PHILOSOPHY 101

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CAN MACHINES THINK?

TWO QUESTIONS

1. Can a physical system capable of performing certain functions think?
2. Can a sufficiently sophisticated computer program think?
    - Is the mind related to the brain like software is to hardware?

Could a sufficiently advanced computer qualify as a thinking being?

> *A. Yes*
>
> *B. No*

STRONG & WEAK AI

Strong AI:

thinking is constituted by the manipulation of formal symbols, such as occurs in a computer program

Weak AI:

thinking may be modeled by formal symbol systems, such as computer programs

THE IMITATION GAME

- Can you guess, using a series of questions, which of two conversation partners is a machine and which a human?
- Questions may be of all kinds:
  - what's your name
  - what's your favorite color?
  - what does the smell of freshly cut grass remind you of?

THE TURING TEST

> *I believe that in about fifty years' time it will be possible to programme computers…to make them play the imitation game so well that an average interrogator will not have more than 70 percent chance of making the right identification after five minutes of questioning…I believe that at the end of the century the use of words and general educated opinion will have altered so much that one will be able to speak of machines thinking without expecting to be contradicted. (Alan Turing)*

1. For some arbitrary time period, there may be no discernible difference between the linguistic behavior of a person and that of a machine
2. If there is no discernible difference in linguistic behavior between man and machine, then there is no reason to think that there is any underlying difference in the causes of that behavior
3. ∴ If we are willing to say that it is intelligent thought that is the cause of the linguistic behavior in the person we should be willing to say the same thing about the machine

STRONG AI & THE TURING TEST

- Any computer that can pass the Turing Test for arbitrarily long periods of time will, according to strong AI, qualify as a thinking machine