

# How the brain adapts to dishonesty

Law and the whole truth  
11<sup>th</sup> August 2017

Neil Garrett

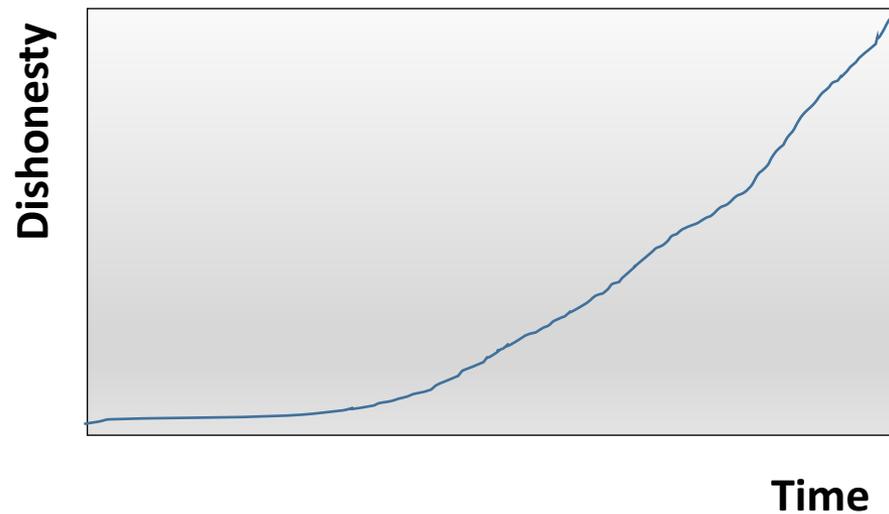
Princeton Neuroscience Institute



# Dishonesty in the real world

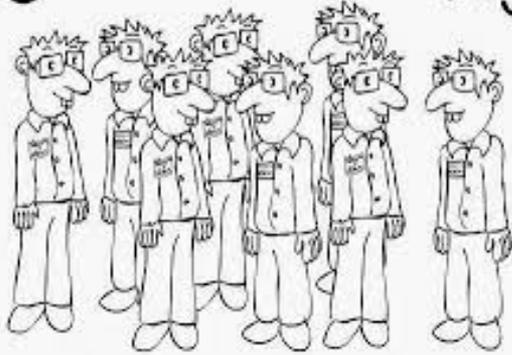


“Slippery Slope” effect

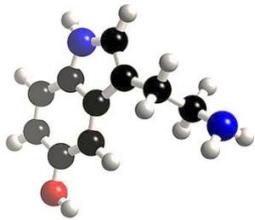


# Causes of dishonesty

SOCIAL NORMS



# The role of emotion in dishonesty



beta blockers  
(reduces emotional arousal)

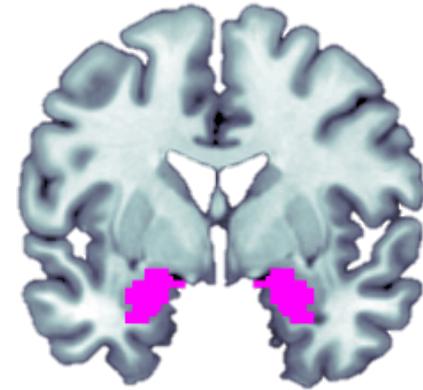
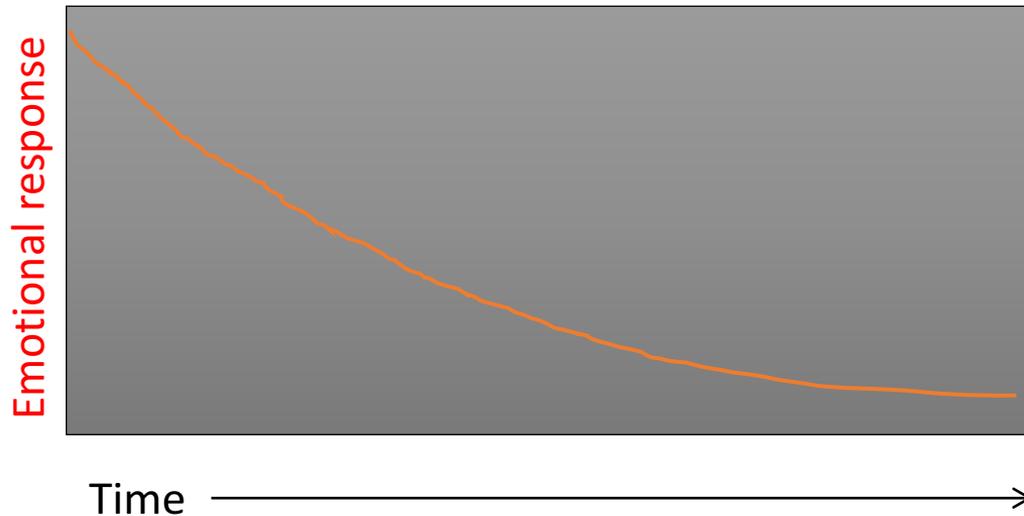
Emotional arousal can also be reduced through a biological process: **emotional adaptation**

# Emotional Adaptation

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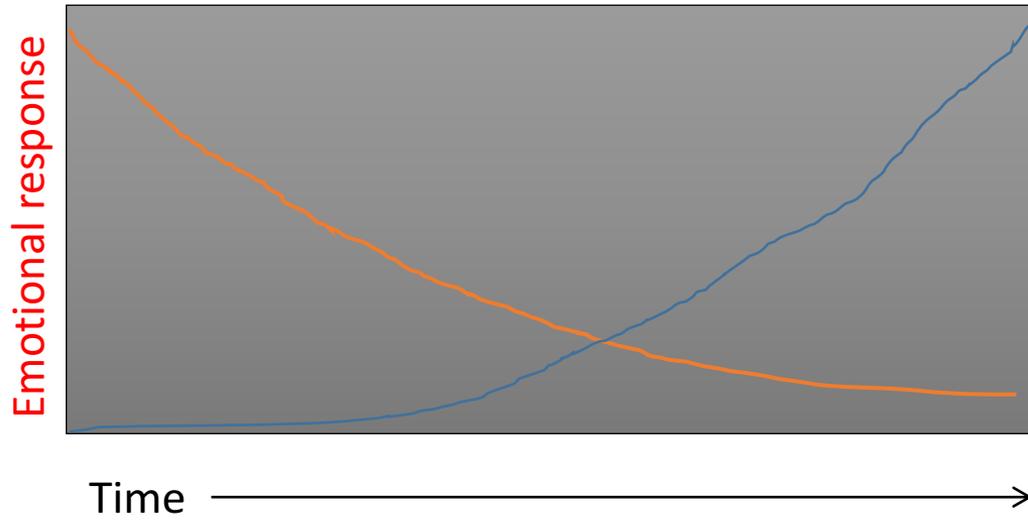
# Emotional Adaptation



**Adaptive function** – prevents long term states of arousal

**Could adaptation also work against us?**

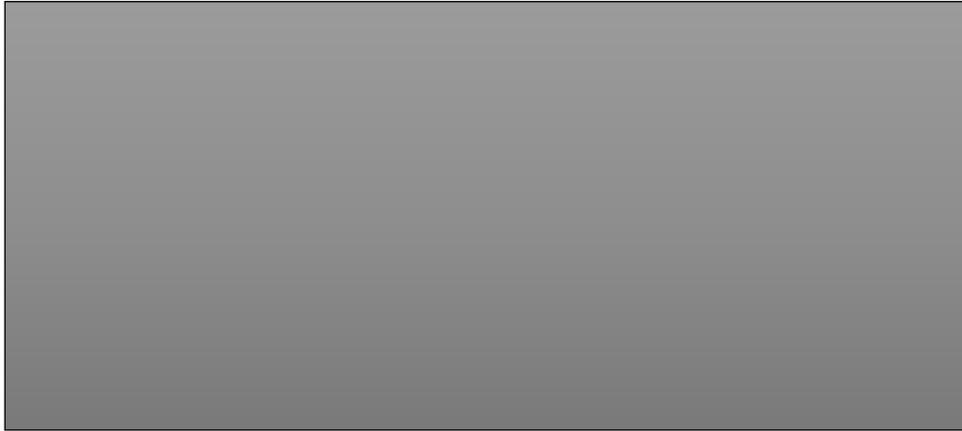
# A slippery slope?





