On God

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“My mind tells me I will never understand God. And my heart tells me I am not meant to.” — Dan Brown, Angels and Demons

The nature of God has been a point to ponder upon since forever. Even if we ignore the debate between believers and non-believers, there are subtle topics of disagreement among theists themselves. When a person tells you about the existence of a tangible object, it is perfectly all right to ask them, ‘Well, what is it? Can you please elaborate?’. But there is no one right answer to the remark, ‘Oh, you believe in God. So, what is God?’. In this paper, we look at what we can learn about the nature of God from various independent sources, including the early proofs of existence provided by philosophers. Throughout, we do not attempt to pose a major challenge to the explanations provided for God’s existence. We simply acknowledge a put forward claim and extract out the: ‘here’s what you’re actually saying about God’ bit. We briefly touch upon issues and tributaries which are unexplored in the provided explanations about God and God’s existence. But even then, the motivation is to leverage finer points about God’s nature and behavior abiding by the principle of charity. We briefly compare the features of God put forward by the proofs to what we know about God from western philosophy. We then utilize our learnings to define a generic mathematical framework explaining causes and effects and try to see where God fits into the whole picture. We also showcase how differing ideas about the nature of God can be factored in and expressed via the semantics of the very same framework.

Now, we will quickly review what we know about God from the multiple popular proofs of existence and ground our understanding of God into thoughts which are seemingly provable via laws of propositional logic. Again, we are not challenging the premises themselves but abstracting out the well-defined conclusions. Firstly, we have Aquinas’ first cause argument. We can infer from it that God is the first cause that initiated the history of the universe. The argument structure exploits the concepts of causation and causal chains and places God in the initial position. Leibniz’s cosmological argument argues that God is a necessary being rather than a contingent being. It revolves around the idea of why-type questions - Why was there a big bang? Why did the universe come into existence? Every event and every fact must have an explanation and a sufficient underlying reason for the

event must exist even though it might not be very apparent. These two arguments exploit the mathematical structure of chains with nodes being events and edges being causes. These proofs are contrasted with the design argument which simply appeals to one's sense of generalizability. The crux of the argument is as follows: an entity whose working requires meticulous precision is crafted with a lot of thought, understanding, and analysis. Biological life forms are highly efficient, capable and constructed adhering to fairly strict specifications for all of their subsystems and submodules. Thus, life forms are created based on some schema of intelligent design with God being the intelligent designer. Finally, we have Anselm's ontological argument telling us that God is greater than any other mentally conceivable entity and in addition, also exists in reality. The attributes about God which we learn from these 'proofs' of existence are, therefore: the unmoved mover and the first cause, the necessary being, the absolute being, and the grand designer.

According to western philosophy, typical theism involves the following jargon while explaining God: omnipotent meaning all-powerful, omniscient meaning all-knowing, and omnipresent meaning ever-present. God is thought of as the creator of the entire universe, who is deserving of our love as well as obedience. On a surface level comparison, we find that omnipresence is something new that is missing from the claims made by the proofs of existence. Anselm's ontological argument seemingly hints at the omnipotence and omniscience as we can regard the being who is the greatest to be more powerful than anything else and more knowledgeable than anyone else (which can potentially be simplified into all-powerful and all-knowing).

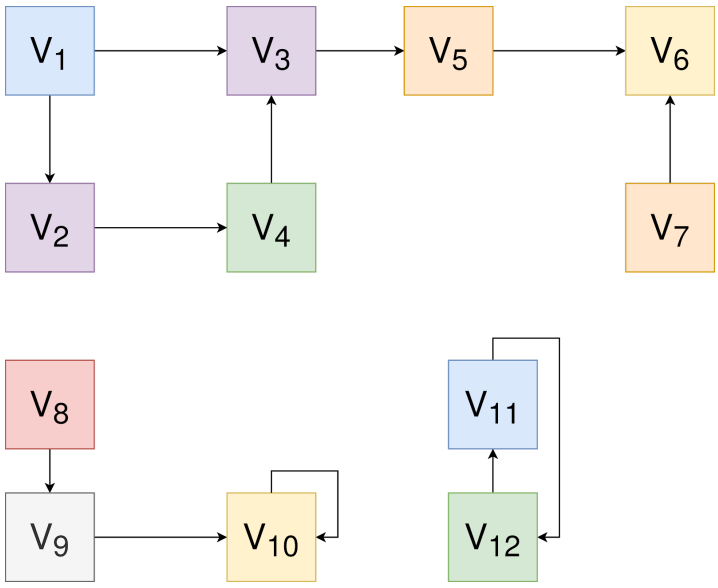
Now, we'll look at the criticism faced by Aquinas's first cause argument (which can very well be applied to Leibniz's cosmological argument) due to its usage of the causal chain paradigm. Firstly, a causal chain might go back infinitely backward. This is motivated by the sequence of integers where we define forward and backward operations as f and b respectively with $f(n) ::= n + 1$ and $b(n) ::= n - 1$. From the view of theoretical physics, we can think of a particle striking another in a vacuum, transferring all of its kinetic energy to the next with the entire process happening with no energy dissipation. If we regard this process to continue infinitely backward, there is no well-defined particle that started its movement overcoming the inertia of rest by itself, and hence its movement was apparently caused by the first cause. But this is also challenged with the understanding that maybe a set of particles in the universe were always in a state of motion and thus there is no first movement.

