Assignment 2

Online Problem Solving 2

by

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I worked through all of the following problems:

The Three Jugs Problem http://www.cut-the-knot.org/water.shtml

Tower of Hanoi https://www.mathsisfun.com/games/towerofhanoi.html

Entrapment http://www.theproblemsite.com/games/entrapment.asp

Trio Match http://www.theproblemsite.com/games/trio_match.asp

Wolf, Sheep, & Cabbage http://www.plastelina.net/game1.html

Name of the problem	Type of Problem	Level of Difficulty	Strategy	Declarative Knowledge	Procedural Knowledge	Why was it easy/difficult
Three Jugs Problem	Well structured	Challenging	1.First pour water into Jug 2 with 5oz. 2.Then pour water from jug 2 into jug 1 with 3oz. ***Jug 1 has 3oz, jug2 has 2oz, jug 3 has 3oz.*** 3.Next, pour water from jug 1 into jug 3 that holds 8 oz. 4.Pour water from jug2, which is 2oz into jug 1 ***Jug 1 has 2oz, jug 2 is empty, jug 3 has 6oz.*** 5.Now pour water from jug 3 into jug 2. 6. Lastly, pour 1oz from jug 2 into jug 1	Jug 1 holds 3oz, jug 2 holds 5oz, jug 3 holds 8oz	none	It was difficult due to lack of procedural knowledge. It was trial and error.

			Now Jug 1 has 3oz, jug 2 has 4oz, jug 3 has 1oz.			
Tower of Hanoi	Well structured	Easy	1.Move the smallest disc to peg 3 2. Then, move middle disc to peg 2 3. Next, move the smallest disc to peg 2 on top of middle disc 4.Now, move largest disc to peg 3 5. Then, move smallest disc to peg1 6. Next, move middle disc to peg 3 on top of bigger disc 7. Lastly, move the smallest disc to peg 3	Small disc will go on top of big disc.	You cannot place a larger disk onto a smaller disk, in any move.	The small number of poles greatly restricted the amount of possible moves you could do.
Entrapment	Moderately structured	Challenging	Create a triangle using all the balls, where grey ones entrap the red ones	none	All red circles must be the mid-point of lines formed by grey circles.	The large grid of spots and strange arrangement of red circles made it difficult to arrange the grey circles to reach all red circles at the same time.
Trio Match	III structured	Easy	Depending on the shape in queue, I decide whether I'll match colors or shapes.	You can look at the shapes that are lined up to decide your strategy to get max. points	200 points- same shape, different colors 200 points- same color, different shapes 400 points- different shapes, different colors	It shows you all the shapes at the beginning of the round, so you can plan your strategy before even placing the first shape. Also, there are many different combinations of shapes and colors, so it gives many different

					500 points + Game Over- same shape, same colors	opportunities to earn points and continue with the game.
Wolf, Sheep and Cabbage	Well structured	Easy	1.Take sheep first and drop it on the other side 2. Then take cabbage and drop it on the other side, bring sheep back. 3. Drop sheep and take wolf to the other side 4. come back and get the sheep.	Wolf eats sheep. Sheep eats cabbage	You can only move one object at a time to the other side.	We know that the wolf and the sheep could not be together, nor could the sheep and the cabbage, which limited the amount of moves we could do.