

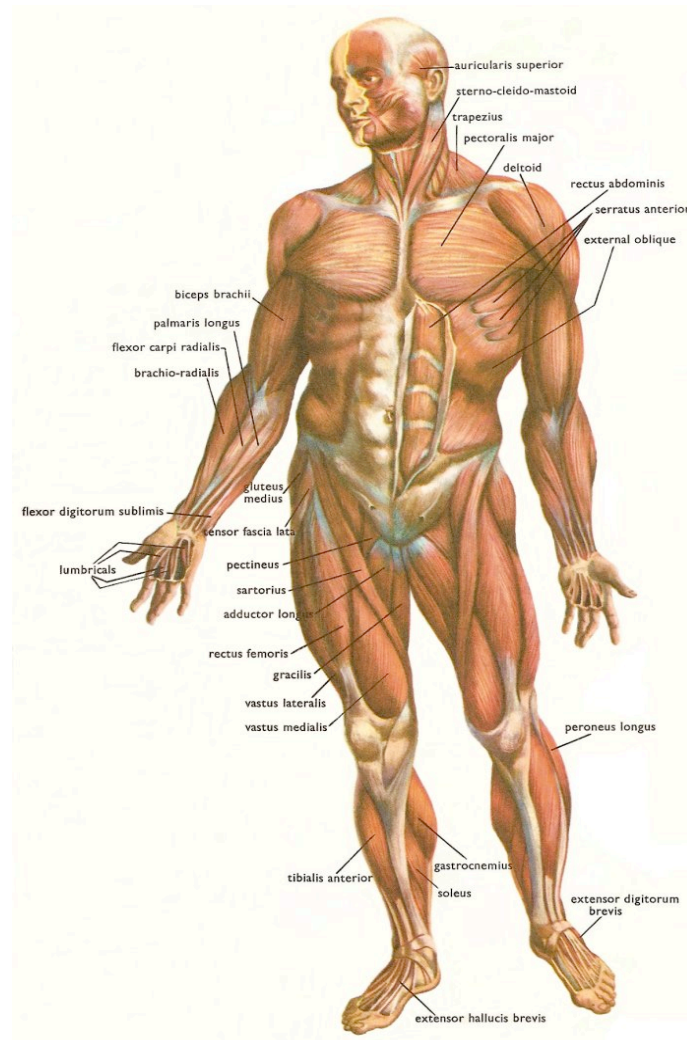
Evolutionary Psychology and social cognition

Nicolas Baumard
Coralie Chevallier

Conceptual toolkit

- The brain: a functional system
- Proximal/Ultimate
- Ancestral environment
- Proper domain / Actual domain
- Domain specificity
- Modularity

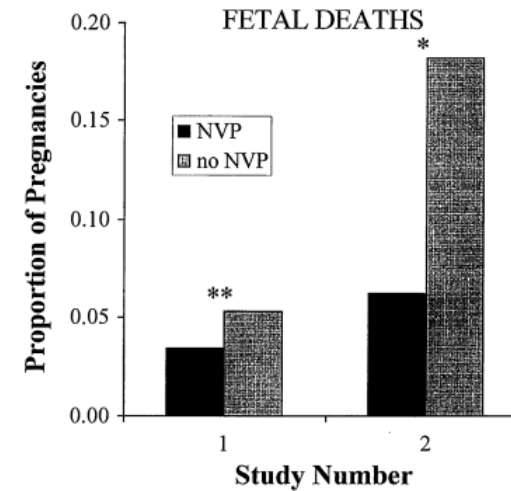
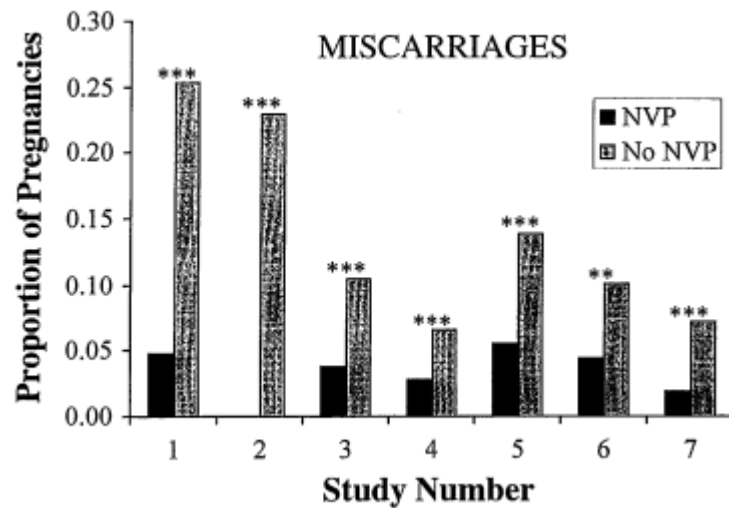
The brain: A functional system



