

ASSIGNMENT 5

due Wednesday, October 10

Instructions

By Monday, October 1:

- Study for the first midterm exam, which will cover material through Friday's lecture. You will find further information below. Note that the written part of this assignment is not due until Wednesday, October 10, but it may help for you to think about the relevant questions before the exam.

By Wednesday, October 3:

- Start reading Chapter 4 of TTT.

By Friday, October 5:

- Finish reading Chapter 4 of TTT.

By Monday, October 8:

- Start reading Chapter 5 of TTT.

By Wednesday, October 10:

- Finish reading Chapter 5 of TTT.

By Friday, October 12:

- Look over pages 141-154 in Chapter 6 of TTT. You are not responsible for all the material in the reading; only those aspects discussed in class.

Turn in the homework assignment at the beginning of class on Wednesday, October 10.

Homework assignment

1. According to Descartes, what are the three fundamental operations of the mind? Which ones are capable of providing certain knowledge? (M)
2. TTT, study question 1 on page 80. (M)
3. Explain Leibniz' distinction, in the *Monadology*, between truths of reasoning and truths of fact, and the associated principles of reasoning. According to Leibniz, how does the principle of sufficient reason imply the existence of God? (L)
4. Explain how the absence of relations in Leibniz' logic leads him to the conclusions that each monad mirrors the entire universe. (M)
5. TTT, study question 1 on page 103; derive the law from equations (1)-(10) in the preceding section. Be very explicit as to which equations you are using in your derivation. Hint: start with $x + (1-x) = 1$, from equation (7), and multiply both sides by x on the left.

6. Boole translates the statement “if x then y ” into the symbolic representation $x \cdot (1-y) = 0$. Given the “logical” interpretation of these symbols, explain why this makes sense. Also explain (informally) why this expression is equivalent to $(1 - x) + y = 1$. (M)

Thought questions

1. TTT, study questions 2-6 on page 81.
2. TTT, review questions on page 89.
3. According to Descartes, what kind of certain knowledge can we have of the world?
4. Discuss the relation between Leibniz’ metaphysics, as portrayed by the *Monadology*, and his logic, as characterized in TTT.
5. Explain how Leibniz’ *Characteristica Universalis* (that is, his mathematics of reason) is a forerunner of modern symbolic logic.
6. TTT, study questions 1-4 on page 100.
7. TTT, study questions 2 and 3 on page 103.

Information regarding the exam

In designing the exam, I will try to be *thorough*, and ask questions that test your knowledge of the material covered in the lectures, source readings, and readings from TTT. On the other hand, I will also be *straightforward*; I will not try to trip you up with arcane trivia.

To study, go over the notes, reading, homework assignments, and thought questions. Study with others if you can, and drill each other with questions.

You should know basic biographical data regarding the philosophers we have discussed: where they lived and (roughly) when, who their influences were, and what general historical circumstances influenced and shaped their views. Be able to discuss the terms they use (like form, substance, cause, monad, etc.), the theories they present, and the arguments found in the readings.

You should know the mathematical definitions we have discussed in class, and you should be able to carry out calculations similar to examples from the lecture, homework, and reading. You do *not* need to (1) be able to prove that there are infinitely many prime numbers; (2) be able to prove Cantor’s theorem; (3) know what the binomial theorem says. But you should, for example, be familiar with Euclid’s axioms, and know what it means for two sets to have the same cardinality.

On the exam, there will be short-answer questions, like the following:

1. Where and when did Descartes live?
2. According to Ramon Lull, what cognitive deficit prevented heathens from accepting the Christian God?
3. According to Aristotle, what is the difference between primary and secondary substance?
4. Calculate the number of ways of choosing 3 objects out of 10, without repetitions, where the order does not count.

There will be a few medium-length-answer questions, like the following:

5. Describe the differences between the metaphysical views of Plato and Aristotle. What are some of Aristotle's criticisms of Plato?
6. Summarize Anselm's "ontological argument" for the existence of God, and present two possible objections.

There will also be one long answer question, like the following:

7. In lecture, I noted that the early modern philosophers are often divided into the "rationalists" and the "empiricists." Describe the criteria on which this classification is based. What category does Descartes fall into? What about Hobbes? Explain.