Power increases individuals' drive to pursue rewards in the brain

ETH zürich

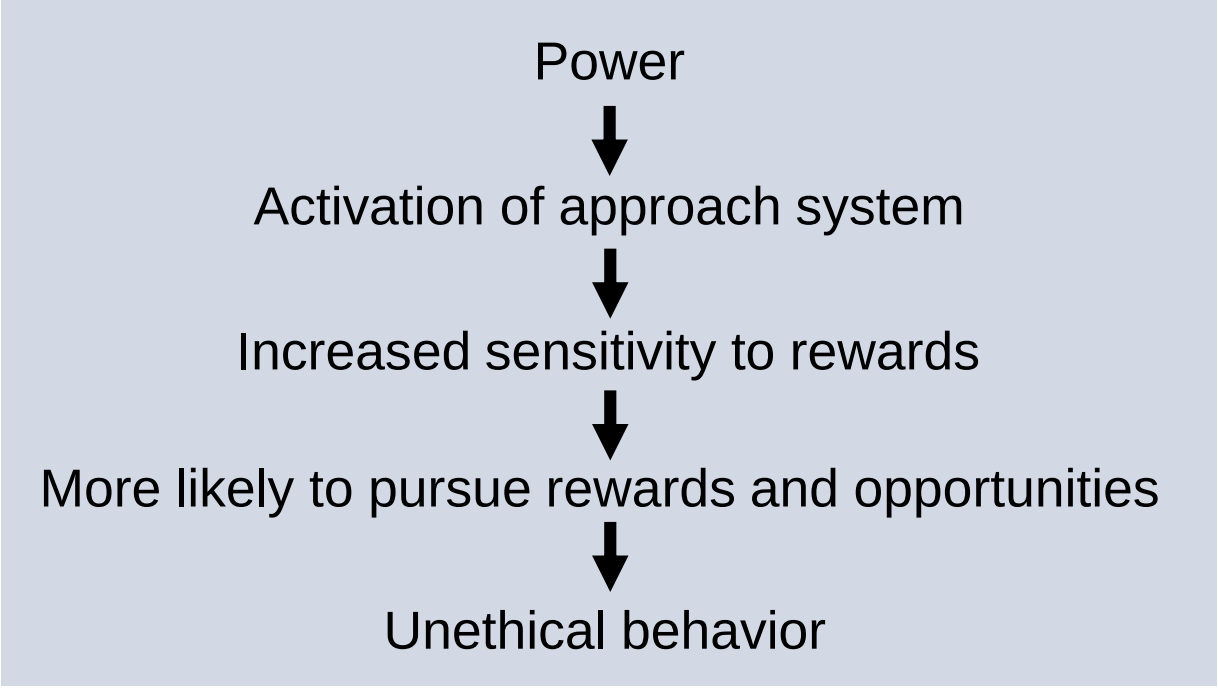
Power increases individuals' drive to pursue rewards in the brain

Enru Lin, Petra C. Schmid

Power

- Asymmetric control of valued resources (Galinsky et al., 2015; Keltner et al., 2003)

Approach/inhibition theory of power (Keltner et al., 2003)



Power and unethical behavior in the lab

High-power individuals more likely to:

- Cheat at tasks, take undue credit (Kipnis, 1972)
- Be more aggressive and exploitative (Cislak et al., 2018)
- Commit infidelity (Lammers et al., 2011)
- Pursue own interests at others' expense (Decelles et al., 2012)
- Lie to benefit themselves (Dubois et al., 2015)
- Take risks (Anderson & Galinsky, 2006)
- Etc.