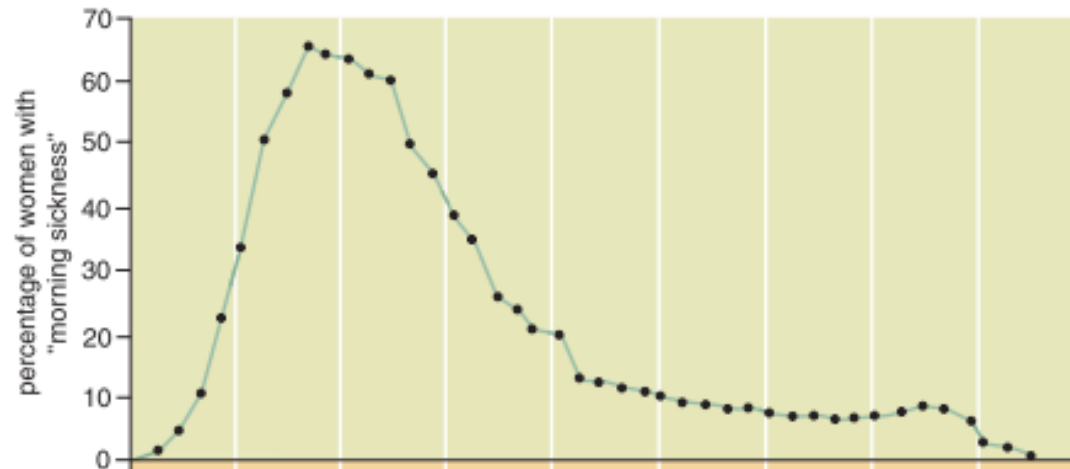
The brain: A functional system



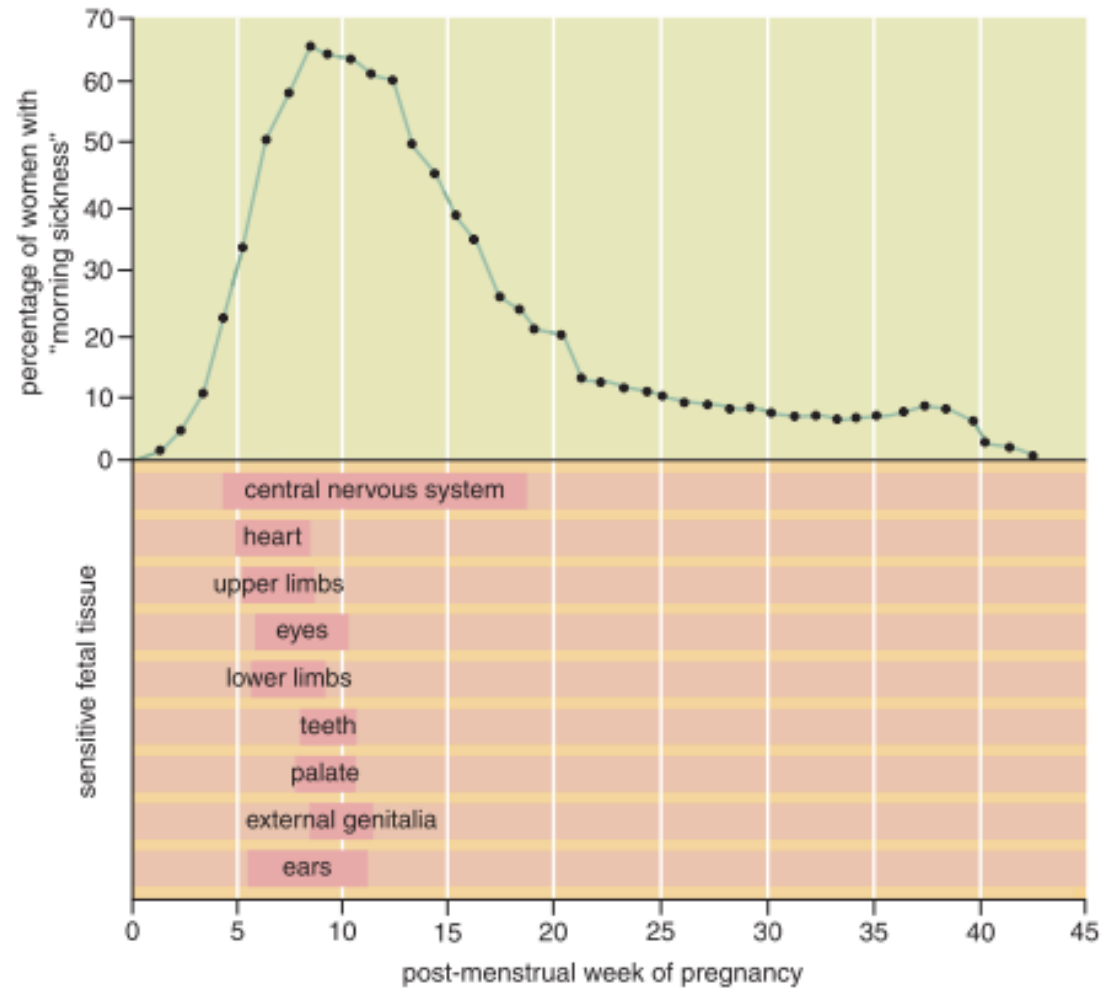
The brain: A functional system



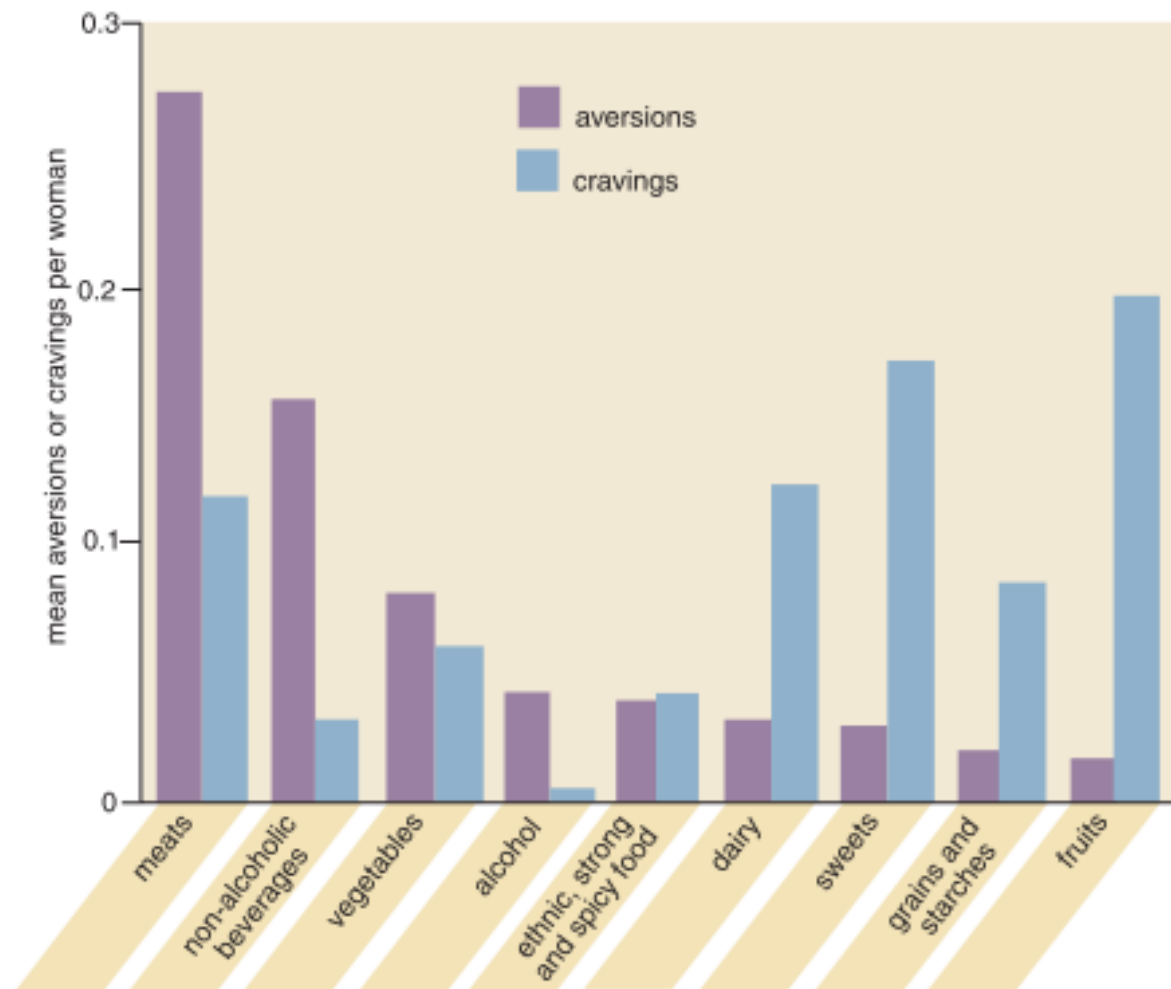
The brain: A functional system



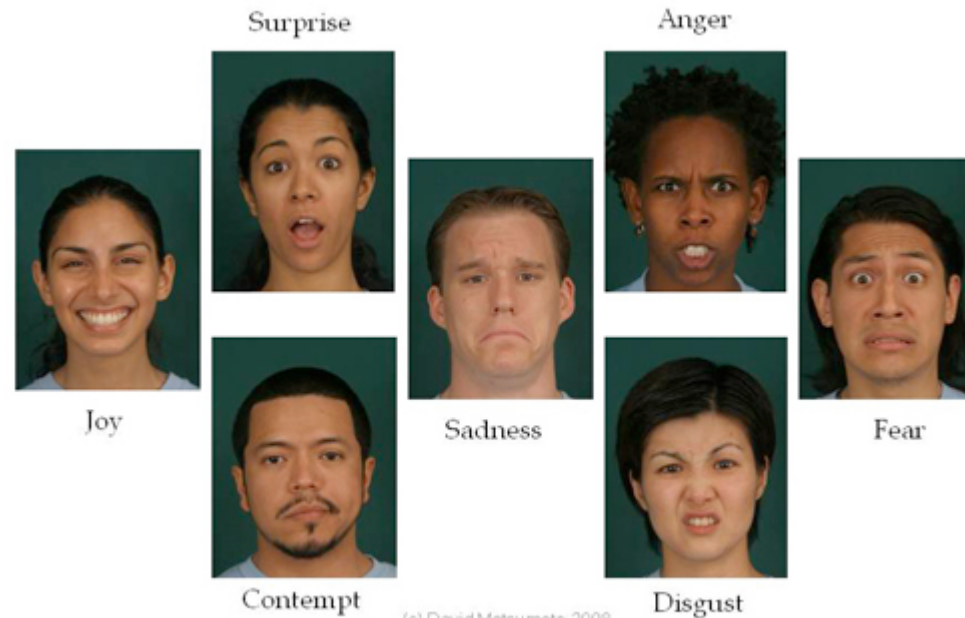
The brain: A functional system



The brain: A functional system

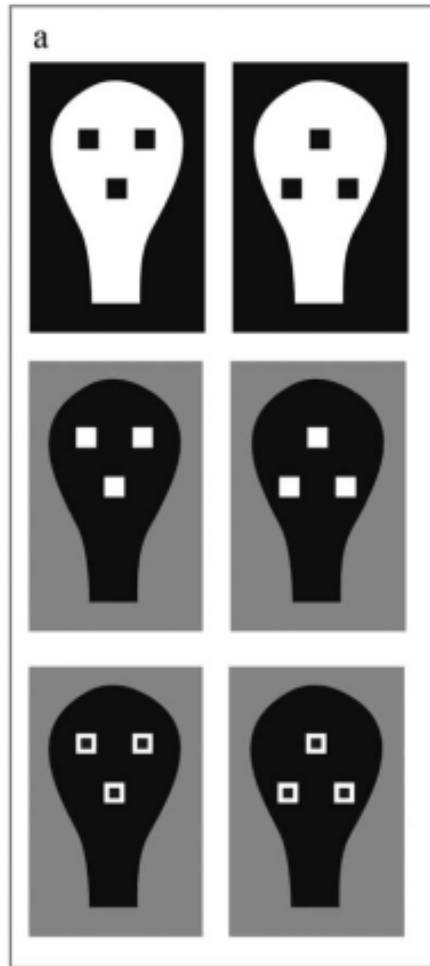


The brain: A functional system



456 435 567 x 567 435 098 = ?

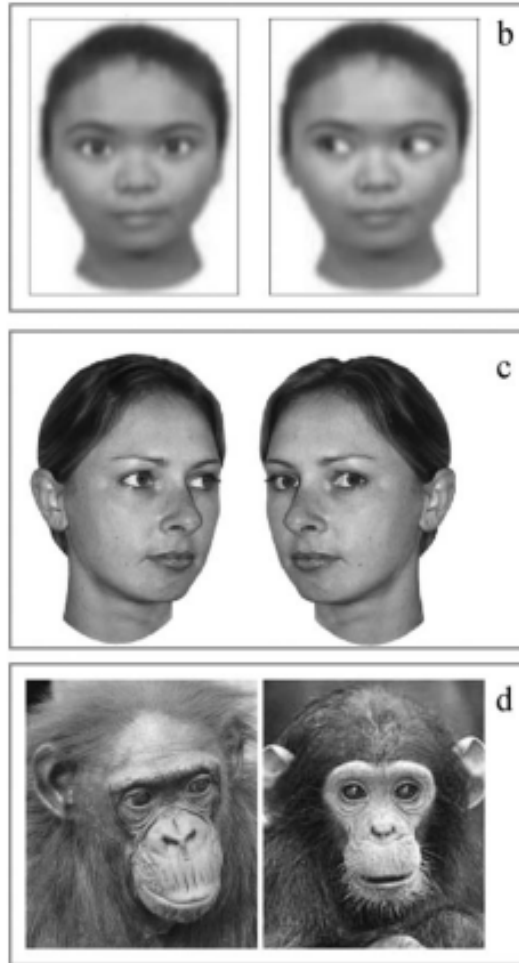
The brain: A functional system



