

# Levent GUMUS

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## Education

Ghent University

Ph.D. in Economics, *2021-present*

University of Barcelona

Master's in Economics, 2019

Yildiz Technical University

Bachelor's in Mechanical Engineering, 2017

## Fields of Interest

Neuroeconomics, Microeconomics, Cognitive science, Behavioral and Experimental Economics

## Job Market Paper

### “Expectations vs. Evidence : A Cognitive Model of Confirmation Bias”

**Abstract:** In this paper, I develop a model of confirmation bias, which arises from a cognitive mechanism conceptually linked to the Bayesian brain paradigm and the efficient coding hypothesis in neuroscience. Specifically, I hypothesize that cost of information processing —quantified as the statistical divergence between prior and posterior beliefs— influences the precision of the sampling process, thereby allowing the probability of misperception to emerge endogenously. Consequently, disconfirming evidence, which are costlier to process, attenuates the impact of new information during Bayesian updating, resulting in posterior mean beliefs that are disproportionately influenced by prior mean beliefs. I further test the assumptions of the model in an experiment and find empirical support for the hypothesis that noise in perceived probabilities increases proportionally with the distance between the DM's initial expectations and the sample.

## Working Papers

### “Beliefs in Reciprocity, Confidence, and Trust” *(with Mohammed Abdellauoi, Yassine Kaoune, Emmanuel Kemel, and Ferdinand M. Vieider)*

**Abstract:** We develop a novel method that allows us to econometrically recover belief distributions from binary choices between bets on different events. We deploy the method in a strategic context by studying the predictive power of the recovered beliefs about reciprocity on trust. We econometrically recover two measures: a measure of the mean belief of the decision-maker; and a measure of the subjective uncertainty surrounding that mean belief. We show belief uncertainty plays an important role in explaining behaviour. We illustrate this by estimating the generalized Arrow-Pratt approximation of our ‘trust equivalents’ under model uncertainty proposed by Maccheroni, Marinacci, and Ruffino (2014). We find aversion to model uncertainty (i.e., uncertainty characterizing the trustor's own belief distribution) to be the single most important driver of trust. This showcases the role of the dispersion of the belief distribution when it comes to explaining behaviour in strategic interactions, and supports multiple-prior models of decision-making under ambiguity.

### “Confirmation Bias and Base-Rate Neglect”

**Abstract:** I experimentally investigate the interplay between confirmation bias and base-rate neglect at the individual level. I hypothesize that both how subjects utilize evidence and their reliance on base-rates varies depending on whether the evidence confirms or contradicts the base-rate during belief updating. I test this hypothesis in a setup that enables the elicitation of subjects' posterior beliefs for both confirming vs disconfirming signals at each trial. The evidence supports the hypothesis: while a majority of subjects exhibit confirmation bias, they also show less severe base-rate neglect when the signal confirms the base-rate. I further evaluate the predictive accuracy of the model that accounts for the dependence

of both evidence and base-rate utilization on the signal type, comparing it to several alternative specifications. I find that, at the individual level, the former outperforms all other specifications, including the most commonly used model in the literature on asymmetric belief updating, which only considers signal-type dependence in how evidence is utilized. These findings provide empirical evidence of the coexistence and interaction between these two widespread biases and underscore the importance of correctly accounting for the base-rate utilization in belief updating.

## Seminars, Conferences & Summer Schools

- **RisL $\alpha\beta$  Summer School on Cognitive Foundations of Decision-Making**, Mohammed VI Polytechnic University, Ghent, 30/06/2025-04/07/2025
- **Beliefs in Reciprocity, Confidence, and Trust**, University of East Anglia 10<sup>th</sup> Behavioural Game Theory Workshop, Norwich, 08/07/2024
- **Beliefs in Reciprocity, Confidence, and Trust**, 14<sup>th</sup> Conference of the French Experimental Economics Association(ASFEE), Grenoble, 27/06/2024
- **Beliefs in Reciprocity, Confidence, and Trust**, 6<sup>th</sup> Maastricht Behavioral and Experimental Economics Symposium (M-BEES), Maastricht, 17/06/2024
- **RisL $\alpha\beta$  Summer School on Cognitive Foundations of Decision-Making**, Mohammed VI Polytechnic University, Rabat, 22-27/07/2024

## References

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**Dirk Van de gaer**

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## Languages

Turkish(native), English (fluent), French (intermediate), German(basic)

## Software Skills

R, Stan, Qualtrics, Shiny, HTML & JavaScript for survey design