Turing Test and Chinese Room Argument

Shiran Zhang

Second Major in Philosophy
Peking University

Advisor: Qilin Li

June 3, 2021

Outline

1. Introduction
   - Artificial Intelligence
2. Turing Test
   - The Imitation Game
   - Nine Objections
3. Chinese Room Argument
   - Chinese Room Thought Experiment
   - Reconstruction of Argumentation
   - Refutations

Introduction

Artificial Intelligence[2]

1. .....
2. **1673** Leibniz's Stepped Reckoner
3. **1837** Babbage's Analytical Engine
4. **1946** ENIAC
5. **1950** Turing: "Computing Machinery and Intelligence"
6. **1956** Dartmouth Conference
7. .....

Artificial Intelligence[4]

Two Dimensions

Human vs. **Rational**
Thought vs. **Behaviour**

Four Categories

Acting humanly: The Turing test approach

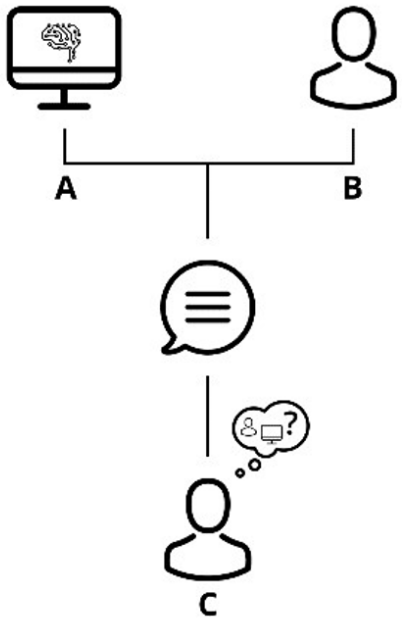
Thinking humanly: The cognitive modeling approach

Thinking rationally: The "laws of thought" approach

Acting rationally: The rational agent approach

Turing Test

The Imitation Game



The Imitation Game

Questioner: Aims to discover if A or B is the Man

(A) Male: aims to fool the questioner
(B) Female: aims to help the questioner

Turing Test

Questioner: Aims to discover if A or B is the Computer

(A) Male: aims to fool the questioner
(B) Female: aims to help the questioner

Modified Turing Test

Questioner: Aims to discover the other side is human or computer

---

Human or Computer

Nine Refutations[6]

1. The Theological Objection
2. The 'Heads in the Sand' Objection
3. The Mathematical Objection
4. The Argument from Consciousness
5. Arguments from Various Disabilities
6. Lady Lovelace's Objection
7. Argument from Continuity in the Nervous System
8. The Argument from Informality of Behaviour
9. The Argument from Extra-Sensory Perception

Arguments from Various Disabilities[3]

(1) The diversity of human behavior can reflect human intelligence.
(2) If an object has intelligence, its behavior can show diversity.

—— Extended from (1)

(3) If an object can't show the same diversity as human behavior, then it can't think.

—— Launched by (2)

