0 Question: You're playing a game where you have to coordinate with a friend. Each of you can choose to bring 1 coin or 0. The coins you bring will be flipped, and if neither of them come up tails, you both win. But if neither of you brings a coin, you both lose. You are not able to communicate with your friend. It would be easy if you could collude -- one would bring a coin, and the other would not, giving you a 50% chance of winning -- but you do not have this luxury. What's the probability that you win, if you play optimally? Assume you can't do any weird acausal coordination stuff etc.

A1: 1/3

A2: 1/3 with the best strategy we know, but there might be better strategies

Arguments for A1

1 Question: Of strategies that involve both players bringing the coin with some prob P, does the best one result in a win 1/3 of the time?

A1: Yes

A2: Yes (assuming they bring the coin independently)

4 Question: Of the strategies allowed by the question, does the best one consist of both players bringing the coin with some independent prob P?

A1: Yes

A2: It's not clear - there might be other types of strategies that do better

Arguments for A2

2 Question: In the class of strategies that involve you both bringing a coin independently with the same probability p, does the optimal strategy give win rate 1/3?

A1:

A2: Yes

3 Question: Is there a good argument that this is the only valid class of strategies that are in the spirit of the question?

A1: I think so

A2: No

5 Question: Could there be other types of strategies that are in the spirit of the question and give a higher win probability?

A1: I think it's unlikely

A2: Yes, it's definitely possible