

# WHAT YOU DON'T KNOW WILL CHANGE

**YOU:** *implicit learning and  
social cognition*



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# Social influence affects one's own behaviors and opinions.

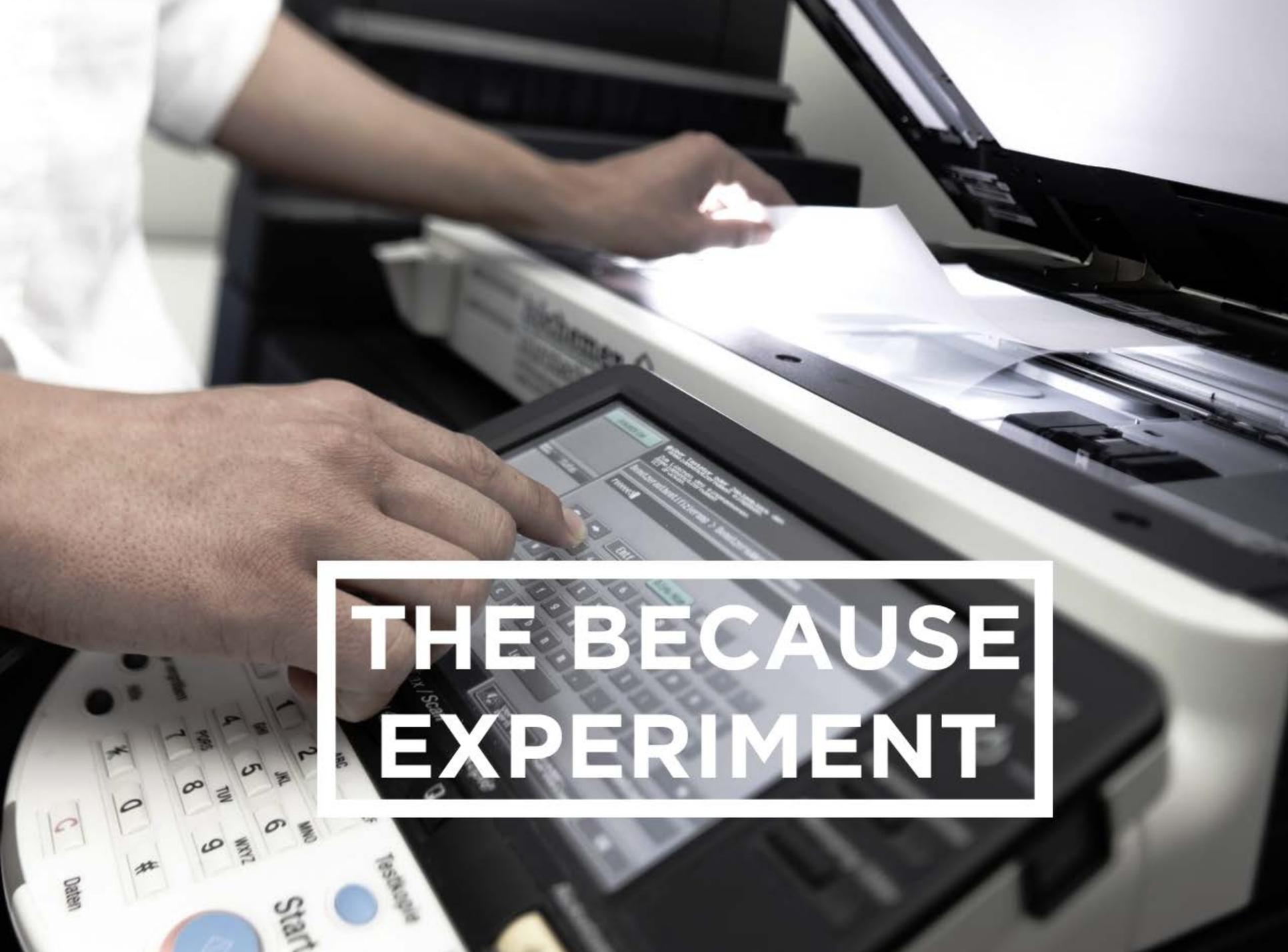
- Herbert Kelman categorizations:
- Compliance: agree with others even with private disagreements, social pressure.
- Identification: influenced with someone we like or respect, e.g. celebrity ads.
- Internalization: tendency to accept belief that can be agreed upon publicly and privately, i.e. accept because it is congruent with own value.

# Road map.

- What is social influence and how is it implicit?
- What social factors affect our judgments, actions, and opinions?
- What are neural mechanisms for these influences?

