

Introduction to Logical Reasoning

Problem Set #1: Statement Classification

Although I strongly suggest that you write out answers to all these problems, you do *not* have to turn in any written responses. You do, however, need to be prepared to do these types of problems, for questions on the weekly quizzes and exams will primarily be drawn from the problem sets. The solutions to these problems will be provided, so you can check your own work and seek help from me as necessary.

We will devote considerable time to these types of problems during the next in-class workshop. In order to make that workshop productive, please make a solid start on them. That way you can use the workshop to address the difficulties you are facing.

If you do the extra credit logic puzzle, you must email me your solution by Sunday, September 1st at 12:00PM (noon). Late extra credit will not be considered, no exceptions.

Instructions

Each of the following problems presents a single statement. For each, indicate whether it is a simple or a compound statement. If it is simple, indicate whether it is negative or positive. If it is compound, indicate whether it is conjunctive, disjunctive, hypothetical, or some combination of these. Do not forget to indicate the type of simple statements that are involved for the compound ones.

Problems

1. All the journalists know logic.
2. Some marketing executives hate logic.
3. Most computer scientists do not hate logic.
4. Either the journalists or the computer scientists know logic.
5. The journalists know logic and the professor has an easy job.
6. Either the professor's wife will not enjoy Qatar or she will have fun.
7. The professor's wife certainly does enjoy Qatar.
8. The journalists know logic and the computer scientists are jealous.
9. If the business students do not love logic, then the professor is sad.
10. Either the professor is sad, or if his students are engaged in the class then the professor is happy.
11. If the journalists learn logic and the professor has an easy life, then the world is a better place.
12. If computer scientists know logic and they get better jobs, then either their lives are easy or they will make lots of money.
13. If the journalists like logic then the professor is not sad, and if the professor is not sad then his wife is happy.
14. If the journalists either have easy lives or make lots of money, then the computer scientists are jealous.
15. If the computer scientists knowing logic would cause the professor to be happy, then the world is a better place for the professor.

Note: There may be a lot of exercises here. Do not feel obligated to do all of them. I often assign many exercises so that you have plenty of opportunities to practice the skills these exercises are trying to impart. I suggest doing just enough of them so that you are confident that you could use these skills on a quiz or an exam.

Extra Credit Logic Puzzle

The crew on the Qatar Airways flight to Washington, D.C. consists Mr. Rayhan, Mr. Mohammed, Mrs. Hafsa, Miss Ayah, Mr. Omar, and Miss Reema. The positions they occupy are pilot, co-pilot, navigator, head flight attendant, business class attendant, and economy attendant, though not necessarily in that order. The following facts are known:

1. The co-pilot is the pilot's grandson.
2. The navigator is the head flight attendant's son-in-law.
3. Mr. Rayhan is a bachelor without children.
4. Miss Ayah and Miss Reema are both unmarried without children.
5. Mr. Mohammed is twenty-two years old.
6. Miss Ayah is the business class attendant's step-sister.
7. Mr. Omar is the pilot's neighbor.

Question: Who holds each position?

To receive full credit you must justify your answer with a logical argument showing why you are 100% right. That is to say, this question has a definitive answer that can be justified without *any* guessing on your part.