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# Active Inference of Interpersonal Context

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## Introduction

- Social contexts are highly dynamic and contextualized.
- Many unobservable states need to be inferred from noisy observations - a computational nightmare.
- Interpersonal problems are common in mental disorders.<sup>1</sup>
- Active Inference allows hidden state inference under uncertainty and is promising for modelling social interactions, too.<sup>2,3</sup>
- Bayesian inference under an individual generative model governs perception, action and learning.
- Interpersonal difficulties might stem from deviations in the generative model



# Results

# **Empirical data**

Patients and controls differ in their behavioral patterns.

• Patients win AND lose more.

• Controls tend to keep their money more.

This is particularly true in the neg-to-pos condition.

# Fitting

We fit the model to the empirical data and obtain subject-specific distributions for A, B, C, D. Differences in GM-parameters are relatively **subtle**.







### Simulations











Conclusion

#### Discussion







• We find **correlations** in model parameters and scores in trust, prosociality and BDI.

- In a final analyses, we want to build these relationships into the **optimization**
- This will result in parameters **maximally**
- **informative** for group (EM-style)

Active Inference can be used to **simulate** and **model** social behavior. Patients and controls can be **classified** based on their individual model parameters with good accuracy.

### References

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