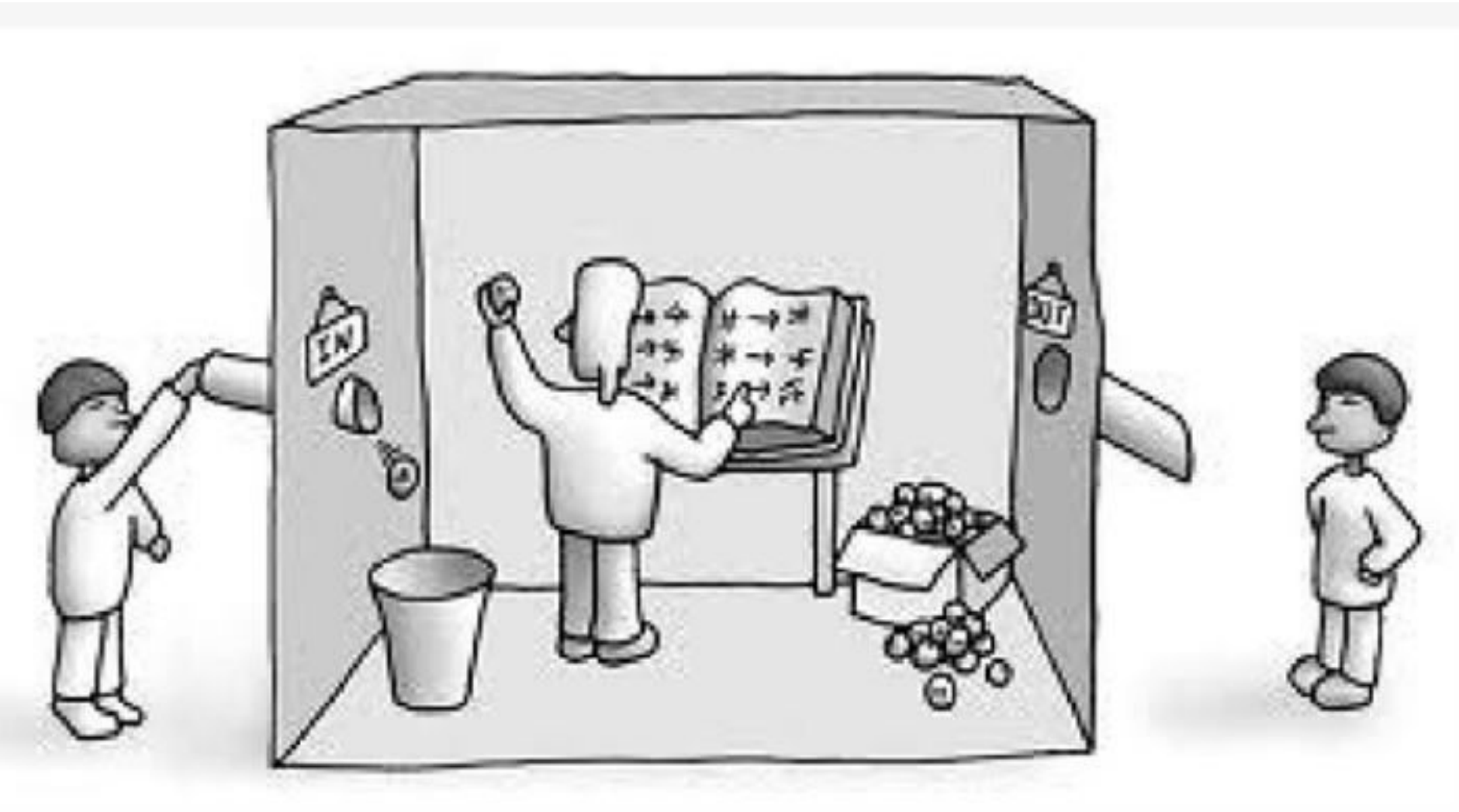
(4) Machines cannot have the same behavioral diversity as humans do.

So, machines can't think.

—— From (3) and (4)

Chinese Room Argument

Chinese Room Thought Experiment[5]



Chinese Room Argument[1]

Searle: The computer and its program do not provide sufficient conditions of understanding.

Reconstruction of Argumentation

(1) Programs are purely formal (syntactic).
(2) Human minds have mental contents (semantics).
(3) Syntax by itself is neither constitutive of, nor sufficient for, semantic content.

Therefore, programs by themselves are not constitutive of nor sufficient for minds.

Refutations[1]

1. The System Reply
2. The Virtual Mind Reply
3. The Robot Reply
4. The Brain Simulator Reply
5. The Intuition Reply
6. .....

Conclusions

Searle's Chinese Room Argument has limitations in refuting the adequacy of Turing Test.

References

[1] David Cole. "The Chinese Room Argument". In: *Stanford Encyclopedia of Philosophy*. 2008.

[2] Naveen Govindarajulu and Selmer Bringsjord. "Leibniz's Art of Infallibility, Watson, and the Philosophy, Theory, and Future of AI". In: *Fundamental Issues of Artificial Intelligence*. Ed. by Vincent Müller. Springer, 2016.

[3] Graham Oppy and D. Dowe. "The Turing Test". In: *Stanford Encyclopedia of Philosophy*. 2003, pp. 519–539.

[4] Stuart J. Russell and Peter Norvig. *Artificial Intelligence: A Modern Approach*. Prentice-Hall, 2010.

[5] John R. Searle. "Minds, Brains, and Programs". In: *Behavioral and Brain Sciences* 3.3 (1980), pp. 417–57. DOI: 10.1017/s0140525x00005756.

[6] Alan M. Turing. "Computing Machinery and Intelligence". In: *Mind* 59.October (1950), pp. 433–60. DOI: 10.1093/mind/LIX.236.433.

Thank you!