The Seattle Times

Executives' greed big factor in Enron crash, probe shows

The New York Times

Lawsuits Lay Bare Sackler Family's Role in Opioid Crisis

The New York Times

Former VW C.E.O. Martin Winterkorn Is Charged by Germany in Diesel Scheme

The Guardian

Revealed: 50 million Facebook profiles harvested for Cambridge Analytica in major data breach

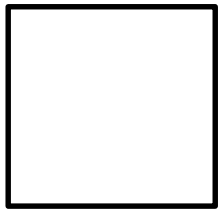
Research questions

1. Does power make individuals more sensitive to monetary rewards?
2. If so, at which stage of reward processing does power have an effect?
   - Determined using event-related potentials (ERPs)

Monetary incentive delay task

(Novak et al., 2016)

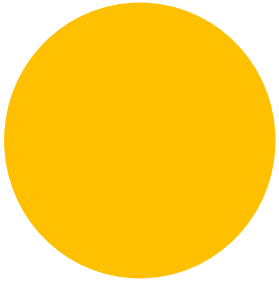
Reward trial (65 trials)

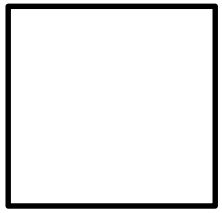


Success

Failure

Non-reward trial (35 trials)





