Deadline: September 16, 5pm. Please upload your assignment to Moodle by this time, and also bring a paper copy to class on September 17. This assignment will be graded anonymously, so please don't list your name, but only your MAC ID.

As noted by the syllabus as well as in class, the scope and content of assignments are set by lectures, instead of any specific textbook. Please beware that different textbooks may use different symbolism or definitions. Lemmon's as a very old textbook, for example, uses soundness and validity differently from the lectures.

You are encouraged to discuss your answers with other students (but write up your own answers individually).

1. (1) What are the two components of an argument?

   (2) Can any sentence be a premise or conclusion? Why or why not?

2. For each of these arguments, EITHER show that it is valid by reasoning from premisses to conclusion, OR show that it is invalid by producing a counter-example.

   - Wherever you find lions, you find vultures. There are no lions in Alaska, so there are no vultures either.

   - Anybody who floats in water is a witch. But Doris doesn't float in water. So she isn't a witch.

   - Some Griffindors play Quidditch. And some Quidditch players support Voldemort. So some Griffindors support Voldemort.

   - Some vampires drink blood. And some villains are vampires. So some villains drink blood.

3. Give an example of:

   - A valid argument with a false conclusion

   - A valid argument with false premises

   - An invalid argument with true premises and a true conclusion

4.   Can a valid argument have true premises and a false conclusion? Why or why not?

5.   (Harder!) For each of the following examples, explain whether or not it is valid, and why. (Some of these examples are philosophically controversial. If you find anything ambiguous that affects your answer, please also explain how you resolve the ambiguity.)

   - All unicorns are beautiful. Orcs hate anything beautiful. So orcs hate all unicorns.

   - Diamond is hard. So diamond is not soft.

   - 8 is a prime number. Therefore, all frogs are pink.

   - Everything in Macalester is colored red all over. So nothing in Macalester is colored blue all over.