

Reformed Theological Seminary

Night of the Talking Dead

A paper submitted to

Dr. John Frame

In partial fulfillment of the course

Apologetics

By

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Dialogue: Option One¹

Joe Christian: What are you reading?

Vlad the Empiricist: Actually I am not reading. I am revising my research and mathematical computations for my master's thesis. It deals with earth-tethered geosynchronous satellites.

Joe: So basically space elevators?

Vlad: Essentially, yes. If we can get it to work the advances in space exploration would be tremendous.

Joe: Were you a math major?

Vlad: Yes. My degree was in experimental and applied mathematics. Are you?

Joe: I am, though I am a theoretical mathematics major. Since you were a math major and finishing your masters in a related field, have you ever noticed how math makes a few illogical assumptions in order to maintain cogency within the accepted paradigms?

Vlad: No, I have not and I do not think you have either. Mathematics is only useful in so much as it is coherent and logical, it can not be illogically coherent. Perhaps I can help you with your misunderstanding.

Joe: Perhaps you can. Let's take something very simple- fractions. Fractions represent parts of a whole. One-third ($1/3$) for example represents one part of three parts that join to make a whole; so one-third plus one-third equals two-thirds ($1/3+1/3=2/3$). Add another one-third and of course you have one whole unit ($1/3+1/3+1/3=1$). But one-third also represents a mathematical computation- one divided by three ($1/3=1\div 3$). And one divided by three when portrayed in its decimal form is point three repeating ($1\div 3=.3\bar{3}$). Add point three repeating and you get point six repeating which corresponds, as it should, to two-thirds or two divided by three ($.6\bar{6}=2/3$). However if you add another point three repeating you do not have one, you have point nine repeating which does not equal one ($.6\bar{6}+.3\bar{3}=.9\bar{9}\neq 1$). It infinitely approaches one but never reaches it. You

¹ The following is a dialogue between two fictitious people. Though the names and much of the dialogue has been severely altered it is in fact based on an actual dialogue between the author and a University of Central Florida graduate student during the author's time at the aforementioned institution as an undergraduate.

are left with an infinitesimally small remainder between the two and two competing systems for accurate portrayals of simple numbers. Yet this is ignored and the two are seen as equivalent to retain cogency within mathematics.

Vlad: An interesting suggestion but your conception of the relationship between the two forms of representing fractions is a bit lacking. Point three repeating does not equal one third but rather is an approximation ($.3\bar{3} \neq 1/3$, $.3\bar{3} \approx 1/3$).

Joe: True, this is often how it is explained away but this assumption is not tolerated elsewhere. For instance point nine repeating is not seen as an approximation of one particularly in functions where the result approaches a number infinitely but never equals it, such as in limit functions, certain differential equations, or even in simple equations such as $f(x)=1/(1-x)$. Also if it is just an approximation doesn't that cause difficulties in a basic concept of division? This is just a simple example that can easily be ignored but take something more complicated such as i ($i=\sqrt{-1}$). It is imaginary, not just in name but in actuality. It is a place holder with absolutely no real-world equivalent. Its basic function is to eliminate a difficult conceptual phenomenon and allow for further mathematical development given our current paradigms of thought and logic.

Vlad: Assuming you are correct, and I am not conceding that you are, what would you have humanity do? Neglect or ignore the possibilities offered by mathematics over such a minor conceptual problem. The use of i is a curious conceptual development in mathematics but without it many developments in science would not have been possible such as quantum mechanics, signal analysis, and certain computing languages.²

Joe: True again and I am not arguing any of these points to destroy mathematics or its use. I am merely pointing out that even in math human beings deal with the unknown and our fallen minds can not properly understand our own tools for interpreting reality. And what is striking is that math at times seems to hint at or at least exist in a different plain of reality, a reality whose existence is more than what we can taste, touch, and smell.

² This is difficult to prove/cite in a footnote given the amount of information included in the statement. But suffice it to say that the imaginary number (i) was used in solving polynomials and vector analysis before finding its way into these fields (James Stewart, *Calculus* (4th ed.; Brooks/Cole Publishing Company, 1999), A48-50). Its development was a sort of link in the chain that found expression in and enabled the study in these fields.

Vlad: Here again I think you falter in your understanding of reality. Human beings are neither fallen nor divine; they merely exist. And math, though a particularly powerful tool, is rooted in the mind not the real world. It does not have to correspond to reality. It is only a tool developed by humans to understand the world in which we live. Take for instance Albert Einstein, who demonstrated evidence for his theory of relativity using mathematical proofs.³ Though it seemed correct its truth lied not in its mathematical cogency but in its insight which lead to later experimentation that corroborated its validity. In other words its truth was shown in that it could be experimentally verified as corresponding to reality.

