

Burden of proof (philosophy)

The **burden of proof** (Latin: *onus probandi*, shortened from *Onus probandi incumbit ei qui dicit, non ei qui negat*) is the obligation on a party in a dispute to provide sufficient warrant for their position.

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Holder of the burden

When two parties are in a discussion and one makes a claim that the other disputes, the one who makes the claim typically has a *burden of proof* to justify or substantiate that claim especially when it challenges a perceived *status quo*.^[1] This is also stated in Hitchens's razor. Carl Sagan proposed a related criterion, the Sagan standard, "extraordinary claims require extraordinary evidence".^[2]

While certain kinds of arguments, such as logical syllogisms, require mathematical or strictly logical proofs, the standard for evidence to meet the burden of proof is usually determined by context and community standards and conventions.^{[3][4]}

Philosophical debate can devolve into arguing about who has the burden of proof about a particular claim. This has been described as "burden tennis" or the "onus game".^{[5][6][7]}

Shifting the burden of proof

One way in which one would attempt to shift the burden of proof is by committing a logical fallacy known as the argument from ignorance. It occurs when either a proposition is assumed to be true because it has not yet been proved false or a proposition is assumed to be false because it has not yet been proved true.^{[8][9]}

Proving a negative

A negative claim is a colloquialism for an affirmative claim that asserts the non-existence or exclusion of something.^[10] The difference with a positive claim is that it takes only a single example to demonstrate such a positive assertion ("there is a chair in this room," requires pointing to a single chair), while the inability to give examples demonstrates that the speaker has not yet found or noticed examples rather than demonstrates that no examples exist (the negative claim that a species is extinct may be

disproved by a single surviving example or proven with omniscience). The argument from ignorance is a logical fallacy. There can be multiple claims within a debate. Nevertheless, it has been said whoever makes a claim carries the burden of proof regardless of positive or negative content in the claim.

A negative claim may or may not exist as a counterpoint to a previous claim. A proof of impossibility or an evidence of absence argument are typical methods to fulfill the burden of proof for a negative claim.^{[10][11]}

Application

In public discourse

Burden of proof is also an important concept in the public arena of ideas. Once participants in discourse establish common assumptions, the mechanism of burden of proof helps to ensure that all parties contribute productively, using relevant arguments.^{[12][13][14][15]}

In law

In a legal dispute, one party is initially presumed to be correct and gets the benefit of the doubt, while the other side bears the burden of proof. When a party bearing the burden of proof meets their burden, the burden of proof switches to the other side. Burdens may be of different kinds for each party, in different phases of litigation. The burden of production is a minimal burden to produce at least enough evidence for the trier of fact to *consider* a disputed claim.^{[16]:16–17} After litigants have met the burden of production and their claim is being considered by a trier of fact, they have the burden of persuasion, that enough evidence has been presented to persuade the trier of fact that their side is correct. There are different *standards* of persuasiveness ranging from a preponderance of the evidence, where there is just enough evidence to tip the balance, to proof beyond a reasonable doubt, as in United States criminal courts.^{[16]:17}

The burden of proof is usually on the person who brings a claim in a dispute. It is often associated with the Latin maxim *semper necessitas probandi incumbit ei qui agit*, a translation of which in this context is: "the necessity of proof always lies with the person who lays charges."^[17]

The party that does not carry the burden of proof carries the benefit of assumption of being correct, they are presumed to be correct, until the burden shifts after presentation of evidence by the party bringing the action. An example is in an American criminal case, where there is a presumption of innocence by the defendant. Fulfilling the burden of proof effectively captures the benefit of assumption, passing the burden of proof off to another party.

In statistics

In inferential statistics, the null hypothesis is a general statement or default position that there is no relationship between two measured phenomena, or no association among groups.^[18] Rejecting or disproving the null hypothesis—and thus concluding that there are grounds for believing that there *is* a relationship between two phenomena (e.g. that a potential treatment has a measurable effect)—is a central task in the modern practice of science; the field of statistics gives precise criteria for rejecting a null hypothesis.