**Implicit influence:** reasons for requests don't have to be substantiated to have effect.

- Ellen Langer et al.: “The mindlessness of ostensibly thoughtful action: the role of placebo information in interpersonal interaction.”
- How we are influenced by mindless behavior, i.e. script-following; cutting in line works?
- Group 1 (request only): “Excuse me I have 5 pages, may I use the Xerox machine?”
- Group 2 (real info): “Excuse me I have 5 pages, may I use Xerox **because I'm in a rush?**”
- Group 3 (placebo): “Excuse me I have 5 pages, may I use Xerox **because I have to make copies?**”

A close-up photograph of a person's hands operating a multifunction printer. The person is wearing a white shirt. One hand is on the control panel, which features a small screen and several buttons. The other hand is near the paper tray. The printer is white and black. A white rectangular box with a black border is overlaid on the center of the image, containing the text "THE BECAUSE EXPERIMENT" in bold, white, uppercase letters.

**THE BECAUSE  
EXPERIMENT**

# Mindfulness (large request) correlated with ineffectiveness of placebo info.

- When request is small (5 pages as opposed to 20 pages), subjects complied 94% even when bogus reason was given (Group 3).
- Request only: 60%; large request: same 24%.
- Go into fixed action pattern mode on hearing “because,” just like “expensive is good” and “coupons are discounts.”
- Chance for compliance of requests can be increased by providing any irrelevant reason.

# Reciprocity forces individuals to perform favors they don't normally do.

- Dennis Regan: “Effects of a favor and liking on compliance.”
- Stanford students \$1.75 for participating on experiment on art appreciation.
- Confederate Joe left, returned with nothing or with Coke to give to subject, or subject can receive Coke from someone else (irrelevant favor).
- Joe selling raffle tix for 25c, if he sells the most he gets \$50, winner gets Corvette, ask subject to write number of tix she wants on paper.
- Asked to rate other subject (Joe) in likeability.

**You could WIN \$5,000**

When you **nominate** an aspiring youth  
for an apprenticeship experience.



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**TABLE 1**  
**MEAN NUMBER OF TICKETS BOUGHT FROM CONFEDERATE**

Liking condition	Favor	Favor condition Irrelevant favor	No favor
Pleasant confederate	1.91 ( <i>N</i> = 11)	1.50 ( <i>N</i> = 10)	1.00 ( <i>N</i> = 16)
Unpleasant confederate	1.60 ( <i>N</i> = 15)	0.80 ( <i>N</i> = 15)	0.80 ( <i>N</i> = 10)

**TABLE 3**  
**MEAN LIKING FOR THE CONFEDERATE ON THE SELF-REPORT INVENTORY**

Liking condition	Favor	Favor condition Irrelevant favor	No favor
Pleasant confederate	69.09 ( <i>N</i> = 11)	49.90 ( <i>N</i> = 10)	55.81 ( <i>N</i> = 16)
Unpleasant confederate	60.80 ( <i>N</i> = 15)	49.00 ( <i>N</i> = 15)	44.30 ( <i>N</i> = 10)

# A cognitive dissonance explanation of liking and reciprocity.

- Liking alone does not affect compliance, but reciprocity can explain compliance behavior.
- **Favor cond:** subject justified for compliance as reciprocity norm, no dissonance.
- **Control cond:** parted with money to someone for no reason, must attribute to likeability.
- Conclusion: liking affects compliance only when strong normative pressures are absent.

# Under what conditions would bystanders stop a theft from happening?



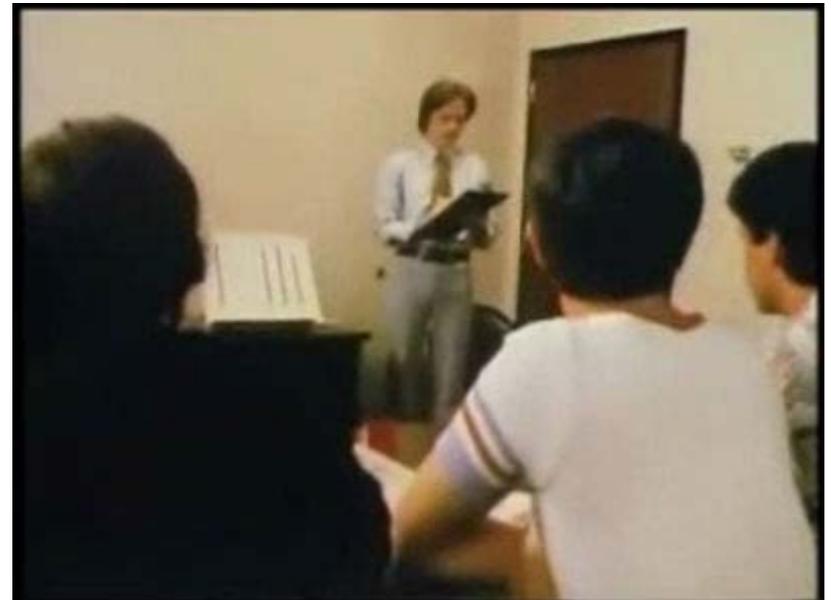
# Commitment leads us to take definitive action in face of uncertainty.

