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## BLOGGING GÖDEL: HIS ONTOLOGICAL ARGUMENT IN THE PUBLIC EYE

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**Abstract.** Gödel's ontological argument appears to be the most "technical" of all arguments for the existence of God. Surprisingly, it is also the one that has lately received the most public attention. Part of the explanation must be that Gödel has long entered the world of intellectual folklore. As such he is perceived as a genius with an unflinching grip on evasive truths. His credentials for rigorous proof of surprising results are thus impeccable. So, if Gödel claims to have proved the existence of God, who would wish to stand up and protest? As it happens, many do. In 2013 and 2014 magazines and journals published articles on Gödel's ontological proof. One of them was accompanied by a blog in which readers could register their comments. Within three months more than 250 comments were received and published. The result is a unique corpus documenting how laymen respond to philosophical arguments to conclusions of general and immediate interest. In my talk I shall try to analyse this corpus and offer some conclusions about the persuasiveness of arguments for the existence of God and of philosophical arguments in general.

Noting how many commentators in how short a time found flaws in Gödel's proof, I no longer need to fear any shortage of new geniuses.  
An anonymous blogger

### 1. Introduction

Recent years have seen a renewed public interest in arguments for the existence of God. Particularly the ontological argument has received considerable attention since it has transpired to the public that it had been championed and given a rigorous mathematical form by Kurt Gödel. Gödel has long entered intellectual folklore, much as Wittgenstein or Turing. He is known among educated laymen as a close friend of Albert Einstein and as the author of two celebrated theorems which prove something unexpected about mathematics as a whole by means of an ingenious method. The common perception of Gödel is that of a genius with an unflinching grip on

evasive truths. His credentials for rigorous proof of surprising results are thus impeccable.

In 2013 and 2014 many magazines and newspapers, particularly in the German speaking world, published articles on Gödel's version of the ontological proof – though the fact that Gödel's proof stands in the ontological tradition relating back to Anselm, Descartes and Leibniz was rarely mentioned in these articles. All these articles emphasise that the proof is "mathematical". Thus headlines like: "Existence of God mathematically proved". The reader can be expected to understand the message: Who would want to argue with Einstein about the structure of space-time? Who would want to argue with Gödel about the correctness of his proofs? Things are not so simple, however.

One of the articles was accompanied by a blog in which readers could register their comments.<sup>1</sup> Within three months 242 comments were received and published. The result is a unique corpus documenting how laymen respond to philosophical arguments to conclusions about topics on which they usually have opinions. Reading these comments is a sometimes amusing but mostly nerve-wrecking exercise for a professional philosopher. A very few of the comments are clearly spot-on. The vast majority are besides the point. But they are besides the point in interesting ways.

Before explaining in which way misguided responses may be interesting, let me add some cautionary remarks. A public commentator is not a very common type of person. Reading the blog entries one cannot help noticing that a good portion of the authors are strongly opinionated: They argue from a position of superior wisdom and do not contemplate the possibility of being moved to making concessions. Many also present themselves as independent thinkers, ostentatiously unimpressed by what academic science has to say on the matter or offering their own synthesis of the world of science. Still, these bloggers presumably give voice – often forcefully so – to thoughts that also cross the minds of those who prefer to keep them to themselves. Moreover, the commentators do not rest content with diffuse opinions but take the trouble to elaborate on them to some extent so that patterns that explain these opinions become visible. Since it seems implausible to assume that unarticulated opinions are based on different motives or must be differently explained, the corpus of blog entries may be taken to be fairly representative of how a non-professional public reacts to Gödel's argument.

Before moving to discussing the blog-entries, let me mention that the article triggering the blog was one of many reacting to a certain event in 2013. To put this event in perspective let us start with an observation about Gödel's proof. The proof is carried out in a clearly defined axiomatic system. The proof is not complicated. Everyone who understands the definition of a derivation in an axiomatic system – e.g. any student who took a first course on logic – can follow the steps and convince himself without remaining doubt

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<sup>1</sup> We are referring to the online-pages of the German weekly *Die Zeit*. The original article by Christian Hesse was released on the 22nd of August 2014. Page <http://blog.zeit.de/mathe/allgemein/gott-existenz-mathe> last accessed in July 2015.

that Gödel's theorem is derived correctly within that system. It may take considerable logical and philosophical expertise to take a critical stance on the logical resources used or the enterprise as a whole; but that is a different matter.

In 2013 two computer scientists, Christoph Benzmüller and Bruno Woltzenlogel Paleo looked for a show case for some theorem-provers and model-checkers in higher-order modal logic with which they already had successfully experimented for some time. They decided on Gödel's ontological argument and after some carefully controlled experimentation succeeded in reproducing the result; see [2]. Somehow journalists got wind of it and started to spin a story. To illustrate, here are some headlines and quotes:

*God lives:* Where Descartes, Spinoza, Leibniz, and Kant failed, Gödel succeeded as has now been confirmed by computers.