Secondly, what if the structure is actually: $\ldots \rightarrow A \rightarrow B \rightarrow A \rightarrow B \rightarrow \ldots$ i.e to say that causes and effects extend towards infinity on both sides of the chain and we are all in a loop of repeating cycles? A and B can be causal chains in themselves and it could mean that all worldly activities are in a loop of say 10^{20} years. So all of planetary formation, evolution, humankind; develop and go back to ashes and the universe collapses and is born again and

this cycle continues. This is also in line with the causal structure and irrefutable by laws of physics and/or logic. In a nutshell, the chain may contain or even in its entirety, be a cycle.

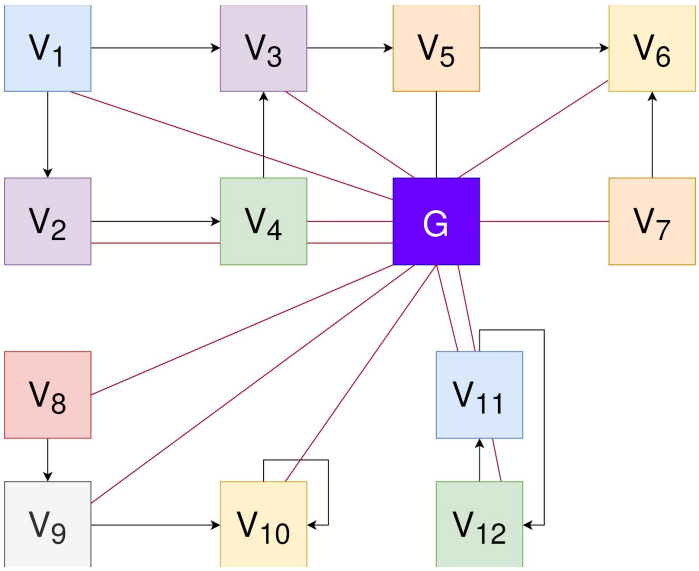
To understand the uncaused cause or the first necessary being itself, we need to have some more answers about its role. Does it initiate the chain of events and ceases to exist or does it produce multiple flows with peephole connections? If A is the first cause with the induced chain being $A \rightarrow B \rightarrow C \rightarrow D$, can it also include $A \rightarrow C$, $A \rightarrow D$, and so on? If A or the uncaused cause or the necessary cause a.k.a God can contribute and produce effects within causal chains, can it do so consciously after analyzing how the events unfold, or is it just a random event generator causing cascading effects during its lifetime?

The takeaways here are simple. We need to get rid of an idea where God is defined as the first cause since 'first' may not be well defined. We need to forget about chains, allow cycles, self-loops, and in general, allow a generic graph structure. Hence, we define graph Q with a set of vertices V and a set of edges E. $v \in V$ expresses an action caused by an entity. Thus, every $v \in V$ has two parameters: entity, and action. Now, an edge $e \in E$ from vertex v_1 to vertex v_2 indicates that the particular action or event in v_1 has affected v_2 in some way. The graph is clearly directed and can contain cycles and self-loops. Note that we did not include: 'effects as a direct cause' or 'only if v_1 is a direct cause of v_2' in the above definition. This neglect might cause problems since if v_1 is a direct cause of v_2 and v_2 is a direct cause of v_3, then we automatically have the edge from v_1 to v_3 which leads to an explosion in the number of edges. Thus, we use a simple rule: if $v_1 \rightarrow v_2$, $v_2 \rightarrow v_3$, then drop edge $v_1 \rightarrow v_3$. Note that $v_1 \rightarrow v_2$, $v_2 \rightarrow v_3$ implies $v_1 \rightarrow v_3$. Hence we simply choose to un-show this edge as it is already inferable from the available information given the transitive nature of the relation.



