

III-1. Paradox of Choices

If you don't have a dream, how can you have a dream come true?

Consider a recent poll in which only 11% Americans said they were atheist. Among the rest about 15% called agnostics, and about 75% believed in a theistic construct such as God, omniscience, force, light, inspiration or whatever. About two thirds of the theists imagined God as a Father Figure. Among the members of the US National Academy of Sciences 9% were theistic believers.

Are theistic beliefs based on fact, insights, and understanding of the factors behind the choice? In the absence of any positive information about virtually any of the theistic constructs it is just a matter of beliefs. I believe that most believers are making a bet that *they do not want to be on the wrong side, just in case the God exists*. It is strengthened only by its representation as a judgmental all-knowing almighty whose domain includes after-life. Is this enough? Or it is merely a belief in the unknown and unknowable non-existent that does not influence anything except to affirm the behaviors of the believers. The International the forces of fundamentalism, and those in the US Presidential and grass root politics, seem to support this interpretation.

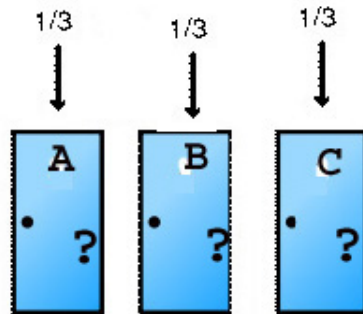
Can such imaginings be reasoned rationally? As one of my 9 year old grand-nephew Agam put it there is little to reason about the matters of faiths: You have it or you do not. Most of the faith-based reasoning is about justification and rationalizations of their constructs.

Hedging bets on the Monty Hall TV show

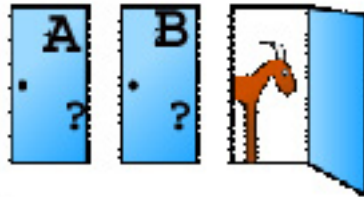
In this version of the game you the player is given the option of choosing one of the three doors, say A, B, and C.

Behind one door is a car; and a goat behind the other two.

Step 1. *You pick a door, say door B. Without any prior knowledge you take random 1 in 3 chance of getting the car..*



Step 2. *Without opening Door B, Monty Hall opens door C behind which there is a goat:*



Step 3. *Then he says to the player, "Do you want to switch to A?"*

Should you switch the first pick?

Notes: There are no tricks in this version of the game. Also Monty Hall does not try to trick you into choosing wrong door.

Interest in this problem was sparked by a mis-stated version (by a mathematician) that was reproduced with mis-interpreted assumptions in a popular magazine. Was this a controversy?

Is the problem is culturally slanted for the American Audience? Most people in the world may be better off with a goat than a car. Of course that is my opinion.

Hedging your bets: Reasoning with available information helps in devising better and more useful hedging strategies. For such purposes one considers what one knows in the context of what one does not know about the world of the concern. In a game

what lies outside the world of the available information is out of bound or non-existent. Among other things such bounds are placed by the time and duration of a game, the size of the field and the tools, the number of players, and their drug doping habits. This way all the choices are defined for making a game plan and decisions to implement the strategy. The game is about dealing with the unknowns that are real in the sense that they exist and happen. The strategy of the opponent is one such unknown. All that lies outside the rules of the game is considered non-existent for the purpose of the game.

In devising strategies the options are separated as the unknowns versus the non-existent. One makes judicious choices from the unknowns, and discards the non-existent. Now how to hedge your net depends on your analytical abilities. As the field is initially sets Pascal argued that he is for theistic belief because he is on the right side if *God exists*, and if *it does not exist* Pascal is not on the wrong side. On the other hand, if it exists a non-believer would be on the wrong side. So the argument goes that since belief costs nothing it is better to hedge your bet as a believer. Here being on the wrong side still implicitly assumes the existence of the judgmental God. As developed in ancient works and my essays on this site that circular and self-referential assertions violate reality, and therefore about a non-existent.

Non-existent is without content and context.

All beliefs have consequences, including a belief in the non-existent. Consider the human progress of the last few hundred years. It is based on the belief in the known and testable. It facilitates search for the unknown that exists with demonstrable content and context. Anything without content and context is inconsequential and non-

existent, which can only be expressed by paradoxical and self-referential assertions. It is clear from the human history that constructs of non-existent contribute little of substance.

You have to play to win: What remains unsaid in this gambler's plight is that you do not lose if you do not play. Participation is necessary to win or loose. All decisions that do not influence the decision-maker are suspect. Consequences follow from decision to act, and also from a decision of not to act. Just as choices can be made without options, decisions can only be based on the basis of viable options. It is prudent to cut losses by refusing to play if the odds are stacked against you. As a group, gamblers always loose. Gambling is not just the zero-sum *some win and some loose*, but in reality it is *some win and most loose*. In gambling the chances of success are not in the favor of all the players combined.

