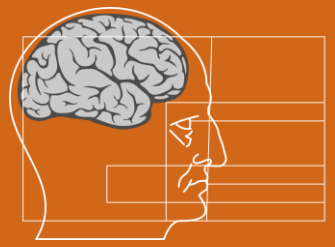


MAX PLANCK UCL CENTRE

COMP 2 PSYCH

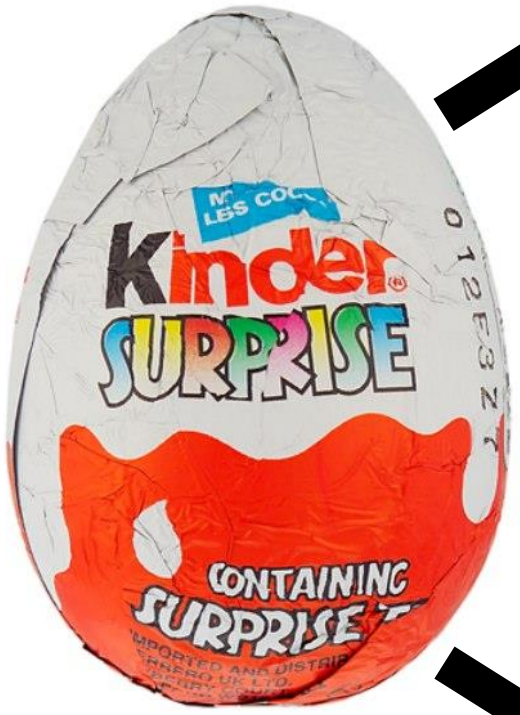
International Max Planck Research School

Symposium and Advanced Course on Computational Psychiatry and Ageing Research

International Max Planck Research School COMP2PSYCH

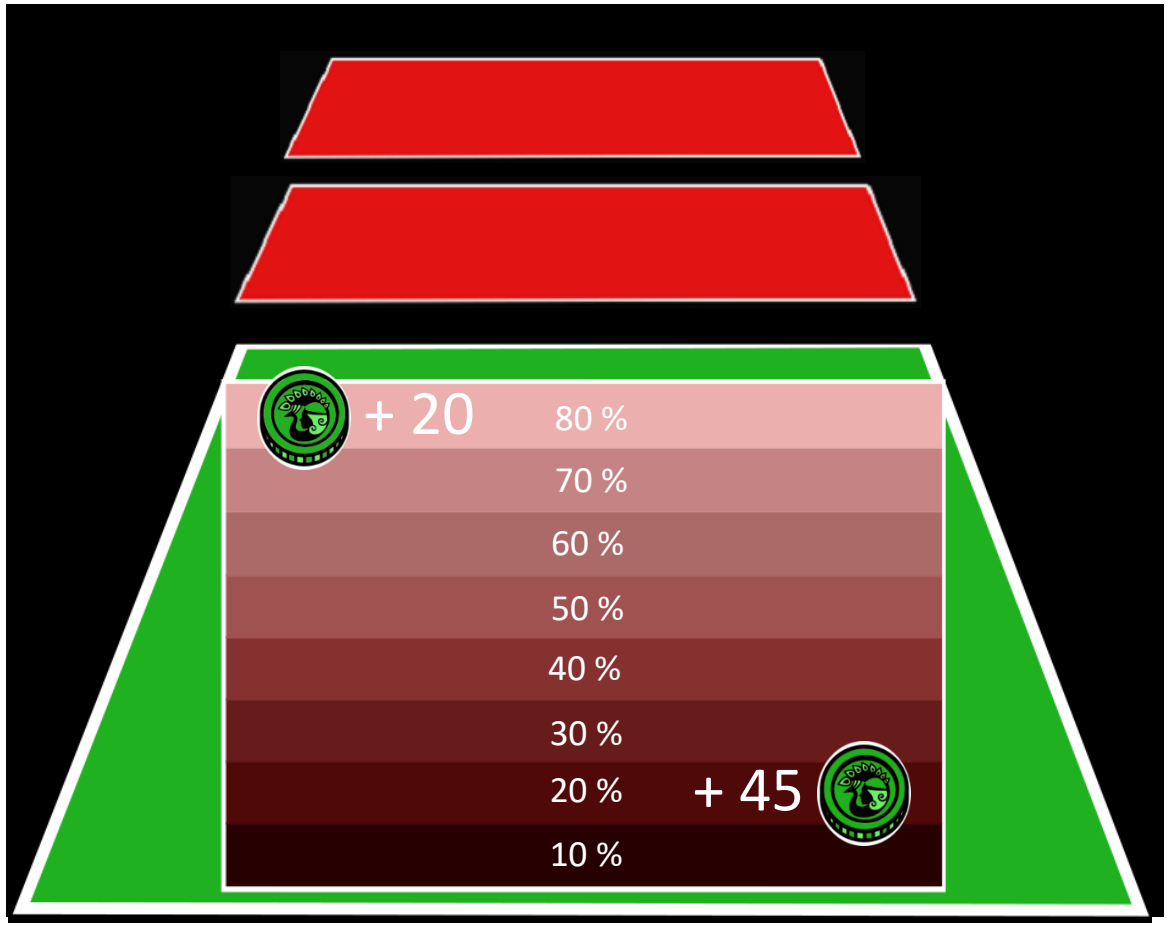
A Computational Model of Mood and Future Prospects

