

Reading Guide #6: Functionalism

These reading guides are provided to assist you in your reading. I encourage you to read the material through, first, then go back to answer the questions. You are not required to hand in written answers. You are expected to have responses ready for class discussion. Only bold-faced questions will appear on exams. Page numbers refer to Peter A. Morton, *A Historical Introduction to the Philosophy of Mind*, Broadview Press, 1997.

Alan Turing, "Computing Machinery and Intelligence," pp 265-82.

Note: Because of advances in computing in over fifty years since Turing wrote his article, some of his discussion of computers is obscure or needlessly pedantic. Reading Morton's discussion, pp 251-261, of the important points in the first five sections of Turing's article may be helpful in answering the questions on this reading guide.

1. Describe the game that Turing proposes (the Turing test) to consider the question of whether machines think?
What kinds of machines does Turing consider, to answer the question?
2. What is a human computer? How does a human computer decide how to act?
3. **What is a machine table? What are discrete state machines? Given a discrete state machine and a machine table, what can we predict?**
4. Why are digital computers (Turing machines) universal machines?
5. How does Turing respond to the theological objection to the possibility of thinking machines?
6. Describe the result that forms the foundation of the mathematical objection. How does Turing argue that the mathematical result does not show that machines can not think?
7. How is the argument from consciousness a denial of the validity of the Turing test? How may the argument from consciousness be solipsistic?
8. How are many of the criticisms of the hypothesis that machines can think founded on false inductions?
9. **Describe the Lady Lovelace objection. How does Turing respond?**
10. For Turing, why is the difference between a continuous nervous system and a discrete-state computer not relevant to the question of whether machines can think?
11. Is the informality of human behavior evidence that we do not behave in lawlike fashion?
12. Why does Turing suggest attempting to program an imitation of a child's mind, instead of an adult's mind?
How would he generate a machine to imitate an adult's mind?

Hilary Putnam, "The Nature of Mental States," pp 320-7.

1. What are the two conditions for identity of properties demanded by the program of reductive analysis?
2. How does Putnam use the term 'property'? How does he use the term 'concept'?
3. How does Putnam show that properties can not be the same as concepts?
4. **Does the difference between the concept of pain and the concept of being in a particular brain state show that the property of being in pain is different from the property of being in a particular brain state? Explain.**
5. Does the difference in location of pains and brain states show that pain is not a brain state? Explain.
6. What problem arises from weakening the claim that pains are brain states to the claim that pain are correlated with brain states?
7. **Does Putnam claim that pain is a brain state? What is it?**
8. **What is a probabilistic automaton?**
9. **What is a machine table? What is a description of a system? What is a total state of a system?**

10. **Explain the hypothesis that mental states are functional states (the four clauses).**
 11. How could one test Putnam's functionalist hypothesis?
 12. **Is functionalism compatible with dualism? Explain.**
 13. **What must the identity theorist do to establish that pain is a certain brain state? Why does Putnam call identity theory an ambitious hypothesis?**
 14. **Why would the discovery of a psychological state instantiated by two different physico-chemical states cause identity theory to collapse? How might the identity theorist try to save the theory?**
 15. "Similarities in the behavior of two systems are at least a reason to suspect similarities in the functional organization of the two systems, and a much *weaker* reason to suspect similarities in the actual physical details (p)." Explain.
 16. **Why should we want species-independent psychological laws? Does this desire favor identity theory or functionalism? Explain.**
 17. What advantage does behaviorism seem to have over identity theory and functionalism? Why is this not really an advantage?
 18. **Can two people with the same actual and potential behavior have different mental states? Explain. What does this mean for behaviorism?**
 19. What kinds of methodological questions does functionalism render senseless? Why?
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Jerry Fodor, from "Something on the State of the Art," pp 238-333.

1. **What is the main problem facing the dualist? Why is this problem worse for the dualist than for the materialist?**
 2. How does behaviorism explain mental causation?
 3. **"Mental causes typically have their overt effects *in virtue of their interactions with one another, and behaviorism provides no satisfactory analysis of statements that articulate such interactions (p 330).*" Explain.**
 4. Why do cognition theorists oppose behaviorism?
 5. **How does identity theory solve the problem of mental causation?**
 6. Why does the identity theorist dismiss claims that mental-state terms must be synonymous with physical-state terms?
 7. **Distinguish token physicalism from type physicalism.**
 8. **Why is type physicalism implausible?**
 9. "If we want a science of mental phenomena at all, we are required to so identify mental properties that the kinds they subsume are natural from the point of view of psychological theory construction (p 331)." Explain. What is a natural kind?
 10. How does the behaviorist provide a relational treatment of mental states? How does the identity theorist fail to do so?
 11. **What advantages does identity theory have over behaviorism?**
 12. How might one understand functionalism as merely a slight extension of behaviorism?
 13. **How is functionalism not reductionist, in contrast to behaviorism?**
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Jerry Fodor and Ned Block, "What Psychological States are Not," pp 333-4.

1. **How many different states of its machine table does a Turing machine have? How many different mental states do people have? Why does the difference between these two answers matter?**
2. What is the difference between machine table states and computational states?

John Searle, "Minds, Brains, and Programs," pp 282-96.

1. What are the strong and weak AI theses?
2. Describe the capacity of Schank's story-understanding program. What two claims does the strong AI thesis make about Schank's program?
3. **Explain the Chinese room thought experiment. What does it show about the two strong AI claims?**
4. **"As long as the program is defined in terms of computational elements on purely formally defined elements, what the example suggests is that these by themselves have no interesting connection with understanding (p 285)." Explain.**
5. How does understanding admit of degrees? Why does Searle think that degrees of understanding are irrelevant to the Chinese room example?
6. **According to the systems reply, to what do we ascribe understanding in the Chinese room example? Why is this reply unsuccessful? Does the appeal to subsystems help?**
7. **"The study of the mind starts with such facts as that humans have beliefs, while thermostats, telephones, and adding machines don't. If you get a theory that denies this point you have produced a counterexample to the theory and the theory is false (p 288)." Explain.**
8. To what does the proponent of the robot reply ascribe understanding? How is the robot reply thus more powerful than the original argument? Why is the robot reply unsuccessful?
9. How does the brain simulator reply abandon the strong AI program?
10. **According to Searle, what matters about the brain? Why doesn't a brain simulator simulate what matters?**
11. **Why would we ascribe intentionality to the well-crafted robot? Why might we withhold such ascriptions?**
12. **Why do we ascribe intentionality to some animals?**
13. Why does the other minds reply miss the point?
14. Does Searle's argument show that artificial intelligence is impossible? What claim, precisely, does it aim to refute?
15. According to Searle, how could one make a machine that thought?
16. **What does Searle mean when he writes that programs have only a syntax, and not a semantics?**
17. **In what three ways does the "mind is to brain as program is to hardware" analogy break down?**
18. **How does the proponent of strong AI confuse simulation with duplication?**
19. How do two different senses of 'information processing' lead to confusion about AI?
20. **"If AI workers totally repudiated behaviorism and operationalism much of the confusion between simulation and duplication would be eliminated (p 295)." Explain.**
21. How does strong AI depend on dualism?