

# Asymmetric Updating and Memory in the Social Domain



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## Motivation

Individuals tend to overweight positive signals relative to negative ones when updating beliefs in the ego-relevant domain, including their own intelligence, beauty, and skills. One's kindness to others can also be thought of as ego-relevant. Indeed, it has been documented that people have motivated memory regarding their generosity to others. However, motivated belief updating in the social domain has not been studied.

In particular, this paper studies both types of motivated reasoning, i.e. asymmetric updating and motivated memory, in a consistent framework, replicates previous experimental paradigms in related ego-relevant domain, and documents interesting patterns in motivated reasoning about one's altruism.

## Experimental design

Experimental procedure of **Baseline** treatment

Part 1	Part 2	Part 3	Part 4	Part 5	Part 6
Binary dictator game	IQ test	Belief elicitation	Real-effort game	Short-run recall Donation decision	Four weeks later Long-run recall
Session 1: 60 mins					Session 2: 30 mins
Elicit social preference.	Distraction task	Observe beliefs about their altruism in Part 1.	Distraction task	Elicit their recall towards their altruism in Part 1. Observe subsequent altruistic behaviour.	Elicit their recall towards the signals they received four weeks ago.

Besides **Baseline** treatment, our study involves varying the treatment across four distinct conditions:

- Selfish** treatment: we employ a non-selfish self-image framework to elicit participants' beliefs and memories.
- Other** treatment: we examine participants' beliefs or memories concerning others' altruistic behaviour, which is not relevant to their ego.
- Resolution** treatment: we inform participants that they will learn the truth about their altruistic behaviour at the end of the experiment before they report their beliefs.
- Information** treatment: we remind participants that increased altruism may lead to reduced experimental rewards, using data from previous sessions.

## Result: asymmetric updating

When processing information about their altruistic self-image, participants assign more weight to positive signals than to negative ones (**Baseline** and **Information** treatments). Notably, in contexts involving a non-selfish image, participants seem to avoid negative information (**Selfish** treatment).

However, this asymmetry disappeared when participants processed information about others' altruistic behaviour (**Other** treatment). It also vanished in situations where they knew that the actual results of their altruism in the experimental session would be disclosed in the future (**Resolution** treatment).

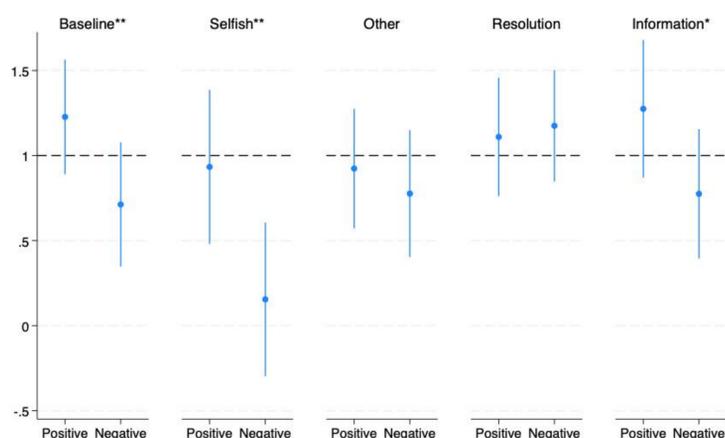


Figure 1. Weight on positive/negative signals when updating belief across distinct treatments.

\* denote levels of statistical significance in the weight difference between positive and negative signals, with \* $p < 0.10$ , \*\* $p < 0.05$ , and \*\*\* $p < 0.01$ .

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## Results: asymmetric memory

In the short run, when recalling their own giving behaviour, generous participants are more accurate in remembering their selfish actions than their altruistic ones. Conversely, stingy participants recall their altruistic actions with greater accuracy than their selfish ones. This pattern of recall, however, does not extend to participants when they recall the giving behaviour of others (refer to *Figure 2*).

Generally, there is a significantly higher percentage of overestimation in the recall of selfish actions than in the recall of altruistic ones (refer to *Figure 3*). Furthermore, the magnitude of recall errors associated with selfish actions is greater than that associated with altruistic actions (refer to *Figure 4*).