- Thomas Moriarty: “Crime, commitment and the responsive bystander.”
- Confederate leaves radio on blanket on a crowded NY beach, another confederate steals it.
- Group 1: no contact: only 4/20 stopped theft.
- Group 2: Asked a nearby person to watch belongings with minimal social contact: 19/20 stopped the theft.
- Even if person was screaming obnoxious loud dirty, if she asked subject to look after ipod with radio, theft will be stopped: not likeability.

# Consistency to prior commitments influences subsequent social influence.

- Deutsch & Gerard: “A study of normative and informational social influences under individual judgment.” Line judgments a la Asch.
- First estimate lines length in their own mind.
- Group 1: 3 person group, subject announced judgment publicly, face-to-face write on paper and signed.
- Group 2: subject gave judgment in anonymous cubicle believing there are 3 other subjects, self commitment put on magic erasible writing pad.
- Group 3: 3 subjects in isolated group believing they are in competition with other groups, never write down just kept estimates in mind privately.

# Which line most closely matches the length of the standard?

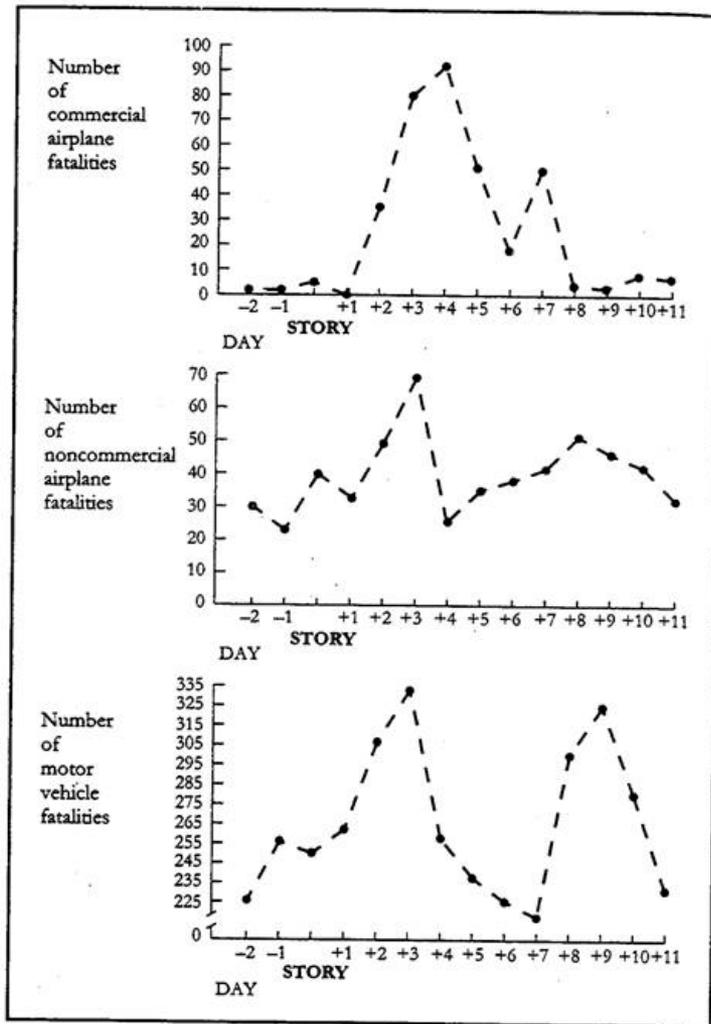


# Public commitment leads to least conformity in subsequent erroneous persuasion.

- Then given new info that init estimates were incorrect, will conform to incorrect answer indiv or in group?
- Informational social influence: need to be right or social proof, when uncertain tend to accept info from others as reality (indiv judgment).
- Normative social influence: need to be liked, conform to positive expectations of others (group).
- Group 1 public commitment, group 2 private commitment, group 3 no commitment.
- Most conformity in group 3, least in group 1.
- When in a group, most susceptible to normative social influence, causing errors.
- Even without normative influence (group 2), more errors due to pure informational influence.