Play is part of virtually all human activities. Play creates value by identifying viable alternatives. It becomes game if the reason to play is to win. Unless value is created each winner creates at least one loser. Lottery is neither a play nor a game. It is a gamble that does not create value. The combined total of all winnings are typically 80% of the wager. About 20% is taken off the table by the house. Thus only a part of the wager can be won back by the game players. In other words not only value is not created but 20% is lost even before the game of random draw begins to choose a few out of the thousands who made a bet. Yes, people do win. On rare occasions they win big. Typically, chances of being hit by lightening are much larger than hitting the jack-pot. Most who loose can also be thankful for not being hit by lightening. A general feature of such *less than zero sum* games is that the chances of success are staked against the players even

before the game begins. A study suggests that ten years after winning mega-million lotteries more than half the winners said that their quality of life is not any better than before. Also about two-thirds had very little tangible assets.

Nimrod game. Biblical origin of Nimrod is about mindless pursuit of a hunter. In the modern usage it describes a clueless-goofball. Take a simple version in this ancient Chinese game. Each of the two players around a circular table have a very large pile of pennies at their disposal to be put one each in alternate turns. One is not allowed to put a penny above another on the table. The game is that whoever puts the last penny on the table wins all the pennies on the table. Can you think of the reason why the game is already decided with the first move? If not here is the reason. A circular table has a unique space in the center, and beyond for each other place there is an equivalent symmetrical place on the table. Only an odd number of pennies can be placed on the table. So whoever starts the game will also be able to put the last penny to win all the pennies on the table. In such games one player locks-in the game after which none of the options available to the other player will ever give him an advantage. In other words in many games you have no chance of winning if the game is already locked in the favor of the opponent.

Randomness and Chance. Consider the consequences of random actions as in outcomes of several coin toss. In a single toss of a perfectly balanced coin the chances for head or tail are equal - provided the coin does not stand on its edge. Equal probability of head or tail does not change with the number of tosses. However, one can not predict outcome of any particular toss, and therefore in each trial your chances of winning or losing remain equal. If the outcome is not random that means the coin is not balanced. It becomes clear only after a very large number of trials.

Go on stand-by. A scholar was granted a wish. He was tired of doing routine chores. A goddess impressed with the scholar's work gave him a clone that could happily do even the mindless chores. The only condition was that the scholar would give precise instructions for the next task as soon as the previous task was completed. Within hours the scholar realized that now he has even less time to do his work. He was giving instructions most of the time. Soon he came up with a solution. He asked the clone to erect a pole on the ground. Then he asked the clone to climb up, come back down, and then to repeat the task unless asked to do otherwise. Army regimentation and rituals are such do-loops for the stand-by mode.

Games worth playing create value. Value is incrementally created by a qualitative change in the content and the context. An infinite do-loop is not meaningful unless it has a definite outcome such as keeping the clone occupied. Binding actions (*karm-bandh*) that require commitments and mid-course correction have more direct consequences (*nikachit*). Behaviors that have definite outcomes are the trajectories of such consequential actions. Random tries, or acts with random outcomes (*nikaiy*), add up to nothing. Here are the reasons why only the games that create value are worth playing.

- a. Random repetition of a task does not necessarily improve the chances of success. For survival one can not rely on finding money on the street, winning a lottery, or miracles.
- b. Random tries work in your favor only if the coin is loaded in your favor. Chances of unfavorable outcomes can not be changed in coin toss or lottery. One could choose to play where chances of success are better than even. In a zero-sum game it means somebody else has to lose.

c. Even if it is not possible *to do things right first time*, at least one can learn from the things that went wrong, make an effort not to repeat the same mistakes.

d. Heuristic rules eliminate troublesome choices for midcourse corrections. Whether or not we like it, we could not get through a day without such corrections, restrictions and contingencies. It helps us avoid contradictions, inconsistencies, vicious cycles, and irreversible actions. Beyond that a tree-pruning strategy improves the chances of success with each step that is not to be back-traced.

Let's make a deal: In the Monty Hall television show a contestant faces three choices A, B and C. Behind one of these is a valuable item such as a car. The other two have worthless items. With this *incomplete* information available to the contestant the chance of choosing the car are 1 out of 3 or $1/3$. After the contestant chooses say B. After that by opening the curtain C Monty shows that the car is not in C. At this point the contestant is given an option to chose A or remain with B. Should the contestant change the initial choice?

On the surface now there is 1 in 2 chance of having the car behind A, and an equal chance for B. The contestant can improve his own chances further by considering the options available to the host. In opening C the host has acted on additional information. It is now available to the contestant.

If the game is to be continued without showing the car the host must restrict the choice to opening A or B. If the car is behind A host has the option of opening B or C, i.e. the *conditional probability* of opening B is 1 in 2; the same for C. On the other hand, if the car is behind B the *conditional probability* of opening C over A ($C | A$) is 1 because A can not be opened. In other words, the combined probability that the host opens C is twice as much if

the car is in B than in A. In other words switching to B is to the advantage of the contestant. Note that the outcome would be very different if host opens A and shows that the car is not there.

