Tips for Solving Logic Problems

William T. Pelletier

Logic problems are entertaining opportunities to practice thinking clearly and to enjoy the fruits of such activity. A logic problem consists of a jumble of facts and relationships from which one must deduce an organized structure.

1. Carefully read the entire problem. This usually consists of an Introduction followed by a series of numbered Clues. Clues are often hidden in the Introduction. The Introduction also clearly specifies the objective of the problem. It is important to have this objective clearly in mind before attempting to unravel the problem.

2. Use criss-cross grids or fill-in tables to organize the given information and to deduce conclusions. The goal is to isolate the solution by the elimination of all other possibilities. It is frequently the case that one type of solve chart is a better aid in solving a given problem than another. Thus if one is stuck, try using a different solve chart or diagram to look at the puzzle from an alternative point of view. Frequently it's profitable to use both types of solve charts in conjunction with each other. Occasionally for very difficult logic problems, one may need to use many charts representing various portions of the problem.

3. Instead of placing an "X" in a criss-cross grid to eliminate a possibility, put the number of the clue used to eliminate it. This can be very helpful part way through a problem when one is trying to correct a mistake or check one's work.

4. Watch for subtle gender clues based on names or pronouns.

5. A clue like, "Neither Bob nor the one from Kansas drives the red car" includes the frequently overlooked information that Bob is not from Kansas.

6. After having entered information from all the clues in the solve charts, reread everything in light of the charts. Frequently, you will now be able to use clues (to deduce more information) that were not usable the first time through the problem.

7. Puzzle magazine editors usually consider logic problems which require a fill-in table to be harder than those for which a criss-cross grid is sufficient. The majority of the harder logic problems tend to be table puzzles. One way to attack these puzzles is to find first a list of all the different "entities" (people or dogs or cities or whatever) involved and then enter them on the different rows of the table. Such a list will identify the entities by whatever various attributes one is supposed to match up in the puzzle.

8. Order relationships are very important. For puzzles that have them, they are frequently the key to breaking open the puzzle. Sometimes comparison of order relationships will help the solver find a complete list of the "entities" involved in a puzzle (see previous tip).

9. One way to get "unstuck" is to make an assumption. If possible, find one to make which has been narrowed down to 2 possiblilities. Assume one of the possibilities and continue trying to solve the puzzle under that assumption. If you encounter a contradiction, then your assumption was wrong and you can proceed from there knowing the other possibility must be true. If you complete the puzzle, then your assumption was right and you have solved the problem. In testing a hypothesis, it may be helpful to switch to another writing implement or to use different symbols to distinguish the hypothesis and its corollaries from the known facts and conclusions.

10. Verify your proposed solution by checking that it satisfies the introduction and all the clues.