

Combining artificial language learning with behavioural economics to study shared language as a predictor of trust

Keywords: artificial language learning, trust game, social marker, linguistic variation, social group

In our daily interactions with strangers, we need to rapidly decide whom we can trust. Psychological research shows that we are biased to deem members of our ingroup as more trustworthy [1], but the recognition of ingroup members crucially depends on hard-to-fake social markers. Languages and dialects, which systematically vary between groups, are informative social markers, signalling a speaker's social identity and group affiliation [2, 3, 4]. A shared language should thus invoke ingroup recognition and in turn increase mutual trust.

However, the evidence regarding this hypothesis is still inconclusive. On the one hand, artificial language learning studies have shown that linguistic forms can function as social group markers [5, 6], and the correlation between group membership and trust has been demonstrated in behavioural economics using trust games, which measure trust through economic decisions [7, 8]. On the other hand, it has been debated whether linguistic signals alone are costly enough to be reliable social markers [9], and a large-scale online trust game study on Danish dialects failed to reveal a correlation between shared dialect and trust [10].

We report an experiment which combines artificial language learning with the trust game paradigm, showing that listeners (a) use linguistic cues to infer ingroup membership, and (b) treat speakers who speak their own language as more trustworthy.

In a first run of the experiment, participants ($n = 16$) entered a fictional alien world, assuming the identity of a green-coloured alien that lived on a planet with other green and blue aliens. Each of the two alien groups spoke a distinct language, which participants were familiarised with. The participants then played one trust game simultaneously with two aliens whose colour was masked in darkness but whom they could briefly hear speak. In this trust game, participants received € 10, which they could divide between the two other aliens. The goal was to earn as much money as possible. Participants knew that whatever amounts they passed on would be tripled, and that the other aliens could either keep those tripled amounts or return a share. Thus, the amounts participants were willing to share with each alien reflected the extent of their trust in them.

Our prediction was that participants would have more trust in and hence send more money to the alien speaking their own language compared to the alien speaking the foreign language. The results matched this prediction (see Figure 1).

Uncovering the links between trust, group affiliation and linguistic variation has important implications, not only for language change, variation and evolution [12, 2], but also for understanding how linguistic differences can promote or hinder trust and cooperation in our everyday life. Apart from demonstrating that speakers use linguistic variation to infer group membership, and that this can increase/decrease their trust, our study also represents a methodological proof-of-concept, showing that investment games employing game-like artificial language scenarios lend themselves to studying socio-linguistic phenomena [11].

(481 words)