0

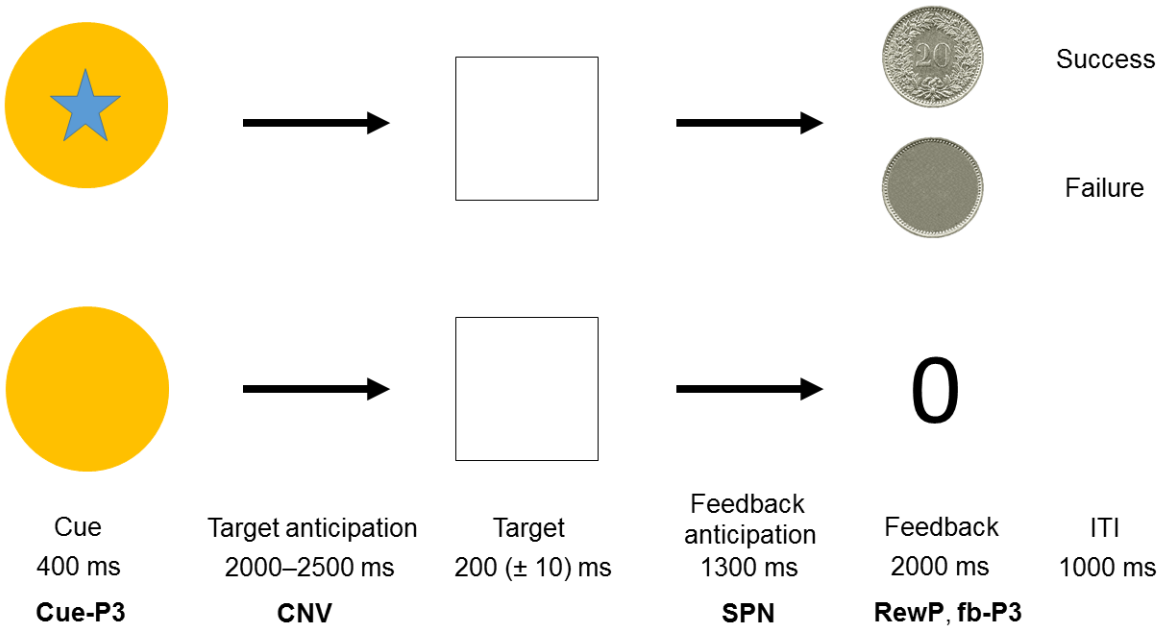
Cue
400 ms
Cue-P3

Target anticipation
2000–2500 ms
CNV

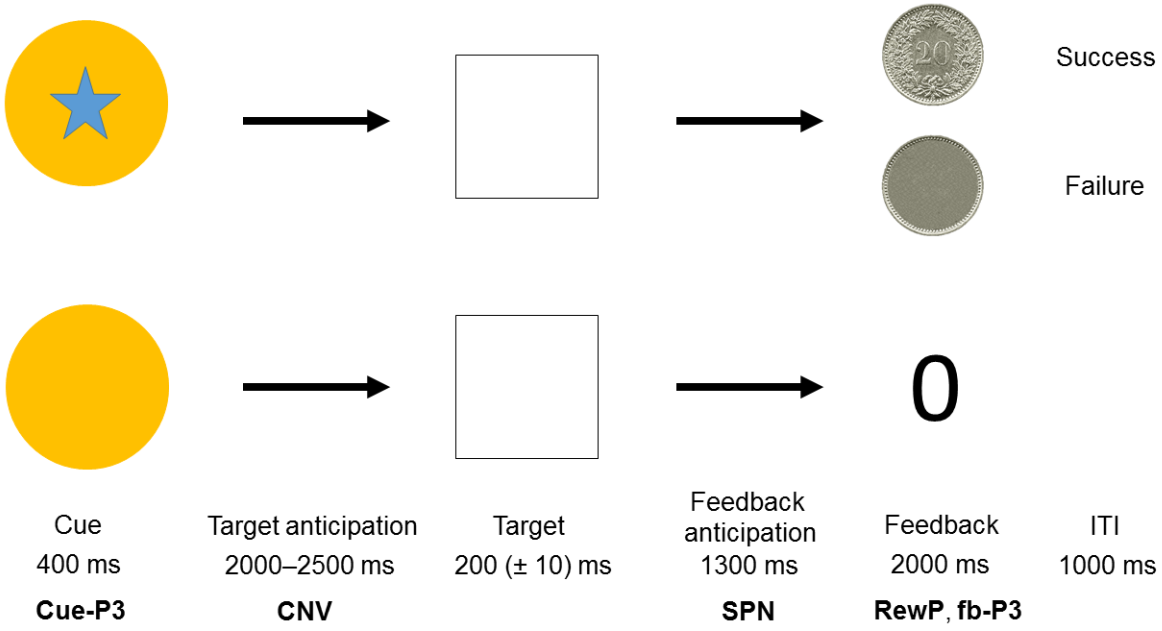
Target
200 (± 10) ms

Feedback anticipation
1300 ms
SPN

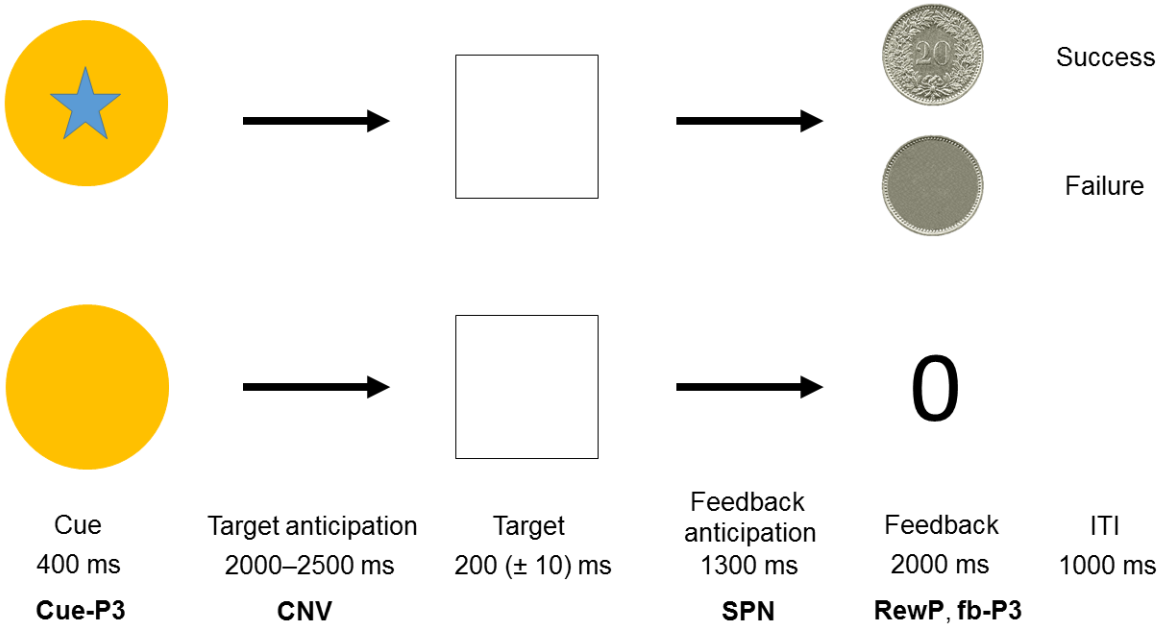
Feedback
2000 ms
RewP, **fb-P3**