# Study Aims

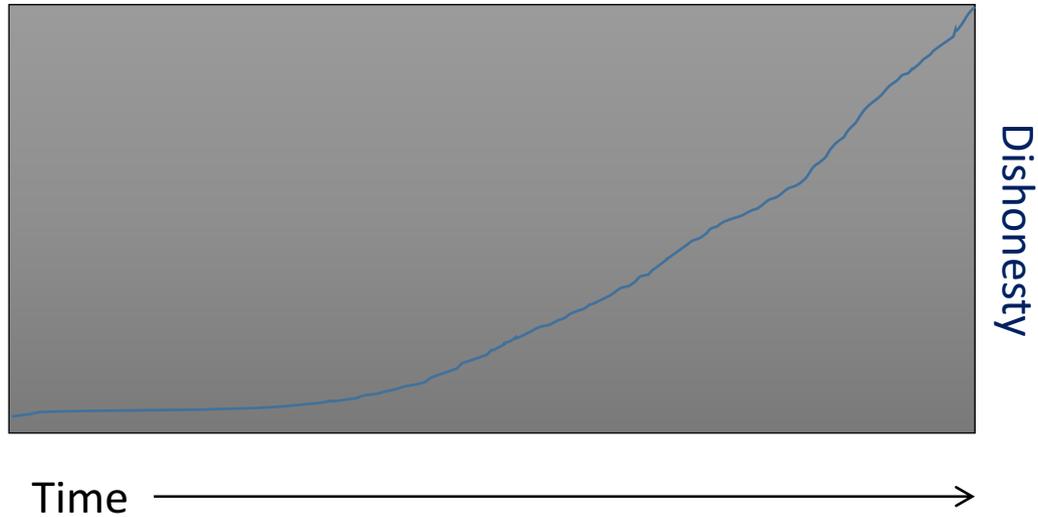
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Time 

# Study Aims

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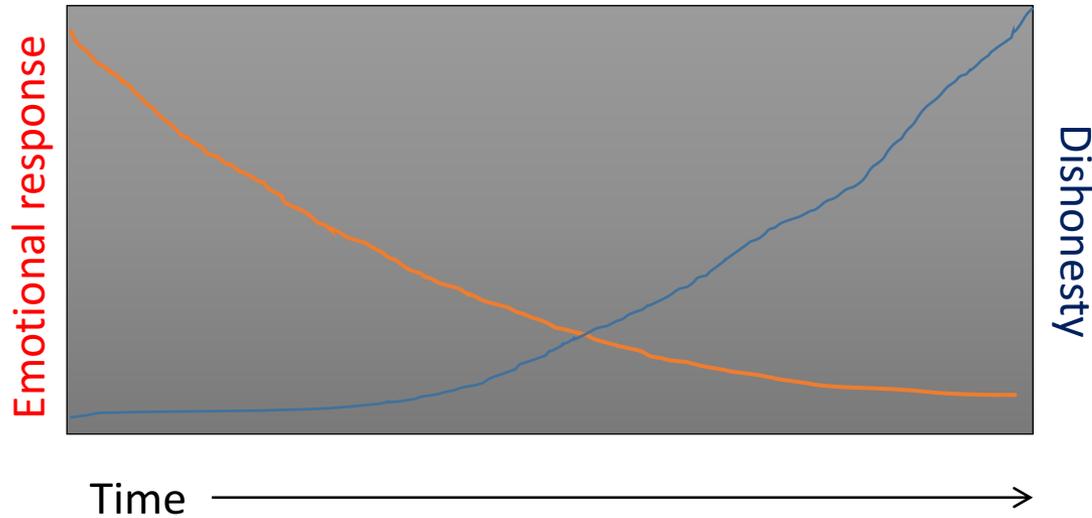
1. Empirical evidence for dishonesty escalation?

# Causes of dishonesty

SOCIAL NORMS

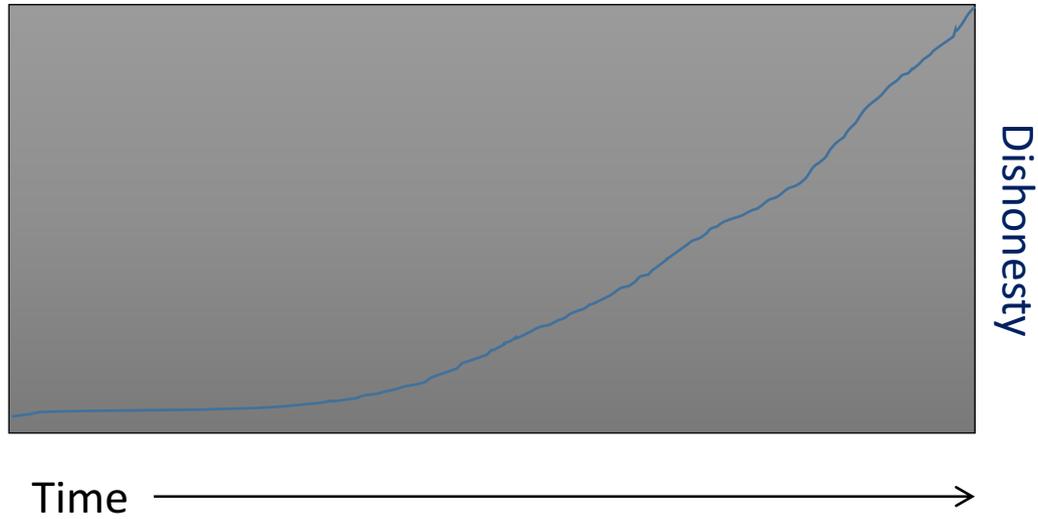


# Study Aims



1. Empirical evidence for dishonesty escalation?
2. Empirical evidence for emotional adaptation?

# Study Aims



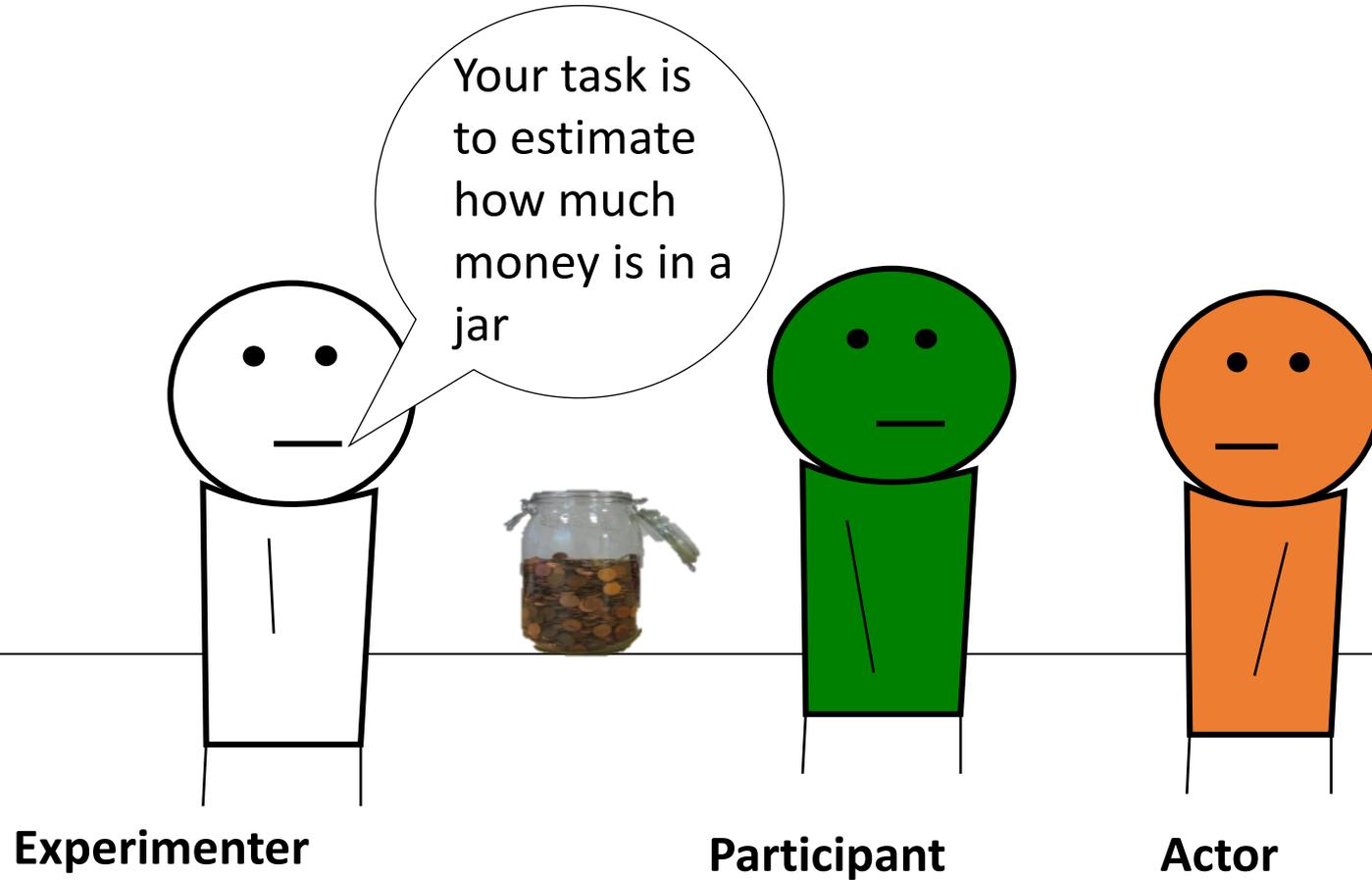
1. Empirical evidence for dishonesty escalation?

