

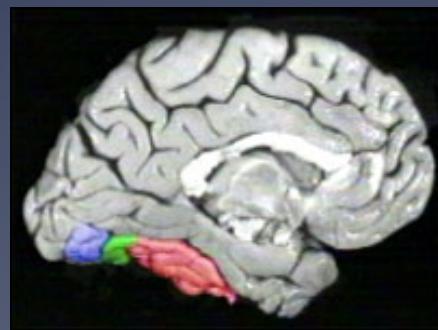
# Face perception & visual communication



Masterclass: 1b

## Face perception

- \* Faces very important to humans
  - \* Sex, age, race, identity, emotional state
- \* Specialized area for processing faces
  - \* Fusiform face area (FFA) in temporal lobe



Ability appears to be innate



Newborns prefer “face-like” stimuli  
hours after birth



Monkeys with no exposure to faces  
prefer faces when initially presented  
with face images at 12 months of age

## Computerized Testing



Lisa Parr

## Matching-to-Sample: Identity



+

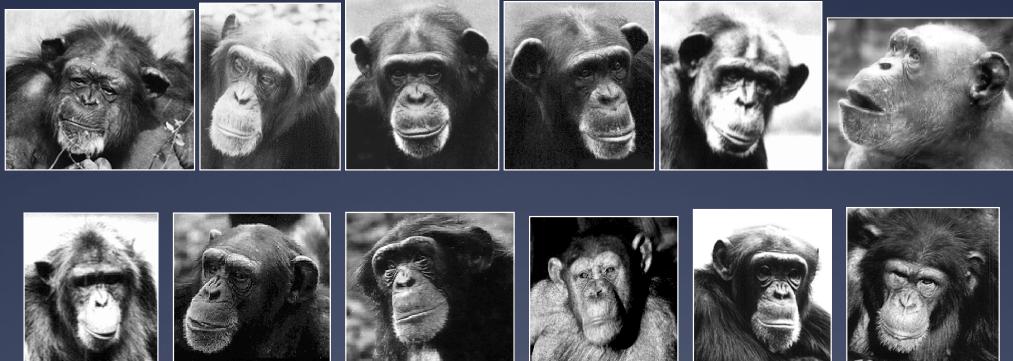


Mother

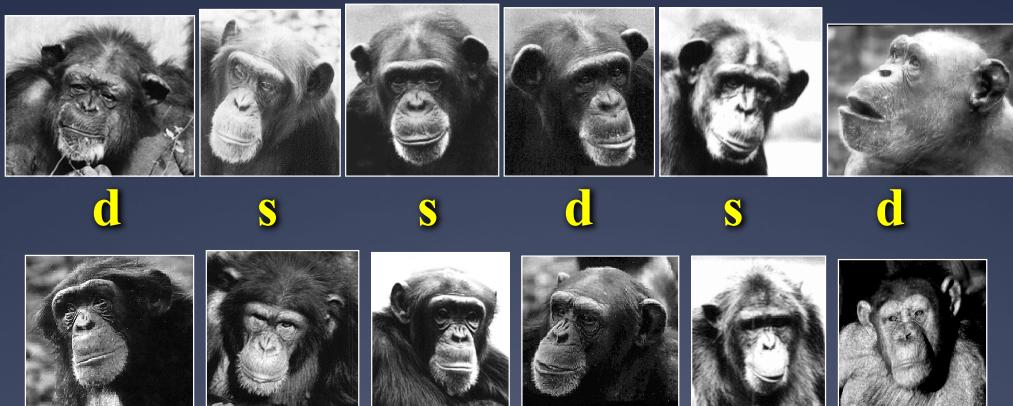


Mother & 11 Yr Daughter

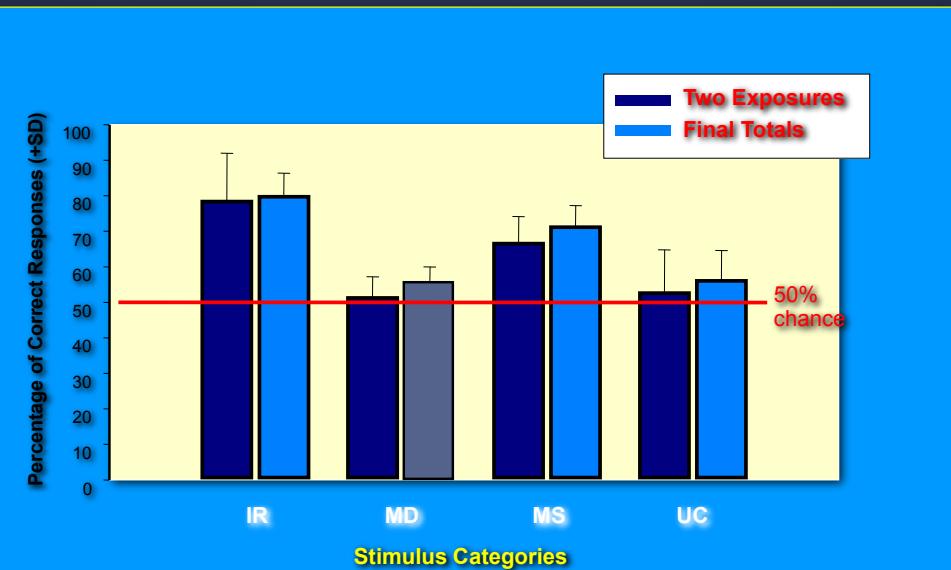
# Mothers (top) and Offspring



# Mothers (top) and Offspring



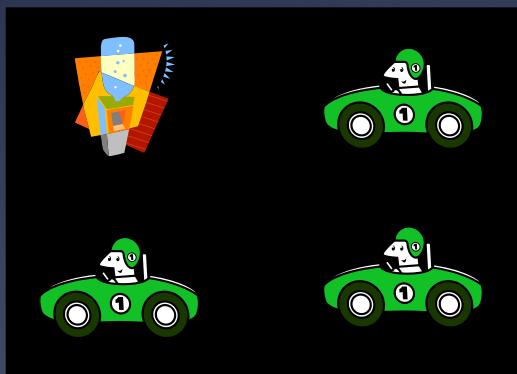
# Phenotypic Matching



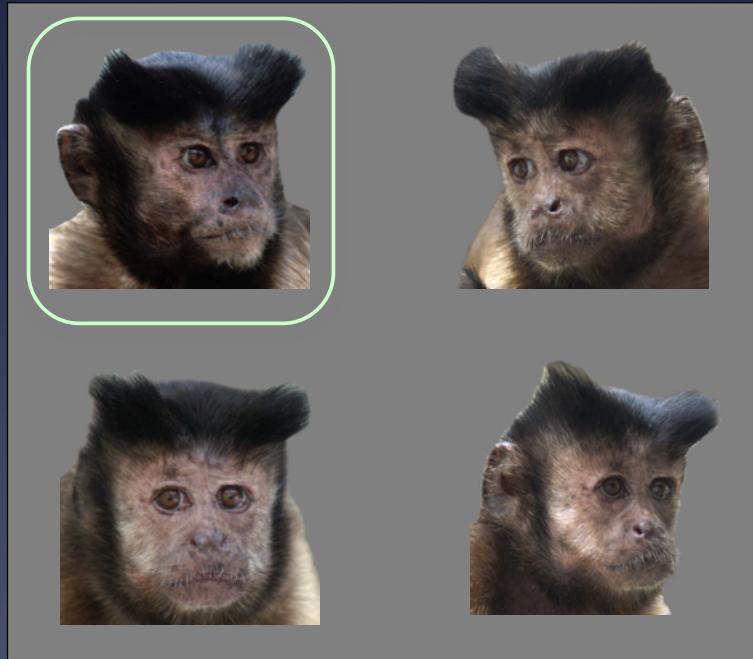
L. A Parr & F. B. M. de Waal, *Nature*, 1999

## Face perception in capuchins

Clip Art Oddity



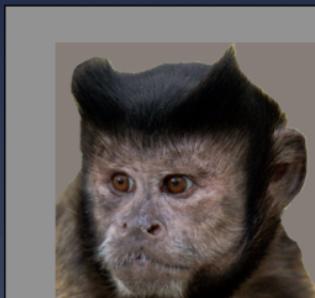
Jen Pokorny



Who is the odd one (identity test)?