The brain: A functional system



The brain: A functional system



The brain: A functional system

- « Why » questions
- « How » questions

Ultimate level / Proximal level

Behavioral level



Neuro-cognitive level



Evolutionary level



Ultimate level / Proximal level

Behavioral level



Neuro-cognitive level



Evolutionary level



Ultimate level / Proximal level

Behavioral level



Neuro-cognitive level



Evolutionary level

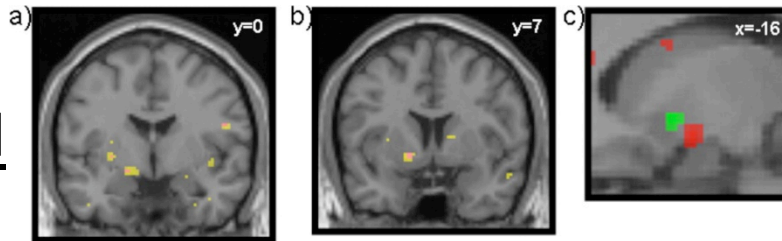


Ultimate level / Proximal level

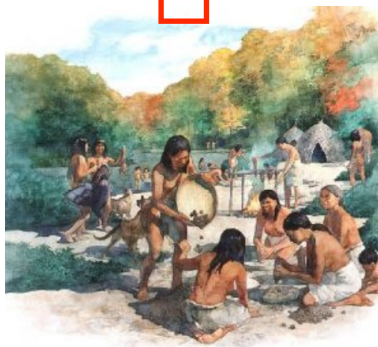
Behavioral level



Neuro-cognitive level



Evolutionary level

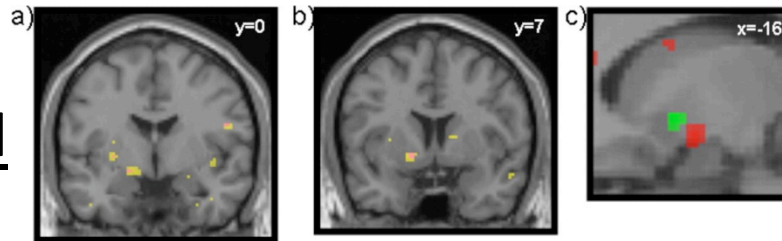


Ultimate level / Proximal level

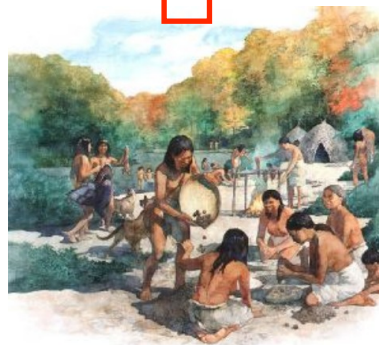
Behavioral level



Neuro-cognitive level



Evolutionary level



Ultimate level / Proximal level

Behavioral level



Neuro-cognitive level



Evolutionary level



Ultimate level / Proximal level

Behavioral level



Neuro-cognitive level



Evolutionary level



Environment of Evolutionary Adaptedness (EEA)