*Godly mathematics:* Researchers proved the existence of God by means of a computer programme.

*Existence proof of a logical genius:* Computer confirms: Argumentation of Kurt Gödel for the existence of God is correct.

*God exists, say Apple fanboy scientists:* With the help of just one Mac-Book, two Germans formalise a theorem that confirms the existence of God.<sup>2</sup>

*Computer proves the existence of God.*

*Mathematicians confirm proof of the existence of God.*

Almost without exception the press-articles vary this simple theme: A fairly inscrutable piece of reasoning by a close-to-mad logician, known in the profession for some ingenious results, was “handed over” to a computer. The computer then “found out” that the reasoning is indeed correct, thus replacing doubt by certainty.

Benzmüller was interviewed on numerous occasions and tried his best to point out that if the program had not confirmed the proof, so much the worse for the program. That, however, was not what journalists wanted to hear. They preferred talking about Gödel not eating his soup and thus starving to death. The will to make Kurt Gödel and his work appear odd and quirky is everywhere apparent. The bottom line of many of the articles seems to be just this: From a certain level onwards abstract thinking is invariably entangled in nerdness, if not madness. Quite evidently many journalists believe they serve the public taste better by mystifying instead of explaining what mathematics, philosophy or science is up to. Unfortunately, the corpus of blog-entries confirms that these journalists do have a point.

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<sup>2</sup> Actually, Bruno Woltzenlogel Paleo is a Brazilian who worked at the time in Austria.

## 2. A plebiscite on Gödel's proof

Gödel's proof is carried out in an axiomatic system. Apart from the axioms and rules of a second-order modal logic (plus a little  $\lambda$ -conversion), there are five axioms. There are also three explicit definitions. The first defines the first-order property of *godliness*, the second the second-order property of being an *essential* property, the third the first-order property of *necessary existence*. Despite the suggestive wordings, the terms thus defined serve merely the purpose of abbreviation. At the moment of their introduction it is, of course, left open whether anything instantiates them. Gödel then goes on to prove a sequence of three theorems plus corollaries. A corollary to the third theorem is: It is necessary that there exists exactly one Godly object. All derivations within the system are easily verified as correct. The modal resources are modest: The proofs can be carried out in any normal modal logic including the S5-schema  $\diamond\Box A \rightarrow \Box A$  (saying that what possibly is not the case, cannot be necessary). (There are variants of Gödel's proof in even weaker modal settings.) The axiomatic system is consistent, as can be shown by small models. Given plausible restrictions on property abstraction, there is also no danger that modal distinctions collapse; this too can be shown by way of small models. (For a more detailed exposition see e.g. [1, 5, 6, 8, 9].)

Here are the axioms (A) and definitions (D) in plain words:

- (D1) Something is *godly* just in case it has all positive properties.
- (D2) A property is *essential* for an object just in case that object has the property and all of its further properties follow from it by necessity.
- (D3) Something is *necessarily existent* just in case all its essential properties are instantiated by necessity.
- (A1) Each property is either positive or not positive.
- (A2) A property implying by necessity a positive property is itself positive.
- (A3) Godliness is a positive property.
- (A4) Positive properties are necessarily positive.
- (A5) Necessary existence is a positive property.

And here, once again, is the final result:

- (G) It is necessary that there is exactly one Godly object.

In the article accompanied by a blog the axioms and definitions were laid out correctly in ordinary language (with the possible exception of the third definition which was formulated ambiguously). The axioms were also displayed in formal language, which, however, was not explained. The proof itself was omitted. So readers were basically invited to judge the prospects of developing a *good argument* to the aimed at conclusion on the basis of the above axioms and definitions.

By a "good argument" I mean a non-trivial sound argument: A non-trivial transition to a conclusion from true (or plausible) assumptions by means of valid steps of inference. The notion of non-triviality may be left largely open here. Trivial are arguments like "I am, therefore I am". The

argument is presumably sound and certainly valid. But it is so in a trivial way.

In the case of Gödel's argument something more seems required than just being good. The aim of the argument is not any odd conclusion in extended second-order modal logic, but one that is important or *significant* for people who take no intrinsic interest in modal logic and the like. Significance here has two aspects. First, the conclusion should be *theologically significant*. What this means precisely is hard to say but it seems clear enough that the notion of a Godly being appearing in the final theorem should be sufficiently related to the pivotal theoretical term of theology, i.e. *God*. Second, the conclusion should be *rhetorically significant*, or effective. Someone accepting the assumptions, in some sense of the terms occurring in them, should accept the validly inferred conclusion, in that same sense. This is to say that the proof should move a person who accepts the axioms to believing the truth of the theorem, i.e. that God exists. So when the author of the article invited the reader to give his opinion, the invitation really is this: Give your opinion as to whether Gödel has provided a sound and significant argument for the existence of God in a sense reasonably related to mainstream theology.

