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For simplicity, I'll abbreviate the observations as 0, which represents:

0 = {Result1 = tail, Result2 = head, Result3 = head, Result4 = tail,  
Result5 = tail, Result6 = head, Result7 = head, Result8 = head}

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a) To answer this, we can do the following query:

$$P(\text{Flip8} = \text{C2} \mid 0) = 0.9907$$

This is a very high number, so it can be inferred that Lisa managed to perform a coin switch.

b) To answer this, we just need to find the first instance where the below query is above 0.5 for  $X = 2, \dots, 8$ :

$$P(\text{SwitchX} = \text{Success} \mid 0)$$

For  $X = 2, \dots$

$$P(\text{Switch2} = \text{Success} \mid 0) = 0.5233$$

Therefore, the switch took place in between the flips 1 and 2.