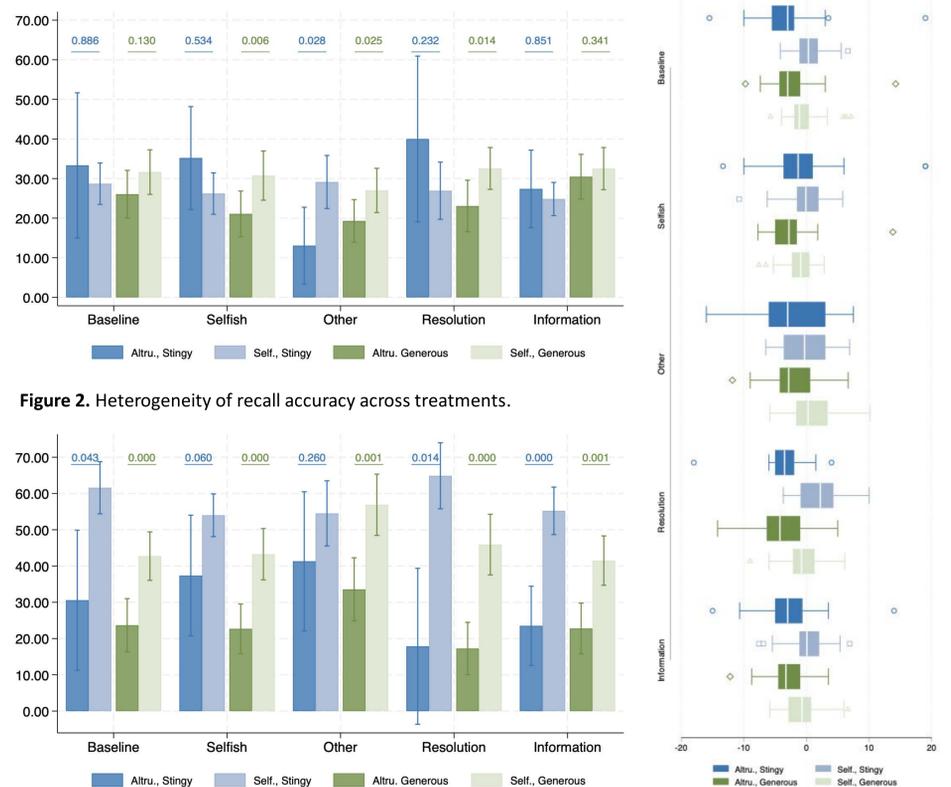


Figure 2. Heterogeneity of recall accuracy across treatments.

Figure 3. Heterogeneity of over-recall percentage across treatments.

Figure 4. Recall errors across treatments.

Note: the  $P$ -value of the  $W$  test is displayed above the bar.

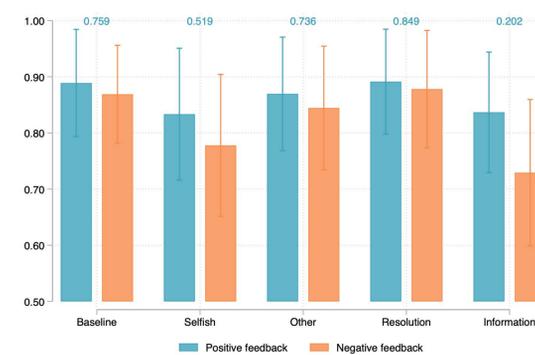


Figure 5. The accuracy of recalling signals in the long run.

Note: the  $P$ -value of the  $T$ -test is displayed above the bar.

In the long run, *Figure 5* shows that participants who received a greater number of positive signals (positive feedback) demonstrated increased accuracy in recalling these signals compared to those who received fewer (negative feedback).

## Conclusions

Participants in our experiment exhibit significant asymmetric updating, relatively overweighting positive signals in the social domain, which can be attenuated by the removal of ego-relevance or the prospect of obtaining objective feedback (uncertainty resolution).

We also document patterns that have not been found in other domains, particularly in selfish framing, and also provide experimental evidence of motivated memory in the social domain.

## References

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