

The image shows a spiral-bound notebook with a light brown, textured cover. The spiral binding is on the left side. The text is centered on the cover.

Artificial Intelligence

Philosophy II

Lecture 13

(13 March, 1999)

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Content: Philosophy II



📄 Quick Review of Lecture 12

📄 Strong AI vs Weak AI

📄 List of Papers for Philosophy I

1. Minds, Brains, and Programs (John Searle, 1980)
2. The Chinese Room Argument (The Internet Encyclopedia of Philosophy)
3. Minds, Brains and Programs (Intro to Philosophy)
4. Searle's "Chinese Room" Argument (Indiana, 1990)
5. Minds and Machines (Monash)
6. John R. Searle's Chinese Room (Helsinki)

📄 What's in Store for Lecture 14

Quick Review on Lecture 13



- ☞ Why Philosophy is a Weak Topic Among Previous/Earlier Batches?
- ☞ Introduction to Philosophical Aspects of AI
- ☞ List of Papers for Philosophy I
 1. Computing Machinery and Intelligence
 2. Glossary of Philosophical Terms
 3. Mapping Great Debates: Can Computers Think?
 4. The Turing Test & Chinese Room Experiment
 5. Misguided Artificial Intelligence: The Turing Test
 6. Twelve Reasons to Toss the Turing Test

- ☞ List of Papers for Philosophy I (cont)
 7. Philosophy of AI: Part of Contemporary Philosophy of Mind - An Annotated Bibliography
 8. How to Pass the Turing Test by Cheating
 9. Lessons from a Restricted Turing Test
 10. Chatterbots, Tinymuds, And The Turing Test: Entering the Loebner Prize Competition
 11. Introducing MegaHal
 12. HeX Template
 13. Joseph Weintraub & His Therapist
 14. Chess is Too Easy

Strong AI vs Weak AI



☞ Terms introduced by John Searle.

☞ **Strong AI:** Thinking is just the **manipulation of formal symbols**; the mind is to the brain as the program is to the hardware; an properly programmed computer is the **mind**.

☞ **Weak AI:** Computer can teach us useful things about minds and brains, but they **do not have minds**. They can simulate mental activity and is merely a **tool**.

List of Papers for Philosophy II



- 📄 Paper 1: Minds, Brains, and Programs (John Searle, 1980)
- 📄 Paper 2: The Chinese Room Argument
(The Internet Encyclopedia of Philosophy)
- 📄 Paper 3: Minds, Brains and Programs (Intro to Philosophy)
- 📄 Paper 4: Searle's "Chinese Room" Argument (Indiana, 90)
- 📄 Paper 5: Minds and Machines (Monash)
- 📄 Paper 6: John R. Searle's Chinese Room (Helsinki)

Paper 1. Minds, Brains, and Programs (John Searle)



Introduction

Six Replies:

1. The Systems Reply (part)
2. The Robot Reply (computer inside)
3. The Brain Simulator Reply (neurons)
4. The Combination Reply (3 times $0 = 0$)
5. The Other Minds Reply (not how but what)
6. The Many Mansions Reply (trivializes strong AI)

Paper 1. Minds, Brains, and Programs (John Searle) - Gedankenexperiment



From Inside

- 1a. Writing (C)
- 2a. Script (C)
- 3a. Rules (E, 1b → 1c)
- 4a. C Symbols, E Instructions
C → (1b & 1a)
- 5a. Output

From the Outside

- 1b. Script
- 2b. Story
- 3b. Program
- 4b. Questions
- 5b. Answers to 4b (Questions)

Paper 1. Minds, Brains, and Programs

The System Reply & The Robot Reply



The Systems Reply

Summary: The system (the man together with the room containing the books) does understand.

Searle's reply: The man could internalise all the books and rules by memorising them, and still have no understanding, even though he is now the system. In English, the man knows that "hamburger" refers to hamburgers. In Chinese, he just knows that one set of squiggles follows another. There are then two systems in the man that would pass the Turing Test; one that understand (English); and one that does not (Chinese).

The Robot Reply

Summary: Put the 'computer' into a robot that perceives and acts. Then it would know the reference of words (how they relate to phenomena in the world).

Searle's reply: Imagine the visual information is just represented by more squiggles, and that the robots motions are controlled by 'writing' squiggles. Then the man in the robot still does not understand.

Paper 1. Minds, Brains, and Programs

The Brain Simulator Reply & The Combination Reply



The Brain Simulator Reply

Summary: Make the computer system in such a way that it simulates a Chinese person's brain exactly. Surely it would then understand?

Searle's reply: If we imagine it was a system of pipes and water with a man operating the valves, then we would retract our beliefs that there was understanding.

The Combination Reply

Summary: Put a brain simulator within a robot that perceives and acts. Can we not attributes understanding to the complete system?

Searle's reply: It would seem to understand, but if we were told how it worked then we would see it for the trick that it is.

Paper 1. Minds, Brains, and Programs

The Other Minds Reply & The Many Mansions Reply



The Other Minds Reply

Summary: How then do we know other people understand?

Searle's reply: In essence, it is not just the function of a system that leads to understanding, but its physical composition.

The Many Mansion Reply

Summary: Searle's arguments are directed at particular kinds of machines (digital and analogue computers), but we may develop more sophisticated computing device.

Searle's reply: Regardless of the technology, understanding is not produced by the instantiation (running of) a computer program.

Paper 1. Minds, Brains, and Programs

Essence of Paper



- ☞ That strong AI is not possible.
- ☞ Machines are not capable of understanding.
- ☞ Because programs are purely syntactic in nature, lacking semantics (meaning).

Paper 2. The Chinese Room Argument (The Internet Encyclopedia of Philosophy)



☞ The Chinese Room Thought Experiments

☞ Replies and Rejoinders

1. The System Reply
2. The Robot Reply
3. The Brain Simulator Reply
4. The Combination Reply
5. The Other Minds Reply
6. The Many Mansions Reply

☞ Searle's 'Derivations from Axioms.'

Paper 3. Minds, Brains and Programs (Intro to Philosophy)



- ☞ Is the Mind a Computer Program?
- ☞ Searle's Argument
- ☞ Searle's Defense of Premise 3 - The Chinese Room
Analogy.
- ☞ Responses to Searle
- ☞ Syntax vs Semantics (good illustration)

Paper 4. Searle's Chinese Room Argument (Indiana)



Summary

John Searle's 1990 enhancement to CR Arguments in his paper "Is the brain's mind a computer program?"

Axiom 1: Computer programs are formal (syntactic)

Axiom 2: Human Minds have mental contents (semantics)

Axiom 3: Syntax by itself is neither constitutive of nor sufficient for semantics

Conclusion 1: Programs are neither constitutive of nor sufficient for minds.

Paper 5. Minds and Machines (Monash)



☞ Searle's Chinese Room Argument

☞ Intentionality

Paper 6. John R. Searle's Chinese Room (Helsinki)



- ☞ Mind-Body - problem
- ☞ Chinese Room Argument
- ☞ Criticism (between cognitive* scientists and Searle)
- ☞ The Cognitive Scientist has Failed
- ☞ Conclusions

* cognitive \Cog"ni*tive\, a. Knowing, or apprehending by the understanding; as, cognitive power.

What's in Store for Lecture 14



- 📄 Quick Review of Lecture 13
- 📄 Philosophy III
- 📄 Future of AI
- 📄 Past Year Examination Papers Trends Analysis
- 📄 Assignment Discussion
- 📄 Conclusion

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End of Lecture 13

Good Night.