

Robotics

What is a robot?

1

Dennett (1994)

Consciousness in human
and robot minds.

2

Dennett (1994)

Can a machine develop consciousness?

- Humans are biological "machines" that have consciousness, so why can't a machine of metal, silicon, and plastic be conscious?
- Such a machine would not violate the fundamental laws of nature like a perpetual motion machine does.

He explores the reasons why it might not be possible.

3

Dennett (1994)

- 1) Robots are purely material things, and consciousness requires immaterial mind-stuff (old-fashioned dualism).
- 2) Robots are inorganic, and consciousness can only exist in an organic brain.
- 3) Robots are artifacts and consciousness abhors an artifact; only something natural, born not manufactured, could exhibit genuine consciousness.
- 4) Robots will always just be too simplistic to be conscious.

4

1. Robots are purely material things, and consciousness requires immaterial mind-stuff (old-fashioned dualism).

- Other “supernatural” explanations have succumbed to explanation by physical science.
- Why is consciousness afforded a special status?
- Can the brain really have a “supernatural” connection or interface with mind-stuff?
 - *reductio ad absurdum*
 - cf., Churchland’s view of *eliminative materialism*

5

2. Robots are inorganic, and consciousness can only exist in an organic brain.

- Biochemistry has demonstrated that there is no such thing as vitalism (life-force); organic compounds and processes are mechanistically explained and may be reproducible in an alternative physical media.

6

3. Robots are artifacts and consciousness abhors an artifact; only something natural, born not manufactured, could exhibit genuine consciousness.

- Origin essentialism may make sense in a court of law to protect certain rights, but it does not indicate “intrinsic properties” that set an object apart from otherwise indistinguishable counterparts.
 - Champagne vs Sparkling wine
 - Cognac vs Brandy
 - “Origin chauvinism”
- A robot with consciousness may need to “grow into” that state rather than be constructed with it.

7

4. Robots will always just be too simplistic to be conscious.

- This is scientifically boring! If this is the case, then consciousness isn't that special after all.
- Numerous examples of simple objects performing similar functions of more complex objects (albeit, on a cruder level).
 - Artificial heart valves, Cochlear implants, etc.

8

Dennett (1994)

Continues to describe the (philosophical and physical) challenges faced by the Cog project at MIT:

- Mixture of innate limits (“pain” matters) and learned behaviors.
- Input is interpreted by CNS in context (pain vs acceptable contact).
- Parallel architecture allows it to operate close to real-time.
- It is hoped that Cog will learn language.
- We must believe self-reports of internal states made by the robot.

9