Clearly, structures like the one above are legal in our definition. Now, let's bring the idea of God into the present model. At this point, we need a small detour into the distinction between monotheistic and polytheistic ideals. The western philosophical idea of God believes in monotheism. This is seen in religions such as Islam, Christianity, and Judaism. Religions apart from these believe in polytheism which allows multiple Gods to exist at the same time - as seen in ancient Greece and Rome, among the Vikings, and among Buddhists and Hindus across the globe. Also, Aquinas' first cause and Leibniz's argument in itself never showed the uniqueness of the first node. Hence, in our models, we allow multiple nodes to exist which can be attributed to Godliness. Whether they are the same God or different is left open to interpretation and out of the scope of our model.

Let's add a God subgraph G and include two-way connections to every single node. This is motivated by the omniscience property of God. This ensures that God is present and witnesses every single action and event in whatever time-space scope we define. We use red lines to indicate two-way God-connections. Essentially, the execution of every action can potentially affect God's decisions which is why the reverse connection is included to allow that particular possibility.



The semantics of different phenomena in the above graph is quite obvious. Disconnected components indicate that the sets of events are completely unrelated. Cycles indicate that the causer can eventually become the effect. Self-loops allow one to redo an action with some minor modifications or to repeat an action continuously. Hence, so far, there is no dispute that these expressions are rooted in the real world and are well modeled by our formalism. Also, our model is fairly generic and in that, it can express every possible physical phenomenon in terms of causes and effects. Thus, we managed to address all the

complaints faced by Aquinas' and Leibniz's associated structures in addition to providing a modeling structure that is both necessary and sufficient to explain all physical phenomena.

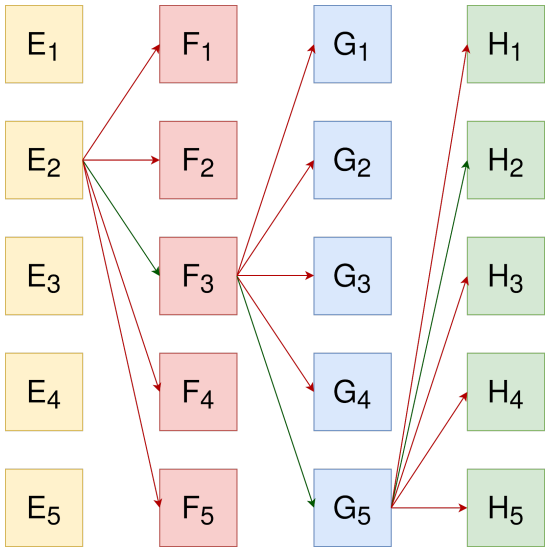
Now, we come to the depiction of God. Note that in the above figures, V_1 and V_8 are shown as uncaused events but in our understanding, they are not God. In any graph shown, we only consider a part of the total view. It is not possible to express every event since the beginning of time in a viewable figure (not even in Aquinas' case) and hence, in any such depiction, an uncaused cause should not be attributed to God. It simply says that what caused such an event is out of our present scope of view. Now we come to the 'God' subgraph and its semantics.

1. For an atheist, the G subgraph simply does not exist. Everything is caused by causal relations, every event has an explanation, and in general, there is no one concept that attaches itself to all actions and entities. Thus, there is nothing that is all-powerful, all-knowing, and ever-present.
2. For a polytheist, G is a graph in itself with various vertices where the entities are of the subtype God with nodes in G having interconnections between themselves.
3. For a monotheist, G is a single node. This one node has two-way connections to every other node and in that, it is present everywhere, sees and knows everything, and has the power to affect all actions.

Thus, so far, we have a one size fits all model. A proof of the existence of God would essentially rule out scope 1 above. For a monotheist theory which is the most restrictive of all, one would need to prove that G exists and is not a subgraph but a unique vertex.

