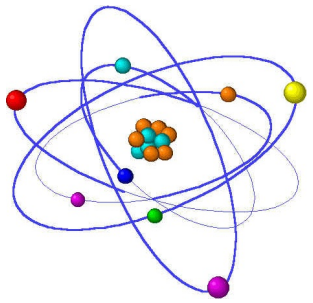
Introduction to Philosophy

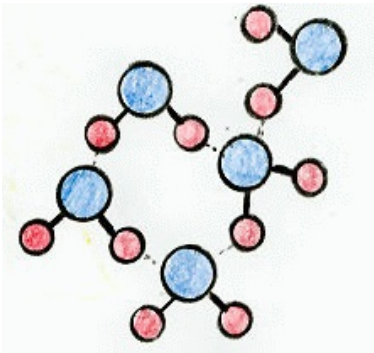
Philosophy 110W
Spring 2012
Russell Marcus

Class #14 - Irreducibility and Essentialism
On Reduction

Reduction and Composition

- We can distinguish among more-complex and more-simple objects in the world
- Among the simpler objects are molecules and atoms.
- They are similar to each other, and the components of many more-complex objects.
- Many people suppose that there are some fundamental particles (or otherwise constituent objects) that are roughly uniform, out of which the complex objects are made.
- The complex objects can, in some sense, be reduced to their component parts.
- Physical objects are just collections of atoms.





Reduction and Elimination

- Among the most complex objects are things that are not best considered to be objects at all.
- The mess in your room: dirty laundry, half-eaten food, and piles of books and papers.
- In one sense, there is really a mess in your room.
  - Grammatically, at least, the mess is an object.
- We do not believe that there is an object (the mess) beyond those things which compose the mess.
  - There is no mess beyond the laundry, food, and papers.
- It is just a convenience of language to pretend to put these things together and call it a mess.
- The mess is reducible to the laundry, food, and papers.
- We eliminate our beliefs in the mess by reducing it to its components.

Scientific Reductions

- Among real objects, complex objects are often reducible to simpler ones.
  - It is among the most important tasks of science and philosophy to determine the reductions of complex things.
- Water is a complex.
  - H_2O
- Heat is molecular motion.
- Lightning is electrical discharge.

Psychological Reductions?

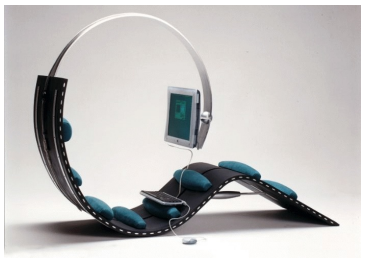
- Our mental states are among the most important complex objects awaiting scientific reduction.
- It would be nice to know what my joy, or depression, or anxiety, or elation really are.
- Are they neural states?
- Are they functional organizations of some matter?
- Are they states of a body-independent soul?
- Or, are they irreducible to any further simples?
- Perhaps mental states are simples in themselves.
- We will return to these questions in our next unit.

Mathematics and Reduction

- For some phenomena or objects, there is an open question whether they admit of reduction.
- Zermelo defines the numbers as follows:
  - 0 = ∅
  - 1 = {∅}
  - 2 = {{∅}}
  - 3 = {{{∅}}}...
- Von Neumann defines them differently:
  - 0 = ∅
  - 1 = {∅}
  - 2 = {∅, {∅}}
  - 3 = {∅, {∅}, {∅, {∅}}} ...
- Von Neumann's definitions are less elegant than Zermelo's, but more flexible and efficient.
  - Still, it is not clear that 2 is just {∅, {∅}}.
  - Either set of definitions will suffice.
  - There seems to be nothing to determine which reduction of numbers to sets is the right one.
- Some philosophers respond by arguing that numbers are just not reducible to sets.
  - They are objects *sui generis* (of their own kind).

Definition and Reduction





- Definitions provides necessary and sufficient conditions.
  - What properties an object requires in order for it to be that object
  - What properties are sufficient for an object to be that object.
- Chair:
  - An object is a chair if and only if it is a piece of furniture, used for sitting, with a back.
- The philosopher will proceed to examine definitions for exceptions.
  - Are stools kinds of chairs?
  - How about a giant sculpture of a chair, one on which no person could really sit?
  - Or a doll-house chair on which no human can sit; isn't that a chair?
- The game of finding counter-examples to any purported definition is a popular one in philosophy.
- Some counter-example-resistant terms:
  - Monosaccharide: A carbohydrate that cannot be decomposed into simpler carbohydrates by hydrolysis.
  - 'Bachelor' admits of a pretty good definition, too.
- Other terms, like 'mind' and 'self' are more difficult to define.

What to Do When Definition is Elusive

- Two kinds of reactions that one could have to difficulties formulating necessary and sufficient conditions for ordinary terms, like ‘self’.
- We might start to believe that there is no such thing as a mind or the self.
  - If we can’t define something, perhaps it doesn’t really exist.
  - ‘Caloric’ was supposed to refer to a substance which made objects hot.
- Or we might continue to believe in the thing but give up the idea that it is reducible to other objects or properties.
  - The *sui generis* solution to the problem of defining numbers.

Reductive Theories of Personal Identity

1. Body Theory
2. Soul Theory
3. Consciousness Theory

Each of these accounts has some significant flaws.

We'll look at different responses to the flaws, today, in Reid and Kripke.