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Introduction Being one of arespondents or participants of monty hall game is useless if we are notmaximize the opportunity we have to obtain the best possible result of thegame.

Game theory like Monty Hall oftenly isn't being exploited well by theparticipants due to their ignorance of the mathematical probability inside thegame. It is considered bias to choose whatever their intuition says instead ofcalculating the probability of winning it. In my 2 yearsof IB Mathematics Higher Level, Probability is one of the core topics that Ilearnt in Math HL class.

This topics taught me to be more effective andchoosing the right choice in decision making to produce the best result of ourprobability. In probability I often do some trials in some cases with a chanceof success but that doesn't completely absolute. MathematicalProbability is a model or tools of predicting or calculating the chances thatpeople can exploit in order to achieve those goals of the chances they have. Inthis essay, I am going to write an analysis and calculation by doing experimentwhether switching choices in the game might affect their percentage of winning. This game basically demand us to pick 1 out of 3 choices of any variable (forexample door) that is used, 2 doors are empty or no expected gift and prizeinside it or we can say it's a zonk while the other one contain luxuriousprizes we could not ask for any better.

In this essay I'm going to explain tooabout the use of conditional probability in Monty Hall game. Background Theory Conditional Probability According toMath IB Cambridge HL Textbook, " Estimate the probability that a

randomly chosenperson is a dollar millionaire. Would your estimate change if you were toldthat they live in a mansion? When we getadditional information, probabilities change.

In the aboveexample, P(millionaire) is very different to P(millionaire| lives in a mansion). The second is a conditional probability, and we used it in Section 22 C whenlooking at tree diagrams. One importantmethod for finding conditional probabilities is called restricting the samplespace. We write out a list of all the equally likely possibilities before weare given any information, and then cross out any possibilities the informationrules out.” So to simplifythis understanding is that just assume that a probability of event A iscalculated given that another event related has already occured, can be calledB Fundamental formula: Rearrangged formula of conditional probability: Figure 1. 1shows tree diagram of conditional probability Here above we can see that this probabilityhave another events that occured which form a new equation or variable ? , probability of B given that A the previous events mayaffect the next events which if we calculate it (to find the prob) produce anequation . And if we rearrange it, it becomes like the one I mentionedabove.

Data Participants Ace card at door player chooses door experimenter open door stay switch 1 1 2 3 lose win 2 1 2 3 lose win 3 1 3 2 lose win 4 3 3 2 win lose 5 3 2 1 lose win 7 2 1 3 lose win 8 3 3 1 win lose 9 1 2 3 lose win 10 2 2 2 win lose 11 2 3 1 lose win 12 3 1 2 lose win 13 1 2 3 lose win 14 1 2 3 lose win 15 1 3 2 lose win 16 1 1 3 win lose 17 3 2 1 lose win 18 2 2 3 win lose 19

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