Ultimate level / Proximal level

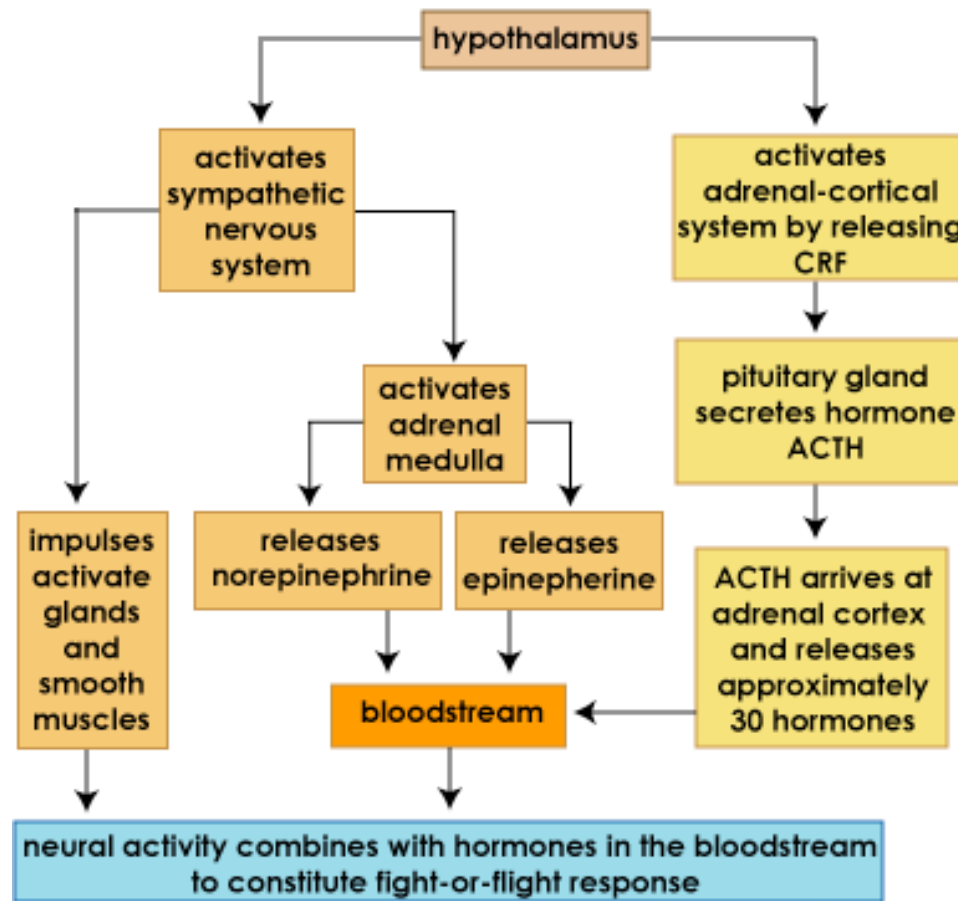


Ultimate level / Proximal level

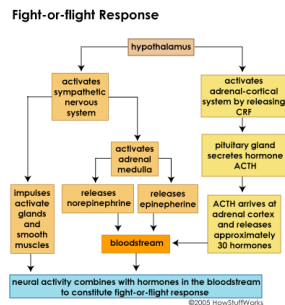


Ultimate level / Proximal level

Fight-or-flight Response



Ultimate level / Proximal level



- heart rate and blood pressure increase
- veins in skin constrict to send more blood to major muscle groups (responsible for the "chill" sometimes associated with fear -- less blood in the skin to keep it warm)
- blood-glucose level increases
- muscles tense up, energized by adrenaline and glucose (responsible for goose bumps -- when tiny muscles attached to each hair on surface of skin tense up, the hairs are forced upright, pulling skin with them)
- smooth muscle relaxes in order to allow more oxygen into the lungs
- nonessential systems (like digestion and immune system) shut down to allow more energy for emergency functions
- trouble focusing on small tasks (brain is directed to focus only on big picture in order to determine where threat is coming from)

