The Trustworthy and Untrustworthy Advisors

Here is a how-should-one-deal-with-uncertainty puzzle:

> A dealer has a deck of cards, each of which has a **1** or a **0** on it. Jasper
> has 4 advisors (Amy, Ben, Caymina, and Derby), and $100. Jasper can
> make an even money bet on the value of each card that is dealt (mean-
> ing, if Jasper bets all $100 on a card and wins, he gets an extra $100,
> and so ends up with $200). Before each deal the dealer shows the card
> value of the card to be dealt to the 4 advisors. Each adviser writes ei-
> ther **one** or **zero** on a slip of paper and places it face up before them
> so that Jasper can see what they have written. On the basis of their
> advice Jasper places his bet. Unfortunately, Jasper knows that some of
> the advisors are liars and so untrustworthy (they might lie, but, then
> again, they might not!). However, he also knows that two of them *al-*
> *ways* tell the truth (but he doesn't know which two they are). If Jasper
> gets to make just three bets (meaning: the dealer will deal three cards
> in turn, showing each card to the advisors, who then write their advice
> on slips of paper for Jasper to see after each deal), how should Jasper
> place his three bets?
>
> In addition, what is the maximum amount of money that he can *guar-*
> *antee* that he will have after the three bets?

Note that Jasper's betting strategy will depend on the what the advisors do, so
consider the various cases that might arise, because what they do will reveal their
true nature. *Don't just write down your strategy on the next page; also explain why and*
how your suggested strategy works.

Dealing with Unreliable Advice

A dealer has a deck of cards, each of which has a **1** or a **0** on it. Jasper has 4 advisors (Amy, Ben, Caymina, and Derby), and $100. Jasper can make an even money bet on the value of each card that is dealt (meaning, if Jasper bets all $100 on a card and wins, he gets an extra $100, and so ends up with $200). Before each deal the dealer shows the card value of the card to be dealt to the 4 advisors. Each adviser writes either **one** or **zero** on a slip of paper and places it face up before them so that Jasper can see what they have written. On the basis of their advice Jasper places his bet. Unfortunately, Jasper knows that some of the advisors are liars and so untrustworthy (they might lie, but, then again, they might not!). However, he also knows that two of them *always* tell the truth (but he doesn't know which two they are). If Jasper gets to make just three bets (meaning: the dealer will deal three cards in turn, showing each card to the advisors, who then write their advice on slips of paper for Jasper to see after each deal), how should Jasper place his three bets?

In addition, what is the maximum amount of money that he can *guarantee* that he will have after the three bets?

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