The null hypothesis is generally assumed to be true until evidence indicates otherwise. In statistics, it is often denoted **H_0** (read "H-nought", "H-null", "H-oh", or "H-zero").

The concept of a null hypothesis is used differently in two approaches to statistical inference. In the significance testing approach of Ronald Fisher, a null hypothesis is rejected if the observed data are significantly unlikely to have occurred if the null hypothesis were true. In this case the null hypothesis is rejected and an alternative hypothesis is accepted in its place. If the data

are consistent with the null hypothesis, then the null hypothesis is not rejected. In neither case is the null hypothesis or its alternative proven; the null hypothesis is tested with data and a decision is made based on how likely or unlikely the data are. This is analogous to the legal principle of presumption of innocence, in which a suspect or defendant is assumed to be innocent (null is not rejected) until proven guilty (null is rejected) beyond a reasonable doubt (to a statistically significant degree).

In the hypothesis testing approach of Jerzy Neyman and Egon Pearson, a null hypothesis is contrasted with an alternative hypothesis and the two hypotheses are distinguished on the basis of data, with certain error rates.

Proponents of each approach criticize the other approach. Nowadays, though, a hybrid approach is widely practiced and presented in textbooks. The hybrid is in turn criticized as incorrect and incoherent—for details, see Statistical hypothesis testing.

Statistical inference can be done without a null hypothesis, by specifying a statistical model corresponding to each candidate hypothesis and using model selection techniques to choose the most appropriate model.^[19] (The most common selection techniques are based on either Akaike information criterion or Bayes factor.)

Example

Atheist Matt Dillahunty gives the example of a large jar full of gumballs to illustrate the burden of proof.^{[20][21]} The number of whole gumballs in the jar is either even or odd, but the degree of personal acceptance or rejection of claims about that characteristic may vary. We can choose to consider two claims about the situation, given as:

1. The number of gumballs is even.
2. The number of gumballs is odd.

Either claim could be explored separately; however, both claims tautologically take bearing on the same question. Odd in this case means "not even" and could be described as a negative claim. Before we have any information about the number of gumballs, we have no means of checking either of the two claims. When we have no evidence to resolve the proposition, we may suspend judgment. From a cognitive sense, when no personal preference toward opposing claims exists, one may be either skeptical about both claims or ambivalent about both claims.^[22] If there is a dispute, the burden of proof falls onto the challenger of the status quo from the perspective of any given social narrative.^[23] If there is no agreeable and adequate proof of evidence to support a claim, the claim is considered an argument from ignorance.^[24]

See also

- J.B. Bury § On the argument from ignorance and the burden of proof
- Justificationism
- Legal burden of proof
- Russell's teapot

References

1. Cargile, James (January 1997). "On the burden of proof". *Philosophy*. Cambridge University Press. **72** (279): 59–83. doi:[10.1017/s0031819100056655](https://doi.org/10.1017/s0031819100056655) (<https://doi.org/10.1017%2Fs0031819100056655>).
2. Marc Kaufman, *First Contact: Scientific Breakthroughs in the Hunt for Life Beyond Earth*, Simon and Schuster, p. 124.
3. Leite, Adam (2005). "A localist solution to the regress of justification". *Australasian Journal of Philosophy*. **83** (3): 395–421 [p. 418]. doi:[10.1080/00048400500191974](https://doi.org/10.1080/00048400500191974) (<https://doi.org/10.1080%2F00048400500191974>). "[t]he point of articulating reasons in defense of one's belief is to establish that one is justified in believing as one does."