Proper domain and actual domain

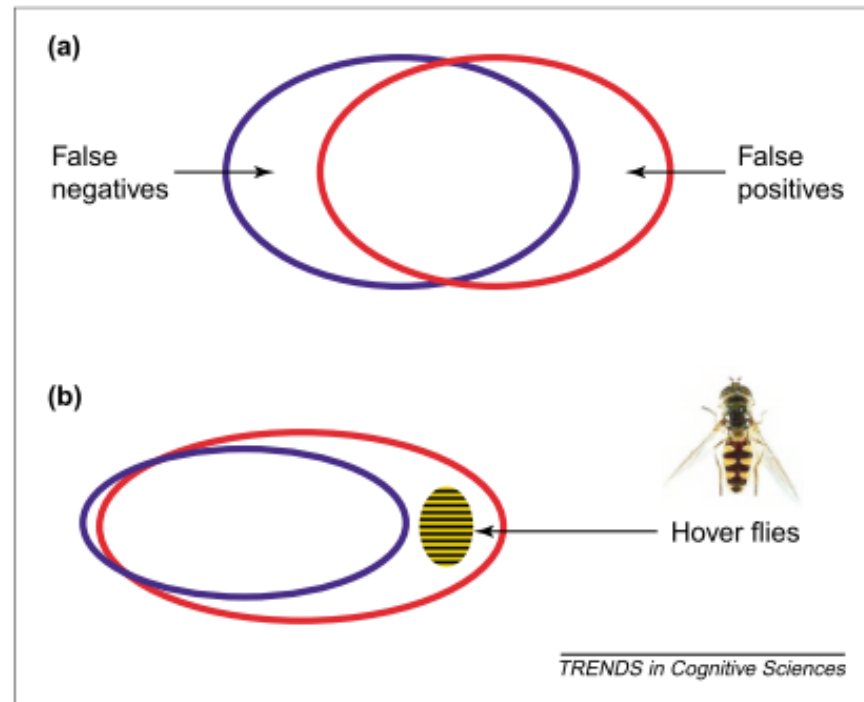
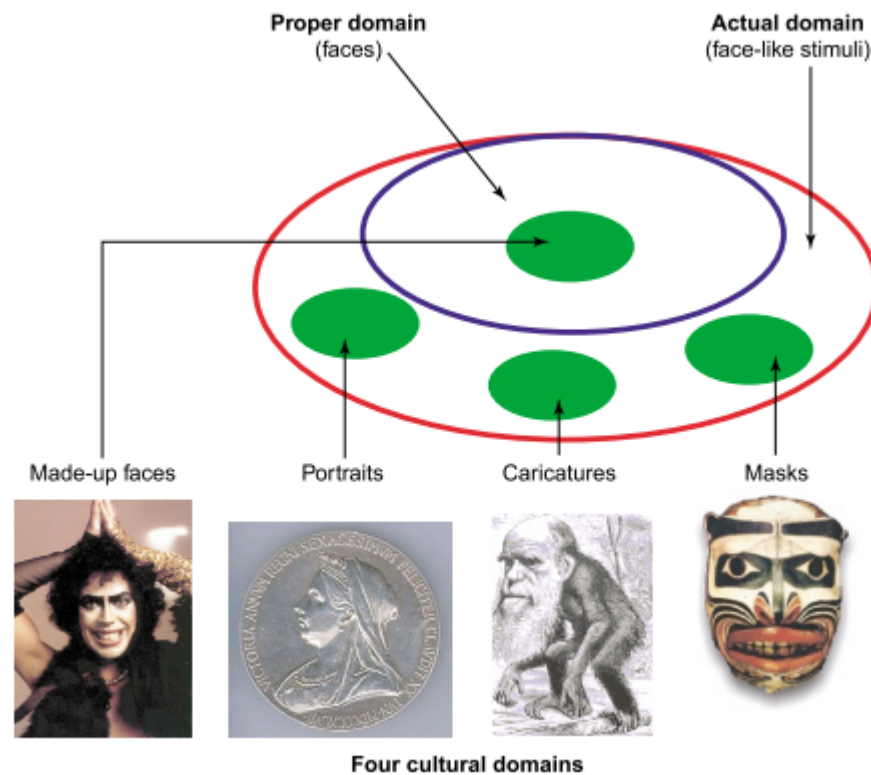
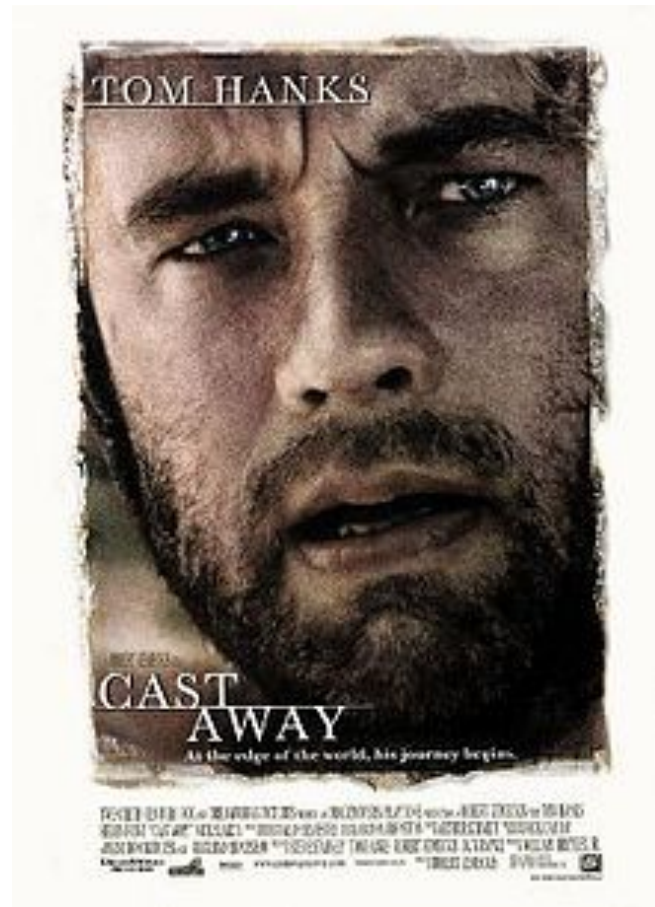


Figure 1. (a) The proper domain (blue) and the actual domain (red) of a cognitive module. In assigning items to a domain, it is likely that there will be some false negatives and some false positives. (b) The proper domain (blue) and the actual domain (red) of a wasp-detector module. An area of the actual domain (shown in black and yellow stripes) is occupied by hover flies mimicking wasps (false positives).

