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Will any gossip do? Gossip does not need to be perfectly accurate to promote trust $\stackrel{\text{\tiny{$\Xi$}}}{\Rightarrow}$

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ABSTRACT

The fact that gossip can be inaccurate, intentionally or otherwise, has led to questions over its ability to build cooperation in large societies. We explore the impact of gossip accuracy on trust and trustworthiness in a population playing decentralized, two-player trust games. We observed non-trivial levels of spontaneous inaccuracy in gossip, and there was evidence that this was largely due to gossipers' desire to punish untrustworthy players. Although this endogenous inaccuracy did not adversely affect levels of trust and trustworthiness, introducing high levels of exogenous inaccuracy did. Importantly though, we observed greater trust and trustworthiness when highly inaccurate gossip was present than when communication was impossible. This suggests that even inaccurate gossip induces a degree of reputational concern in gossip targets and some willingness among gossip recipients to discriminate between partners on the basis of the gossip they received. Thus, gossip need not be perfectly accurate to effectively induce cooperation.

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"Trust is an important lubricant of a social system. It is extremely efficient; it saves a lot of trouble to have a fair degree of reliance on other people's word."

[Arrow (1974, p. 23)]

1. Introduction

One of the oldest problems facing organizations and societies has been how to induce good behaviour from their members or citizens, particularly when economic exchange occurs in large and/or geographically dispersed populations. In these circumstances, repeated interactions are rare and it is very costly for any one individual to observe and keep track of the behaviour of others over time. One way one can realign incentives between different parties to economic exchange and induce cooperative behaviour is by disseminating reputational information (Greif, 1993). There is evidence that when such information is available, people will make use of it, discriminating in favour of those with positive reputations. Indeed,







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the availability of reputational information has been the cornerstone of the success of online marketplaces such as eBay (Dellarocas, 2003; Lucking-Reiley et al., 2007).

However, the development of decentralized mechanisms that disseminate reputation information occurred well before the advent of the Internet. It has been suggested that one such mechanism is gossip, the class of speech that transmits information about the behaviours and attributes of third parties. By some accounts, gossip is said to account for the majority of human conversation; this raises the possibility that people's everyday conversations may be one of the most important contexts for the transmission of reputational information (Dunbar et al., 1997). The sheer ubiquity of gossip suggests that it may impact on economic exchange even in the presence of more formal reputational mechanisms, like those in online marketplaces. Indeed, word-of-mouth is still widely recognised as a powerful driver of new business (Trusov et al., 2009). However, there is (at least) one potential limitation to gossip serving this economic and social function: its inaccuracy. If the reputational information contained in gossip is inaccurate (through error or deliberate distortion), then recipients are more likely to make mistakes like choosing to trust an untrustworthy or unproductive partner. In these situations, people should be less willing to discriminate on the basis of gossip that they receive. Although there is no behavioural evidence for this claim, simulation work has shown that as gossip becomes less accurate, discriminating players are less successful (Nakamaru and Kawata, 2004; Roberts, 2008; Rauwolf et al., 2015).

In this paper, we explore the impact of gossip and its (in)accuracy on trust and trustworthiness in a population of individuals playing decentralized, two-player trust games. We suggest that gossip inaccuracy erodes the cooperative potential of gossip if it interferes with people's tendencies to discriminate on the basis of gossip and their partners' tendencies to anticipate this discrimination (Basu et al., 2009; Boero et al., 2009; Sperber and Baumard, 2012; Sylwester and Roberts, 2013). If gossip provides accurate information about a potential partner's past trustworthiness and competence, recipients are better able to choose to play with good players and avoid playing with bad players. If people receive inaccurate information, they are hampered in their ability to discriminate in this way. At the same time, gossip creates a demand for reputability, as long as targets are aware of the transmission of gossip, and believe that recipients are likely to act on it. If the accuracy of gossip is in question, the targets of gossip may infer that the recipients of the piece of gossip are unlikely to discriminate on the basis of the information it contains. This reduction in reputational concern is likely to reduce the motivation of the targets of gossip to engage in cooperative acts.

In each round of our experiment, we randomly match an Investor with an Agent; the Investor can send any proportion of her endowment to that Agent. Agents can be High-Productivity or Low-Productivity types: any amount sent to the former type is multiplied by six, while any amount sent to the latter is multiplied by three. Investors do not know what type they are facing when deciding how much to send. Agents can then return any amount they wish to the Investor. Before the round ends, each Investor sends a message summarizing the events of the current round: (i) the amount the Agent received; (ii) her type; (iii) the amount the Agent returned to the Investor. At the start of the following round, and prior to making their sending decision, Investors receive a message pertaining to the Agent they are matched with.

In a first set of treatments, we explore whether inaccuracy in messages sent between Investors spontaneously occurs in populations playing our game, and we study what effect such inaccuracy has on levels of trust and trustworthiness. To achieve this, we generated different experimental treatments by varying who Investors sent their messages *to* and who they received them *from*. In the Gossip treatment, Investors sent their messages to the Investor who would play with their Agent in the following round. In the Truth treatment, Investors sent their messages to the experimenter, and received factual summaries of Agent behaviour from the experimental software. In the No Message treatment, Investors neither sent nor received messages. By comparing behaviour in Gossip to behaviour in No Message, we are able to understand to what extent Investors are willing to discriminate on the basis of the information they receive. Comparing Gossip to Truth allows us to understand if Investors are more likely to lie when communicating to one another than when communicating to the experimenter. This comparison also shows to what extent spontaneous message inaccuracy undermines the ability of Investors to discriminate between Agents and the resulting willingness of Agents to build positive reputations.

In an additional treatment, we study how exogenous message inaccuracy affects trust and trustworthiness. This Inaccurate treatment was a variation on the Gossip treatment. As before, Investors sent their messages to the Investor who would next play with their Agent. However, in this new treatment there was a 50% chance in a given round that an Investor would unknowingly receive a message intended for another Investor. Both Investors and Agents knew of this manipulation, although this was not common knowledge (i.e., Investors were not told that Agents were also aware of the potential for misdirected gossip and vice versa). In this treatment, Investors have weaker incentives to discriminate on the basis of the information they receive; this translates into a weaker incentive for Agents to be trustworthy. This treatment allows us to understand how high levels of inaccuracy affect Investors' reputation-based discrimination and Agents' reputational concern.

The rest of the paper is organized as follows. Section 2 contextualises our paper in the literature on reputation and gossip. Section outlines the research questions and summarizes the experimental design and procedures. Section 4 presents the results and Section 5 offers some concluding remarks.

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