# Social proof can affect even life and death situations.

- David Phillips: Werther effect – front page suicide story correlated with dramatic suicide spikes in areas where highly publicized.
- After every front page suicide story, avg of 58 more suicides in two months: copycat suicide.
- Newspaper stories on single person suicides correlated with suicide rates, stories of murder correlated with spikes of multi fatality.
- Secret application to spare family concern.



# Social proof can affect even life and death situations.

- **Prediction:** if crashes are imitative of major suicide stories then they should be more deadly, arrange to be as lethal as possible.
- Number of people killed 3x if one week after front page suicide, auto crashes more deadly.
- **Prediction:** imitation most complete to those similar to ourselves.
- Stories of young person: more young driver deadly crashes, older suicide: older crashes.
- Televised boxing match losses correlated with homicide rate in a race-specific manner.

# Scarcity affects judgments of desirability and attractiveness.

- Worchel et al.: “Effects of supply and demand on ratings of object value.”
- Chocolate cookies in jar judged for quality.
- Cookies in jars of two rated higher than in jars of 10, more desirable to eat, more attractive product.
- If shown initially 10 then replaced by jar of 2, even more positive reaction.
- If replacement due to given away to other participants to fulfill demand as opposed to mistaken initial jar, cookies rated even higher.
- Constant abundance higher than scarce -> abundant.



Scarcity (jar on table contains 10 cookies; the second experimenter's jar only contains 2).			Abundance (jar on table contains 2 cookies; second experimenter's jar contains 10).		
Demand	Accidental	No Change	Demand	Accidental	No change
2 <sup>nd</sup> experimenter's pp eaten more cookies than expected so needed to swap jars.	2 <sup>nd</sup> experimenter explains that he had accidental taken the first experimenters cookies so needed to swap.	2 <sup>nd</sup> experimenter didn't have a jar of cookies with him, just wanted to check the 1 <sup>st</sup> experimenter's supply.	2 <sup>nd</sup> experimenter's pp eaten fewer cookies than expected so needed to swap jars.	2 <sup>nd</sup> experimenter explains that he had accidental taken the first experimenters cookies so needed to swap.	2 <sup>nd</sup> experimenter didn't have a jar of cookies with him, just wanted to check the 1 <sup>st</sup> experimenter's supply.

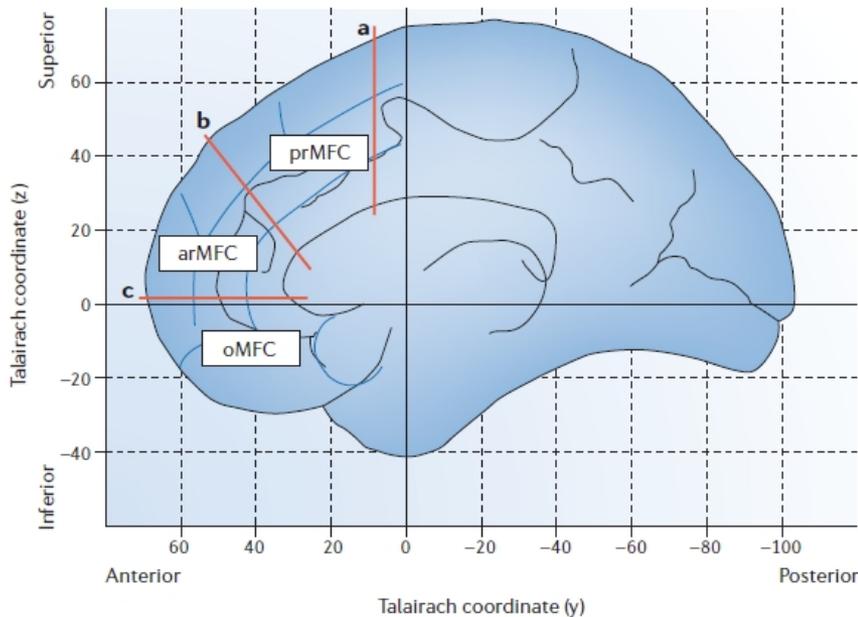
Lower rating indicates more desirable product.

