The Plan

- Seminar dedicated to understand the differences between conscious and unconscious cognition

- Organized in (roughly) three parts:
  - Being a Zombie (what can we do without C?)
  - Being Conscious (what difference does C make?)
  - Being Virtual (what does it mean to be an agent?)
Experience \rightarrow \text{Behaviour} \\
\text{“downward causation”} \quad \text{“explanatory gap”} \\
\text{causal mechanisms}
Strategies

• Search for the neural correlates of consciousness

• “A major part of the programme for studying the neural correlates of consciousness must be to investigate the difference between neural activities that are associated with awareness and those that are not” (Crick & Koch; Frith et al.)

➡ Neuroscience

Strategies

• Search for the behavioral correlates of consciousness

• “… investigate the difference between behaviors that are associated with awareness and those that are not” (Baars’ contrastive approach)

➡ Cognitive Psychology
Strategies

• Search for the computational correlates of consciousness

• “… investigate the difference between computations that are associated with awareness and those that are not”

➡ Artificial Intelligence

Strategies, integrated

• Joint search for the neural, behavioral, and computational correlates of consciousness

➡ Computational cognitive neuroscience
FOUR PRINCIPLES

• Emergent Representation
• Functional Specialization
• Graded Processing
• Mandatory Plasticity

EMERGENT REPRESENTATION

- Sensitivity to some regularity does not necessarily entail that the regularity is represented itself as an object of representation
- Lawful behavior without rules
- Abstract knowledge out of the processing of exemplars
**Functional Specialization**

- Double dissociations do not imply architectural modularity. Modules are emergent — the product of learning rather than its starting point
  - Single-system accounts of double dissociations
  - Separable systems motivated by computational principles

**Graded Processing**

- Many aspects of information processing involve graded and continuous dimensions rather than dichotomies
  - Stage-like development out of continuous change
  - Abstraction as a graded continuum
  - Consciousness as a graded continuum
Mandatory Plasticity

• Learning is a mandatory consequence of information processing: We learn all the time whether we intend to or not
  • Implicit learning
  • Blindisight, learning in amnesia & anesthesia
  • Automaticity