

QUESTION POSED IN CLASS SEPT 29

This question is taken from the book “What is the Name of This Book? : The Riddle of Dracula and Other Logical Puzzles” by Raymond Smullyan. We constructed a solution using truth tables in class which I am not sure was super convincing to anyone except for me. Try working it out yourself using direct reasoning.

- (1) Suppose that there are two neighboring islands each inclusively inhabited by knights and knaves (knights always tell the truth and knaves always lie). You are told that on one of the two islands there is an even number of knights and on the other one there is an odd number of knights. You are also told that there is gold on the island containing an even number of knights, but there is no gold on the other. You pick one of the two islands at random and visit it. All the inhabitants know how many knights and how many knaves live on the island. You are interviewing three inhabitants, A , B and C and they make the following statements:
 - (A) There are an even number of knaves on this island.
 - (B) Right now, there is an odd number of people on the island.
 - (C) I am a knight if and only if A and B are of the same type.

Assuming that you are neither a knight or a knave and that at the moment you are the only visitor on the island, is there gold on the island or not?