



## GUIDED TUTORIALS N°2

### Exercise 1

We consider the following statements:

"If the unicorn is mythical, then it is immortal; if it is not mythical, then it is a mortal mammal. If the unicorn is either immortal or a mammal, then it has a horn. The unicorn is magical if it has a horn."

Can we demonstrate that the unicorn is:

1. Mythical
2. Magical
3. It has a horn

### Exercise 2

We consider the following statements:

1. If he hates chicken, then he likes turkey.
2. He has the same taste for turkey and beef.
3. If he hates fish, then he likes chicken.
4. He hates chicken or fish.
5. If he likes chicken, then he likes beef

Can we reach the following conclusion: He likes turkey and beef?

### Exercise 3

A crime has been committed in the laboratory. Three (03) suspects have been interrogated ( $S_1$ ,  $S_2$ ,  $S_3$ ). The summary of their statements is as follows:

1.  $S_1$ :  $S_2$  is guilty and  $S_3$  had nothing to do with that.
2.  $S_2$ : If  $S_1$  committed the crime, then  $S_3$  is innocent.
3.  $S_3$ : I am innocent; however, one of the other two is guilty.

### Exercise 4

We aim to color the map using only three colors (R, G, B) while ensuring that no adjacent regions share the same color. Represent this problem through propositional logic, using the following atoms  $R_{x,y}$  (Region  $x$  is colored with color  $y$ ).