Proper domain and actual domain



Proper domain and actual domain

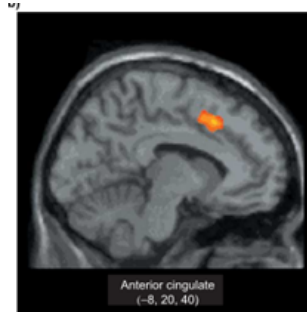


Ultimate level / Proximal level

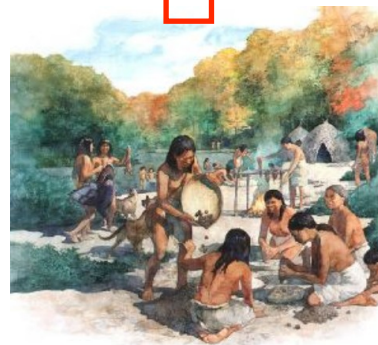
Behavioral level



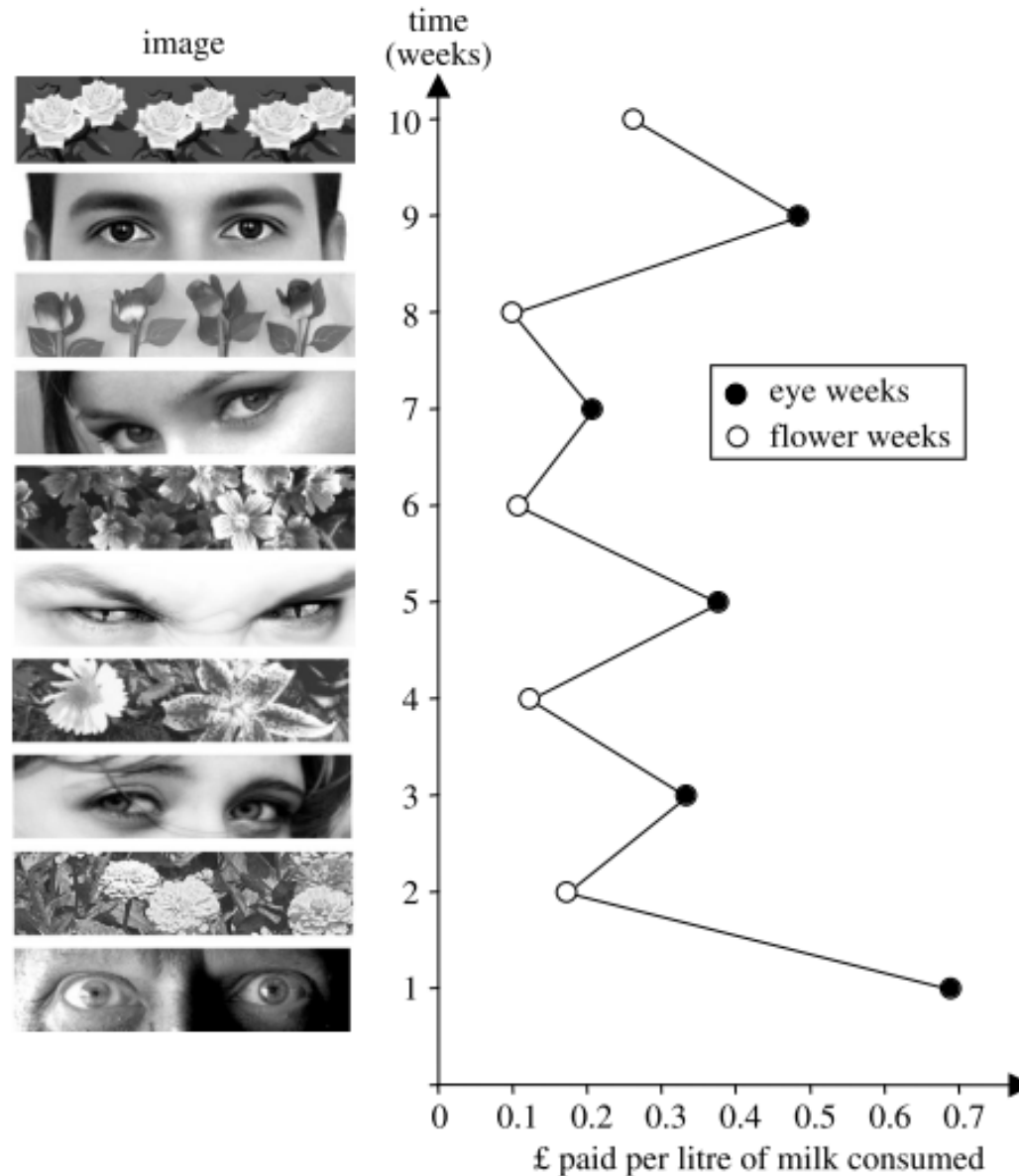
Neuro-cognitive level



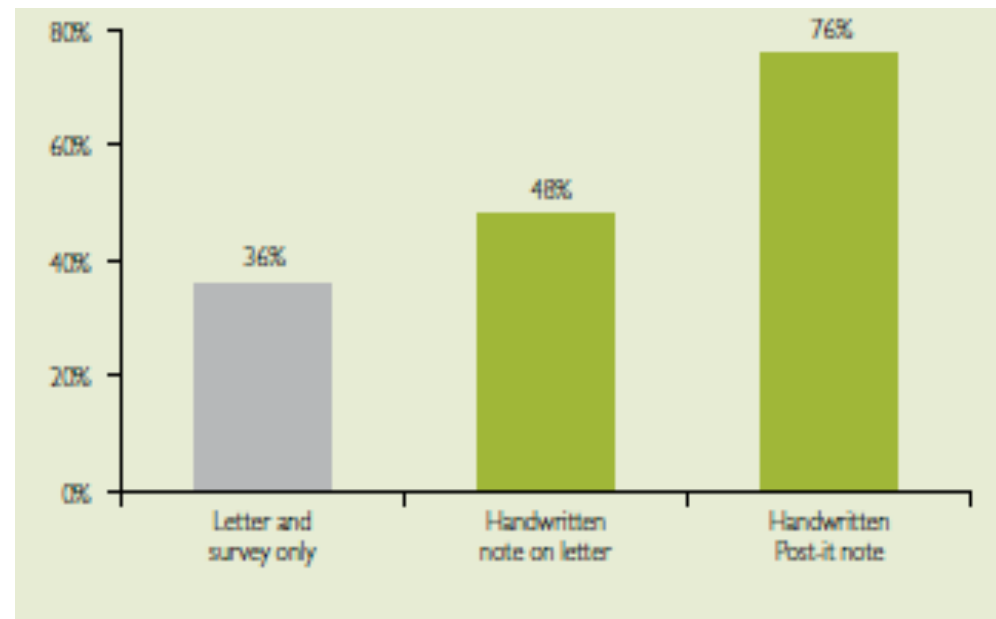
Evolutionary level



Proper domain and actual domain



Proper domain and actual domain



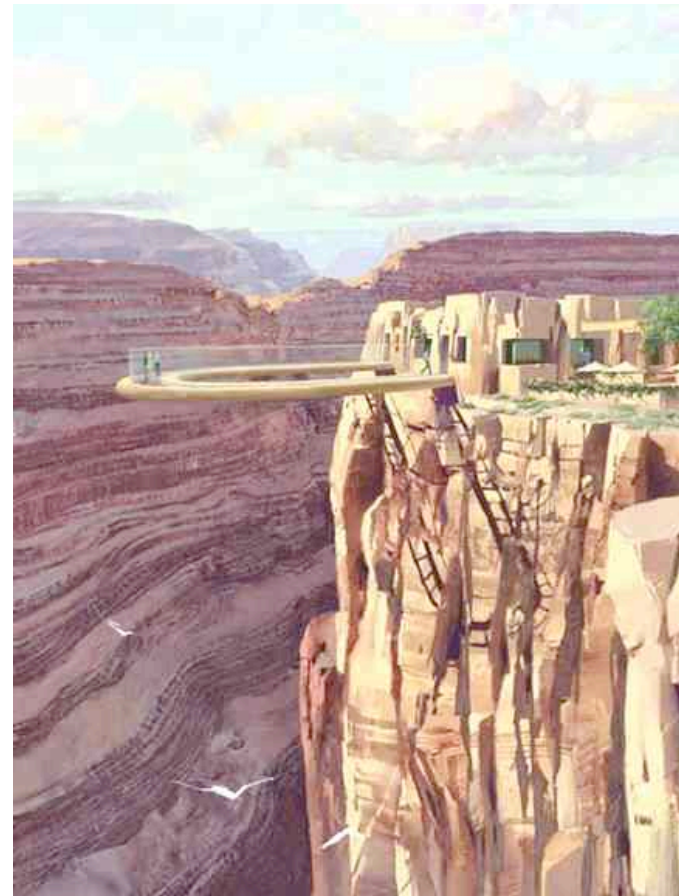
Domain specificity



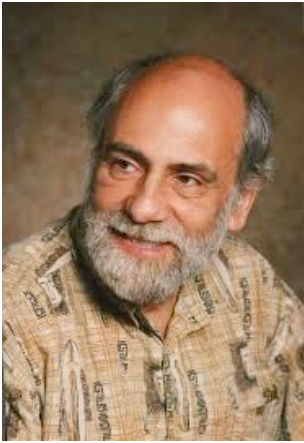
Domain specificity



Modularity



Modularity



Modularity



System 1 vs. System 2

Table 1
General Features of the Two Systems

| The Intuitive system | The Reasoning System |
|---|---|
| Fast and effortless | Slow and effortful |
| Process is unintentional and runs automatically | Process is intentional and controllable |
| Process is inaccessible; only results enter awareness | Process is consciously accessible and viewable |
| Does not demand attentional resources | Demands attentional resources, which are limited |
| Parallel distributed processing | Serial processing |
| Pattern matching; thought is metaphorical, holistic | Symbol manipulation; thought is truth preserving, analytical |
| Common to all mammals | Unique to humans over age 2, and perhaps some language-trained apes |
| Context dependent | Context independent |
| Platform dependent (depends on the brain and body that houses it) | Platform independent (the process can be transported to any rule following organism or machine) |

Note. These contrasts are discussed in Bruner (1986); Chaiken (1980); Epstein (1994); Freud (1900/1976); Margolis (1987); Metcalfe and Mischel (1999); Petty & Cacioppo (1986); Posner and Snyder (1975); Pyszczynski and Greenberg (1987); Reber (1993); Wegner (1994); Wilson (in press); and Zajonc (1980).