Given the presumption that Gödel's argument is meant to be good and significant, we can immediately set up a classification of possible critical responses to it.

- A. The argument is no good.
  - 1. It relies on a false or otherwise faulty axiom (or definition !?)
  - 2. It is trivial.
  - 3. The reasoning is invalid.
- B. The argument is (possibly good but) insignificant.
  - 1. It is theologically insignificant.
  - 2. It is rhetorically ineffective.

Not surprisingly all these candidate options for rejecting the goodness or significance of Gödel's argument found their advocates. In the discussion below I shall try to explain in more detail what commentators complained about.

Groups A and B do not yet exhaust the field of blog-entries. In these two groups we mostly find non-believers. But there are also believers. Very few of them accept that

- C. Gödel's argument is sound and significant.

Instead, most believers simply change the topic. Off-topic contributions are a very common phenomenon in open blogs. Sometimes a discussion is completely hijacked such that the eventually dominant topic bears little relation to the question that started the discussion – just as it may happen in an ordinary casual conversation. In our blog the focus on Gödel is somewhat lost after about 180 entries. This also marks the point at which believers who have nothing to say about Gödel's argument start to chip in. They register their support for the conclusion and then go on to air their views as to what they believe to be better arguments for the existence of God or

simply state why they happen to believe in God. These musings fall into two categories:

- D. Believing in the existence of God can only be an act of faith.
- E. The existence of God can be inferred by reason, viz. by
  1. an argument from design ("teleological argument");
  2. an argument from a first cause ("cosmological argument").

Quite frequent in the "Kierkegaardian" group D is the view that it is somehow improper, perhaps even morally inferior to believe in God as a result of reason rather than of a leap of faith. Here we also encounter the thesis that God has purposefully designed our minds such as to make proofs of his existence inaccessible to us.

Group E nicely illustrates a topos in the philosophical literature on arguments in general and those for the existence of God in particular. Arguments based on experience, be it the way things in the world combine to a harmonious whole, or be it the causal structure of the world, carry much more conviction than purely logical arguments – although it is much harder to pinpoint a flaw in the latter. Thus Samuel Clarke wrote in 1714 about demonstrations of the existence of God:

The proof *a priori* is, I fully believe, strictly *demonstrative* but, like numberless mathematical demonstrations, capable of being understood only by a few attentive minds because it is of use only against learned and metaphysical difficulties. And therefore it must never be expected that this should be made obvious to the generality of men any more than astronomy or mathematics can be. [3, pp. 112f.]

Finally, there is a large number of comments completely off-topic, far-fetched or simply enigmatic. To give an idea: Some readers venture the hypothesis that Gödel's proof was really meant as a joke, or a piece of science satire (much like the Sokal-hoax); others cite anecdotes designed to suggest that towards the end of Gödel's life the delicate balance between genius and insanity had tipped to the latter; still others just throw in citations from the Bible on this or that. Although I shall not go into this catch-the-rest category, the number of comments falling into it is so large that it should not be completely ignored. Like the silent majority of readers, these commentators evidently did not wish to engage with Gödel's argument. But unlike the silent majority, they made a point of communicating this fact. This by itself is not devoid of significance. To be sure, many commentators in this group simply took the opportunity to make themselves visible in public. But there are also those who quite clearly suggest that engaging with philosophical arguments is just silly and that changing the topic is a perfectly proper response.

Let us now see how the described groups of comments are distributed within the corpus of data.

*Remark.* The corpus consists of 242 contributions. Since some contributions make more than one type of comment, the number of entries

classified theoretically exceeds the total number of contributions. Off-topic entries were ignored for calculating percentages. Of the remaining entries some are difficult to classify. Some of these were left out; others were assigned plausible groups while trying to avoid a bias. The corpus is large enough to level out disputable classifications in one case or the other. The total number of confidently classifiable data were thus 126. The total numbers and percentages (in brackets) for each of the options in the classification scheme above are as follows: A (73 = 58%), A1 (30), A2 (27), A3 (16); B (28 = 22%), B1 (17), B2 (11); C (3 = 2%); D (11 = 9%); E (11 = 9%); E1 (7), E2 (4).

