Poster Text. Captions are „Boxes”

***Abstract***

Humans’ behaviours under risk and uncertainty are often characterized as irrational, in that they over- or underweight outcome probabilities and treat missing information sub-optimally1. However, the validity of experimental paradigms arriving at this conclusion was recently put into question in that they may not represent different types of uncertainty2. We therefore designed a task that combines endogenous and extrinsic sources of uncertainty in real-time risk taking.

***Methods – Car Task***

In four conditions, n=27 subjects could accumulate bonus points via continuous button press. The rate of bonus point accumulation as well the time after which a loss threshold is reached was varied four experimental conditions. We framed these conditions as “cars” with different speeds. There were slow, medium and fast cars as well as one condition where one of the other cars is randomly sampled from the other three conditions.

***Results – Optimality?***

Given the noise level in their behaviour and epistemic uncertainty, participants opt for an optimal policy, as revealed by comparing aggregate subject behaviour to a simulated benchmark.

***Results – Risk Seeking?***

Under extrinsic uncertainty (Random Environment), subjects deviate from optimality with behaviour that can be described as risk-seeking.

***Outlook: EEG Analysis***

We use multivariate pattern analysis3 to examine to what extend task performance is accompanied by mental sampling of outcomes4 (gain, loss). To this end, we administered a 1-back localizer task before the main experiment, using the feedback stimuli of the main experiment as targets, which were shown for 500ms with an ITI of 1000ms.

***Results – Time Generalization***

Subsequently we correlated the time course of the multivariate evoked potential of the localizer task with the activity pattern around button release in the car task in order to the mental pre activation of feedback stimuli, before these can be seen on the screen.