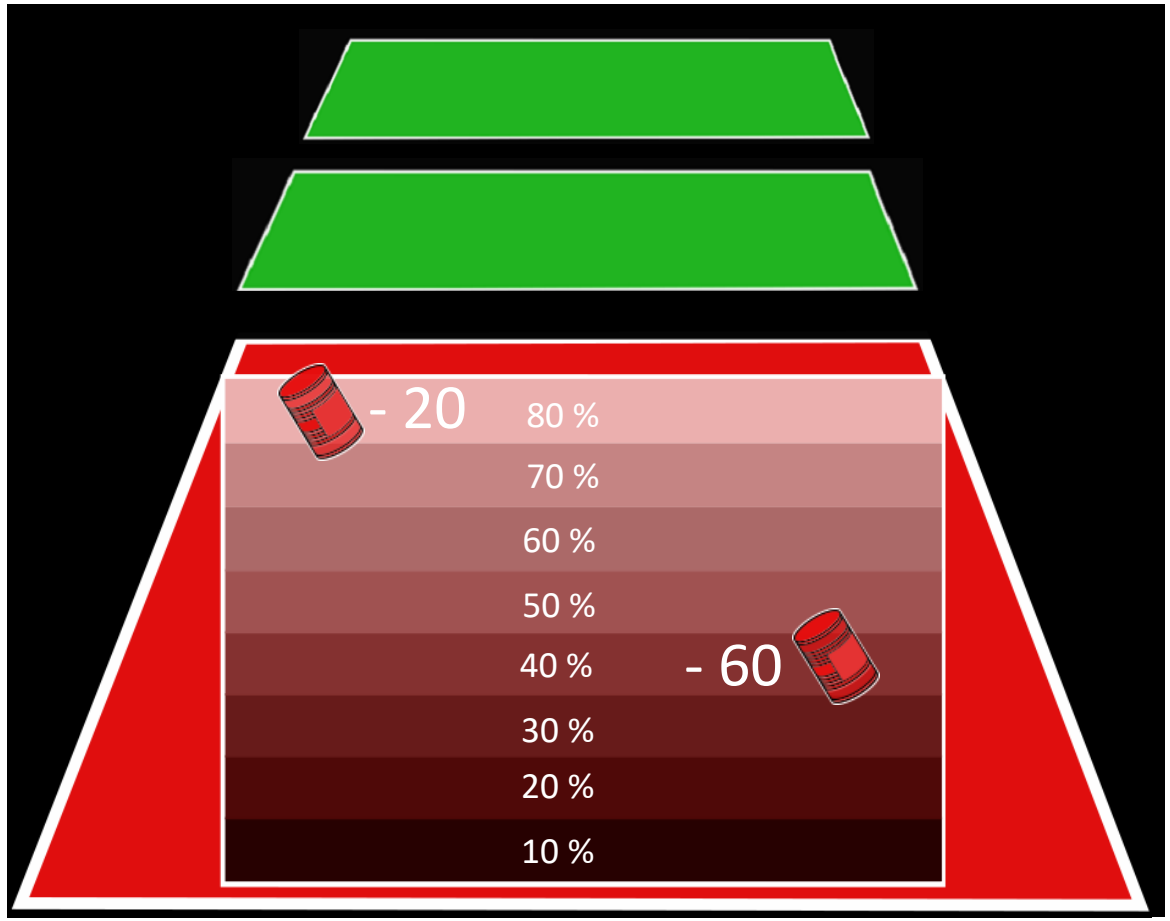
Rachel Bedder

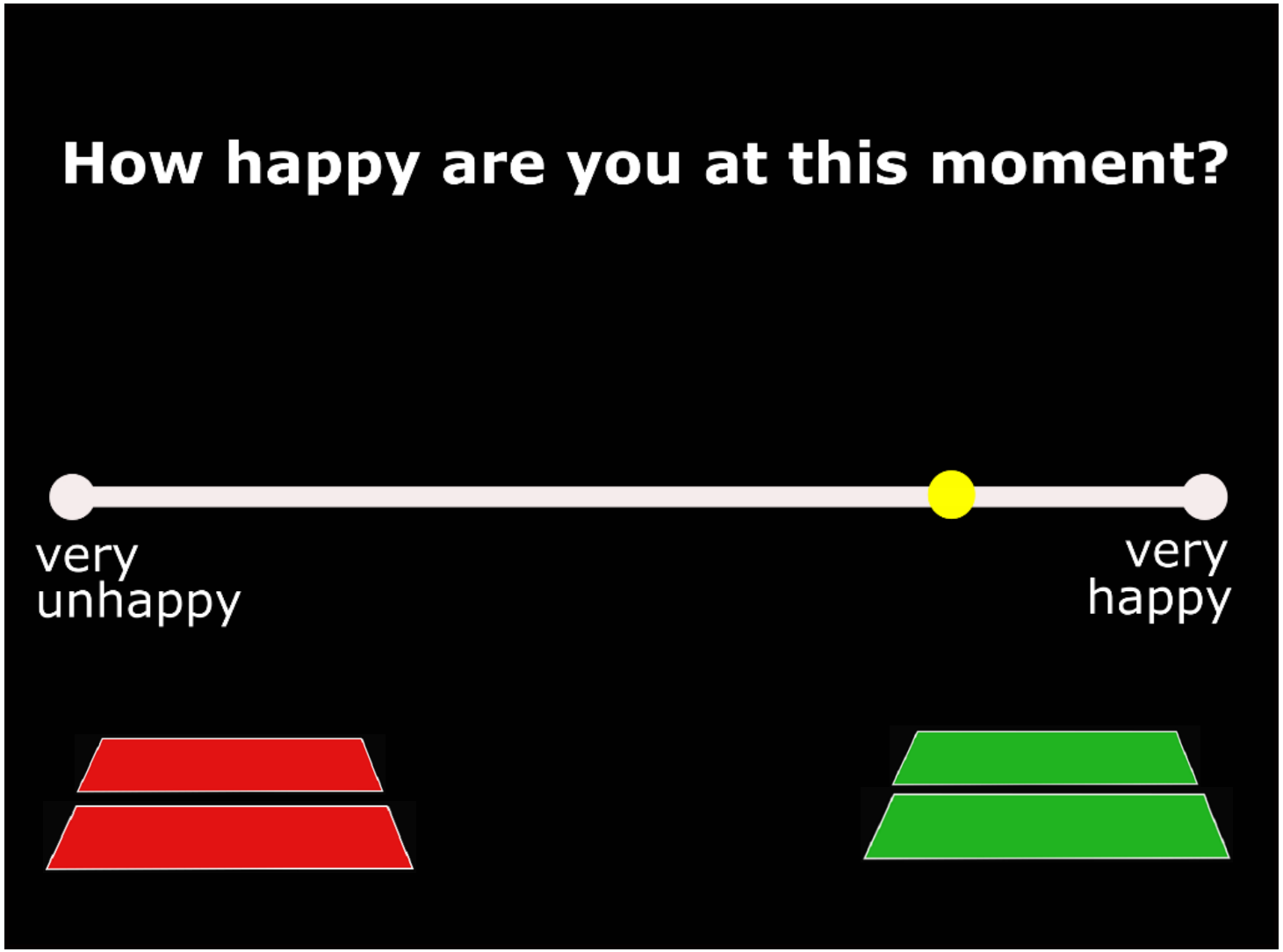

Kinder
SURPRISE
CONTAINING

How does knowledge of your future