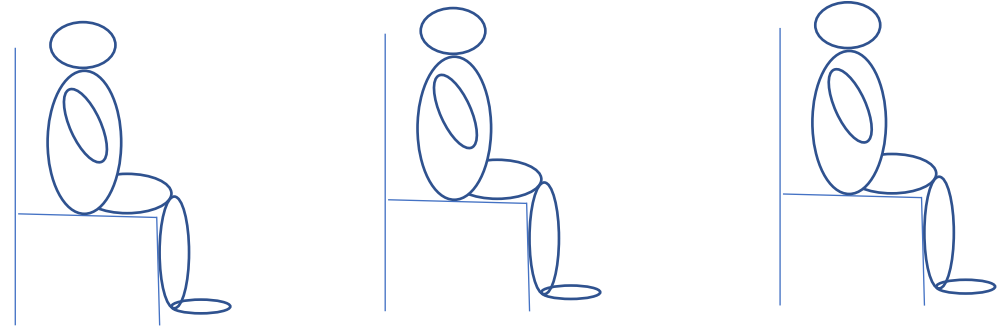# 1. The Hat Problem

Three people are offered a reward if they can give an answer to a simple problem.

They are told to sit in a row, facing forward as shown :

They are all blindfolded. They are then told to choose a hat from a bag and place it on their heads. In the bag there are initially three red hats and two green hats.

The blindfolds are then removed.

The person at the back is asked: "What colour hat are you wearing?"

She replies: "It is impossible to tell."

The person in the middle is asked: "What colour hat are you wearing?"

She replies: "It is impossible to tell."

The person at the front is asked: "What colour hat are you wearing?"
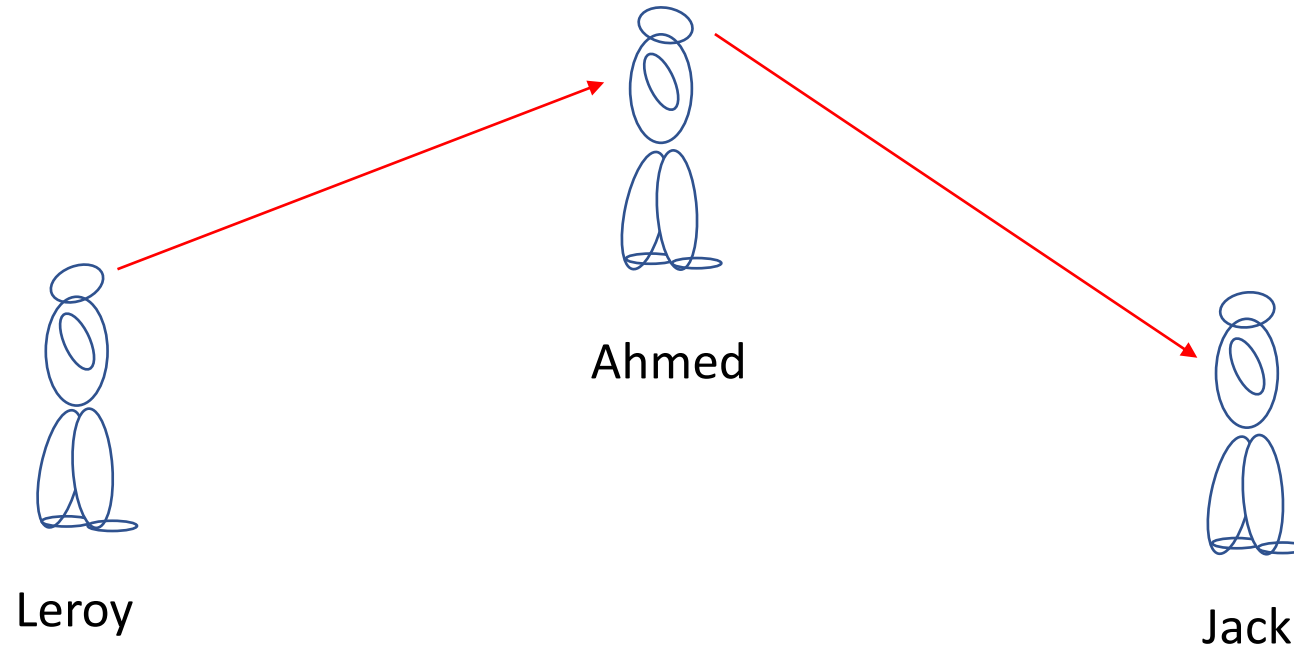
She replies by giving the correct colour of her hat.

What colour hat was she wearing, and how did she work it out?

2. Who's looking at whom?

Leroy is looking at Ahmed.

Ahmed is looking at Jack.

Leroy is married. Jack is unmarried.

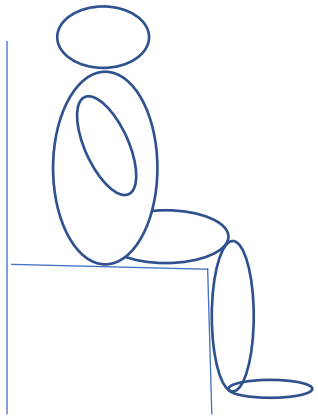Is a married person looking at an unmarried person?

3. Truth and Lies

A woman is driving from England to Scotland. Suddenly her SatNav stops working, and she can't get a signal on her phone.

She finds herself completely lost.

Eventually she comes to a T-junction – one way will take her back to England, the other will take her to Scotland.
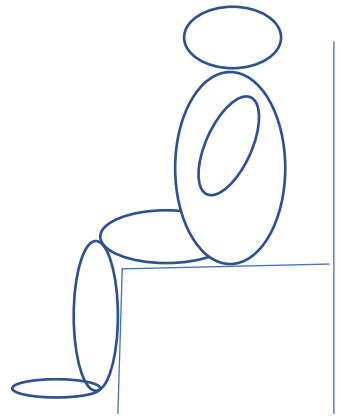
At the junction she sees two men, seated between a notice:

One of these two men comes from the City of Lies. He will always lie in response to any question you ask him.

The other comes from the City of Truth. He will always give a truthful answer.

You are allowed to ask one and only one question. You can choose which person you ask, but there is no way you can know which one is which.

The driver needs to know which road to take to get to Scotland. What question should she ask?

4. Cheryl's birthday

Albert and Bernard become friends with Cheryl, and they want to know when her birthday is. She gives them a list of 10 possible dates:

May 15	**May 16**	**May 19**
June 17	**June 18**	
July 14	**July 16**	
August 14	**August 15**	**August 17**

Cheryl tells Albert the month of her birthday, and Bernard the day.

Albert says: I do not know the date of Cheryl's birthday, and I know that Bernard does not know either.

Bernard says: At first I didn't know when Cheryl's birthday was, but now I know.

Albert says: Now I know too.

When is Cheryl's birthday?