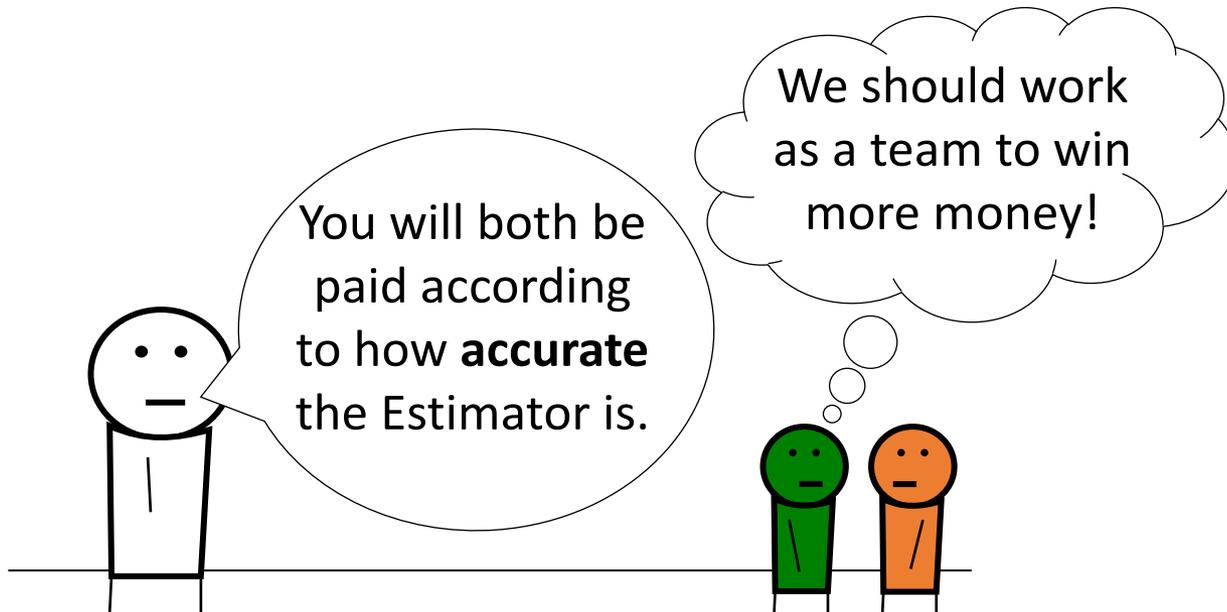
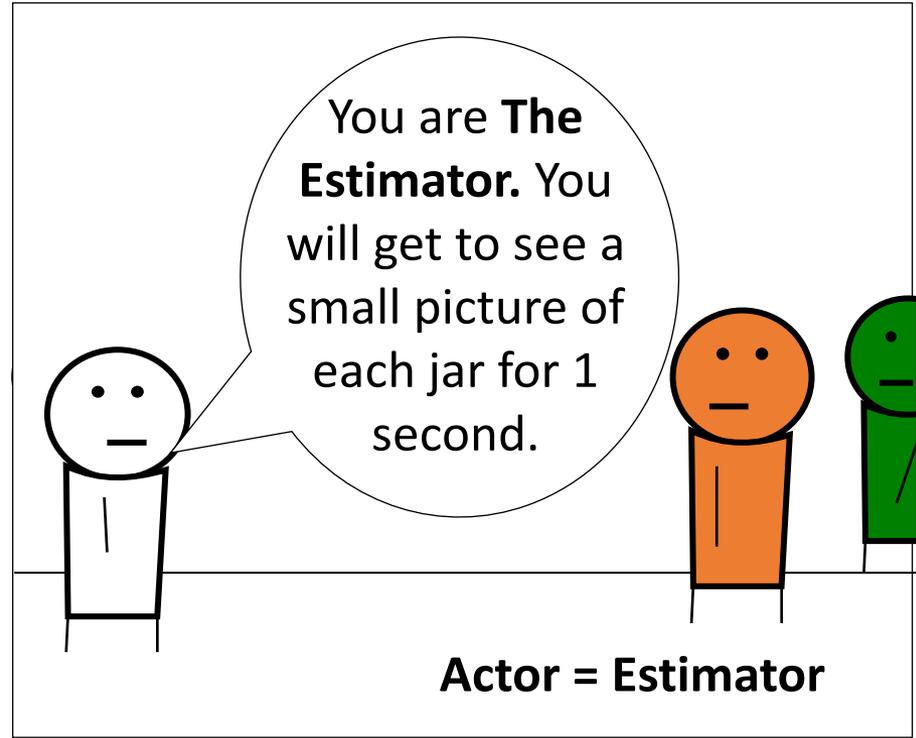
# Financial Task

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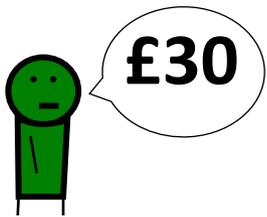


# Task Design





# Task Design

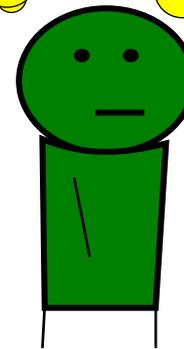
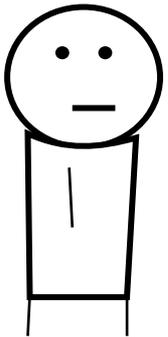


# Task Design

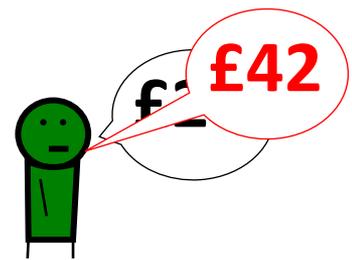
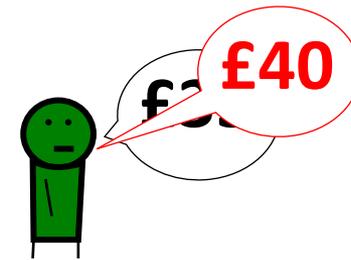
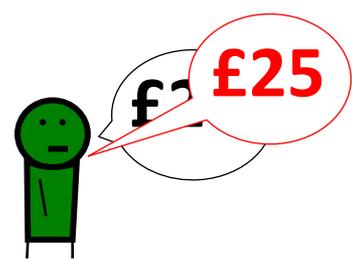
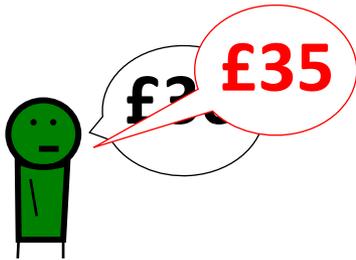
The Advisor will get rewarded according to how *high* The Estimator's estimate is. The Estimator will get rewarded according to how *accurate* his estimate is.

