through a questionnaire. They are then paid in private and dismissed.

In addition to the STANDARD treatment described above, we evaluate receiver credulity in the treatment ANNOUNCE. Immediately after the actual investment decision, each subject reports how many points they contributed to the project through an announcement. Subjects are free to report any number from the strategy space and thus have the possibility to lie by reporting a lower or higher number than what they actually contributed. Whether and to what degree such a discrepancy exists is entirely up to the individual subject. Importantly, these announcements are cheap talk: only the actual contribution is payoff-relevant for all players in the group. In the feedback stage, subjects only receive information about the

¹ For a review of the false consensus effect in social psychology, see Mullen et al. (1985). For applications in economic settings, see Madarász (2012).

² This does not imply that other considerations are unimportant. Indeed, past work shows that receivers' beliefs, on average, respond to structural factors that significantly affect the underlying deception rate. In the setting of a trust game, receivers correctly anticipate that promises made under free format communication have a stronger impact on behavior than predetermined messages (Charness and Dufwenberg, 2010). As such, far fewer receivers act according to the sender's message when it has a pre-specified structure. Sutter (2009) compares the sender-receiver game at the individual and team-level and finds that receivers are rightfully more skeptical of messages sent in a team environment. Finally, the work of Belot et al. (2012) finds that experimental subjects largely pick up on the appropriate cues when judging the trustworthiness of participants in a TV game show.

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