On The Burden of Proof

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December 17, 2005

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Introduction

Consider the following interchange between parties A and B:

    A> You have a gremlin on your shoulder.

    B> No I don't.

    A> Prove it.

A and B have made contradictory claims, so one of them is right, the other wrong. But it isn't intuitively obvious as to how the interchange should proceed in order to resolve the dispute in a rational way. A and B need to have some way of deciding who bears responsibility to provide more evidence, and what conditions must prevail before they should agree on who is right.

The problem is to decide who should bear the burden of proof at any given stage, and that is the subject of this paper.

The general rule is

> **The burden of proof (BoP) rests on the party who is asserting the existential positive.**

A fairly simple statement, but there are devils lurking in the details. Neither is it obvious why this is a valid requirement.

A Preliminary, The Concept of Identity

To be, to exist, is to be something in particular, to have an "identity". Anything that exists has SOME traits by which it can be identified as what it is; for example, a colour, or a speed, or a personality trait, or some more abstract property. It is not possible to exist without having an identity.

A thing's identity can be known through its interaction with other things. In the examples we could see its colour, measure its speed, classify its behaviour, etc. Individual traits can be determined, at least in principle, for anything that exists.

"Nothing" is not just another kind of "something". It is the absence of identity. "Nothing" means "non-existent". There are no traits to interact with, no being or idea or whatever to have traits.

It is thus impossible to interact with nothing.

Identity may be conceived as the complete set of traits. But, in any given situation, not all the traits matter. Of all the traits a given thing expresses, those of concern are selected by their relevance in the context of the discussion.

With this preliminary understanding we are in a position to proceed with the discussion of the BoP problem.

Is A making a rational demand?

The word "positive" in the BoP rule means that existence is being asserted, not denied. That is, one is not asserting the absence of something (that it does not exist), but it's presence (that it does exist).

For example, if I say "My dog is blue" I am asserting that the thing called "My dog" has the trait of appearing blue. I can confirm this by looking at the dog (examining the defined context, my dog, for the trait) for the presence of light of the colour blue.

If, however, I say "My dog is not blue" I cannot look for "not blueness". I don't mean indirectly, such as looking for redness and inferring the absence of blue, but looking for "not blueness" directly.

"My dog is not blue" is a negative existential statement. It asserts the absence or non-existence of something, not it's presence.

In regard to the BoP question, it is impossible IN PRINCIPLE to offer or show any trait of nothing. There is nothing to find even if one looks.

Because fulfillment of the demand is always impossible, it is irrational to demand that anyone demonstrate non-existence. It is only possible to show something that does exist. A demand to show a non-existent trait is a demand to show something that is not there to show, in principle, which is clearly absurd. "Show me something that cannot be shown" is a ridiculous demand, and quite irrational.

The condition is expressed in the BoP rule, which places the burden of proof (demonstration) clearly on the party who is asserting positive existence.

Applying this to our opening problem, it is clear that A's demand to "prove it" is irrational. This asks B to show the absence of a gremlin. The BoP rests on A, who has asserted that the gremlin exists.

But is it now rational for B to assert validity for his claim, because A's demand has been shown to be irrational?

The Status of B's Claim

In a word, no. Why?

You cannot infer any information from nothing. The "inputs" to an inference must be things that exist, not a void, if the truth or falsity of the "output" is to be determined uniquely.

B has not offered any positive evidence that would refute A's claim. Neither A nor B has offered any positive evidence at all. There is no "input" information to either support or reject A's claim in the exchange. As it stands the exchange has been reduced to nothing but an unsupported assertion.

The situation, properly analyzed, is that A's claim is an hypothesis, a suggestion that something is true. The BoP rule says the act of asserting an existential positive puts the burden of offering evidence on the person making the assertion. Thus B's rational response should not be "No, I don't", but "Prove it. Offer me evidence that supports your claim." B is then invoking the BoP rule, making a rational demand, to compel A to support his claim.

If A does not respond with evidence B is under no obligation to accept the claim. But if A does offer evidence B is required to accept the claim, or refute the evidence with a counter-claim. The cycle then starts again with roles reversed; the counter-claim becomes a new existential positive, with the BoP on B.

The assignment of BoP is fairly straightforward most of the time, but there is a semantic ambiguity that is a bit troublesome.

Semantic Versus Existential Positives

The problem may be illustrated by a demand to show that something is safe.

Semantically, this appears to be a demand for something positive. But "safe" actually means "absence of hazard", which is a negative. To paraphrase, if "hazard" names something with demonstrable properties (a positive), the absence of that thing has no demonstrable properties (a negative).

It is here that the adjective "existential" becomes important in the BoP rule. If we put the BoP on just the "positive" it is not obvious that "safe" is actually a negative because it is semantically positive. If we require the "existential positive" instead then we look not for a positive statement, but positive existence, the presence of demonstrable evidence in principle.

In the BoP rule the intended sense of the word "positive" is existential, that is referring to existence, not the semantic form of the way something is stated. Because the distinction is so important it is emphasized by adding the word "existential" in the rule.

We all know that a demand to demonstrate safety is accepted as rational in many circumstances, even ones with legal significance. Yet, according to our BoP rule, this now seems to be irrational. Is it possible to demonstrate "safety" rationally?

Analysis of the Problematic Case

Yes, but only in a restricted sense.

Safety can be demonstrated, providing

> a) the expected hazards are positively defined and

> b) the context is defined.

Under these conditions identity of the hazard, one or more traits that would have to be present if the hazard is present, can be determined. One can then search the defined context for presence of those traits. If the traits are not present the hazard is not present, and the defined system is "safe".

As indicated, you must specify the context in which the hazard might exist. You cannot examine a context (completely) for a defined hazard if no bounds exist. You would have no way of knowing when to quit looking. A complete search would be infinite, and thus impossible. Without a complete search the evidence one seeks might be lurking undetected in the part of the context one leaves out of the search.

Note that you are looking for positive evidence, not its absence, in the situation defined. You don't find it, but you're looking for something that should exist. Thus we haven't violated the BoP rule despite the convolutions around the idea "safe". The application of the BoP rule, however, is a bit tricky under the circumstances.

Another example of the semantically positive / existentially negative situation is one suggested by my companion, Tannis.

Under some legal systems one is guilty until proven innocent. Here "innocent" means "free of guilt". As with the "safety" example the proof is possible, but only under restricted conditions. The process of proof is also more convoluted and difficult, with all that implies for success or failure in achieving a just outcome.

A Final Caution

Finally, it is not possible to show, and not rational to demand proof of, any thing without any specification of what the thing is. That violates the BoP rule in principle in a semantic way - some of the words in the demand are meaningless.

It amounts to asking someone to show "X" without specifying what "X" means.

This requirement may seem ridiculously obvious, but it is a common problem in debates over theological issues in particular. Debates depending on a clear definition of identity can rage on for hours, literally, without anyone having specified any traits of what they're talking about!

Concluding Remarks

All this is a bit tricky, perhaps, but it is quite amazing how an irrational BoP demand will "jump out" at you once you understand the principle. Demands like "Prove it isn't so.", or statements like "No one has proven me wrong." are solid clues that the BoP must be defined more carefully before proceeding.

It is also very interesting to see how often people try to claim validity for their position based on an irrational BoP assignment, and how often the BoP is accepted irrationally in discourse. At a cultural level we are not well trained in the principles of reason.

I hope this paper will go some small way to correcting that.

Alan