Std No : 1705078

Chapter : 1 Section : 2

21. The inhabitants of the island of knights & knaves created by Smullyan are encountered. A knight always tells the truth but a knave always lies. Two people A & B says something, & you have to identify whether they are knights or knaves or tell no decision is possible.

A says, "I am a knave or B is a knight" & B says nothing.

PTO

Sol^{n}:

There are two cases: A is a knight or A is a knave.

Case 1: A is a knave

If A tells lies then the proposition "I am a knave or B is a knight" need to be false. Since this is 'or' operator, both of the statement ~~is~~ should be false. So "I am a knave" is false but that yields A is a knight which is ~~cons~~ contradicting our assumption. So this is not possible.

Case 2: A is a knight

If A tells the truth, it's enough for at least of the two statements to be

true.

If we assume p to be "A is knight" & q to be "B is knight" then if $p \vee q$ & $\neg p$ are both true then q must be true.

So we can deduce that A is a knight & B is also a knight