Joe: Interesting. So what you are saying is that truth is only that which can be empirically verified.

Vlad: In a way yes. All other ideas, as useful as they be for one reason or another are articles of faith. And though from time to time I can appreciate indulging in such ignorance, I ultimately attempt to live my life based on what is factual and not belief. That is why I love mathematics because it enables me and the entire human race to make sense of and better ourselves because of it.

Joe: But what about Einstein? You just mentioned that he was correct before it was verifiable. Would you say his theory was merely an “article of faith”?

Vlad: Basically, though in his case I would probably prefer “educated guess.” Again he was only justified in his belief after it was proven. After that he, and everyone else, could include it into a proper understanding about reality. Before that he did not have any reason to act upon his belief. Which brings up a matter a feel will probably rear its ugly head soon anyway- religion. By your description of human beings as “fallen” I am assuming you are religious.

Joe: I am. I am a Christian.

Vlad: Naturally. I do not care much for religion in any form. Sometimes I do enjoy the aesthetics of some religions and the benevolent attitude it creates in a few, but religion would do more for humanity if it would simply go away. For though some religious people have improved the world, its presence has created more harm than good- fighting, division, wars and the like.

³ Albert Einstein, “On the Electrodynamics of Moving Bodies,” *Annalen der Physik* 17 (June 30, 1905): 891-924 This was Einstein’s first treatment of what is now called the special theory of relativity.

Joe: I can not speak for all religions nor will I try. I agree that most religions are harmful for the world. In fact all religions are harmful for the world save one- Christianity. And many horrible things have been done in the name of religion, even Christianity. I can not explain that truth away but I can say that God does not approve of such things and neither should his church.

Vlad: But you have proven my point. It is that notion that is a main contributor to the strife between religions. You just claimed that your religion was the only true religion. This sort of subjective totalitarianism is why people can kill one another over belief; they make belief the standard for truth and then judge the world by their arbitrary standards. That is why one must make only verifiable facts the standard of truth so that people may be free to believe without division among the species. Beliefs cannot have a monopoly on truth.

Joe: But don't you, through scientific observation and experimentation, claim a monopoly on truth?

Vlad: True but these are not beliefs but verifiable facts that can be reproduced by anyone, producing, as I said, unity among human beings no matter the race, nationality, or language.

Joe: Okay, I see what you mean. But I have noticed something in your system. Multiple times you have mentioned empirical observation allowing one to "improve the world" and just recently you mentioned religions doing "more harm than good." So clearly you must have in mind a standard of right and wrong both of personal morality and societal perfection. But in what way can these standards be verified empirically?

Vlad: It can be shown by showing what actions benefit the species as a whole over the longest period of time. The actions that benefit the most people over the longest period of time are the best sorts of actions. On the societal level this can be proven empirically as well though in a much more complicated way. It has been verified that animals evolve. Those that adapt more efficiently have the greatest success in survival and genetic propagation.

So when I say "improve the world" what I mean is adapting human society to enable this to happen faster and more efficiently. In the case of humans it is our pursuit of knowledge that has enabled us to climb to the top of the evolutionary ladder and stay there. So much so that we no longer have to rely on natural processes in order to ensure our survival, reproduction, or our genetic advancements. Soon we will be able to change ourselves, our genetic makeup at will. My "standards" as you put it fall clearly in the realm of fact. So murder for instance is basically wrong because it eliminates genetic possibilities and can negatively affect the aforementioned process

through the loss of knowledge or cause emotional trauma in others that will have a negative effect.

Joe: Setting aside the sort of atrocious acts this sort of reasoning would allow, it presumes that morality and essentially the purpose of humanity has been decided for it through millions of years of evolutionary processes. These evolutionary processes then become the cause and reason for every aspect of human existence. Correct?

Vlad: Essentially.

Joe: Where did those evolutionary processes come from?

Vlad: Nowhere and everywhere. They are a byproduct of millions of years of random events. And, since I see where you are going, these random events can all be traced to the single event commonly referred to as the Big Bang.

Joe: What caused the Big Bang?

Vlad: I do not really know but I think String Theory⁴ best explains the facts.

Joe: Has String Theory been empirically verified?

Vlad: Well...no.

Joe: And finally we have come to the truth. If your entire perception of reality hinges on unverified scientific theory then, according to your own categories, what presupposes your interpretation of the world and all that is in it is an article of faith. You are just as much a man of faith as any religious person. The only difference is the object of your faith. You hope and believe that your initial theory of existence will be justified and so your entire interpretation of reality.