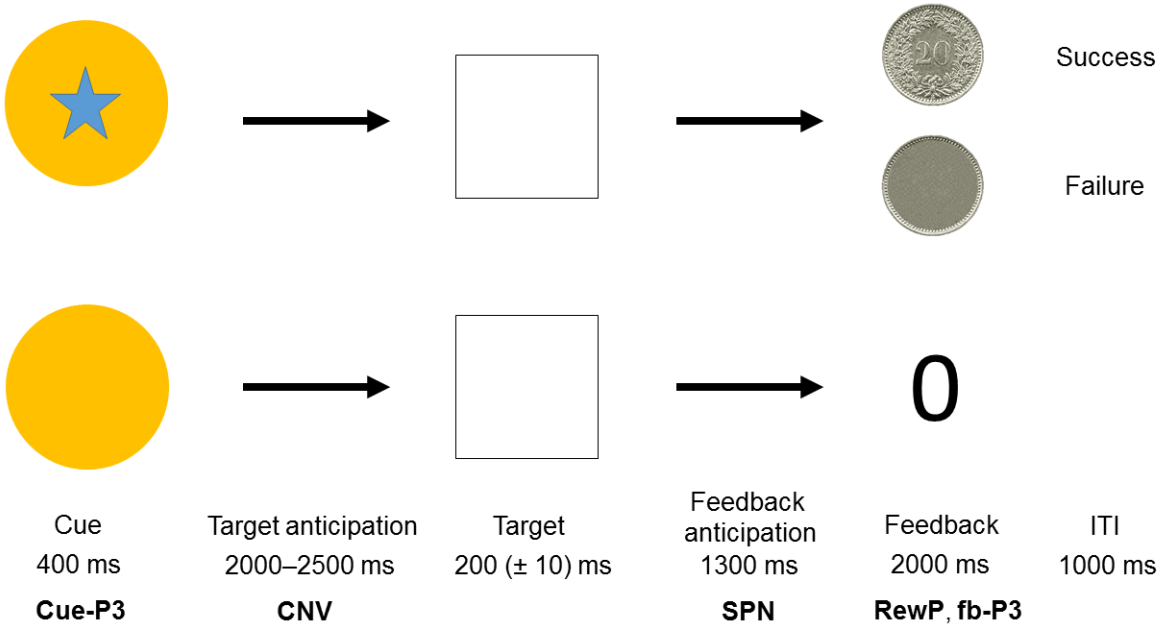
1. **cue-P3:** Cue detection	• Attention to reward cue



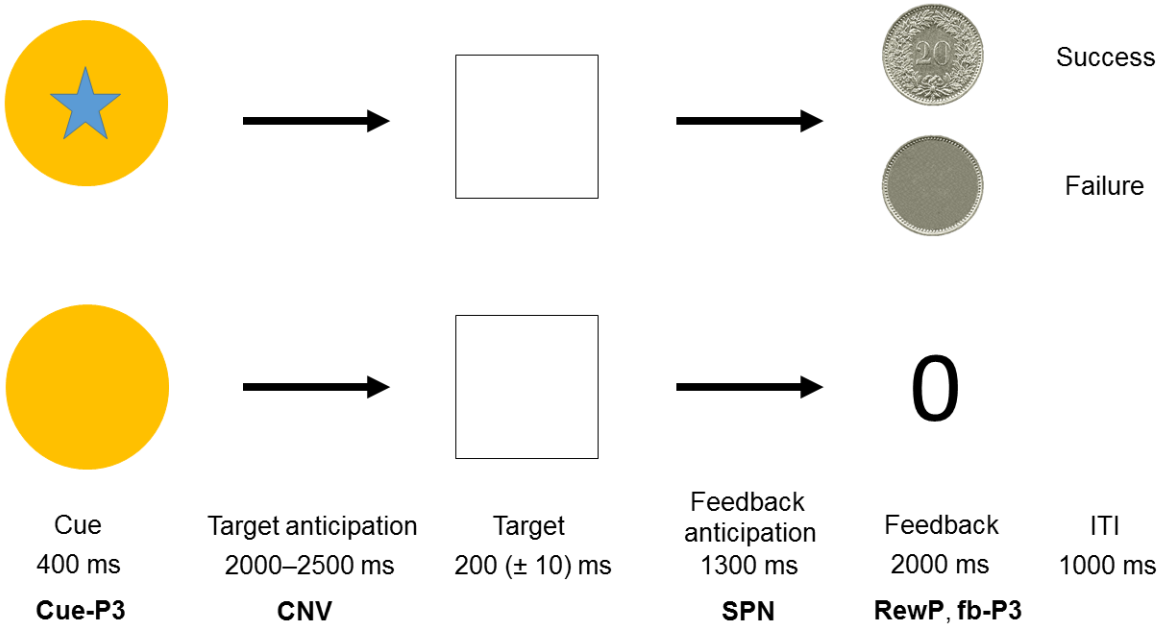
1. **cue-P3:** Cue detection	• Attention to reward cue
2. **CNV:** Contingent negative variation	• Motivated approach toward reward



