

Introduction to Logical Reasoning

Problem Set #11: Analyzing Categorical Statements

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, November 17th at 12:00PM (noon). Late extra credit will not be considered, no exceptions.

Instructions

Each of the following problems presents a categorical statement. For each, (1) state the subject term (*S*) and predicate term (*P*), (2) identify its logical form, (3) draw the Venn diagram representing it, being sure to label the parts, and (4) explain its quality, quantity, and distribution.

Problems

1. No scientists are Baptists.
2. Some plants are trees.
3. No cats that have lived over fifteen years in a domestic setting are pets free of all health problems.
4. Some mammals are not whales.
5. All theologians who have studied arguments for the existence of God are scholars with serious misgivings about the traditional notion of omnipotence.
6. No football players are A-students.
7. All refugees from unstable countries are poor people.
8. Some who play the stock market are not millionaires.
9. No taxpayers from the 2003 tax year are embezzlers.
10. No U.S. prosecutors who have reviewed the cases of death and injury at the Ace-Westinghouse foundry are friends of corporate America.
11. All cancer survivors in the clinical study are coffee drinkers.
12. Some terrorists are bald.
13. No pro-democracy students in China are outside agitators.
14. Some congressional Republican leaders are pro-lifers.
15. Some health care programs proposed in the Senate are not viable options.
16. No death-row inmates are death-penalty supporters.
17. All child-abuse caseworkers are overburdened civil servants.
18. All Giants fans are fanatical.
19. Some government programs are wasteful.
20. Brave are the soldiers who give their all.
21. "People who whisper lie." [Swedish proverb]
22. Only cell phone companies that keep up with the latest technology are good investments.
23. Only if something has a back beat is it a rock-and-roll song.
24. "People with pinched faces often have poisonous hearts." [Chinese proverb]
25. Nothing that is a snake is a mammal.
26. "All intelligent thoughts have already been thought." [Johann Wolfgang von Goethe]
27. "The only good human is a dead human." [*Planet of the Apes*]
28. Gregory is a Republican.
29. Soldiers who broke their legs didn't finish their training.
30. Some things are meant to be forgotten.
31. "There is no excellence without difficulty." [Ovid]
32. Jonathan is not a very brave pilot.
33. "All men have sinned." [New Testament]
34. Only poets are guardians of the soul.
35. Any earthquake is a potential disaster.
36. "People who wish to salute the free and independent side of their evolutionary character acquire cats." [Anna Quindlen]
37. All androids like Commander Data are nonhuman.
38. Nothing that satisfies the heart is a material thing.
39. Some young people are non-Catholics.
40. Every political party that gets at least 50 percent of the vote in a presidential election is a major player in American politics.
41. Most treatments said to be part of "alternative medicine" are unproven.
42. There are products advertised on the Internet that are unsafe devices.
43. "People who love only once in their lives are . . . shallow people." [Oscar Wilde]
44. Some of the members of the Daughters of the American Revolution are from Canada.
45. Friday is the only day that gives her any joy.
46. Many socialists are not communists.
47. "All prejudices may be traced to the intestines." [Friedrich Nietzsche]
48. The picture hanging on the wall is crooked.
49. Whoever seeks the truth through philosophy is a free person.
50. "He that is born to be hanged shall never be drowned." [French proverb]
51. Only artists are visionaries.
52. Not all writers are poets.
53. "A nation without a conscience is a nation without a soul." [Winston Churchill]
54. No one is exempt from the draft in times of war.
55. No creed can be inviolable.
56. No one can join the army when they're sixteen.
57. Some birds are flightless.
58. Nothing is more pitiable than the reasons of an unreasonable man.
59. Abraham Lincoln is one of the few writers whose words helped turn the world.
60. Some snakes are not poisonous.

Problem Set #11: Analyzing Categorical Statements

61. Some good talkers are good listeners.
62. It is false that some businessmen are crooks.
63. Some people with excellent reputations are not persons of excellent character.
64. Black dogs didn't get fed.
65. "Every commander is alone." [Michael Powell]
66. Rainbows are always misleading.
67. There are bad apples in every barrel.
68. "Few friendships could survive the moodiness of love affairs." [Mason Cooley]

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

In Washington, D.C., politicians never ever tell the truth, and all non-politicians always tell the truth. Suppose you are working at a hospital in Washington, D.C. You are assisting Dr. Callie Torres, a non-politician, in an amputation, but she has forgotten which leg to cut off! Torres tells you that the patient's doctors, Meredith Grey and Cristina Yang, know which leg is being amputated, so she sends you to find one of them and solve this problem. However, Torres warns you that one of Grey and Yang is a politician and one of them is a non-politician, but Torres forgets who is who. Leaving the operating room, you immediately run into Dr. Grey.

Question: What one question can you ask Dr. Grey to find out which leg to amputate?

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.