

Decision-making Consciousness

Decision-making

What happens in decision-making?

- Information collection
- Deliberation (weighing of the evidence)
- (Consensus-building) / decision proper
- Implementation

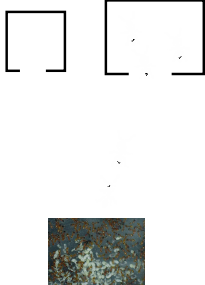
Decision-making

Collective decision-making

- Particularly studied in social animals, esp. herd mammals, social insects
- Despotic vs. democratic
- Consensus or no
- Modeling of adaptive group outcome

Decision-making

Collective decision-making

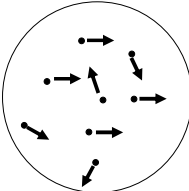


- Scouts collect information on alternatives
- Weighted additive rating by scouts
- Recruitment & quorum sensing allows comparison of ratings
- Implementation of emigration at quorum

Decision-making

Decision-making in the brain

- Usher-McClelland model: similar to collective process
- Neuron population for each alternative 'recruits' according to information rating
- At quorum, decision is implemented



Decision-making

Decision-making in individuals

- What is a 'deliberate' decision?
- What is a 'rational' decision?
- When do we expect 'irrational' decisions, and why do they occur?

Decision-making

**'Irrationality' in humans:
independence of irrelevant
alternatives is violated**



\$2500 \$20 000 \$80 000

Let's say you
prefer this car

Now you
prefer this car

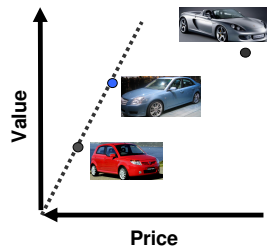
Decision-making

**'Irrationality' in humans:
independence of irrelevant
alternatives is violated**

- People's preferences are biased by irrelevant alternatives
- This is why car dealers, realtors etc. insist on showing really expensive cars/houses etc. that you won't buy anyway
- Why is this so?

Decision-making

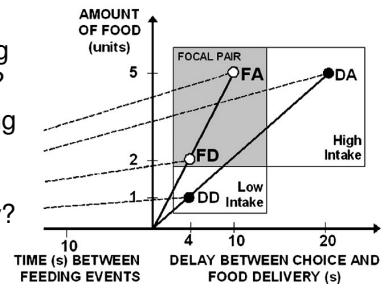
**Influence of irrelevant
alternatives**



Decision-making

**Influence of irrelevant
alternatives in starlings**

- How are birds valuing the options?
- Does training satiate the birds differentially?



Decision-making

**Influence of irrelevant
alternatives in starlings**

- Result of the Schuck-Paim study: starlings are NOT irrational – but:
 - they match choices to profitability (rather than always using the best option)
 - they deviate more from the optimal option when they are less hungry
- If animal studies are compared with human studies, possible effects of training have to be taken into account

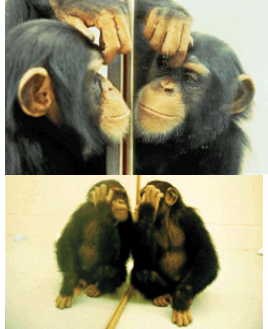
Consciousness & self-awareness

Consciousness

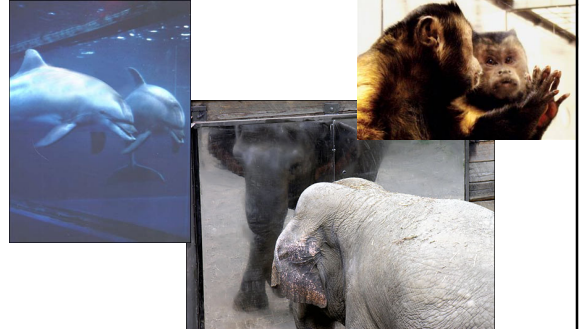
- A big area of study in several fields (neuro, philosophy, psych, medicine)
- Amazing fact: we don't really know how anesthesia works! Or sleep...

Self-awareness

- Understanding 'self' as separate from others, having an 'I' perspective
- Gordon Gallup: mirror test (controversial as a test for consciousness, even for self-awareness)



Mirror-test with other species



What people think or thought...

- Intelligence
- Tool use
- Playing chess
- Passing the Turing-test
- Self-awareness
- Consciousness
- Religious experience