prospects **affect mood**?

How does knowledge of your future prospects affect mood in **different contexts**?





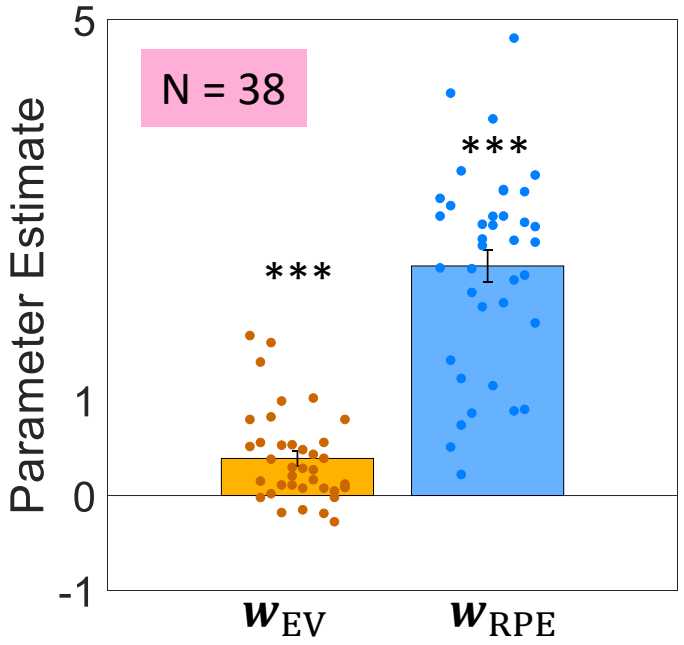