### MEANS FOR LIKING, ATTRACTION, AND COST DATA IN EXPERIMENT 1

Participation level and question	Reason for change in supply		
	Demand	Accident	No change
Scarcity			
High participation	(11)	(12)	(11)
Liking <sup>a</sup>	2.25	3.27	4.08
Attraction <sup>b</sup>	2.33	3.00	4.00
Cost <sup>c</sup>	71.5	60.9	45.8
Low participation	(11)	(12)	(10)
Liking	3.00	3.75	4.40
Attraction	3.18	3.75	4.40
Cost	60.3	52.4	56.2
Abundance			
High participation	(12)	(10)	(12)
Liking	7.17	6.30	5.64
Attraction	6.58	6.40	5.64
Cost	37.5	45.9	46.2
Low participation	(11)	(11)	(11)
Liking	6.82	6.64	5.46
Attraction	6.64	6.27	5.73
Cost	37.5	46.4	45.8

# Neuroscience of social influence and cognition relies on functional imaging.

- Posterior Medial Frontal Cortex (pMFC) represents discrepancy between self and others, conformity and consistency; cognitive.
- Anterior MFC (anterior cingulate) susceptibility to persuasion; emotional nature, mentalizing, self represent.
- Orbital MFC monitoring rewards and punishments, updating and monitoring.



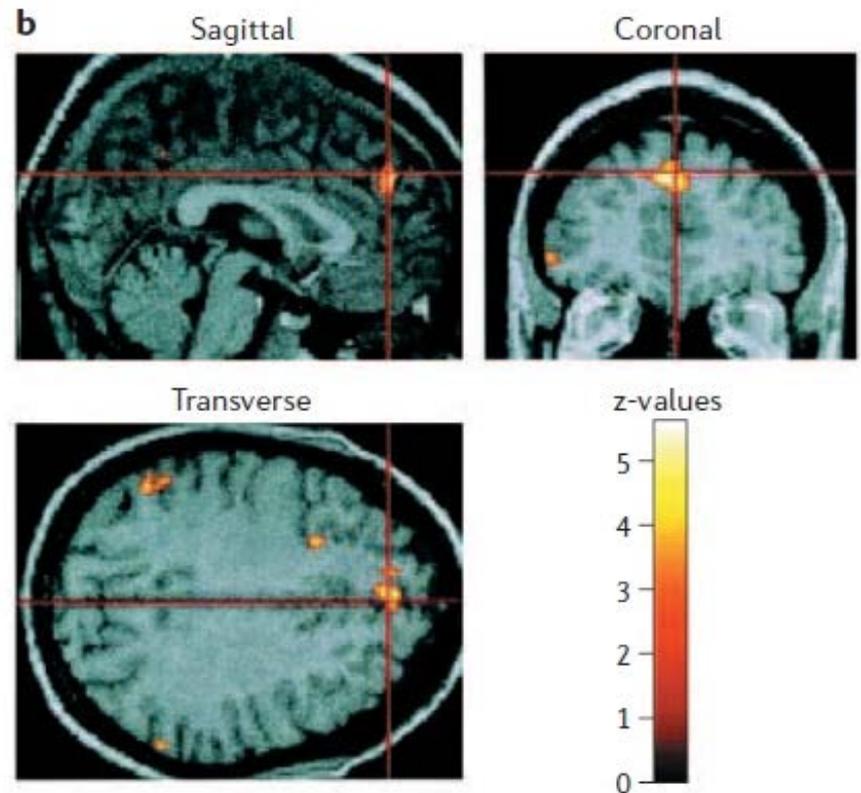
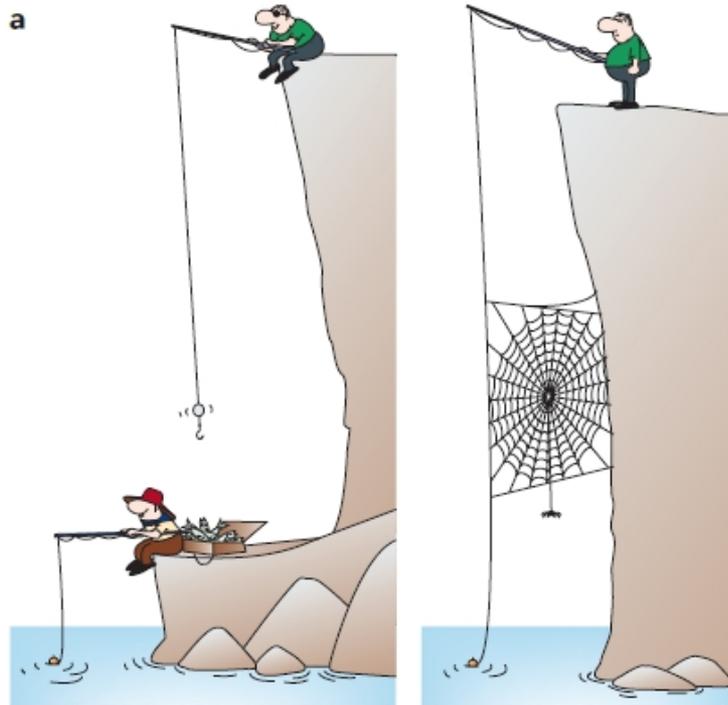
- prMFC (post rostral)  
cognitive task activation
- arMFC (ant rostral)  
emotional task activate
- oMFC (orbital)  
monitoring task  
outcome with reward or  
punishment