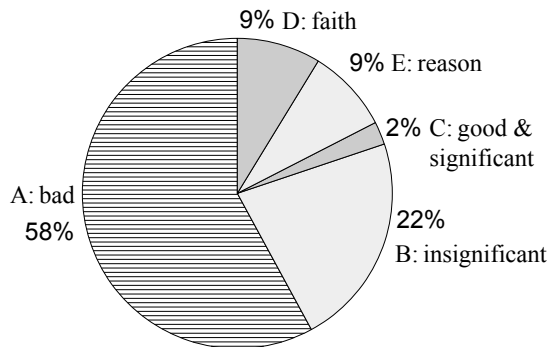


FIGURE 1. Total of classified responses

It should come as no surprise that group C, comprising the affirmative responses to Gödel’s argument is practically negligible. Blogs typically invite critical voices. The few commentators who registered their support for Gödel’s argument did so because they probably felt provoked by the many overly negative responses.

Responses of type D and E, suggesting alternative routes to belief in the existence God, became more frequent as the blog gradually lost its focus on Gödel’s argument proper. Most, though not all commentators in these two groups do not explicitly criticise Gödel’s argument. Instead they offer what they take to be effective grounds for adopting belief in the existence of God. One is sheer faith (D), another is reflection on the apparently intelligent design of the universe (E1), yet another is reflection on the origin of the universe (E2). Groups D and E are united in the conviction that Gödel’s argument carries no rhetorical force, i.e. that no one would believe in the existence of God on the basis of that argument. In this sense the responses in groups D and E related to those in B, claiming that Gödel’s argument gives no significant (in the sense of effective) support to belief in God. This finding confirms in 2015 what Clarke observed 300 years earlier in the passage quoted above. In what follows I shall focus on groups A and B only, i.e. those suggesting that the argument is bad or of no significance.

### 3. A: Badness

Let us consider first the by far most popular group A of responses to the argument. Group A is united in the thesis that the Gödelian argument is bad, either because it rests on faulty assumptions or definitions (A1), or because it is trivial in the sense of question-begging (A2), or because it is invalid (A3).

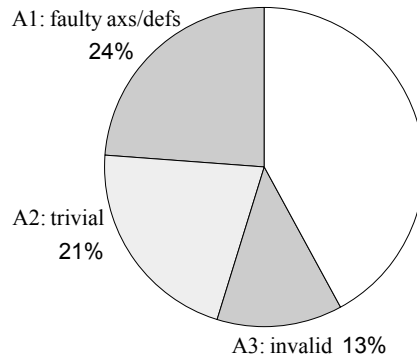


FIGURE 2. The argument is bad (Group A)

**A1: Unsoundness.** Many bloggers claim that the axioms or definitions are flawed – many bloggers just say “false”, even with respect to definitions. Most of this is due to misunderstanding the roles of definitions and axioms in particular and about partially fixing the meaning of theoretical terms by assumptions more generally.

A first misunderstanding to mention is that the definition,

(D1) something is *godly* just in case it has all positive properties,

is creative in that it entails or presupposes an existence claim to the effect that there is at least one being that has all positive properties. Not surprisingly it is then claimed that the proof is trivial since half of the conclusion is allegedly introduced by definition.

A different and more common misunderstanding is that proper definitions have to be completely reductive. Thus, Definition 1 is considered flawed because it is not accompanied by a definition of “positive property”. Typical comments then are:

- “Who decides what is positive?”
- “Doesn’t the meaning of ‘positive’ change in history or with cultures?”
- “Positive is an evaluative property. There is nothing like it in nature.”
- “Can’t anyone make up his own notion of ‘positiveness’?”

The commentators in this group completely ignore the fact that the notion of positiveness is subsequently constrained or, as we may say, indirectly defined by the axioms. They thus consider the property of being godly “empty” or too “fuzzy” to serve any serious purpose.



In passing, let me note a misunderstanding not encountered in the blog but sometimes aired by professional philosophers (in conversation). Looking at the definition D2 of an *essential* property it is observed that this definition is at odds with common explications of what makes a property essential. What Gödel defines here, may perhaps more aptly be called a “generating property”: a property that, if an object has it, will determine all other properties of that object. What is important to note, however, is that the definition merely serves the purpose of abbreviation. The defined term is eliminable from all subsequent derivations. The definition need not be – and for all we know is not – offered as an explication of a pre-theoretic (?) notion of essentiality.

To continue with the blog-entries, other commentators do take note of the fact that the axioms constrain the property of being positive. But then they either go on to object that the axioms say something false or complain that they fail to say enough about what makes a property positive. The latter option will be discussed below under the keyword “insignificance”. So let us now consider the suggestion that at least one of the axioms is false.

The exclusive targets of those objecting to the truth of the axioms are the first and the third axiom:

- (A1) Each property is either positive or not.
- (A3) Godliness is a positive property.