1. **cue-P3:** Cue detection	• Attention to reward cue
2. **CNV:** Contingent negative variation	• Motivated approach toward reward
3. **SPN:** Stimulus-preceding negativity	• Feedback anticipation



1. **cue-P3:** Cue detection	• Attention to reward cue
2. **CNV:** Contingent negative variation	• Motivated approach toward reward
3. **SPN:** Stimulus-preceding negativity	• Feedback anticipation
4. **RewP:** Reward positivity 260–310 ms post-feedback	• Early feedback evaluation • Favorable vs. non-favorable outcomes

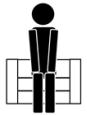


1. **cue-P3:** Cue detection	• Attention to reward cue
2. **CNV:** Contingent negative variation	• Motivated approach toward reward
3. **SPN:** Stimulus-preceding negativity	• Feedback anticipation
4. **RewP:** Reward positivity 260–310 ms post-feedback	• Early feedback evaluation • Favorable vs. non-favorable outcomes
5. **fb-P3:** Feedback-P3 350–400 ms post-feedback	• Attention to feedback • Success & failures vs. neutral feedback

Method

- Participants
  - 106 students (55.66% female; M_{age} = 25.41, *SD* = 3.82)
- Procedure

1. EEG set up
2. Power manipulation

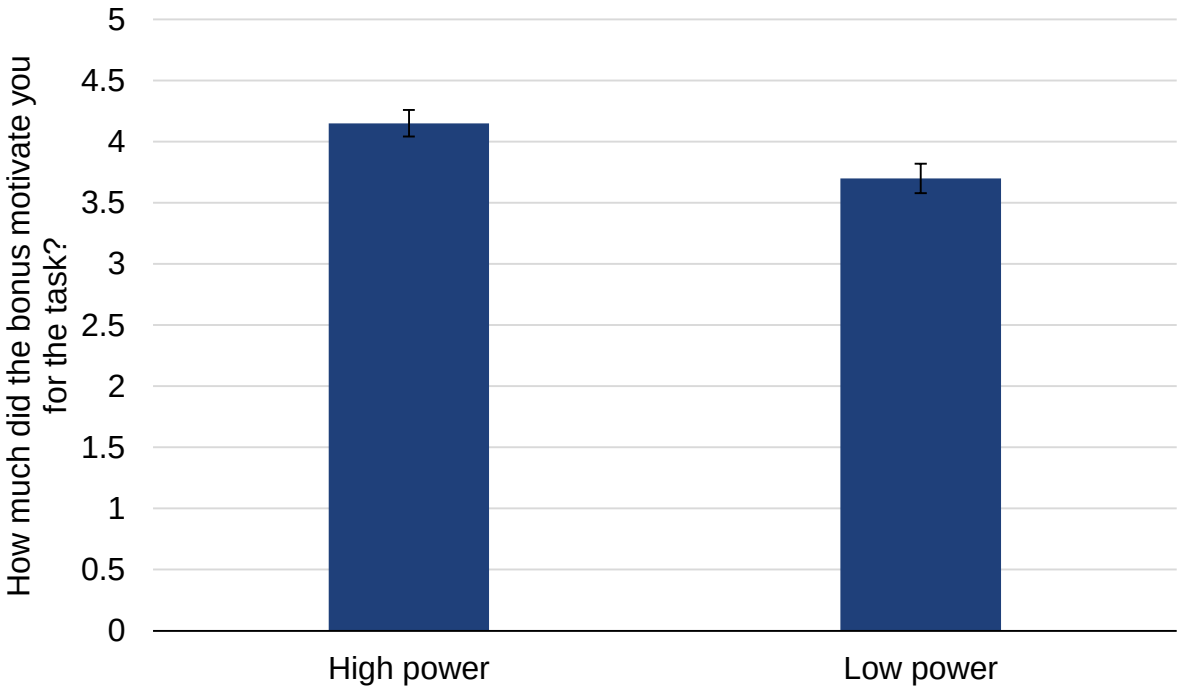
High Power 	"Appreciating your success as a boss"	"Evaluating your subordinates"
Low Power 	"Waiting to be evaluated by your boss"	"Being evaluated by your boss"