If I **lie** I will earn more money but not the Estimator...

...but if I give **honest** advice this will mean more money for The Estimator.



# Task Design



# Quantifying Dishonesty (example)

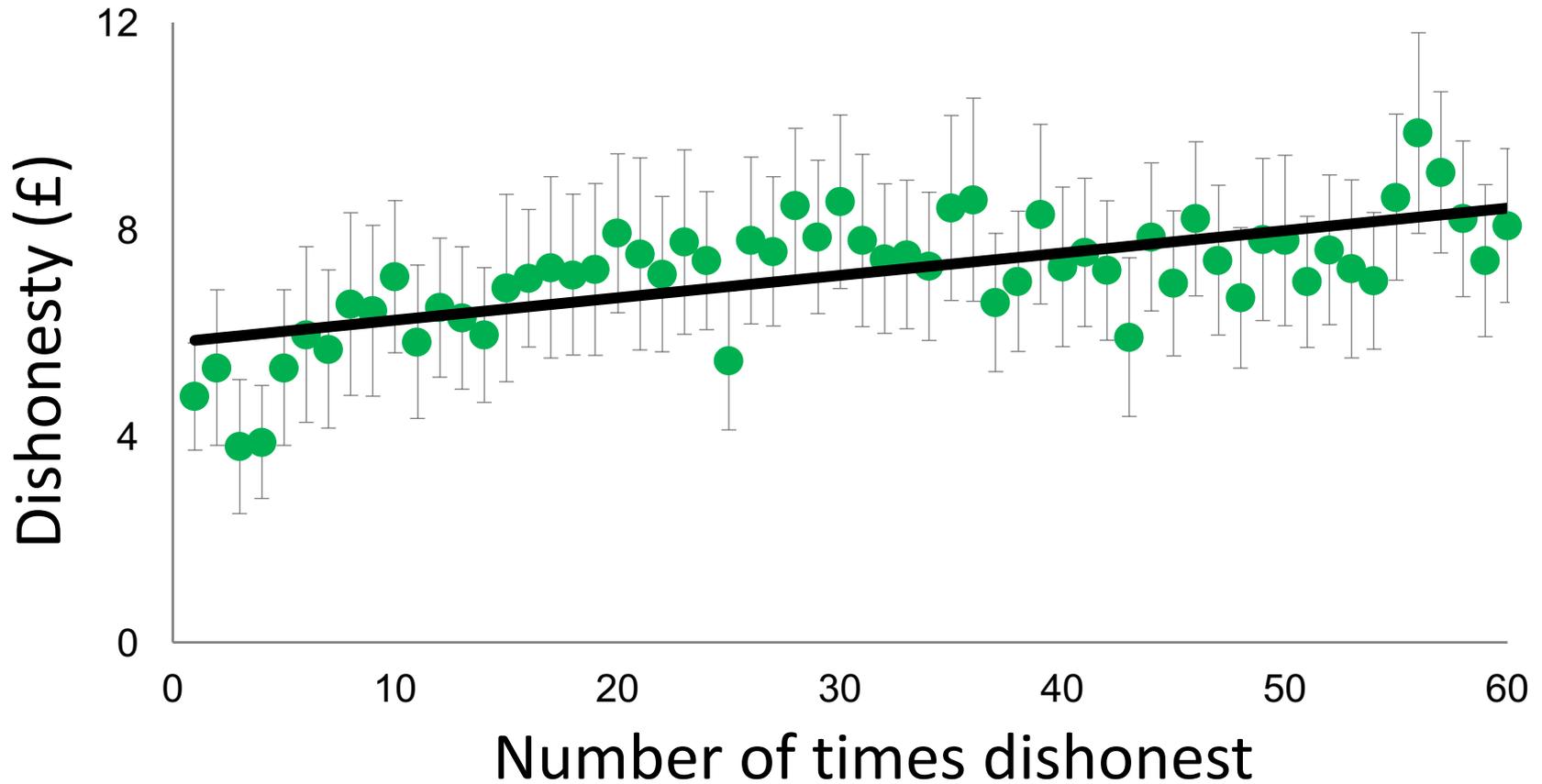
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~~£20~~ £25