- prMFC: local ERP component during conflict between intention and behavior in distractor trials in categorization task (Gerhing et al.).
- OFC (orbitofrontal cortex) processing rewards and punishments, oMFC updates value of possible outcomes, monitoring externally guided actions, regret of decision (info given on unchosen gamble, Coricelli et al.)

# arMFC appears to represent self, perception of self, and mentalizing.

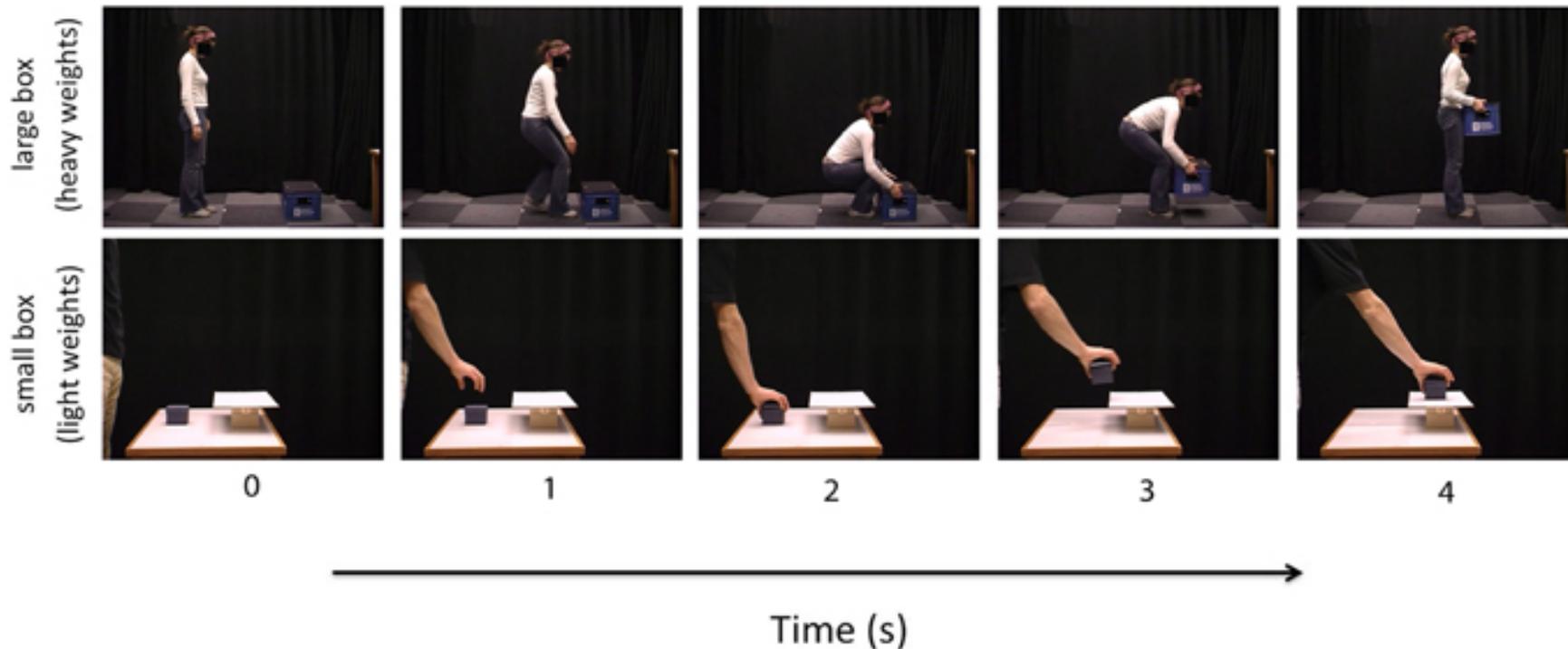
- Self knowledge: determining whether certain words apply to themselves led to activation, recognition of previously seen trait words – greater arMFC initial viewing -> greater memory of trait words (Macrae et al.)
- Person perception: thinking about attributes of self vs. friend, judgment of faces for similarity to self – more similar others led to greater arMFC activation (Mitchell et al.), unknown others sup.