How happy are you at this moment?
very unhappy
very happy

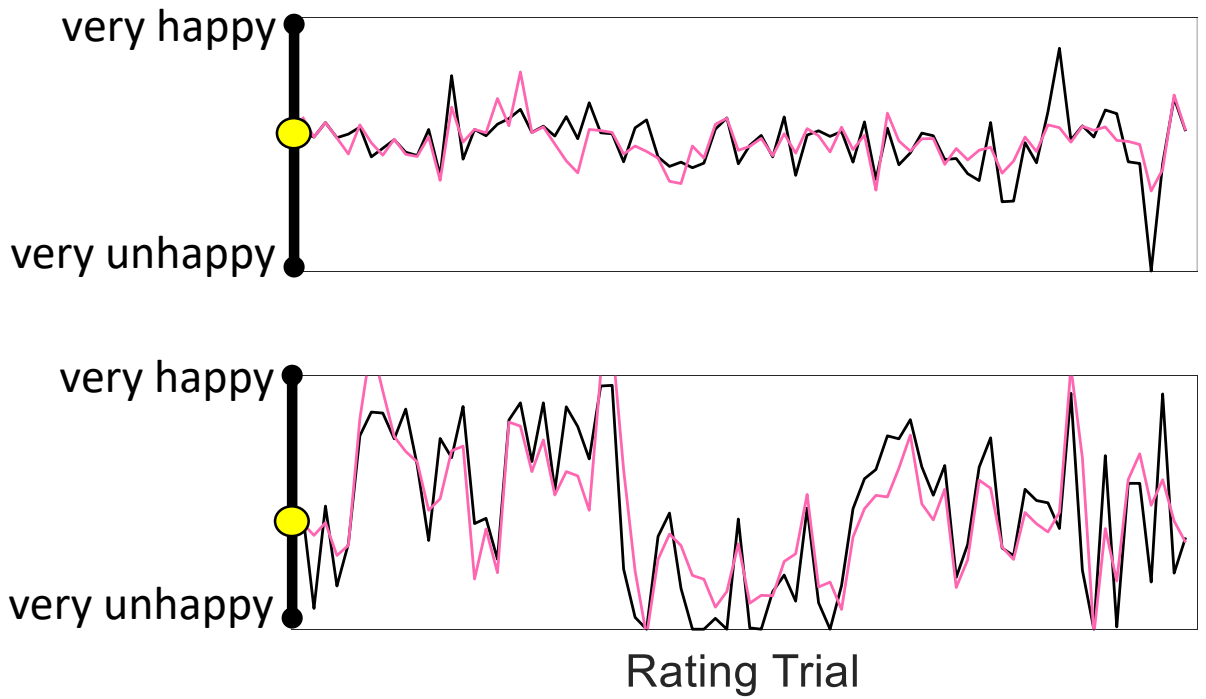
Replication of Happiness Model with a new task structure (N = 38)