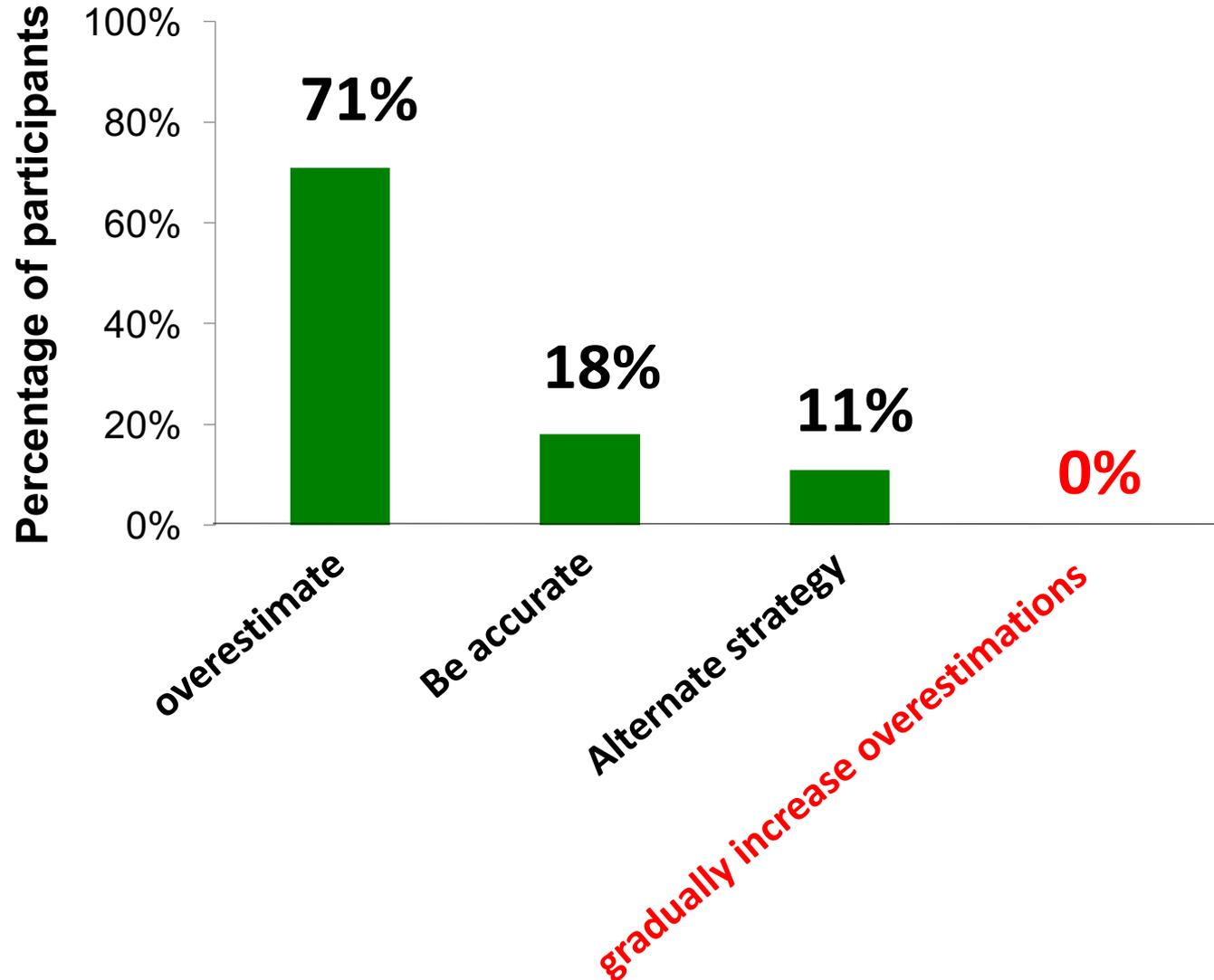
Dishonesty = £5

# Dishonesty Escalation



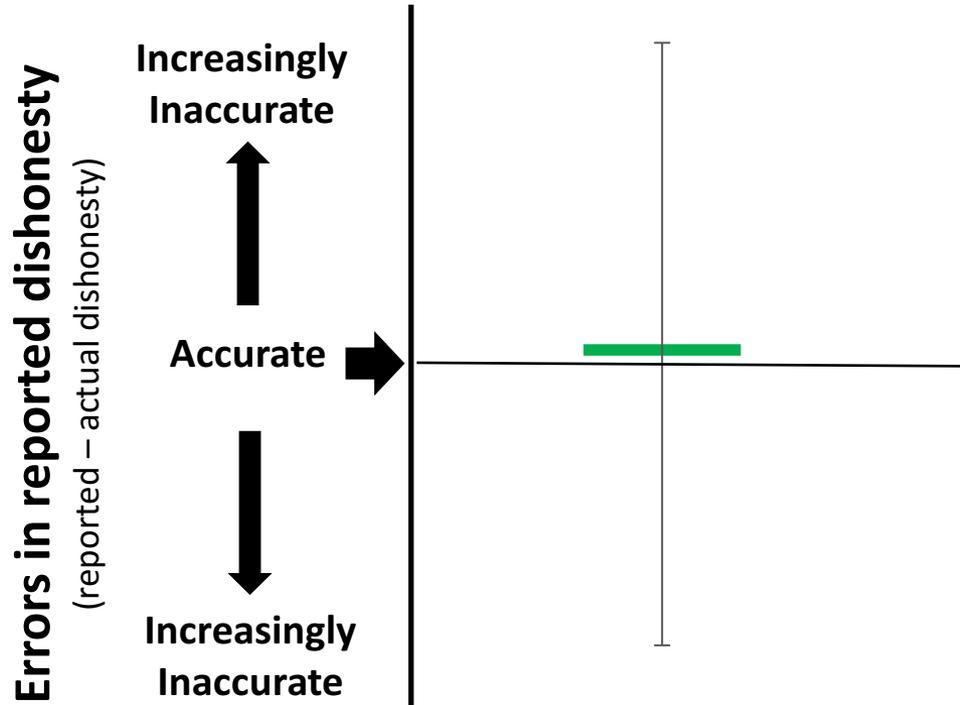
# A Deliberate Strategy?

What was the strategy you used?



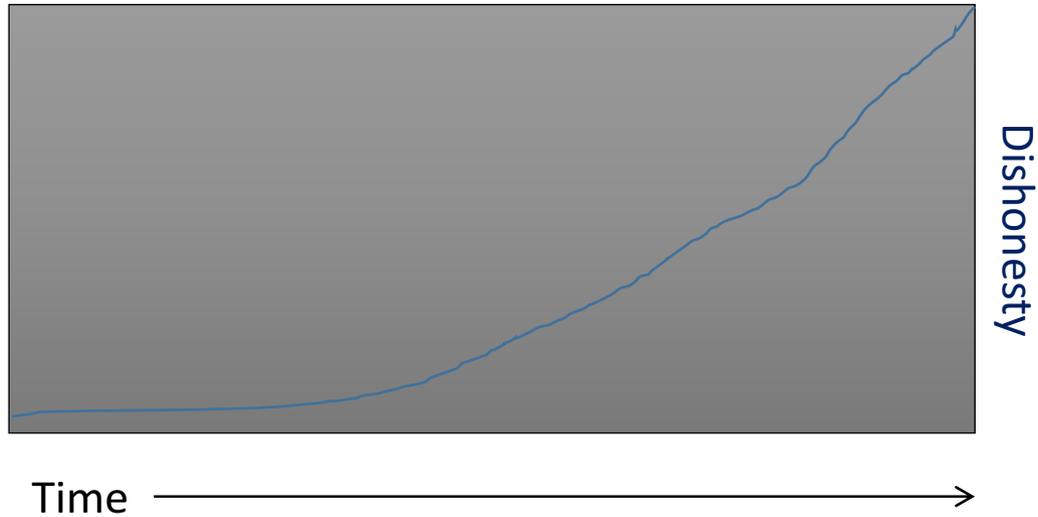
# Are we **aware** of our own dishonesty?

How dishonest were you in the last trial?



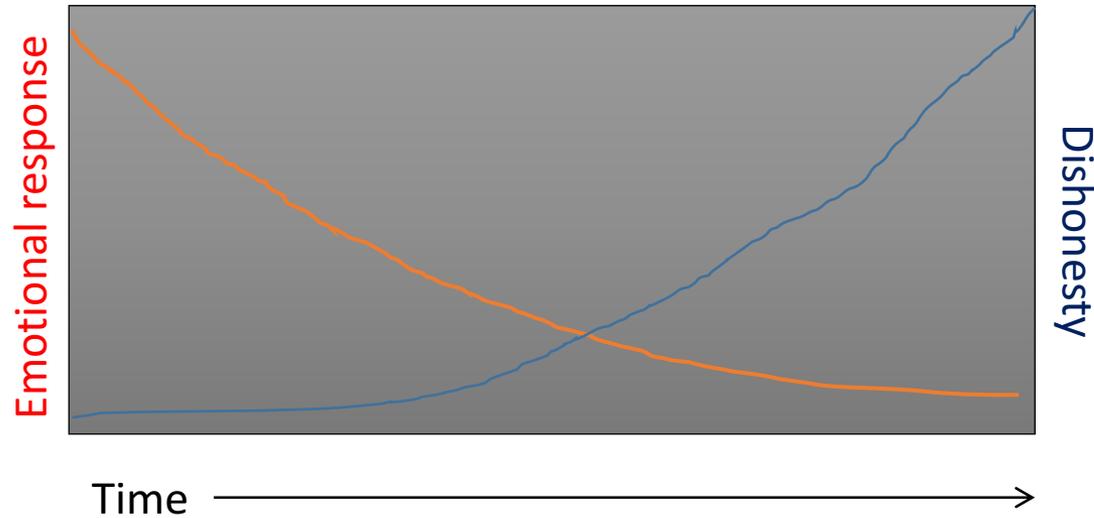
# Study Aims

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1. Empirical evidence for dishonesty escalation?

