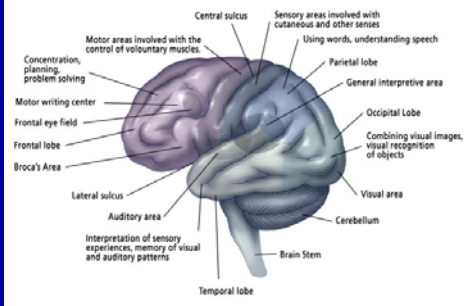


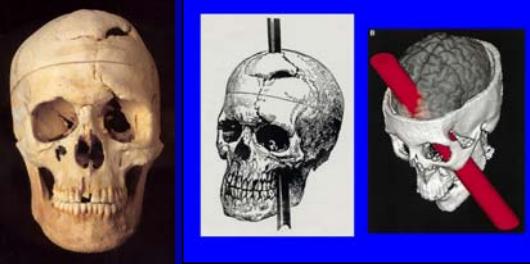


NEUROSCIENCE FOR ARCHITECTS – THE SOCIAL BRAIN
NewSchool of Architecture and Design | San Diego CA | May 21 2007

Some Motor, Sensory, and Association Areas of the Cerebral Cortex



THE SOCIAL BRAIN INTEGRATES MANY FUNCTIONS



PHINEAS GAGE



WHY ARE WE SOCIAL?




SOCIAL BEINGS


| | | | |
|-------------------|-----------------------|--|---|
| | | Person 'A' | |
| | | COOPERATE (SILENT) | DEFECT (CONFESS) |
| Person 'B' | COOPERATE (SILENT) | Reward (Both 2 years) -3 | Sucker (One 5 years; Other 0 years) 0; -5 |
| | DEFECT (CONFESS) | Cheat (One 0 years; Other 5 years) -5; 0 | Punishment (Both 4 years) -1 |

RECIPROCAL ALTRUISM – PRISONER'S DILEMMA

These slides and images may be copyrighted by the owner(s). For educational purposes only.



CRITICAL PERIODS – IMPRINTING



PROSHANSKY – PLACE IDENTITY


Proshansky, Environment and Behavior, 1978



CRITICAL PERIODS – EMOTIONAL REGULATION

“Ability to cherish a friend, understand and empathize with another person, and communicate one’s own needs in an effective way.”

WHAT IS SOCIAL COGNITION?



CRITICAL PERIODS – THEORY OF MIND

Frith and Frith, Science, 1999



IMITATION AND EMPATHY

These slides and images may be copyrighted by the owner(s). For educational purposes only.

Figure 2 | Mirror neurons in area F5. The recordings show neural discharges of a mirror neuron in area F5 of the macaque inferior frontal cortex when the monkey grasps food (top) and when the monkey observes the experimenter grasping the food (bottom). Note that both tasks elicit strong neural responses in area F5. Modified, with permission, from Rizzolatti et al. (2001) Macmillan Publishers Ltd.

Iacoboni and Dapretto, Nature Reviews Neuroscience, 2006

MIRROR NEURONS

Dapretto et al., Nature Neuroscience, 2005

MIRROR NEURONS – FACIAL FEEDBACK THEORY

MIRROR NEURONS – DEVELOPMENT?

Oberman et al., Cognitive Brain Research, 2005

MIRROR NEURONS - AUTISM

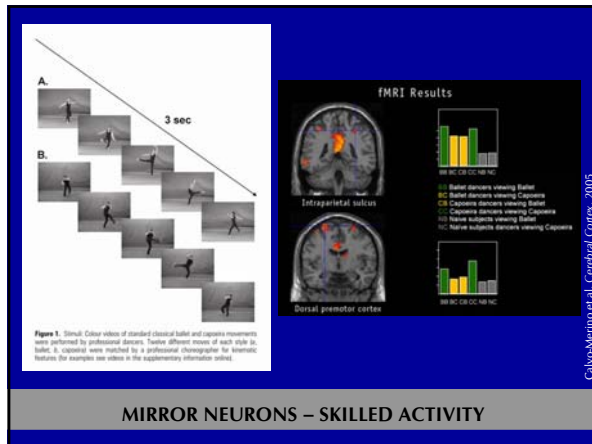
Umiltà et al., Nature, 2001

MIRROR NEURONS

Figure 4 | Grasping intentions with mirror neurons. The observation of a grasping action embedded in two different contexts (a) that suggest two different intentions — drinking on the left and cleaning up on the right — elicits differential activity (greater for drinking) in the mirror neuron area located in the right posterior inferior frontal gyrus²⁰ (b). This shows that the mirror neuron system does not simply code the observed action (that's a grasp) but rather the intention associated with the action (that's a grasp to drink). Panel a modified from REF. 25.

Iacoboni and Dapretto, Nature Reviews Neuroscience, 2006

MIRROR NEURONS – GRASPING INTENTIONS



Calvo-Merino et al., Cerebral Cortex, 2005