Reward Prediction Error
(Outcome – Expected Value)

$$Happiness_t = w_{EV} \sum_{j=1}^{t} \gamma^{t-j} EV_j + w_{RPE} \sum_{j=1}^{t} \gamma^{t-j} RPE_j$$

Expected Value

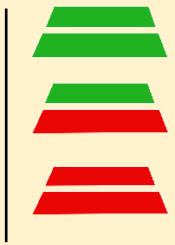
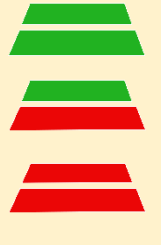


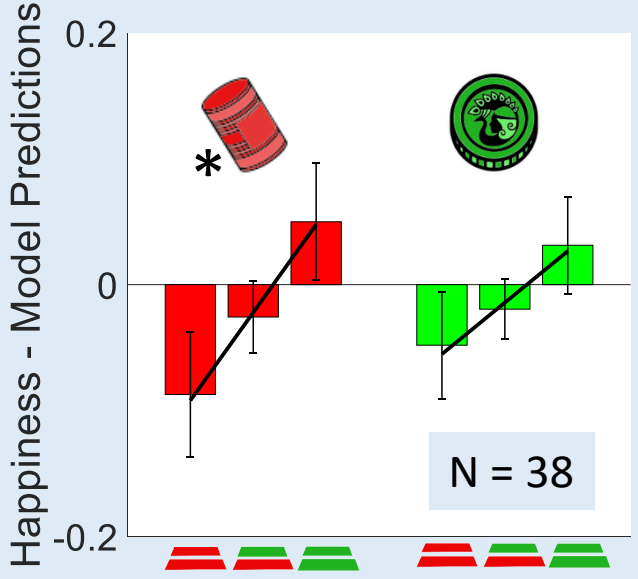


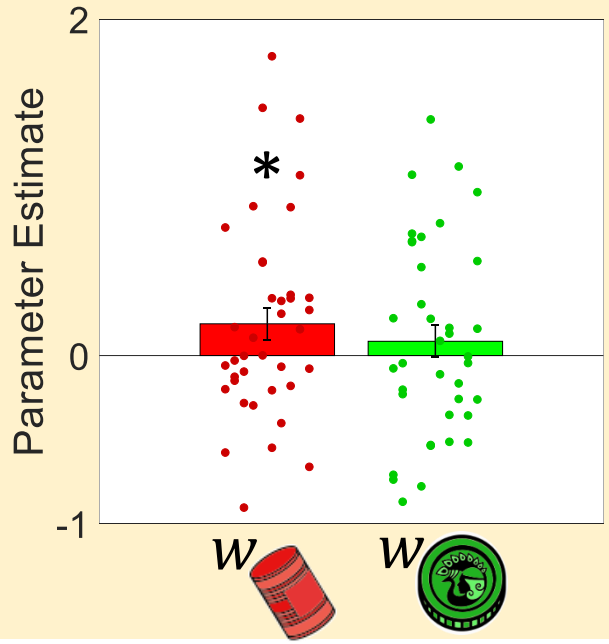
*** p < .001, **p < .01, *p < .05

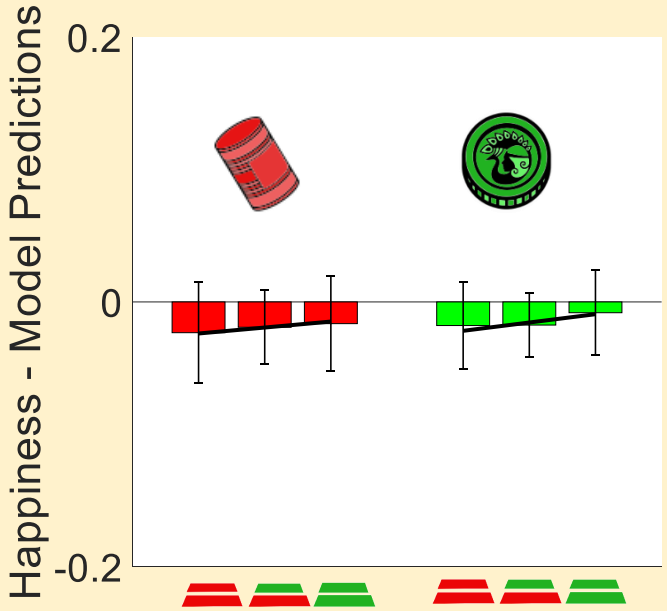
Parameterising influence of Future Prospects on Mood

$$Happiness_t = w_{\mathrm{EV}} \sum_{j=1}^{t} \gamma^{t-j}\, EV_j + w_{RPE} \sum_{j=1}^{t} \gamma^{t-j}\, RPE_{\mathrm{j}}$$