Some objections to these axioms are much like those mentioned against the definition (D1): Since no explicit definition of positive properties has been provided, the axioms are considered flawed in the sense that they are devoid of content or, at any rate, do not have sufficient content to assess their truth. One may put this to an insufficient grasp of the axiomatic method. Readers who are not familiar with this method may be forgiven for not appreciating the role of axioms in constraining the meaning of theoretical terms, such as positiveness. But no knowledge of the axiomatic method is required here. The Gödelian argument has a perfectly adequate and informal gloss in which the role of axioms is handed over to elementary assumptions about how we should expect positive properties to behave. These assumptions were stated in the article that triggered the blog (and were reproduced above). The weaker the assumptions, the easier it should be to grant their truth, whence the stronger the argument. In everyday settings this point is readily appreciated. But it seems that when not tied to familiar situations, then reducing the strength of one’s assumptions is considered a vice, an excess of abstraction that is turned against the argument. Something like this seems to take effect here.

Almost all cases in which the axioms are declared false are based on interpreting them with a morally loaded notion of positiveness in mind. With respect to (A1) it is then claimed either that not all properties are subject to moral evaluation or that there is no single standard of moral goodness that would univocally allow the exhaustive partition of properties asserted in the axiom. Of course, this is jumping to conclusions in more than one way. The first jump is to read positiveness in a moral sense. The second

jump is to conclude, against (A1), that no exhaustive partition is possible if some properties escape moral evaluation or if there is no single standard of (moral) positiveness. Against (A3) commentators object that God, if he exists, cannot be purely positive in the sense of perfectly good, given that the world shows signs of moral imperfection. There is a rather sweeping claim behind this, viz. that all versions of the ontological argument eventually succumb to a failed theodicy. Maybe so. But, as it stands, Gödel's notion of positiveness is clearly too abstract to be directly confronted with theodicy considerations.

As it happens, Gödel himself suggested in a puzzling remark that preference must be given to a "moral-aesthetic" interpretation of "positiveness". We shall come back to that remark at the end. At this point it suffices to note that the bloggers almost certainly were not aware of Gödel's suggestion and that the axioms give no indication of it. Moreover, even if the first jump should be felicitous in view of Gödel's remark, the second one – claiming that the axioms cannot hold under the moral interpretation – is certainly fallacious.

**A2: Triviality.** As mentioned before, the original article does not even contain as much as a sketch of Gödel's proof. (I hasten to add, that this is fair enough. For laying out the proof in formal language would have missed the intended audience; and presenting the argument without the help of formulae would have been cumbersome and invited many misunderstandings.) Neither do those blog-entries that proclaim Gödel's argument trivial show traces of their authors having examined the derivation. Consequently complaints to the effect that the argument is trivial take a rather sweeping form. The thought basically is that the axioms are – or better, must be – a smoke-screen version of the theorem. There is, of course, a grain of truth in this: Logic is not ampliative, as Kant has put it. In proving theorems from axioms by way of rules, one derives propositions that are contained (in a sense) in the axioms and rules. And indeed, many of those who opt for calling Gödel's argument trivial (in a sense) do not shy away from extending this verdict to all logical proofs – in a sense.

A more sophisticated attack in this group goes thus: God, if he existed, would be close enough to a concrete individual. But – thus the basic assumption of the attack – the existence of concrete individuals cannot be proven by purely logical means. Thus – option A2! –, somewhere in the axioms that existence must have already been assumed, or – option A3! – the reasoning is invalid. Many bloggers do not clearly commit themselves to either A2 or A3 but conclude that the argument must be either unsound or invalid. What escapes attention though is the idea that God may be a rather special concrete individual, viz. one that exists with logical necessity. These bloggers do not perceive that they argue from an assumption which the ontological argument is designed to put into question.

**A3: Invalidity.** As in the case of the claim that Gödel's argument is trivial, the claim A3 that the argument is invalid is surprising because it is safe to say that the overwhelming majority of the claimants have never

seen the argument, let alone examined it. Accordingly, most bloggers do not indicate any particular flaw in the argument. In the preceding paragraph we have seen how the suspicion of invalidity may arise from an alleged certainty which is inconsistent with the conclusion of the argument.

In a few cases it is claimed that the argument can be structurally replicated to an absurd conclusion, like the existence of evidently fictitious entities. Some mention Gaunilo's caricature of Anselm's version of the ontological argument but do not describe how Gaunilo's objection may apply to the Gödelian argument. In a similar vein others believe that Gödel's proof relies on the illicit assumption that existence is a (first-order) predicate. (One would not expect to find such a sophisticated philosophical thesis with some frequency appearing in the blog. But then I discovered that the wording of these blog-entries can be traced back to a chapter in Simon Blackburn's popular book *Think*.) No one shows, however, how reliance on that assumption vitiates Gödel's argument. Naturally, that is not surprising, since Gödel's version of the ontological argument comes nowhere close to presupposing that existence can be treated as a predicate – not in the sense, anyway, in which Kant and Frege have criticised such treatment. The basis of the suggestion that the argument is invalid is thus an appeal to authority: Either that someone has provided structurally identical arguments from true premisses to false conclusions, or that someone has identified a more or less subtle but decisive flaw in the argument.

