1. All the 8 states can be legal. This is because we do not know the man’s position.

(cabbage, goat, wolf)

EEE, EEW, EWE, EWW, WEE, WEW, WWE, WWW

EEE, EWE, WEW WWW must be legal.

EEW and WEE are legal when the man in the east side.

EWW and WWE are legal when the man in the west side.

b)

EEW EWW.

EEE WEE WEW WWW

EWE WWE

1. Considering the man’s position, the graph will become this one:

WWE WEE

EEE EWE WEW WWW

EWW EEW

This is because if there is no man, the goat will eat the cabbage and the wolf will eat the goat.

The (EEE to WEE) is not legal because the wolf will eat the goat.

The (EEE to EEW) is not legal because the goat will eat the cabbage.

The (WWE to WWW) is not legal because the goat will eat the cabbage.

The (EWW to WWW) is not legal because the wolf will eat the goat.

…

1. 1. The new one has less legal states.

2. The new one takes the man into consideration at last.

3.The new one is easier to find possible solutions.

4. A state(like EWE and WEW) in the new abstraction may have two situations due to the man’s position.