$+ w$   $+ w$  







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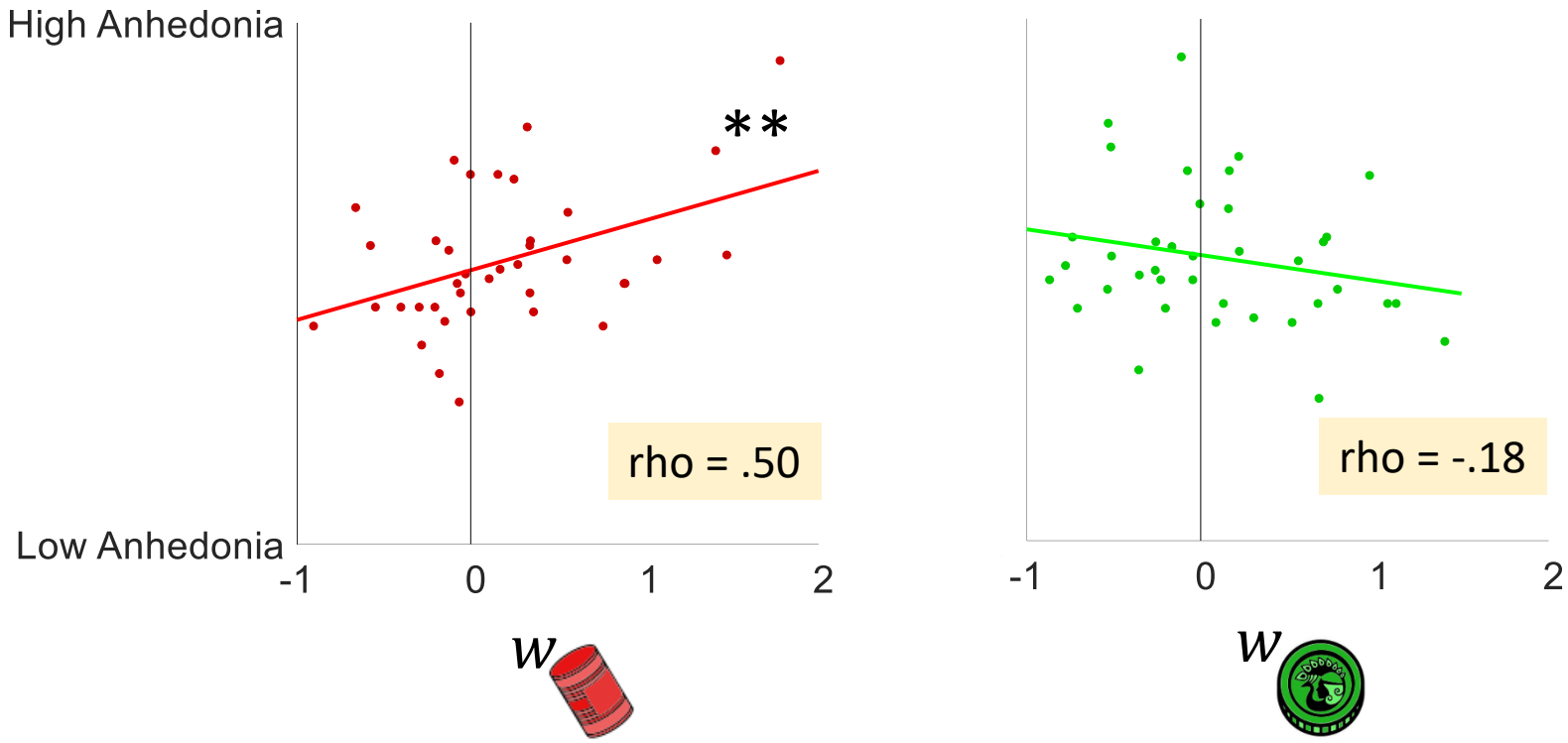
Increased Anhedonia associated with Future Bias when performing Loss Trials



