

Can machines think? A rigorous examination of Searle's objection.

COS 116

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What are strengths and weaknesses of the Turing test?

(Feel free to contrast with other tests, e.g.

Stanford-Binet IQ, SAT)

Strengths

- Not reducible to a formula
- Human latitude.
- No obvious way to cheat; # of conversations is too large.
- Vary topics; different tests
- Behavioral; black box

Weaknesses

- Subjective
- Test of end result/behavior rather than internal process.
- Tests one kind of intelligence.
- Anthropomorphic
(Dolphin intelligence)

Any reactions to the Turing Test you participated in?

Explanation for what you observed:

Current machine learning algorithms do not achieve 100% accuracy in comprehension (maybe 80%).

⇒ Computer loses track of the topic after very few exchanges.

Poll: Did you like Searle's article?

(as in, interesting, thought-provoking)

Like 28

On the fence 5

Poll: Which of the following is closest to Searle's central point?

- 0 1. It is impossible for a computer to pass the Turing test in Chinese.
- 13 2. The Turing test is not a valid test for whether a machine can "think."
- 3. A computer is nothing but a rulebook applied mechanically. The rulebook doesn't understand Chinese, so neither does the computer. *Can't pass T. T.*
- 22 4. There is a big difference between syntax and semantics. Computers deal with symbols, and hence with syntax. Thinking is about semantics. Hence computers can't pass the Turing test.

What role does the Chinese room argument play in the article?

Suggestion 1: Highlights diff. between syntax & semantics.

Suggestion 2: Explaining what computation is.
↗

Is there really a clear difference between syntax
and semantics?

Repoll: Searle's main point?

1. It is impossible for a computer to pass the Turing test in Chinese.
- 17 2. The Turing test is not a valid test for whether a machine can "think." ← *consciousness* . 
3. A computer is nothing but a rulebook applied mechanically. The rulebook doesn't understand Chinese, so neither does the computer.
- 17-18 4. There is a big difference between syntax and semantics. Computers deal with symbols, and hence with syntax. Thinking is about semantics. Hence computers can't pass the Turing test.

My problems with Searle's paper



1. He rejects Turing test but gives no alternative definition of “thinking.” (If a computer passes Turing Test he would say “so what.”)
2. Scientifically speaking, no clear line between
 - (a) hardware and software (“Game of life.”)
 - (b) syntax and semantics (“genetic code.”)
3. He often resorts to ridicule (a bad sign!)

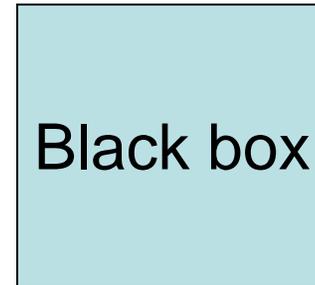
But, raises a valid question (although extremely unclearly)

Is there any difference between



Brain

and



Generates same electrical signals, chemical flows etc.

Remember: Artificial ear, eyes already exist (though imperfect).

Next time

Review of what we have learnt this term
(and guide for studying for final exam).