

# Logic Seminar 2017 Autumn

## Homework 1

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**1** Aristotelian syllogistic arguments fall into one of the following four figures:

**Figure one** Premise 1. Subject:  $M$ ; predicate:  $B$ .  
Premise 2. Subject:  $A$ ; predicate:  $M$ .  
Conclusion. Subject:  $A$ ; predicate:  $B$ .

**Figure two** Premise 1. Subject:  $B$ ; predicate:  $M$ .  
Premise 2. Subject:  $A$ ; predicate:  $M$ .  
Conclusion. Subject:  $A$ ; predicate:  $B$ .

**Figure three** Premise 1. Subject:  $M$ ; predicate:  $B$ .  
Premise 2. Subject:  $M$ ; predicate:  $A$ .  
Conclusion. Subject:  $A$ ; predicate:  $B$ .

**Figure four** Premise 1. Subject:  $B$ ; predicate:  $M$ .  
Premise 2. Subject:  $M$ ; predicate:  $A$ .  
Conclusion. Subject:  $A$ ; predicate:  $B$ .

**1a** Find a syllogism in the first figure. Show its validity with an indirect argument.

**1b** Find another syllogism in the second figure. Show its validity with a Venn diagram.

**1c** Find a paralogism in the third figure. Show its invalidity by substituting terms so that the premises become obviously true and the conclusion obviously false.

**1d** Find an argument in the fourth figure that is a syllogism if and only if we ascribe existential weight to universal assertive propositions (that is, we take the position that *Some A are B* follows from *All A are B*).

2 Are the two highlighted arguments in the following passage Aristotelian syllogisms? Why?

“We’ll split it. Epimenides the Cretan says all Cretans are liars. It must be true, because he’s a Cretan himself and knows his countrymen well.”

“That’s moronic thinking.

“Saint Paul. Epistle to Titus. On the other hand, *those who call Epimenides a liar have to think all Cretans aren’t, but Cretans don’t trust Cretans, therefore no Cretan calls Epimenides a liar.*”

“Isn’t that moronic thinking?”

“You decide. I told you, they are hard to identify. Morons can even win the Nobel prize.”

“Hold on. *Of those who don’t believe God created the world in seven days, some are not fundamentalists, but of those who do believe God created the world in seven days, some are. Therefore, of those who don’t believe God created the world in seven days, some are fundamentalists.* How’s that?”

“My God—to use the *mot juste*—I wouldn’t know.”

(...)

“I’d be in excellent, venerable company.”

“You’re right. And perhaps, in a logical system different from ours, our moronism is wisdom. The whole history of logic consists of attempts to define an acceptable notion of moronism.”

(Eco, *Foucault’s Pendulum*. Harcourt, 1988. 64f.)

**3** The following list of premises is from Lewis Carroll. Find a suitable conclusion. Try to dismantle the argument into Aristotelian Syllogisms.

1. The only animals in this house are cats.
2. Every animal is suitable for a pet, that loves to gaze at the moon.
3. When I detest an animal, I avoid it.
4. No animals are carnivorous, unless they prowl at night.
5. No cat fails to kill mice.
6. No animals ever take to me, except what are in this house.
7. Kangaroos are not suitable for pets.
8. None but carnivora kill mice.
9. I detest animals that do not take to me.
10. Animals, that prowl at night, always love to gaze at the moon.

Lewis Carroll, *Symbolic Logic*. Potter, NY, 1896. 175ff.