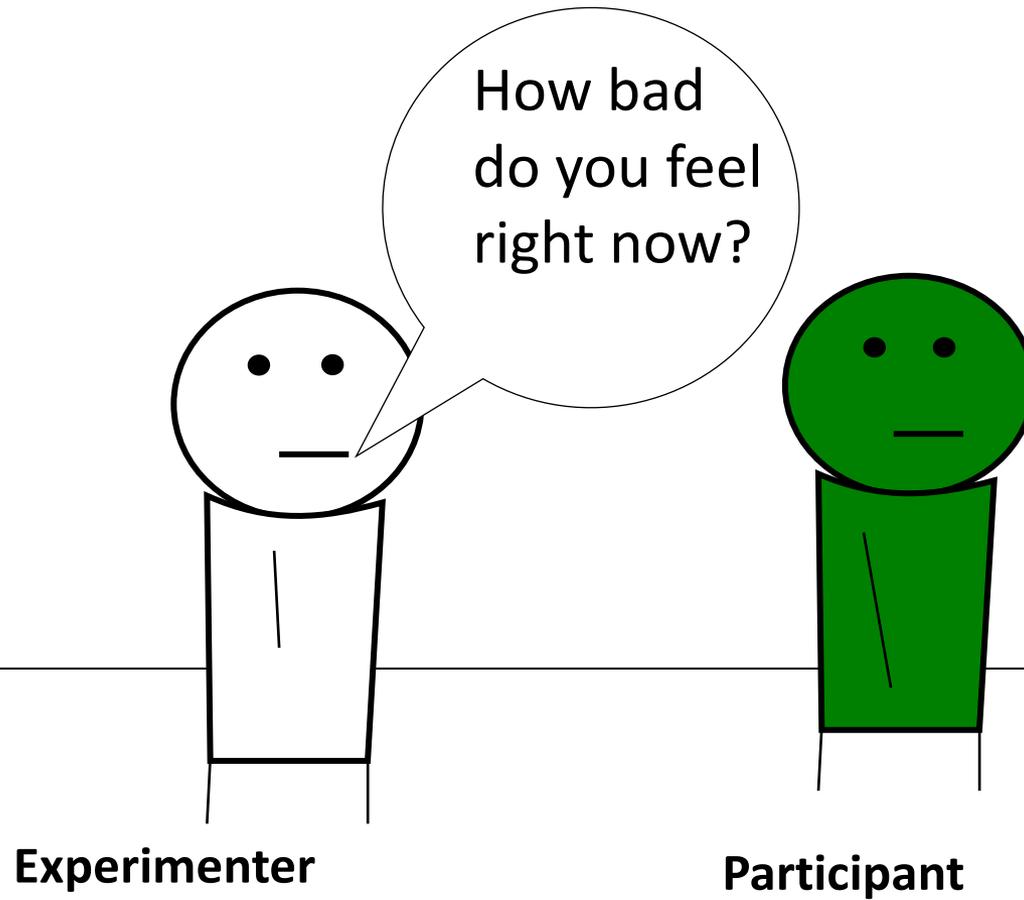
# Study Aims



1. Empirical evidence for dishonesty escalation?
2. Empirical evidence for emotional adaptation?

# Accessing Emotion

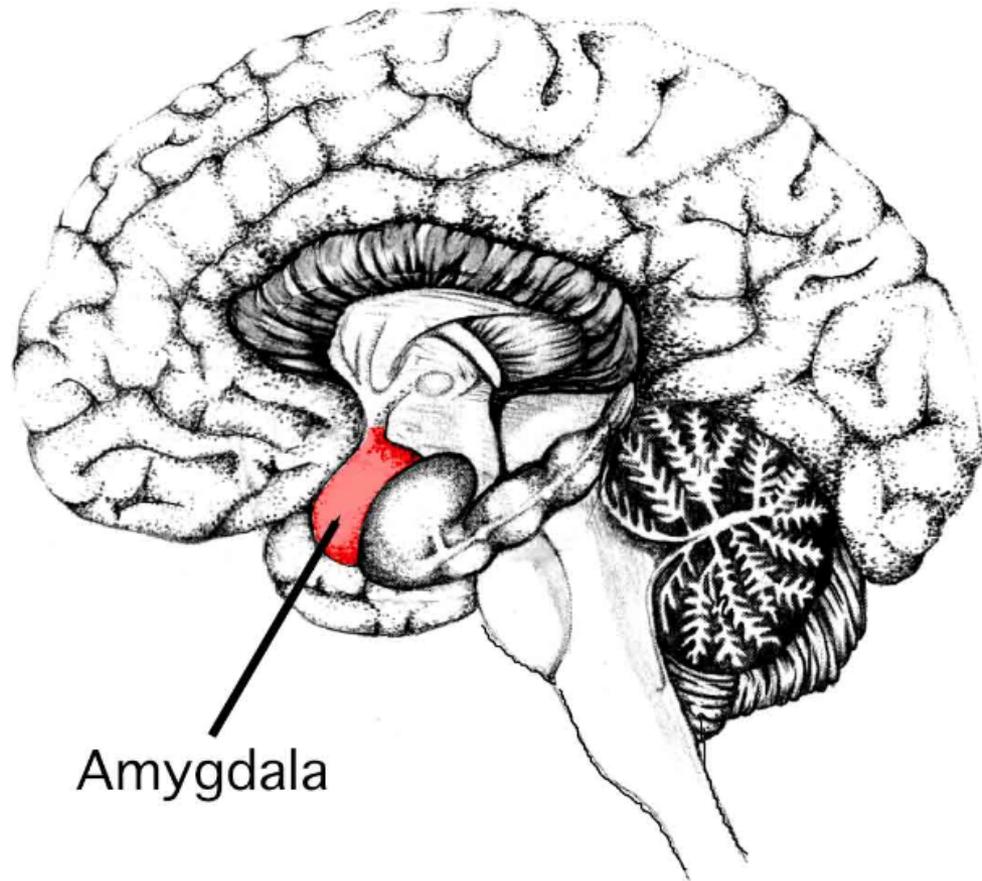
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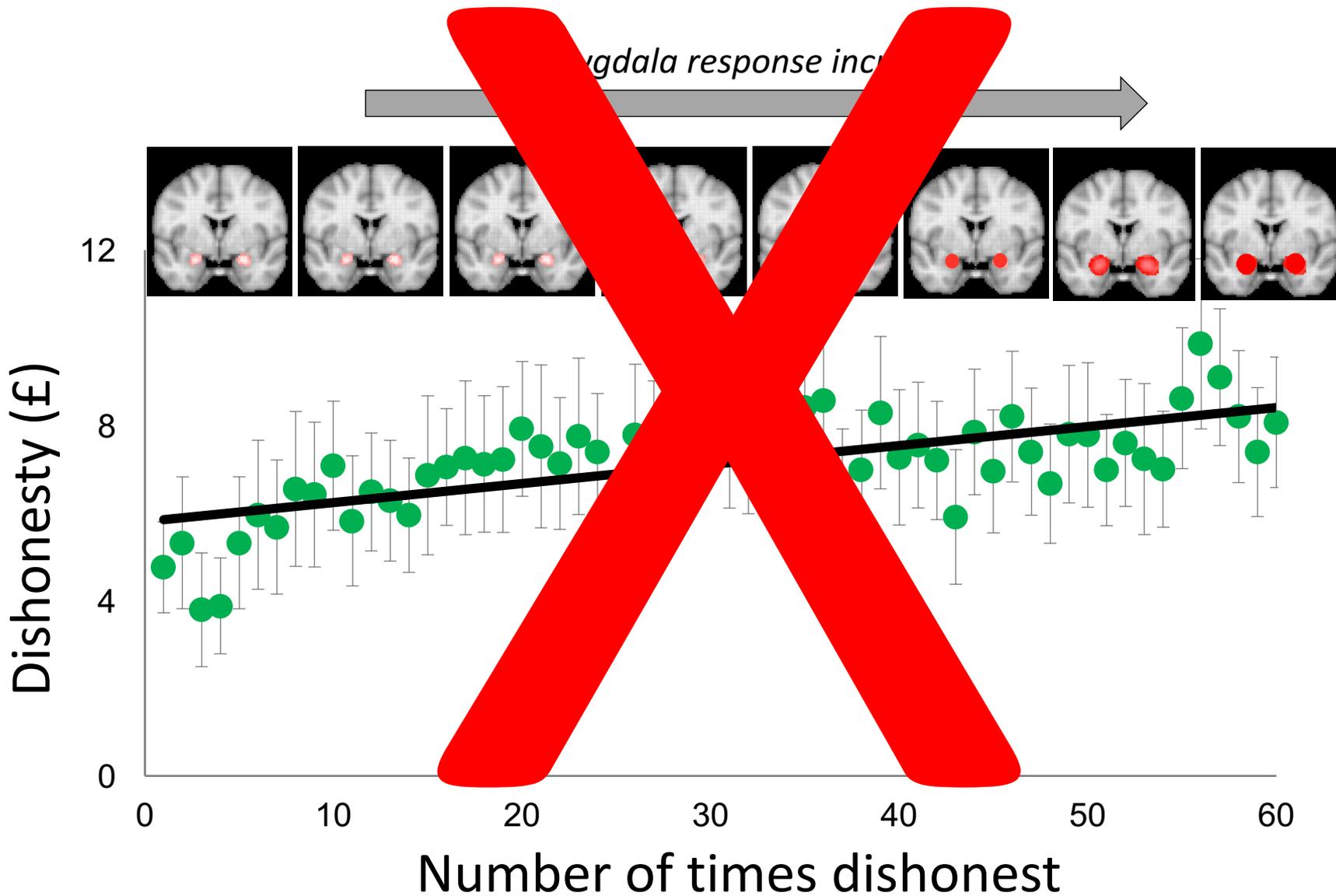
# Accessing emotion - fMRI