Viewed without bias, however, at this point we would only have an opposition of authorities: Gaunilo-Frege-Kant on the one hand *versus* Descartes-Leibniz-Gödel on the other hand. It is fair enough to rely on a division of intellectual labour and take note that authorities with sufficient credentials cast doubt on the viability of ontological arguments. But no such reliance can tip the balance against the one or the other of the two trios. Yet without exception all bloggers in the group under considerations take the Gödelian argument to stand refuted. The best explanation of this strange dialectic is shockingly simple: We witness a teleological assessment of an argument. Bloggers who believe the argument to be invalid do so because they either do not like the conclusion or they do not like the conclusion as forthcoming from an *a priori* argument.

#### 4. B: Insignificance

Let us finally turn to group B comprising responses according to which the Gödelian argument, although perhaps perfectly good as far as arguments go, is not suited to support belief in the existence of God.

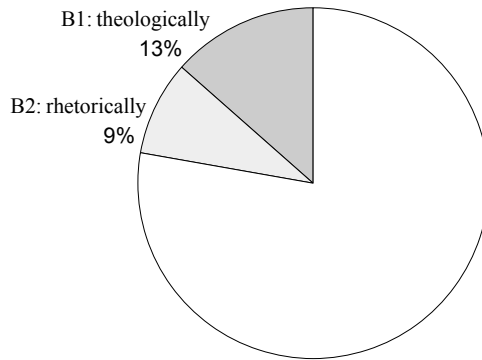


FIGURE 3. The argument is insignificant (Group B)

I have subsumed under B two types of responses that appear to be clearly distinct but may be linked by an initial thought which then bifurcates. The thought is this:

Belief in the existence of God has a personal significance which, e.g., belief in the unsolvability of Fermat’s famous equation has not. Someone who believes in the existence of God typically has a perspective on life that differs significantly from the perspective of a non-believer. That perspective may not constantly be apparent but it typically makes a difference in situations that make us aware of the fragility of our existence. Coming to believe in God completely turns one’s head, at least in those situations. This is the *affective import* of belief in God. An argument for the existence of God should therefore create a belief with such affective import. But the Gödelian argument typically does not have that effect. So either the argument is of a kind that fails to fully convince us of the conclusion, or it delivers a conclusion that does not have the affective import we expect. Either the argument is “cold” or the conclusion is “cold”. In the first case it may deliver the right conclusion but is rhetorically ineffective. In the second case it delivers a conclusion that differs in content from the one we expect.

It is quite clear that some such train of thought is very much present in the blog-entries comprising group B. Of course, the thought raises questions. Does affective import enter content? And, what is an otherwise good but “cold” argument? Clarke, in his writings, including in the passage quoted above, seems to presume that some perfectly good arguments for God’s existence are just cold. But Clarke also hints that the arguments in question are cold because insufficiently understood. Perhaps ethics provides more clear-cut examples of cold arguments: flawless and simple to understand arguments that urge a certain course of action which we then find difficult to carry out. The practical import in the moral judgement is fully there but it somehow remains mute. In the case of Gödel’s argument some bloggers seem to have confidence in its soundness but perceive it as too abstract to carry full conviction. Perhaps, when pressed, they would pass from a

diagnosis of rhetorical ineffectiveness of the argument to one of theological insignificance of the conclusion. So let us turn to this now.

**Theological insignificance.** Some bloggers object that the axioms are flawed not in the sense of saying something false but in the sense of not saying enough about the notion of positiveness. In most cases this remains a vague or just misguided complaint: The axioms supposedly do not make it clear what is meant by a “positive property”; they are claimed to be devoid of content. In some cases, however, there is a glimpse of a perfectly true observation which we may put thus: The axioms describe a vast class of models, including many unintended and even trivial ones. It is then claimed that this fact vitiates a theologically significant interpretation of the final theorem (G). Here we have finally encountered a critical response to Gödel’s argument which is plausibly to the point. What is the problem?

Gödel’s “axiomatic theology” (see Fuhrmann [6]) is far more abstract than any theology we encounter in the canonical scriptures or in the writings of “real” theologians. Every model of Gödelian theology is such that in every world there is a single item that instantiates all positive properties. Now, real or substantial theologies are presumably extensions of Gödelian theologies. Thus, their models constitute subclasses of the Gödelian models. It follows that Gödel’s theorem holds for substantial theologies as well. So far so good for Gödel’s ontological argument. But are there true substantial theologies?