In this regard, we look at a few arguments (would definitely not call it a proof) which hint the reader towards believing that option 1 is not the most rational. For this, we look at sets of possible outcomes. Let's say vertex v can take N different possible edges in theory and lead to N possible vertices. Suppose only 1 out N of the vertices is favorable and the probabilities for picking each is in a uniform distribution. If N is very high and against all odds, the favorable edge is chosen, what do we attribute this to? Is it simply serendipity or is something more happening? The above setting was vague and if we add particulars, there can be counter-arguments such as: you did not consider X which was important, given Y the edge probabilities are not all equally likely and more. But the argument still stands on its face. If the chance of a favorable event is minute, it depends on a plethora of external causes but it ends up happening anyway - we can surely attribute it to all the external causes coming out correctly but still the question of why did all the favorable events occur simultaneously remains. And the more we ask why the more we realize how unlikely the event was.

In the following figure, H_2 is our favorable outcome which has taken place in reality. To answer why we say that G_5 led to H_2 with probability (w.p) 0.2. Follow up question: Why did G_5 happen? - because F_3 led to G_5 w.p 0.2. Another question takes us back to E_2 and the probability of H_2 given we have the answers to these three questions becomes $(0.2)^3 = 0.008$. With all settings remaining constant, with K questions and an average branch-out factor of B plus uniform probability throughout, the probability of the observed event becomes B^{-K}.



If we consider something like why is the event, 'there is life on earth' true, a large number of causal links pop up. We're at the right distance from the sun, we have the correct atmospheric pressure, the right set of elements and compounds in nature, presence of water and oxygen, the particular effective magnitude of the force of gravity, and evolution which gave rise to sentient, self-aware creatures. Note that we are not relying on the argument of design, the ontological argument, or on those of Aquinas and Leibniz. Plus this description abides by everything we know from science. That being said, if we were to question the previous set of answers explaining why there is life on earth, we would be questioning the particular mathematical laws and why these laws are valid?

A scientist would rightfully show how the laws are based on physical phenomena from which we computed specific magnitudes and arrived at the mathematical laws. But still, the question of why did these physical phenomena take place remains. We see a chicken and egg problem here. If the mathematical laws are based on physical phenomena, then why did the physical phenomena take place, and if all worldly phenomena abide by mathematical laws, then who wrote these laws? Our argument here portrays God as a force that is yet to be explained by science[1]. This force effectively has a view permission for

[1] Saying so in November 2020. Science might have proven this already depending on when you're reading this.

everything that goes on everywhere and can create nudges in certain directions causing ripples in the causal graph. Believability of the argument reduces down whether a huge number of favourable events can be attributed to fortuity or not. A chain of actions each of which are highly unlikely such as the value of the speed of light being at a certain number, the asteroid belt in our solar system not being disrupted or bent among others has led to this moment where human beings have the faculty to reason whether there is a God or not. Do we attribute all the loose ends to coincidence? If yes, isn't the likelihood of that a value tending to zero? Also, in such a case, is the understanding that a physical force possessing consciousness whose nature is yet perhaps a mystery a much more economical and generalizable explanation? I leave that as a question and on a totally different note,[2] state what Jim Gordon told Robin in 'The Dark Knight Rises': 'You're a detective now, son. You're not allowed to believe in coincidence anymore'.

To conclude, in this paper we looked at what the different proofs of existence of God tell us about God's nature and how it contrasts with Western philosophy. With Aquinas' and Leibniz's proofs of existence as baselines, we constructed a generic mathematical framework explaining worldly events and showed how God can fit into the complete picture. The argument of God as an ever-present physical force which is not yet explained by science was put forward. We looked at why the existence of such a force might be a more economical explanation as compared to attributing a series of certain highly unlikely yet favourable events to pure coincidence. Science is based on facts and grounded in reality. The most fascinating thing about science in my opinion is it's ever evolving and inclusive attitude. With new data, hypotheses and evidence, we form newer theories. New pieces of technology, states of matter, and even forces of nature discovered in the last century would be unimaginable to scientists a millennium ago. Science fiction is a precursor to science fact[3] and concepts which are seemingly irrational at the surface at present such as the nature of God might have a place in scientific discussions of the future. Maybe there is an external independent force which causes us to focus on our goals in spite of us knowing how unlikely their realizations are or how their terminal utility states do not warrant the exercise. If this is true, perhaps children in a particular future generation will have a chapter called 'God' in their sixth grade physics textbook.

References

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[2] Attempt at sarcasm
[3] In some cases