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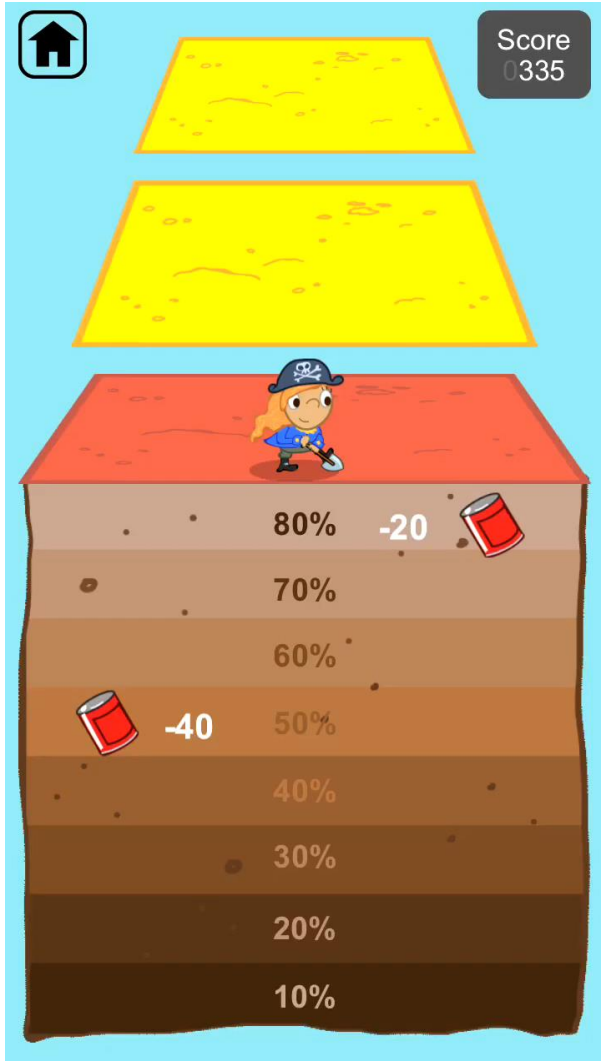
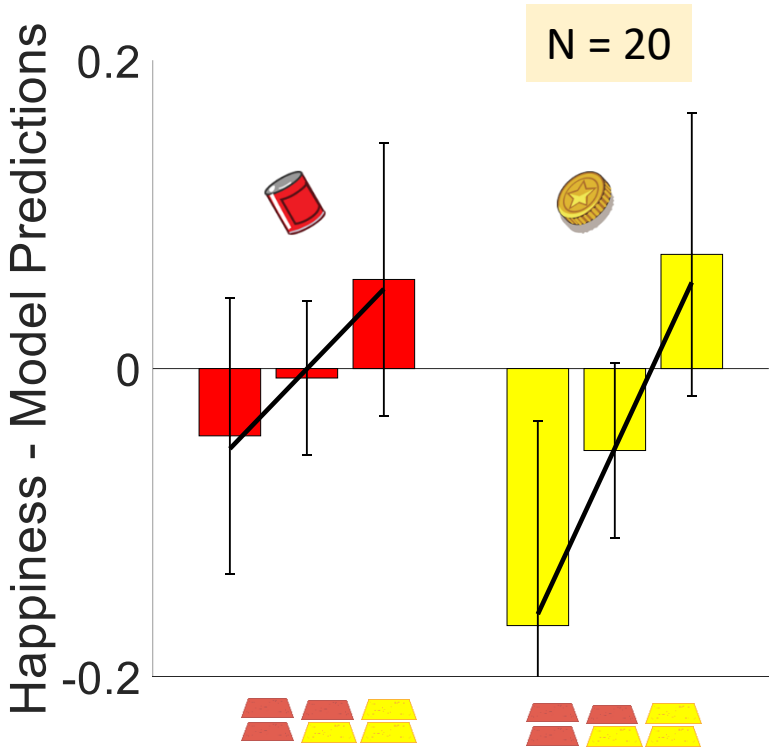
Future Prospects Task Gamified for Smartphone Platform