What makes Gödel’s argument strong is the weakness of its premisses. Surely, there must be a way of partitioning the domain of properties such that Gödel’s axioms are satisfied. In a substantial theology, however, the aimed-at all-positive being has intentions, makes decisions, and satisfies many other properties. These properties need to be coded in additional axioms. We then face a crucial question:

Can Gödelian theology consistently be extended to a substantial theology such that the unique all-positive being also uniquely satisfies the godly properties we are interested in?

The answer to that question is simply unknown. Gödel’s theorem does not tell us whether a substantial God, i.e. a supreme being in the sense of a substantial theology, exists. In this sense Gödel’s result does indeed lack theological substance, or, as we may also say, significance. But the theorem pinpoints a minimal logical basis which substantial theologies must consistently extend so as to allow for an ontological argument. In this sense Gödel shows the way in which theology may become part of a general theory of concepts to which logical methods are applicable.

These considerations also provide a basis for interpreting a puzzling passage in Gödel’s notebook sketch of the argument. He writes:

Positive means positive in the moral-aesthetic sense (independently of the accidental structure of the world). Only then [are] the axioms true.

Taken literally this is clearly false. Gödel knew, of course, that there are models of his axioms in which “positive” receives no moral or aesthetic

interpretation in any plausible sense. But if we read "true" as short for "true in a theologically significant sense", then the passage simply shows that Gödel was aware of the point just made: We need to constrain the domain of positive properties so as to consist of the positive properties in a "moral-aesthetic" sense. Only then will the axioms, and consequently the result, acquire the religious significance we ultimately aim at.<sup>3</sup>

Many remarks in his notebooks clearly indicate that Gödel was of the opinion that he made an important beginning to the task of turning the question of the existence of God into a rationally assessable hypothesis. As we have seen, he did so by cutting back substantial theologies to a point where an ontological proof becomes available. At this point, so it seems, he saw the skeptic to be under the onus to argue that this minimal basis, the Gödelian theology, could not consistently be extended to a substantial theology in which Gödel's theorem would continue to hold.

The conviction that such extensions must be possible is just part of his remarkable optimism about how far philosophical insight could be made to reach by sustained and rigorous reasoning. In his private *Philosophical Remarks* Gödel at one time took stock of his core philosophical convictions (as first related in Wang [p. 316][10], improved translation based on the new transcription in Engelen [4]. The result is a list of hypotheses which display the wide range and direction of his optimism.

My philosophical viewpoint

1. The world is rational.
2. Human reason can, in principle, be developed more highly (through certain techniques).
3. There are systematic methods for the solutions of all problems (also art, etc).
4. There are other worlds and rational beings, who are of a different and higher kind.
5. The world in which we live is not the only one in which we shall live or have lived.
6. Incomparably more is knowable *a priori* than is currently known.
7. The development of human thought since the renaissance is thoroughly one-sided.
8. Reason in mankind will be developed on every side.
9. The formally correct is part of a science of reality.
10. Materialism is false.
11. The higher beings are connected to the others by analogy, not by composition.
12. Concepts have an objective existence (likewise mathematical theorems).

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<sup>3</sup> If we encountered the just quoted passage in a published text, this interpretative hypothesis would have to be considered far-fetched. But the passage is hastily written down in a private notebook, much of it in shorthand or otherwise abbreviated. It is obviously little more than a reminder of a thought to be elaborated. Even though the passage is frequently quoted, I know of no interpretation in the literature that has come even close to making sense of it. Accordingly it is frequently referred to as "enigmatic".

13. There is a scientific (exact) philosophy and theology (this is also more highly fruitful for science), which deals with the concepts of the highest abstractness.
14. Religions are, for the most part, bad. But religion is not.

The list delineates succinctly the context in which Gödel saw his ontological argument. It is evidently an attempt at sketching a *complete* picture of his viewpoint. Some of the theses are familiar from or hinted at in Gödel's published writings (2,6,9,10,12); others are completely absent from his publications (4,5,7,8,11,14).

## 5. Conclusions

In discussing the most prominent groups of blog-entries we have seen a revue of mostly futile attempts at saying something potentially to the point about Gödel's ontological argument. Many bloggers are deeply confused about the nature and role of definitions. Many do not know how to carefully interpret and appreciate assumptions (or, more technically, axioms) as the basis of arguments (derivations). Many get lost when faced with steps of abstraction. Many jump to risky conclusions without perceiving the danger. Many harbour a wholesale suspicion that logical arguments to philosophical conclusions are some sort of cheap trickery which common sense does well to ignore. Many have difficulties to stay focused on a train of thought. Some are quite willing to let their emotional response to the conclusion reflect on the quality of the argument. The overwhelming impression is that the sweet voice of reason has little chance where opinions are strong – even if it is the voice of one of the towering intellectuals of the past century. That, by itself, may not be much news. But let us not forget that the blog followed an article in a weekly newspaper whose readers, for the most part, have received a university education. Moreover, the blog was not of the nowadays popular thumbs-up-thumbs-down kind. Readers were invited to engage in a serious philosophical discussion. Throughout, most bloggers tried their best to make carefully worded contributions.

