Problem 1:

A dude finds that he needs to cross a river with his cat, his parrot, and a bag of seed. Unfortunately the boat is only big enough for him and one other thing. There are some issues though, if he leaves the cat alone with the bird, the cat will eat the bird. If he leaves the bird alone with the seed, the bird will eat the seed.

Initially the problem seems easy, but it is deceiving. The guy cannot just take one item over at a time. It has to be done very specifically other wise he will lose one of the items.

The goal is to get everything across the river without loosing something.

The constraints are the limited space in the boat, the cat wanting to eat the bird, and the bird wanting to eat the seed.

Sub goals:

Prevent the bird from being eaten.

Prevent the seed from being eaten.

**Potential solutions:**

One solution for keeping the bird alive would be move it across first. Then move the cat and bring back the bird so they are kept separate.

One solution for keeping the seed from being eat would be to move it so its always left with the cat, since the cat has no interest in the seed.

**Evaluating the solutions:**

Does solution one work? Yes because it keeps the cat and bird separate from each other.

Does solution two work? Yes because it prevents the bird from getting access from the seed so it cannot eat it. Since that cat is not interested in the seed it will not touch it.

I do believe that the solutions will work for all cases since it will effectively let the items be moved without being harmed.