Reexamination of the initial choice on the basis of the emerging information is quantitatively treated by the Bayesian theorem. It takes into consideration the additional information intrinsic in the conditional probabilities. Initial probability $p(X) = 1/3$, where X is A, B, or C. Consider the probability that host opens C:

$$p(\text{opens C}) = p(C) \cdot p(\text{opens C} | B) + p(B) \cdot p(\text{opens B} | B) + p(C) \cdot p(\text{opens B} | C) = (1/3) \cdot (1/2) + (1/3) \cdot 0 + (1/3) \cdot 1 = 1/2$$

According to the Bayes' theorem opening B shows that the:

Final probability for the car in A:

$$P(A | \text{opens B}) = P(A) \cdot P(\text{opens B} | A) / P(\text{opens B})$$

i.e., initial probability for A (1/3) * probability of opening B | A (1/2) / probability of opening B (1/2) = 1/3 (or 1 in 3)

Similarly,

Final probability for the car in C:

$$P(C | \text{opens B}) = P(C) \cdot P(\text{opens B} | C) / P(\text{opens B})$$

i.e., initial probability for C (1/3) * probability of opening B | C (1) / probability of opening C (1/2) = 2/3 (or 2 in 3).

Restraining Choices

Chances of success improve by following a trajectory of action modified to include the accumulated evidence. An ancient insight about random and chaotic events asserts: *Existence, persistence, and cessation are the fundamental characteristics of all that is real.* It builds on the perceptions that *the only constant is change,* and that *each qualitative change provides additional choices.* It has a flavor of mysticism mixed with statistical reasoning.

A trajectory of action has to constantly re-evaluate the choices offered by the changes in the variables and relations of the probable states, quantities, and quality. It pays to learn from successes as well as the failures. To improve the chances of success one can not hope to beat the stochastic odds of random events through persistent acts.

Risk-taking is inherent in all evaluations for the future actions. Reasoning is about moving from random and chaotic tries to an order that is consistent with the available information. Even in the face of uncertainty it pays to consider all viable choices and evaluate their likelihood. The tree of possible options is pruned by the emerging information. It is neither a gamble nor a compromise.

Sometimes there is no question even if there is a question, such as: How do you know you had a Great-great-grand father? Some times there is a question where there is no question, as in: God exists.

Here are some points and counterpoints for such a G:

Would you bet for or against G?

- If you did not know whether G was a goof-ball which you could not get rid of, or if G was a grand prize of eternal bliss?

- What will be your choice if all you knew was that no body knows what G is except what the believers say? It is only word of mouth that may have been put in some books. Nobody has presented credible evidence. Those who claim to have god-connection have not provided a consistent description, nor are their behaviors convincing.

- G is inaccessible by *real world arguments and criteria of evidence*. Nor can G be described (represented) by real world attributes. *[How can humans understand what can not be accessed and experienced by humans?]*

- G is a perfect creator who created man its own image. *[If so why is the man so imperfect? Could it be that the world is what it is? In this world all living beings strive for something better, and have potential to*

become perfect. Each being has its own level of perfection when it behaves in a totally consistent and non-contradictory way.]

- If G created the world, *where was it before creation? If G was transcendent then and needed no support, where is it now? If no single being had the skill to make this world, how can an immaterial god create that which is material?*

- If G is ever perfect and complete, *how could the will to create have arisen in it? If, on the other hand, it is not perfect, it could no more create the universe than a potter could.*

- Could G be an operator who takes care of all the different happenings in the universe at all the time? *[Could it be that each happening including the mind is outcome of action-consequence (physical) relations rooted in reality and nothing else.]*

- If all are to be judged by prescribed rules of behavior, *what are these rules? Do the believers live by these? Is there a record of reliable response to prayer or divine retribution to injustice? Why would a perfect G demand worship or submission? Would that not contradict perfection?*

- *Miracles happen. People do win lottery. These are neither good business models, nor do they create value.*

- *Is not-knowing a reason to believe in non-existent G?*

- *Does believing in a contradictory construct or a non-existent cause prevents us from creating value to realize our potential. Consider the social cost of 200 billion dollars of tax-deductible donations given to support G in US alone. Much of which does little to improve quality of life.*

Note: Such arguments developed during the preceding 2000 years were reviewed and summarized in a commentary by Gunratn (1430 CE) in *Tark Rahasya Dipika*. Excerpts and text are included in Volume VIII in the Nay Section on this site. The arguments are further developed through out this volume and also in other Essays on this site. Also Surendra Nath DasGupta: *A History of Indian Philosophy* Vol. 1 (Cambridge University Press, 1922).

Against Gods and Humbug

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