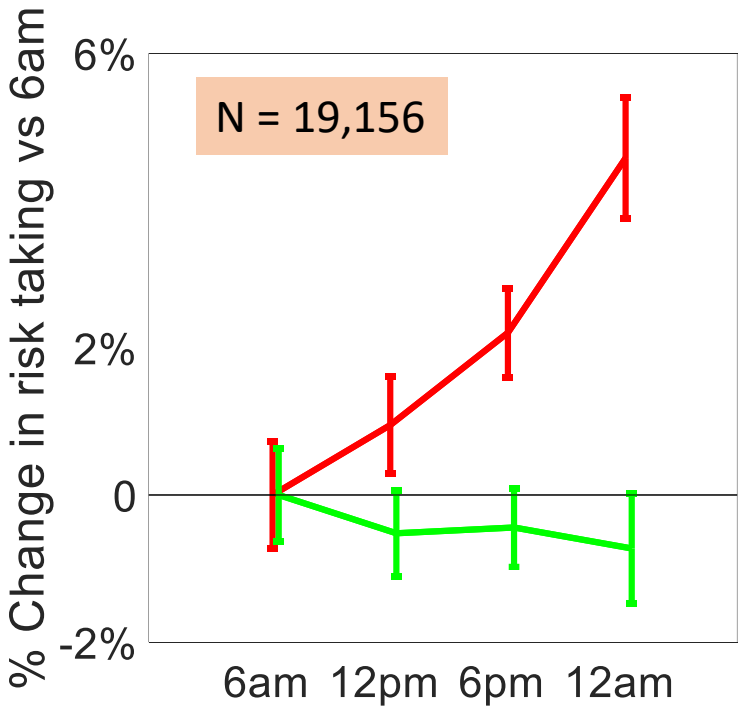
*** p < .001, **p < .01, *p < .05

Future Prospects modulates mood different depending on valence of the current context.

Next Steps:

How are risky decisions about gains and losses affected by future prospects?

How are risky decisions about gains and losses affected by time of day?



Thank you!