3. Experimental task
4. "How much did the bonus motivate you for the task?"
   - 1: Not at all, 5: Very much

Results

Motivation

- High-power more motivated by bonus, $t(104) = 2.64$, $p = .010$

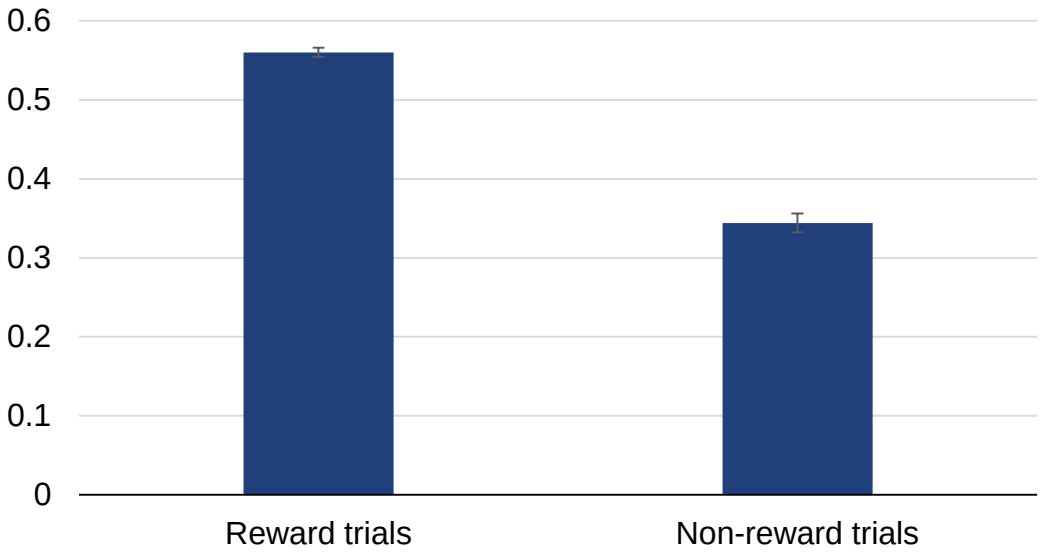


Results

Behavioral

2 (power: high vs. low) × 2 (reward: yes vs no) mixed ANOVA on success rate

- Effect of reward, $F(1, 104) = 150.35$, $p < .001$, $\eta p^2 = .59$
- No effect of power, $F(1, 104) = 1.50$, $p = .223$, $\eta p^2 = .01$
- No interaction, $F(1, 104) = 1.97$, $p = .164$, $\eta p^2 = .02$