4. Leite, Adam (2005). "A localist solution to the regress of justification". *Australasian Journal of Philosophy*. **83** (3): 395–421 [p. 403]. doi:[10.1080/00048400500191974](https://doi.org/10.1080/00048400500191974) (<https://doi.org/10.1080%2F00048400500191974>). "justificatory conversation...[is]...characterized by a person's sincere attempt to vindicate his or her entitlement to a belief by providing adequate reasons in its defense and responding to objections."
5. Dennett, Daniel C. (July 1988). "Review of *Psychosemantics* by Jerry Fodor" (<http://cogprints.org/253/1/fodor.htm>). *The Journal of Philosophy*. **85** (7): 384–389 (389). doi:[10.2307/2026956](https://doi.org/10.2307/2026956) (<https://doi.org/10.2307%2F2026956>). JSTOR 2026956 (<https://www.jstor.org/stable/2026956>). "Fodor is too wise to think his series of arguments can flatly disprove the claims of the opposition, so time and again he resorts to claims about shifting the burden of proof, begging the question, outsmarting by embracing the conclusions of reductios, and other exploitations of the rules of the game. The book is a tireless exercise of that philosopher's pastime, burden-tennis. Burden, burden, who has the burden of proof now? Fodor mostly plays solitaire burden-tennis, against an imaginary opponent often personified as Granny or Auntie, which permits him to express the opposition view in terms that suit his rebuttal, without having to address the issue of whether this is a sympathetic rendering of any real opponent's claims."
6. Rodych, Victor (1996) [1986]. "Wittgenstein's inversion of Gödel's theorem". In Shanker, Stuart; Kilfoyle, David (eds.). *Ludwig Wittgenstein: critical assessments*. 2. The later Wittgenstein: from *Philosophical investigations* to *On certainty*. London; New York: Routledge. pp. 232–265 (261 (<https://books.google.com/books?id=1MQaXJHzB0oC&pg=PA261>)). ISBN 0415149150. OCLC 47938413 (<https://www.worldcat.org/oclc/47938413>). "Thus, in 1991 Wang seems to understand *why* Wittgenstein rejects GIT, but, apparently favouring the "onus game" (or "burden tennis"), he unfortunately concludes (pp. 257–58) that "the burden of proof falls ... squarely on Wittgenstein's side" because of Wang's own 'principle of presumed innocence'."
7. Abelson, Robert P. (1995). "Credibility of argument". *Statistics as principled argument*. Hillsdale, NJ: Lawrence Erlbaum Associates. p. 170 (<https://books.google.com/books?id=yQLFI1LjZwC&pg=PA170>). ISBN 0805805273. OCLC 31011850 (<https://www.worldcat.org/oclc/31011850>). "When research presentations advance claims that many or most readers deem incredible, these claims are vulnerable to severe challenge. In response, there will typically be a rebuttal by the investigator, and then a fresh round of criticism. The burden of proof shifts back and forth between the investigator and the critic in what might be called the game of 'burden tennis'."
8. "Argumentum ad Ignorantiam" (<http://philosophy.lander.edu/logic/ignorance.html>). *Philosophy 103: Introduction to Logic*. Lander University. 2004. Archived (<https://web.archive.org/web/20090430170946/http://philosophy.lander.edu/logic/ignorance.html>) from the original on 30 April 2009. Retrieved 2009-04-29.
9. Dowden, Bradley. "Appeal to ignorance" (<http://www.iep.utm.edu/fallacy/#AppealtoIgnorance>). *Internet Encyclopedia of Philosophy*. Retrieved 2016-02-24.
10. Hales, Steven D. (Summer 2005). "Thinking tools: You can prove a negative" (<http://departments.bloomu.edu/philosophy/pages/content/hales/articlepdf/proveanegative.pdf>) (PDF). *Think*. Cambridge University Press. **4** (10): 109–112. doi:[10.1017/S1477175600001287](https://doi.org/10.1017/S1477175600001287) (<https://doi.org/10.1017%2FS1477175600001287>).
11. Damer, T. Edward (2009). *Attacking faulty reasoning: a practical guide to fallacy-free arguments*. Cengage Learning. p. 17 (<https://books.google.com/?id=-qZabUx0FmkC&pg=PA17>). ISBN 9780495095064.
12. Goldman, Alvin (1994). "Argumentation and social epistemology". *The Journal of Philosophy*. **91** (1): 27–49. doi:[10.2307/2940949](https://doi.org/10.2307/2940949) (<https://doi.org/10.2307%2F2940949>). JSTOR 2940949 (<https://www.jstor.org/stable/2940949>).
13. van Eemeren, Frans H.; Grootendorst, Rob (2004). *A systematic theory of argumentation*. Cambridge, UK; New York: Cambridge University Press. p. 60. ISBN 0521830753. "[t]here is no point in venturing to resolve a difference of opinion through an argumentative exchange of views if there is no mutual commitment to a common starting point."
14. Brandom, Robert (1994). *Making it explicit*. Cambridge, MA: Harvard University Press. p. 222. ISBN 067454319X. "[t]here are sentence types that would require a great deal of work for one to get into a position to challenge, such as 'Red is a color,' 'There have been black dogs,' 'Lightning frequently precedes thunder,' and similar commonplaces. These are treated as 'free moves' by members of our speech community—they are available to just about anyone any time to use as premises, to assert unchallenged."
15. Adler, Jonathan E. (2002). *Belief's own ethics*. Cambridge, MA: MIT Press. pp. 164–167. ISBN 0262011921.