# Mentalizing (required on left) shows activation of arMFC.



# Mentalizing requires a theory of mind about what others are thinking.

- Walter et al.: private intention – replace a light bulb to read, communicative intention – showing a map to request directions, only communicative intention activates paracingulate in MFC.
- Grezes et al.: 1. video of lifting box where someone was deceived as to its weight – prMFC active (private intent), 2. person in video tries to deceive observer by pretending box was heavier or lighter – if judged to be deceptive greater arMFC activation (communicative intent)



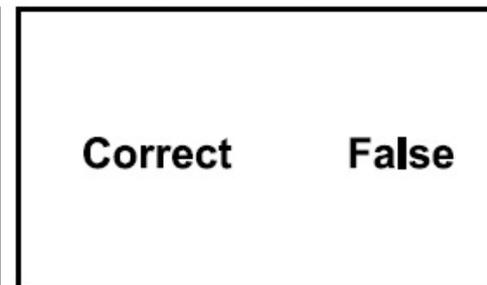
*J. Grèzes et al. / NeuroImage 21 (2004) 744–750*

**Observation phase**

**Response phase**



3.5 sec

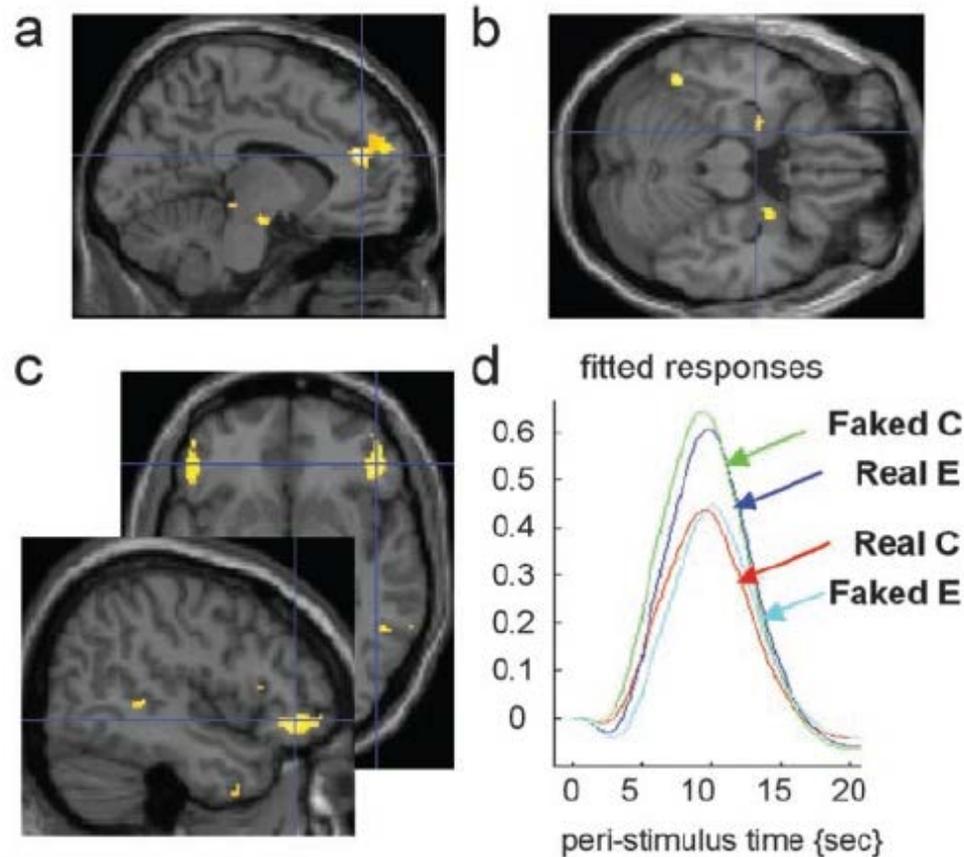


1.5 sec

# Grezes 2004 study on judging whether actions are deceptive.

- Not easy to detect deception, everyone has own bias, possible from nonverbal cues.
- Actors told weight of boxes but asked to pretend box had different weight.
- Make judgment on intent to deceive: sensitivity index is sensitive to deception.
- $FC + RI - (RC + FI)$  F fake C correct R real action, i.e. FC and RI are judged to be fake

