

COGSCI 300  
**Week 12: The Self**

Please turn off and put away all electronics.

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## The Transcendental Self

The self is a supernatural entity (soul).

Plato

Kant

Plato, Aquinas, Kant.  
 50% of Canadians, 80% of Americans.  
 Problem: lack of evidence.  
 Chimps?

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## The Deflationary (No-) Self

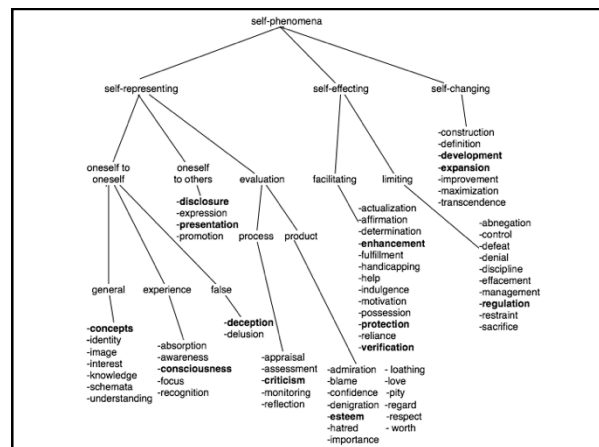
David Hume: The self is just a bundle of perceptions.

Hume

Dennett

Daniel Dennett: The self is a "center of narrative gravity".  
 Thomas Metzinger: The self is a myth.  
 Problem: The self is an important psychological concept.

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## Multilevel Systems

A system (mechanism) consists of:

- Environment
- Parts
- Interconnections
- Changes



A multilevel system has mechanisms at several levels:

- <E<sub>1</sub>, P<sub>1</sub>, I<sub>1</sub>, C<sub>1</sub>>
- <E<sub>2</sub>, P<sub>2</sub>, I<sub>2</sub>, C<sub>2</sub>>, etc.

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## The Multilevel Self

Social self: Parts are people.

Psychological self: Parts are mental representations.

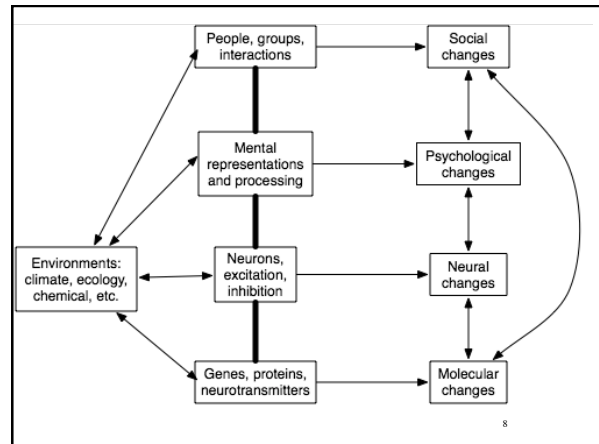
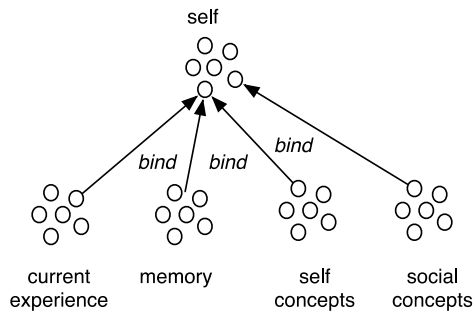
Neural self: Parts are neurons.

Molecular self: Parts are chemicals.

Note: these are not four selves, but all components of one complex system.

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## Semantic Pointer for Self



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## Emergence of the Self

**Emergence:** the whole has properties not found in its parts, because it results from interactions among the parts. E.g. neural representation

**Emergence from emergence:** the whole has properties resulting from interactions among parts that themselves have emergent properties. E.g. semantic pointers that bind neural representations.

**Multilevel emergence:** the whole has properties resulting from mechanisms at 3 or more levels. E.g. self, mental illness, teams, wars ...

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## Discussion Questions

1. Is the human self an illusion, or a multilevel system?
2. Do chimps and dolphins have selves?

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## How Facebook Assistant Works?

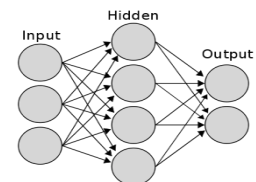
**Representations:** Images, text, advice.

**Procedures:** Deep learning to recognize images: extension of back-propagation.

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## Deep Learning

1. Distributed neural networks
2. Improved version of back-propagation algorithms
3. More layers (6-12)
4. Applications: image recognition, voice recognition, etc.



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## Deep Learning vs. Humans

1. Advantages of computer: fast learning, huge data bases
2. Advantages of humans: combine unsupervised and supervised learning; generation of new representations by recursive binding, e.g. “selfie stick”

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## Discussion Questions

- Do you want Facebook giving you advice?
- How much should Facebook be allowed to learn about you?
- Could a robot have a self?

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## How iCub Works

**Representations:** Sensors, variables, embodied cognition.

**Procedures:** Learning, moving, motor babbling.



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## Does iCub have a self?

1. Neisser's 5 aspects of self: ecological (body), interpersonal, temporal, conceptual, private
2. iCub is claimed to have 3 of these:
  1. Ecological: builds an internal model of its body
  2. Temporal: store interactions with persons & objects
  3. Interpersonal: imitation learning system. Empathy?
3. Contrast Thagard & Wood 2015: 80 self-phenomena resulting from 4 levels of mechanisms

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