Results

EEG results

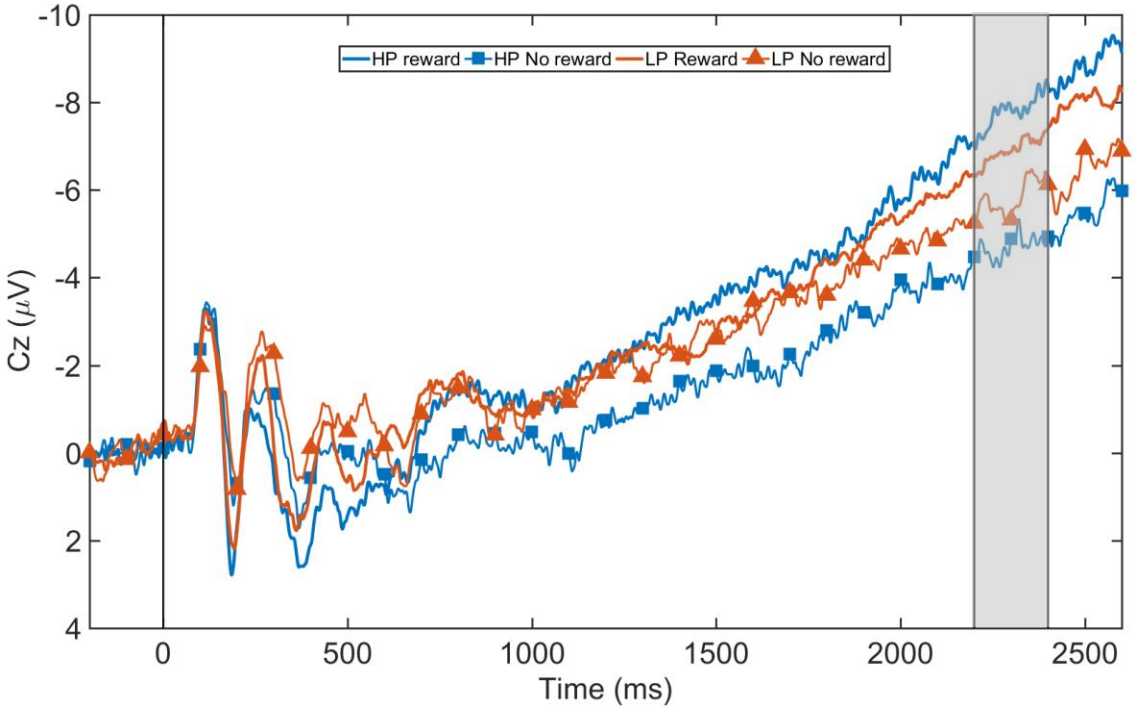
- Effects of reward, *p*s < .026.
  - | ERPs reward | > | ERPs non-reward |

ERPs	Reward trials	Non-reward trials
cue-P3	*M:* 6.91, *SE:* 0.43	*M:* 3.81, *SE:* 0.39
CNV	*M:* -7.22, *SE:* 0.76	*M:* -5.04, *SE:* 0.69
SPN	*M:* -2.36, *SE:* 0.65	*M:* -1.10, *SE:* 0.52
RewP	*M:* 5.80, *SE:* 0.51	*M:* 3.76, *SE:* 0.46
fb-P3	*M:* 14.61, *SE:* 0.78	*M:* 1.58, *SE:* 0.47

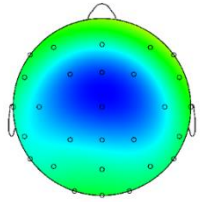
- No effects of power, *p*s > .380
- Interaction for CNV, $F(1, 104) = 3.91$, $p = .05$, $\eta p^2 = .04$

Planned contrasts: reward vs. no reward

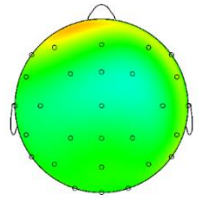
- Significant difference for high power, $F(1, 104) = 16.92$, $p < .001$, $\eta p^2 = .14$
- No significant difference for low power, $F(1, 104) = 1.87$, $p = .174$, $\eta p^2 = .02$
- Difference in CNV correlated with actual bonus, $r = -.23$, $p = .016$



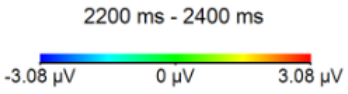
CNV difference
(reward - no reward)



High power
M: -3.28, *SE:* 0.80



Low power
M: -1.07, *SE:* 0.78



Summary

Approach/Inhibition theory partially supported

- Power increases motivation to approach a monetary reward, BUT
- No evidence of power and general reward sensitivity
  - No increased attention to reward cue
  - No increased attention to reward feedback

Consequences on individuals' outcomes

- Difference in CNV predicts actual bonus gained

Discussion

- Deeper understanding of link between power and unethical behavior
- Increased motivation beneficial for high-power
  - Linked with increased bonus
- Remains open whether this leads to unethical behavior
  - Dark side of increased motivation?

Acknowledgments