



Core Logic

2004/2005; 1st Semester
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Homework Set # 2

Deadline: September 22nd, 2004

Exercise 3.

Find the syllogisms hidden in the following three (completely fictitious) texts and formalize them using the notation for syllogisms used in the lecture (*e.g.*, describe the natural language terms corresponding to A , B and C , and then give a mood like “ $AaB, BiC : AiC$ ” for **Darii**). You get 2 points for each correct formalization and one point for the correct medieval name of the syllogism (for a total of 9 points).

Text A. “Yesterday, the newspaper reported that some of the Deans inaugurated yesterday published heavily anarchist papers in the 1970s. The whole concept of an anarchist being the Dean at our university is ridiculous. One of the main duties of the Dean is being the head of our administration. Being well-organized and hierarchically minded are necessary conditions for this job, actually even for aspiring to hold that office. Therefore, we can be sure that all new Deans have given up the anarchist convictions from the 1970s if they ever had them.”

Text B. “I am afraid that you do not have the right to deny Bartleby access to a desk and a computer. The following is part of the agreement in our special programme that every participating institution has to sign: every participating institution which sends graduate students to the United States has to provide infrastructure for visiting students from US universities in reciprocation. As every single Dutch university sent at least one student to the US between 1991 and 2003, the student Bartleby from Indiana University will have the right to demand a desk and a computer at each university in the Netherlands.”

Text C. *A Socratic dialogue overheard on the corridor of an unnamed math department.*

“All of my students deserve their grades. My grading is absolutely fair.”

“Well, didn’t you tell me that you caught a cheating student last week?”

“Yes.”

“But could you prove that this student was cheating?”

“Well, not exactly: I lost the cheat sheet after the exam, and when I wanted to fail him, he challenged me to present proof. Since I lost the cheat sheet, I couldn’t present proof and had to give him the grade according to his exam book.”

“Do I recall correctly that you gave him an A–?”

“Alas, it was even a straight A...”

“And you think that cheating students deserve an A?”

“Of course not.”

“So, some of your students didn’t deserve their grades.”

Exercise 4.

Take the set $X := \{\text{Socrates, Aristotle, Plato}\}$ as a universe of discourse. Define predicates on X to show that the following four moods are invalid (3 points each; 9 points total).

- $AiB, CiB : AiC.$
- $AoB, BaC : AaC.$
- $AeB, BiC : AeC.$
- $BaA, CaB : AaC.$

Identify the figure of the four invalid moods given above (1 point each; 4 points total).