

Question:

Exercises 24–31 relate to inhabitants of an island on which there are three kinds of people: knights who always tell the truth, knaves who always lie, and spies (called normals by Smullyan [Sm78]) who can either lie or tell the truth. You encounter three people, A, B, and C. You know one of these people is a knight, one is a knave, and one is a spy. Each of the three people knows the type of person each of other two is. For each of these situations, if possible, determine whether there is a unique solution and determine who the knave, knight, and spy are. When there is no unique solution, list all possible solutions or state that there are no solutions.

24. A says “C is the knave,” B says, “A is the knight,” and C says “I am the spy.”

Answer:

B cannot be the knight because for his statement to be true, A would also have to be a knight, however there can only be one knight. C cannot be the knight, because then his statement would be false.

Therefore, A is the knight and by his statement, C is the Knave. This leaves B as the spy.

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SECTION: A