### Do capuchins know the individuals depicted in images? - Facial identification

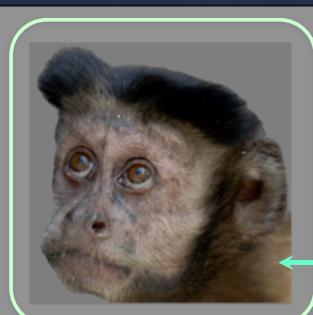
Group 1



Group 1



Group 2

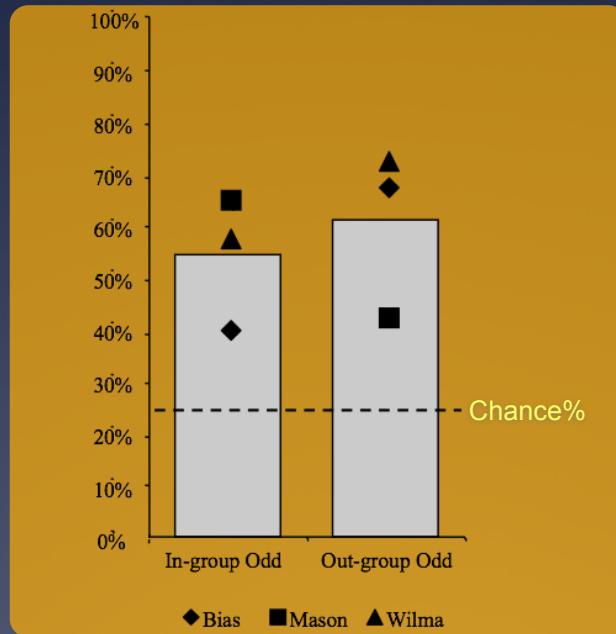


For subject of  
group 1: out-  
group odd

Group 1



## Selecting IN-group or OUT-group Odd



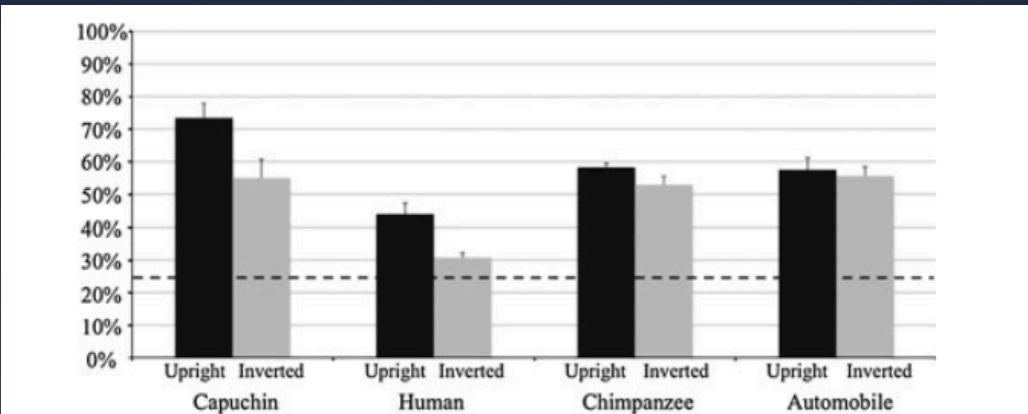
Pokorny & de Waal (2009). *Proc. National Acad. Sciences* 106: 21539-21543.

## Behavioral markers of specialized face processing

- \* Inversion effect
  - \* When faces are rotated 180°, impaired at recognizing or matching the identity of the individual



# Inversion effect in capuchins



**Fig. 3** Performance across the four subjects for each stimulus category for both upright (*black bars*) and inverted (*gray bars*) trials. The horizontal dashed line indicates chance performance (25%). *Error bars* represent the standard error of the mean



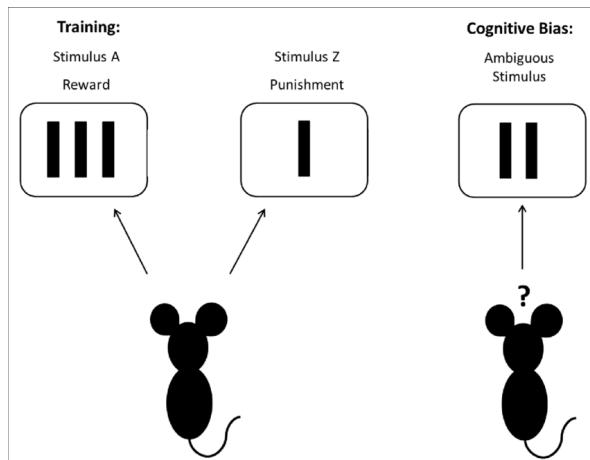
Pigs: different living conditions



## Cognitive Bias Test

*Glass is half full or half empty*

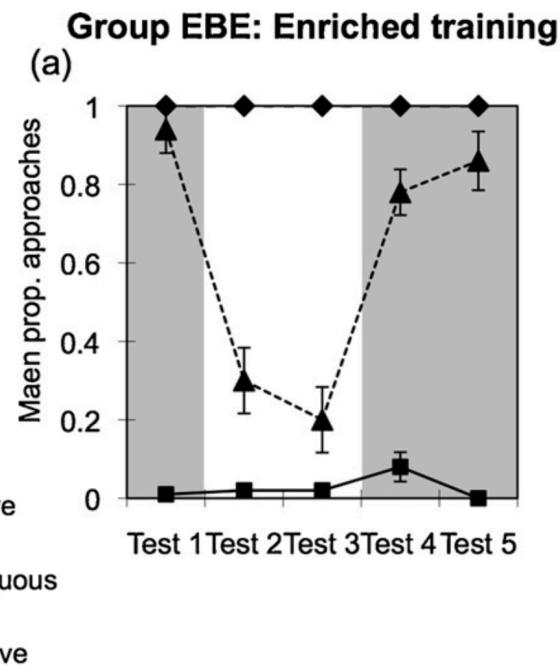
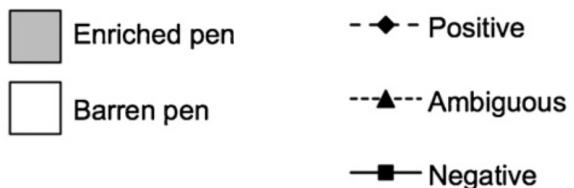
- Affective state of animals based on their living conditions and/or well-being
- Train on positive vs. negative stimulus
- Then present an ambiguous stimulus
- Approach means they expect reward (optimism), avoidance means they expect no reward or punishment (pessimism)



## Cognitive Bias Test

### Pigs

- Approach responses to rewarded, unrewarded stimuli and ambiguous stimulus
- During barren or enriched caging



## Animal emotions

- Can easily be studied
- Need to be distinguished from feelings, which are inaccessible
- Primate facial expressions convey emotions as they do in humans
- Emotions are thought of as preparations for action, i.e. evolved as rapidly deployed survival mechanisms