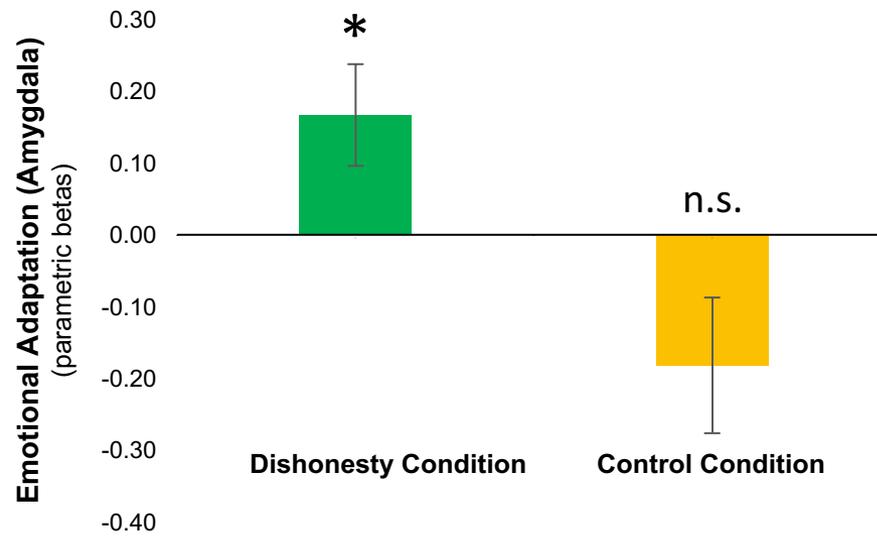
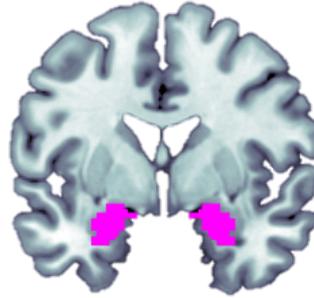
# The Amygdala



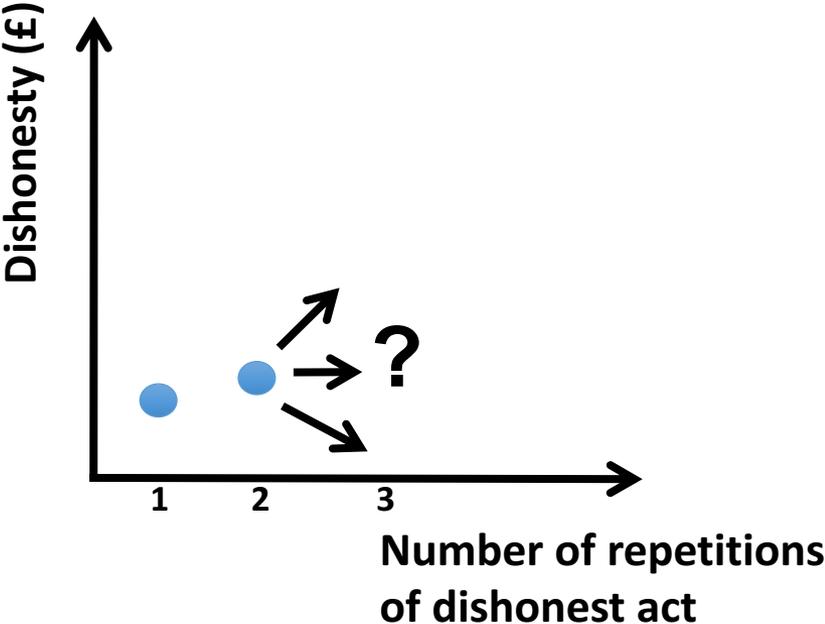
# Neural Adaptation



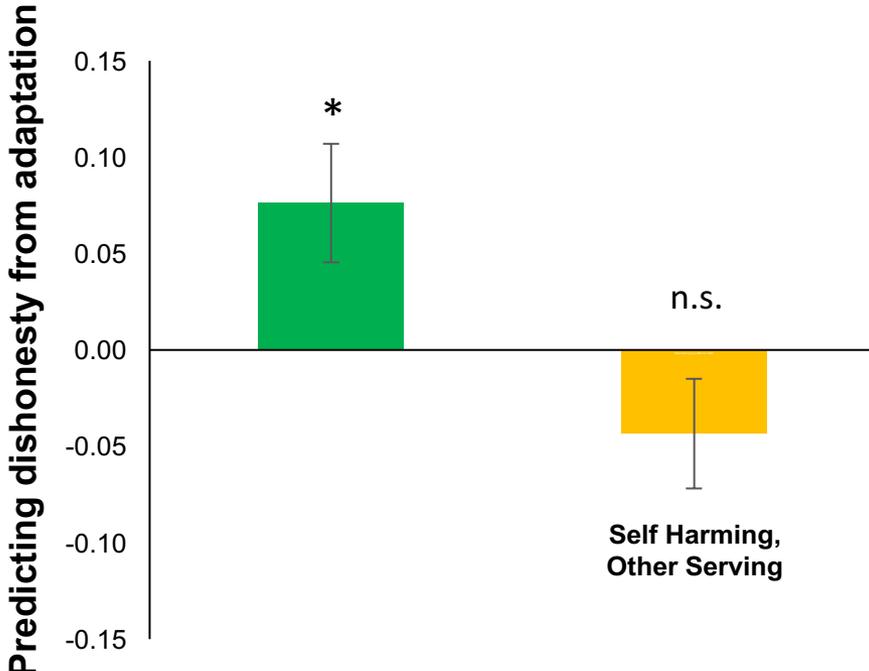
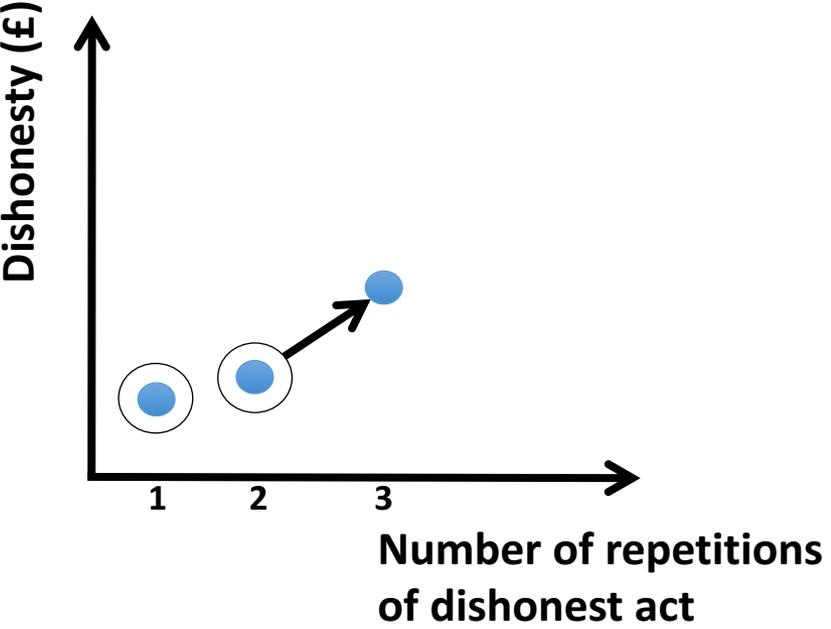
# Emotional Adaptation



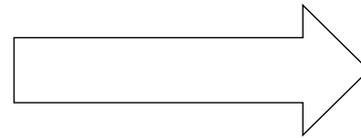
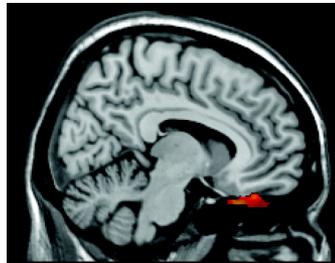
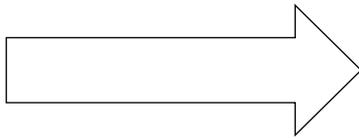
# Emotional Adaptation and Dishonesty Escalation