To be fair, we have also seen that one group of bloggers did make a very relevant observation. They observed that the axioms are weak, that they admit of many models which are far removed from a substantial theology and that Gödel's final theorem inherits the in a sense unwelcome abstractness of the axioms. How many bloggers came close to making this observation about Gödel's proof? Answer: Seven. If we only consider those blog-entries that have been typified according to the scheme adopted here, then this number constitutes 6% of the reference class. If we extend the reference class to the total of all blog-entries, then 3% can charitably be interpreted as pointing out the problem of theological significance. How many bloggers identified the problem clearly and succinctly? Not more than two or three. To these we must add the two or three bloggers – I suspect them to be professionals – who explain correctly and in simple terms the key elements of the argument and how it is intended to work. These included, we are still looking at around 5% of entries that get into the high marks range.

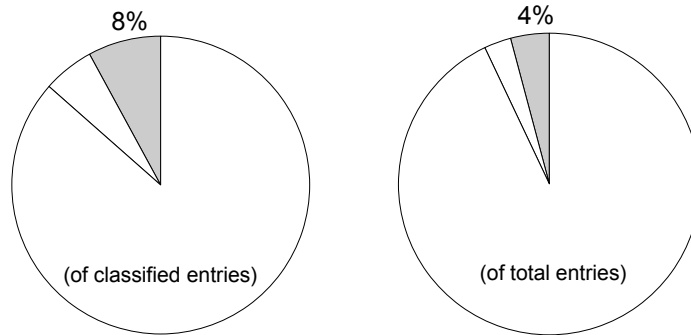


FIGURE 4. Questioning theological significance

Is this a depressing finding? Certainly, it would be nice if more people had a better grip on Gödel’s arguments. But it was to be expected that bloggers would find it difficult to relevantly respond to the argument. This has little to do with the fact that Gödel’s argument – properly spelt out – employs formal techniques. For one, the formalities were veiled from the reader. More importantly, however, the faults typically committed in this case are familiar from reactions to other arguments in philosophy, even from those areas with a more “tangible” subject matter, say the philosophy of mind or ethics. Thus, e.g., beginning students have substantial difficulties in appreciating the force of thought experiments. The principal reason for this is a tendency towards supplementing, changing or re-interpreting assumptions in the course of reasoning. As a result, conclusions appear to be “floating”, creating an impression of slack or even arbitrariness. Another difficulty stems from underestimating the importance of subtle distinctions. Distinct theses are then “roughly” identified. Coercive chains of reasoning, subsequent to the theses concerned, are side-stepped, irrelevant observations are offered and real gaps and weaknesses go unperceived. As explained above, all this can also be observed in the comments on Gödel’s argument.

What may be depressing – or rather: what we should feel concerned about – is not the fact that there are serious obstacles in the way of appreciating an argument for what it is worth but a certain reaction to these difficulties on part of the students or the general public. Not coming to terms with non-trivial philosophical arguments frequently leads to the impression that such arguments can be arbitrarily produced for just about any conclusion. (We have seen that view too surfacing in the blog.) Those under the influence of the impression either turn away from philosophy in disgust or they start believing that the better philosophy is one that does not even start to argue but instills a world-view (“Weltanschauung”) by means of a certain kind of prose. It is not an accident that the philosophy shelves of general book-stores are almost exclusively stocked up with that latter kind of philosophy. Neither is it an accident that one rarely finds a professional philosopher appearing in so-called philosophical talk shows on television. What we see at work here is a certain *Dialektik der Aufklärung*. As philosophy follows



the path of uncovering truth by argument, its theoretical means become increasingly sophisticated – thereby losing in accessibility and entertainment value for the general public. The reaction is a kind of philosophy that strays off the path of argument and tries to capture its audience by other means.

Gödel did not wish to publish his ontological proof nor any of his other metaphysical speculations. He was fully aware of the fact that his metaphysical work was doubly anachronistic. At the time when he was developing his philosophical ideas (in the 1940-60s) those philosophers who saw themselves as trying to align philosophy with the sciences (a goal Gödel emphatically approved of), had no patience for old-style metaphysics; and those who did, would have frowned at the suggestion that mathematical logic offered new means to make advances on traditional questions. His were simply not the times for going public with his views. Publication of the argument for the existence of God may have even undermined his scientific reputation. The list quoted above expresses optimism that times will change: that “reason in mankind will develop on every side” and that there is room for “a scientific (exact) philosophy and theology”. Or, as he once put it: “Philosophy today is where mathematics was in the Babylonian age.”

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