

LOGIC PUZZLES ARE FUNTASTICAL!

PRINCES AND TIGERS

One day the Lady of Sophistia rang the doorbell to the castle of the Empress of Tiggerton. After explaining to the guards that she wasn't trying to sell anything, the guards let her in and she gained an audience with the Empress. "I would like to marry one of your sons," she said to the Empress. The Empress, who just read a book of logic puzzles and purchased a ton of tigers, agreed to a marriage so long as the Lady could solve a slew of puzzles. The puzzles were of the following form: the Empress would show the Lady a hallway with some number of rooms, and in each room there could be a prince or tiger (but never both, for the Empress had forgotten to purchase food for the tigers, so they were hungry.) The Lady must then use clues to find out which door had a prince behind it (they could all have princes, or none of them could have princes!)

Tiger Puzzle 1. The hallway has two doors, each with writing on it. They say, in order,

- (1) In this room there is a prince and in the other room there is a tiger.
- (2) In one of these rooms there is a prince and in one of these rooms there is a tiger.

The Empress tells the Lady that exactly one of the signs is false.

Tiger Puzzle 2. Again the hallway has two doors. The Empress explains that if the first door has a prince, the sign on that door will be true. If the first door has a tiger, the sign will be false. The rules for the second door are the opposite. The doors say:

- (1) Both rooms contain princes.
- (2) Both rooms contain tigers.

Tiger Puzzle 3. Again there are two doors, but this time the signs are on the ground, and we don't know which sign goes to which door since they fell to the ground and the breeze may have flipped them around (the castle is air conditioned heavily.) On the other hand, they were once placed on the doors following the rules of the previous puzzle. The Empress says the Lady should still be able to figure it out. The signs say:

- (1) This room contains a tiger.
- (2) Both rooms contain tigers.

ISLAND OF QUESTIONERS

You have crashed landed on an island where everyone speaks in questions, and these questions all have yes or no answers. People come in two types: people of type A only ask questions whose correct answer is "yes" and people of type B only ask questions whose correct answer is "no."

Island Puzzle 1. You come across a couple whose last name is Klink. Ms Klink asks of her husband: "Are you the type who could ask me whether I am of type A?" What can be deduced about Mr. and Mrs. Klink?

KNIGHTS AND KNAVES

Knights always tell the truth (except when filing their taxes) and Knaves always lie (especially when filing taxes.) You find yourself on an Island full of Knights and Knaves who have been stranded there (mainly because the armor makes it difficult to swim the 100 meters or so to the mainland.)

Knights and Knaves 1. You meet three inhabitants named Abe, Zoey, and Zippy. Abe says, “At least one of the following is true: that Zippy is a knave or that I am a knight.” Zoey says, “Abe could claim that I am a knave.” Zippy claims, “Neither Abe nor Zoey are knights.” What’s the dealio?

Knights and Knaves 2. You meet four inhabitants: Ted, Carl, Alice and Rex. Ted says that only a knave would say that Rex is a knave. Carl claims, ‘Ted would tell you that Rex is a knight.’ Alice claims that Ted and Rex are both knights or both knaves. Rex says that at least one of the following is true: that Carl is a knave or that Alice is a knave. Sort this out...

Knights and Knaves 3. Anna and Bill are standing at a fork in the road. You know that one of them is a knight and the other a knave, but you don’t know which. You also know that one road leads to a 404 Error not Found screen, and the other leads to a Nyan Cat nursery. By asking one yes or no question (of one of the two people), can you determine the road to Nyanyanyanya...?

BONUS AND HOMEWORK

Island Puzzle 2. You meet three sisters: Abigail, Bellatrix, and Cynthia. Abigail asked Bellatrix, “Are you the type who could ask Cynthia whether she is the type who could ask you whether you two are of different types?” You walk away in confusion... But then you realize you can only deduce the type of one of the three girls. Which one, and what is her type?

Tiger Puzzle 4. The Empress was kind of annoyed that the Lady had solved all her logic puzzles. So she decided to make things a bit harder. She led the Lady to a hallway with 9 numbered rooms. She told her that exactly one contained a prince, the other eight were either empty or contained a tiger. Signs outside of the empty rooms could be either true or false, signs outside of the rooms with a tiger were always false, and the sign outside of the room with the prince was true. The signs read as follows, in order:

- (1) The lady is in an odd-numbered room.
- (2) This room is empty.
- (3) Either sign 5 is right or sign 7 is wrong.
- (4) Sign 1 is wrong.
- (5) Either sign 2 or sign 4 is right.
- (6) Sign 3 is wrong.
- (7) The lady is not in room 1.
- (8) This room contains a tiger and room 9 is empty.
- (9) This room contains a tiger and 6 is wrong.

The Lady looked at this for a while and then objected that this puzzle was unsolvable with just this information! “I know,” laughed the Empress. “Well that’s not fair,” replied the Lady. “At least tell me whether or not Room Eight is empty.” The Empress conceded and told the Lady whether Room 8 was empty or not, and then the Lady was able to solve the puzzle. Which room contained the Prince?