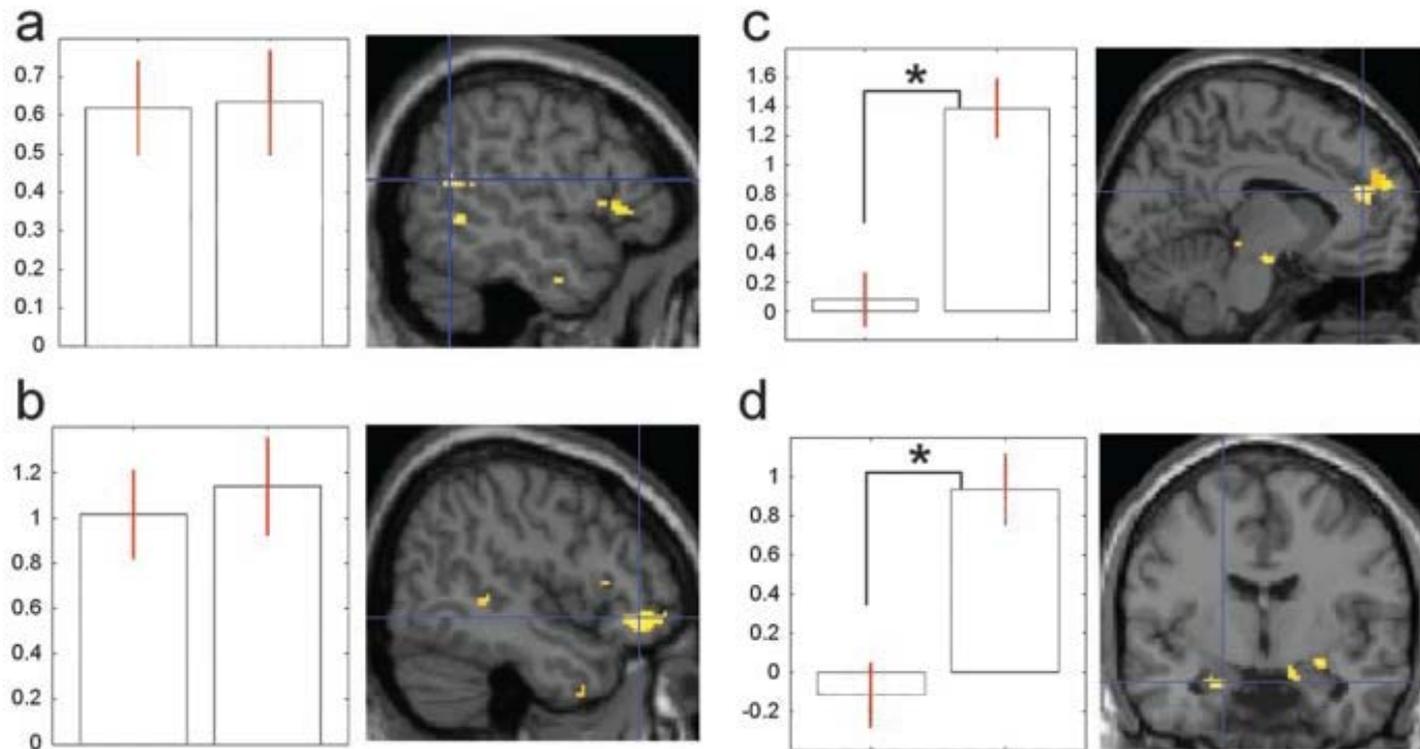
Activation in arMFC, amygdala, superior temporal sulcus when actions judged to have deceptive intention.



# Isolation of intent to deceive as oppose to having false belief.

- Activations specific to intention: comparison with study on whether video had correct or incorrect expectation of weight.
- Conjunction analysis to find common activation areas: superior temporal sulcus, lateral orbitofrontal cortex.
- arMFC (anterior cingulate) and left amygdala only activated for detecting deception and not for detecting false expectation

# Inferring false belief vs. inferring deceptive intent.



# Summary.

- We are influenced by social processes that can be implicit to us.
- Reciprocity, likeability, commitment, consistency, authority, and social proof can also affect behavior and opinions often unbeknownst to us.
- Neural mechanisms of social influence and mentalizing action has been hypothesized to take place in anterior rostral regions of MFC.

# RIKEN Brain Science Institute Josh Johansen laboratory (Neural Circuitry of Memory).



Ray		Mai		Akira		<b>Joshua</b>		Baozhen		Jake	
Luo	Mami	Iwasaki	Lindsay	Uematsu	Takaaki	<b>Johansen</b>	Edgar	Tan	Jenny	Ormond	Touqueer
	Kimura		Preston		Ozawa		Ycu		Koivumaa		Ahmed

**Not shown:** Ashwani Kumar      Hiroki Hamanaka      Yanqiu Tao      Anna Krejcirikova      Lifeng Yeh

# Questions?

