A cat, a parrot, and a bag of seed

1. Define the problem.
   1. A man needs to get a bird, a cat, and a bag of seed to the other side in his boat that has room enough for himself and 1 other item at a time.
   2. The problem presented is pretty straight forward but the conditions it proposes makes the problem seem to be more trivial than it really is. Additionally, the parameters ambiguity seems to play a large part in the illusion of a complex scenario. I had to keep things simple and in perspective in order not to get lost in attempting to find out unnecessary details. Clearing my mind and thinking of the problem in the context of a video game using simple logic (i.e. Light Bot) will definitely help simplify the problem and quickly find a solution.
   3. The overall goal is to get the man, cat, parrot, and bag of seed to the other side of the river via his boat. without leaving 2 alone where one can consume the other (i.e. cat & parrot, parrot & seed).
2. Break the problem apart
   1. Constraints:
      1. The boat has room for the man and one other item at a time.
      2. If alone, the cat can eat the parrot.
      3. If alone, the parrot can eat the seed.
   2. Sub-goals:
      1. Transport all passengers across to the other sides.
      2. Do not leave the cat alone with parrot.
      3. Do not leave the parrot alone with the see
3. Identify potential solutions
   1. Take the passengers 1 by 1 to the other side
   2. Hold the cat, have the bird on your shoulder, and the bag of seed in your pocket and take them across.
   3. Take the cat and the bag of seed over first and let the bird fly over.
4. Evaluate each potential solution
   1. ★★★★★Solution a: most logical and rational of all the solution possibilities and passed all the user case tests.
   2. ★★★★★This is the ideal solution except the user case testing didn’t all support this solution.
   3. ★★★★★ This solution presents many assumed situations not supported by the word problem but can happen and could be a possible solution. Not as logical, or rational as the other two and didn’t pass all user case tests.
5. Choose a solution and develop a plan to implement it
   1. ★★★★★ I chose the most logical and rational of the solutions. The man would first take the parrot to the other side leaving the cat and bag of seed behind. He would drop off the parrot and return to pick up the seed and leave the cat behind. The man takes the seed to the other side and drops it off while picking the bird back up. Taking the bird back to the original side of the river where the cat is and drop the bird off but then pick up the cat to take it over to the other side. After dropping the cat off on the other side, once again return to the original side and pick up the parrot and finally arrive to the other side.
   2. User cases:
      1. The boat has a weight limit due to its small size.
      2. The bag of seed was rather large.
      3. The bag of seed was the size of a small Ziploc bag.
      4. The river was rather small enough to practically hop over.
      5. The passengers were people with names A. Cat, A. Parrot, and A. Bag O’seed.

Socks in the dark

1. Define the problem
   1. A sock drawer is holding 20 socks (10 pairs of socks: 5 black, 3 brown, and 2 white). In choosing socks from the drawer in the dark, what is the lowest number of attempts I can make to guarantee I will pick: a matching pair and one pair in each color: black, brown, and white.
   2. In the word problem it states there are 5 pairs of black, 3 pairs in brown, and 2 in white, which comes to 10 pairs total. Comparing ratios could be the key to finding the solution to this problem.
2. Break the problem apart
   1. Constraints:
      1. Have to choose pairs while in the dark.
      2. Unable to check until after I’ve already chosen.
   2. Sub-goals:
      1. Figure out the lowest number of attempts needed to ensure 100% I will choose one matching pair of socks.
      2. Figure out the lowest number of attempts needed to ensure 100% I will choose one pair of each color: black, brown, and white.
3. Identify potential solutions
   1. Potential solutions:
      1. Turn on the light.
      2. Turn on the light, examine the socks, turn off the light, and then choose.
      3. 1 attempt is all you need since the socks are already paired up by color.
      4. Turn the light on, see where one pair of each color is and then turn off the light and then select them.