M20HSS316-ITP/Assignment-2/20171047/CLD

The first question posed by Stich and Donaldson challenges premises 6, 10, 12. Premise 6 casually introduces the concept of a first cause and intermediate causes. However, in an infinite chain, the concept of first may not be well defined (consider the standard example of the set of all integers). Premise 10 attempts at discounting the idea to go back infinitely, claiming that there would be no concept of subsequent effects. However, there are theories in physics claiming how certain things have always existed and had no initial time point.

The second question challenges the conclusion that is premise 15. Observe that throughout the argument statements, a hypothetical structure which models the flow of causes and effects has been hinted at. At no point in the past structure has there been a claim saying that there is only one such flow. Essentially, there could a number of directed acyclic graph structures and the arguments till 14 would aim at proving that a DAG with finite number of vertices (a vertex being an event and a directed edge from vertex A to B would convey the semantics that A is a direct cause for B, & B is the immediate subsequent effect of A). In 15, note the use of 'is' indicating that there is only one uncaused cause. This translates to saying that the causal graph is a connected graph which is not necessarily true. In the proposed argument, a spanning tree for the graph structure is always possible since 15 brings in the idea of a single first cause. However, a spanning forest might be the best one can do given that the structure is actually of a graph with various connected components.

Questions three and four do not particularly challenge any premise in the argument build-up. It is mostly an attempt to check the semantics and pragmatics of the word 'God'. The uncaused cause need not be divine and even if we impart humane attributes to the first cause, there is no reason for it to be benevolent, righteous and all-powerful. The four questions inherently agree to the causal graph structure and clearly, there are a few premises which are not directly challenged by any of the four questions.

I have a few questions in mind to challenge these premises. Most of my questions will exploit the structure of the proposed causal graph and I'll be using properties and characteristics of graphical models to provide alternative workflows and show that the proposed structure is not the only valid explanation.

1. Why must removing a cause necessarily imply its subsequent effects being removed? Consider a collider structure: Event 1 → Event 3 ← Event 2. Any one of events 1 or 2 will deterministically cause event 3 and this structure is consistent with all of the premises 1 thru 6. This challenges premise 7 as well as premise 15 since the collider structure shows how there can be 2 uncaused causes both of which can independently initiate the causal chain.

2. Why can there not be a vicious causal cycle? Premise 6 talks about first cause, the intermediate and the final effect. The final effect can in turn cause the first cause. To show this mathematically, consider the transition $f(x) := (x + 1)$ modulo 5. Here, the chain goes from 0 to 4 and 4 leads to 0 again. Thus, there need not be a first cause. However, all other properties laid out by the premises are true. This question challenges premises 4, 8, 12, 13, 14 and 15. One can traceback along the cycle infinitely and hence premise 12 faces a direct counter. In 13, the clause stating that a cause already encountered before can be reached again, is completely absent. 14

and 15 already show the idea of an uncaused cause and is therefore before the jury as well. Note that this notion does not challenge the idea of X not being an efficient cause of X itself. To elaborate on this thought, consider a path in a vacuum space of circular shape or in the form of a mobius strip. By the theory of atomists illustrated by Stich and Donaldson to justify their second question, we see how atoms have always existed as a consequence of the law of conservation of matter. Now, to keep things simple, consider there exists only 2 atoms in the space given above where any one of the two has always been travelling (since the start of known time). Now a cycle of particle 1 striking particle 2, transferring all of its momentum and coming to rest; with particle 2 completing the other half of the path and striking particle 1 again can continue till infinity given there are no external forces. This is theoretically possible, in line with the non-challenged premises in the argument structure and gives a scientific outlook to my existence of vicious causal cycle theory.

3. Does the uncaused cause possess the property of consciousness? To understand the uncaused cause itself, we need to have some more answers about it's role. Does it initiate the chain of events and cease to exist or does it produce multiple flows with peephole connections? Something like A → B → C → D and also A → E and perhaps A → D as well. Apart from challenging premise 7 on its surface, this does something more relevant. If 'A' or the uncaused 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.

I would say that my second question is the best counter to Aquinas' fifteen step argument. This is because it challenges a large chunk of premises while preserving underlying constraints. Also, there is a justification towards the choice of the mathematical model from a perspective of theoretical physics.

Now we come to the final question. How would Aquinas defend his arguments against such a stand? A solid line of reasoning here can be derived from the graphical structure itself. Aquinas can simply say that his argument does not consider cycles and one ought to remove all cycles from flows of efficient causes in order to make it perfectly acyclic. A justification for this can be along these lines: Let's say A → B → C → D → B → C → D → E → F is the causal flow. Aquinas can state that one needs to remove the cycle to yield: A → B → C → D → E → F since a cycle does not add sufficient data to the causal structure apart from a simple dilation in time or a delay. Hence, these can be dropped off and ignored. With this clarificationary premise, Aquinas would have preserved all of his existing arguments while making his hypothesis more robust and fault tolerant.

As a bonus, I could ask the following question: What if the structure is actually: … → A → B → A → B → … 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? Now, you can think of A and B as chains in themselves if you wish. It would just mean that worldly activities are in a loop of let's just 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. This shows there was no beginning, just an infinite chain of causal cycles. This would go against a large number of Aquinas' premises and I don't immediately see as to how he would answer this.