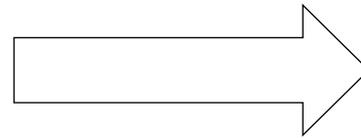
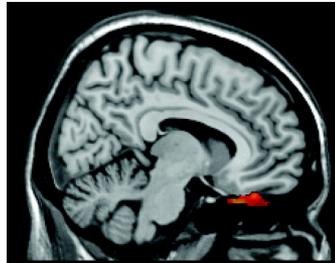
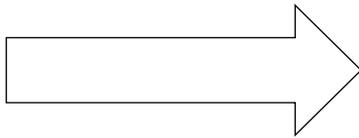
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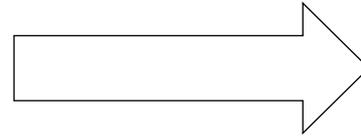
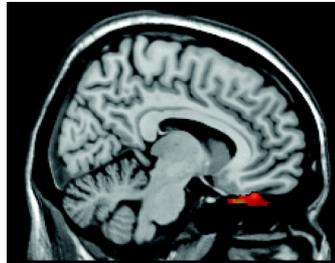
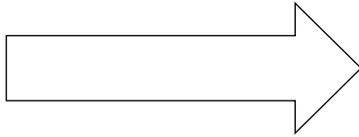
# Sensory Adaptation



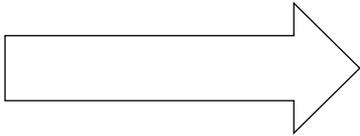
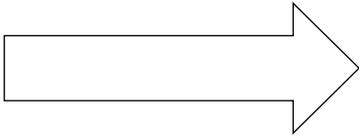
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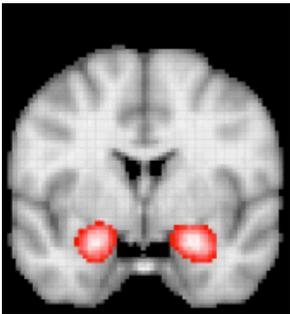
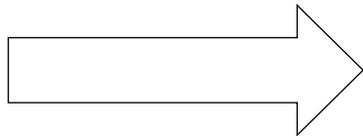
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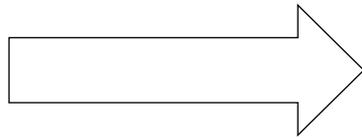
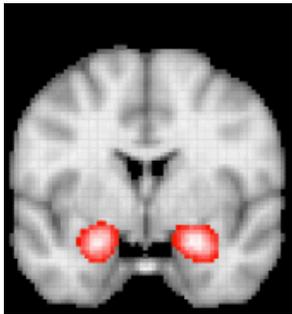
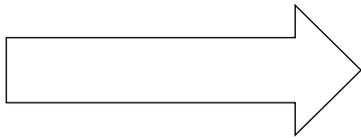
# Emotional Adaptation



# Emotional Adaptation



# Emotional Adaptation

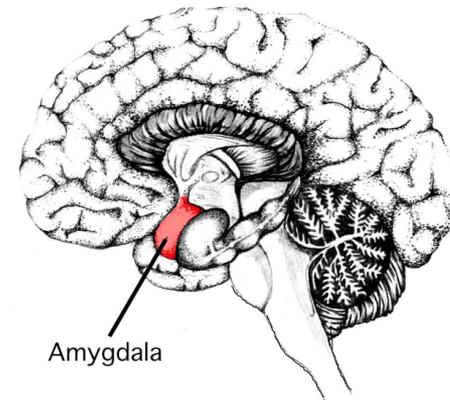


# Curbing Dishonesty

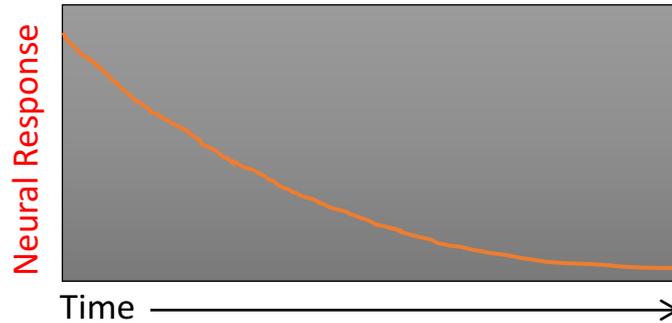
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Emotional responses act to restrain dishonesty...

...find ways to reinstate these



# A general mechanism?



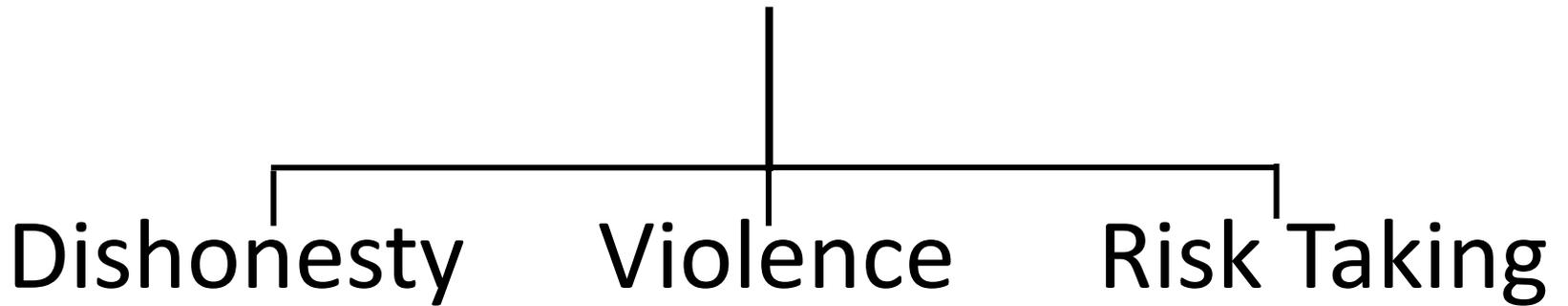
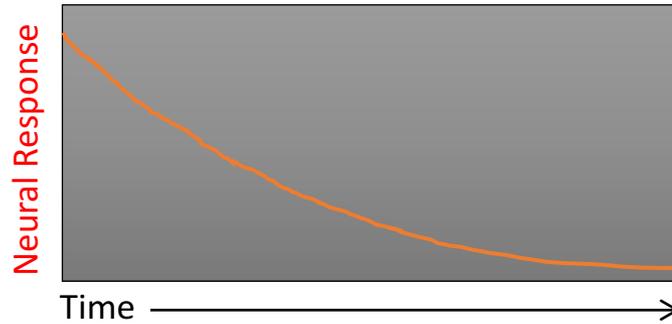
## Dishonesty

Who are we being dishonest to?

What “type” of dishonesty is it?

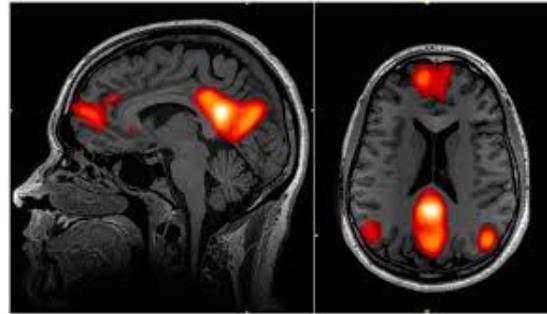
Environment?

# A general mechanism?

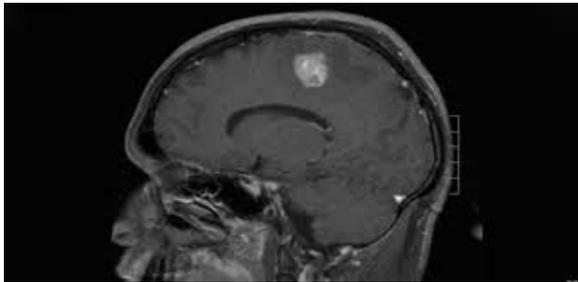


# Implications for jurisprudence

- Use of lie detection (polygraphs, fmri) in court



- Adaptation a mitigating factor?



- A shift to preventing smaller acts of dishonesty?



# Thanks!



**Tali Sharot**



**Dan Ariely**



**Stephanie Lazzaro**

END