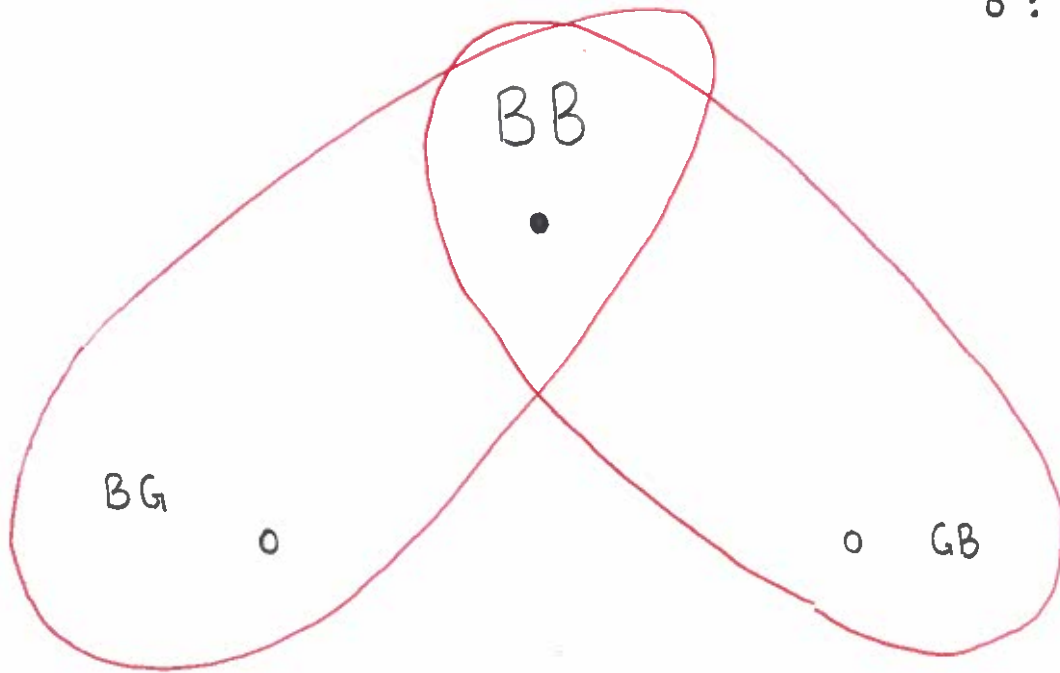


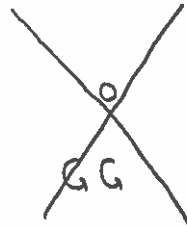
Part 1

• : success

o : failure



This bubble represents the assumption that "the elder child is a boy", inside of which the success rate is 50%.



This outcome is eliminated by the assumption that at least one child is a boy.

Same for this bubble and "the younger child is a boy".

Intuition says that since each bubble has a success rate of 50%, and every outcome is in one of the bubbles, then the success rate for the whole picture must be 50%. In other words, "The guaranteed male child must either be the older or younger child, so why would it possibly matter which I assume he is?" The problem is that these bubbles are NOT DISJOINT, they overlap! As we can clearly see from the full picture above, the total success rate in this case is $\frac{1}{3}$.