Vlad: I see but I merely have to wait for science to catch up with my belief.

Joe: But don't you see that that is a contradiction. It is this initial belief that makes the rest of your worldview cogent. If it is disproved then reality as you know it will cease to be. You take causal relationships for granted and insist that the world is intelligible, that it has order. And even though you claim evolutionary processes came into being randomly there is nothing

⁴ For a simple introduction to String Theory see: Stephen Hawking, *The Universe in a Nutshell* (Bantam, 2001); or Stephen Hawking, *A Brief History of Time* (10th ed.; Bantam, 1998)

random about a species whether it is intelligent or not that fights for survival; that is purpose.

Vlad: So you are saying that because I associate, through casual relationships, my belief on the origin of the universe with all my other beliefs about reality then my entire worldview is nullified even though they have been empirically verified.

Joe: No. I am not arguing against empirical data but merely pointing out that your interpretation of that data is highly dependent on an article of faith. And this is true of everyone. You value scientific observation and so do I. The difference between you and I is not our scientific method nor is it our conclusions of what the “facts” are concerning natural phenomena but our interpretation and placement of those facts in our controlling meta-narratives. This is why we can agree on many of the “facts” about physical world but not on the “why” or the “ought.” You interpret the facts in terms of blind chance and biological agendas. I interpret the facts in terms of the triune God and the salvation he has accomplished through Jesus Christ as revealed in Scripture.

Vlad: For the sake of argument I will agree that we have differing interpretative lenses but we are left at an impasse. We have no way to decide between the two.

Joe: Of course we do. There are many ways to decide between the two. In general we could find out which one is most personally satisfying, logically coherent, and empirically corroborated.

Vlad: But given those three categories, mine clearly is superior.

Joe: Not as clear or superior as you might think. I am assuming that your reason for saying this is largely due to your reliance on empirical verifiability. You do have a large claim in this regard but so do I. As I said before we can agree on much of the empirical facts. So in quantity there is little difference. There are some difficulties that surface when using empirical verifiability as the standard of truth. For instance, since theories are always changing within science and hypotheses being corroborated or denied there is always debate over the proper interpretation of those facts. Constantly changing truth is difficult to apply. Take quantum mechanics and its implication of Heisenberg’s Uncertainty Principle as an example.

The tenants of both are generally accepted among physicists but how does one apply this knowledge to life. If typical rules of causality do not apply at the subatomic level why should we assume that causality is anything but synthetic on the macro-level? If events take place “on the basis of some random effect” how does one even begin to speak about

anything, much less an entire system based on observing causality?⁵ And even if causality can be maintained on a macro-level how does one apply the fact that even in physics one can not be absolutely certain?⁶ Subjectivism would destroy the scientific endeavor. This just brings us to another point of contention. Even if we disregard the aforementioned difficulties there is still the problem of shifting between “what is” and “what ought.” You mentioned earlier your moral designation of murder based on its impairment of the evolutionary process. But what justifies your interpretation of this process as “right” and its impairment as “wrong”?

Assuming it is true, what gives it a moral nature? You may have a standard of right and wrong based on “what is” but you cannot logically justify your conclusion. In your paradigm of thought there is no logical necessity to make the conclusions you have mentioned. So what would prevent murder from being right if it promoted the evolutionary process by eliminating or preventing the mating of genetically inferior human beings? I doubt you would hold to this notion if you were to find out that you were genetically inferior.

Vlad: I suppose I would find that quite distasteful to say the least.

Joe: Doesn't your disgust seem to suggest that perhaps there is a moral standard incapable of being empirically verified?

Vlad: Perhaps. What do you say defines that standard?

Joe: Scripture, as God's revelation to man, defines that standard. Not only that but it defines rules for thought and how we should interpret reality. It is the standard of truth by which all truth must be measured. It alone enables us to rightly understand the world because it is the word of God. And God who created the world knows it perfectly.

Vlad: You have given me a lot to think about but I'm not sure I am ready to make that sort of switch or if I will ever be. Christianity seems to hate science and the pursuit of it. And science has served me well.

Joe: Faith and reason are often pitted against one another but that is a misconception mainly born out of misunderstandings and a desire to increase ratings and sell a story. The real question is who will you worship- science or Christ?

⁵ Isaac Asimov, *Understanding Physics* (Dorset Press, 1966), vol. 3, pp 103-105.

⁶ *Ibid.*, vol. 3, pp 103-105

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