

Lecture 5: Problem Set 5 (Due WEDNESDAY Mar. 21)

Reading: Emotion Machine, Chapter 4

Problem 1

In order to find meaningful answers you must first be able to formulate good questions. List ten questions you would like to answer about Chapter 4.

Problem 2

Regarding the word Consciousness, Minsky states, "I'll argue that it would be a mistake to believe in any such entity--because we ought to be asking this question, instead: 'Isn't it remarkable that any single word or phrase could have come to mean so many different things?'"

Packing too many ideas into one suitcase word like consciousness doesn't get us very far, unpack some of the different ideas that we talk about when we refer to consciousness.

Problem 3

"Sam is an MIT freshman trying to start a Punk band, while studying Linguistics. While Sam is planning his week, he notices a big red circle around Wednesday on his calendar and realizes that he has scheduled a punk gig at All Asia for the night before his Neurolinguistics midterm--not allowing for the customary study time. Sam then gets depressed because he realizes that he is always making conflicting plans like this. He thinks about what his Dad would say about getting so upset and makes a resolute decision to plan ahead next time."

a) Using this story about Sam and the layers from Model-6 below to categorize the different levels of reflection.

1. Reactive
2. Learned-reactive
3. Deliberative
4. Reflective
5. Self-reflective
6. Self-conscious

b) Now make up a description of one sequence of your thought processes that contains an example of each of Minsky's 6-layers of reflection.

Problem 4

Knowledge representations are only as good as they are useful for solving problems. Minsky discusses the many different models that Jane uses of herself in the Cartesian Theater example.

a) What are some reasons why you would need to switch between many small models rather than just using one complete model for all problems?

b) Describe some of the resources that would be involved in managing different self-models. Discuss the tradeoffs of maintaining consistent versus inconsistent self-models.

c) Think of and describe a way to change self-models, such as in the context of learning a new programming language or sport.

Problem 5

Think of and describe five project ideas that you would be interested in actually doing. Here are a few sample project ideas:

- Managing multiple problem solvers in one architecture.
- Implement a planning system that uses reflection to get unstuck.
- Implementing a system that learns Critics, Suppressors, and Censors.
- A 'bipolar critic-selector' search process applied to a planning domain.
- Choose a mental disorder from psychology, such as ADHD, and translate and analyze it in terms of Minsky's model.
- Describe a language model that uses multiple representations such as different levels of detail or different points of view.
- An application that uses and changes self-models depending on the current problem or feedback from imprimers.
- Implement a system of Panalogies reasoning with multiple representations.