16. *Criminal Law - Cases and Materials*, 7th ed. 2012, Wolters Kluwer Law & Business; John Kaplan, Robert Weisberg, Guyora Binder, ISBN 978-1-4548-0698-1, [1] (<https://law.stanford.edu/publications/criminal-law-cases-and-materials-7th-edition/>)
17. Transnational principle of law: [Trans-Lex.org](http://www.trans-lex.org/966000) (<http://www.trans-lex.org/966000>)
18. Everitt, Brian (1998). *The Cambridge Dictionary of Statistics*. Cambridge, UK New York: Cambridge University Press. ISBN 0521593468.
19. Burnham, K. P.; Anderson, D. R. (2002), *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach* (2nd ed.), Springer-Verlag, ISBN 0-387-95364-7.
20. "The Atheist Experience #808 with Matt Dillahunty and Jeff Dee" (<https://www.youtube.com/watch?v=Ek4M1trIYr8>). *The Atheist Experience*. Episode 808. 7 April 2013. channelAustin 16.
21. Matt Dillahunty (2013). *Does God exist?* (<https://www.youtube.com/watch?v=QKrKK6Kcnis>) (Debate). [Texas State University](#). Retrieved 2016-02-24.
22. Song, Hyunjin; Ewoldsen, David R. (February 2015). "Metacognitive model of ambivalence: the role of multiple beliefs and metacognitions in creating attitude ambivalence". *Communication Theory*. **25** (1): 23–45. doi:10.1111/comt.12050 (<https://doi.org/10.1111%2Fcomt.12050>).
23. van Eemeren, Frans H.; Houtlosser, Peter (2003). "A pragmatic view of the burden of proof" (<https://books.google.com/books?id=bplsGVDFav8C&pg=PA123>). In van Eemeren, Frans H.; Blair, J. Anthony; Willard, Charles A.; Snoeck Henkemans, A. Francisca (eds.). *Anyone who has a view: theoretical contributions to the study of argumentation*. Argumentation library. **8**. Dordrecht; Boston: Kluwer Academic Publishers. pp. 123–132. doi:10.1007/978-94-007-1078-8_10 (https://doi.org/10.1007%2F978-94-007-1078-8_10). ISBN 1402014554. OCLC 53059441 (<https://www.worldcat.org/oclc/53059441>).
24. Cummings, Louise (2015). "Argument from ignorance" (<https://books.google.com/books?id=-Ju1BwAAQBAJ&pg=PA41>). *Reasoning and public health: new ways of coping with uncertainty*. Cham; New York: Springer-Verlag. pp. 41–66. doi:10.1007/978-3-319-15013-0_3 (https://doi.org/10.1007%2F978-3-319-15013-0_3). ISBN 9783319150123. OCLC 905902693 (<https://www.worldcat.org/oclc/905902693>).

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