

Names: _____

CMPSCI 250 Discussion #2: A Murder Mystery Group Response Sheet

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In this discussion we offer some examples of propositional deduction in the form of a murder mystery. The example on the individual handout will be done on the board for you.

Here are two other murder mysteries for you to solve.

1. Here the meanings of the four basic propositions b , c , k , and p are exactly the same as in the example on the individual handout, given by the first three unnumbered statements. Your new clues are:
 - (a) Clue I: If the candlestick was used, then Professor Plum did it.
 - (b) Clue II: If Professor Plum did it, then he did not use either the baseball bat or the candlestick.
 - (c) Clue III: If the baseball bat was not used, then Professor Plum did it in the kitchen.
 - (d) Clue IV: If the candlestick was not used, then the baseball bat was used in the study.

2. In this case we have six boolean variables to worry about. The murderer may have been Colonel Mustard (m), Professor Plum (p), or Miss Scarlet (s), or any combination of all or none of these. Again the location was either the kitchen (k) or the study ($\neg k$) but not both. The weapon may have been the bat (b), the candlestick (c), both, or neither. You have six clues:

Your clues are:

- (a) Clue I: If the candlestick was used, it was in the kitchen and Colonel Mustard was involved.
- (b) Clue II: If either Professor Plum is innocent or Miss Scarlet is guilty, then either the bat or the candlestick, or both, was used.
- (c) Clue III: If it was Professor Plum with the candlestick, then Colonel Mustard is innocent.
- (d) Clue IV: If Miss Scarlet is innocent, either Professor Plum was involved or it was done in the study.
- (e) Clue V: If the baseball bat was used, then it was in the study and Professor Plum is innocent.
- (f) Clue VI: Unless it was Miss Scarlet in the kitchen, the candlestick was used.