

# Tell-Tale Signs of Pseudoskepticism (Bogus Skepticism)

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**Abstract** — Pseudoskepticism, which typically is portraying someone’s work as despicable with scientifically unsound polemics, is a modern day threat to the traditional standard of discussion in science and popular science. This opinion article gives seven tell-tale signs by which pseudoskepticism can be recognized.

In Ancient Greece, skepticism was an elaborate system of teachings, which, among other things, gave an interesting guideline to a happy life. Oversimplifying things, this boiled down to the following: most people are unhappy because the things they experience do not meet the expectations they had on the basis of some belief, so we can avoid disappointment by not believing in anything—and therein lies happiness. This aspect of ‘not believing’ is still present in modern-days scientific skepticism. The idea is that when researcher A presents a claim, a skeptical researcher B replies that he doesn’t believe in it for this and this reason: by exposing a weak spot in A’s proof of the claim, A now has a problem. It may be that A can solve the problem, which makes the proof stronger, but it may also be that A has to retract the claim: this is the usual course of affairs in science, this is how science progresses—skepticism thus plays a crucial role in it.

Pseudoskepticism, on the other hand, is something completely different: the term has been introduced by Truzzi for making negative claims about someone else’s work without satisfying the burden of proof that these claims require (1987). So where the skeptic merely states that they don’t believe in someone else’s claims, the pseudoskeptic comes himself up with claims and these are always (very) negative. But pseudoskepticism is not just making negative claims: the keywords are ‘dishonesty’ and ‘foul play’. Pseudoskepticism has the same connotation as pseudoscience: both entail a drastic departure from the framework of a scientific discourse. And it is not aimed at finding out the truth, but at discrediting someone’s research. It is important to understand, however, that pseudoskepticism, as a rule, is an emotional response rather than a calculated strategic action: as such, it can be fully explained by Spinoza’s account of the affects from his 1577 book *Ethica* (Cabbolet, 2014). To spell it out, if a referee is confronted with a piece that contradicts one of their own core beliefs—something that they themselves believe in, that they teach to their students, and that they have based his entire research career on—then they *automatically* experience sadness, followed by hatred towards the work or its author as the source of the sadness. Affected by the hatred, they then *automatically* feel contempt for the work or its author, which *automatically* leads to mockery: they experience joy by imagining that there is something despicable to the work or its author. This is just how the brain works: when confronted with a piece that goes against one’s own belief nearly everyone experiences such an emotional response for a short time, but the crux is that the pseudoskeptic gives in to it. So, what happens next is that the pseudoskeptic, *without applying any form of self-reflection*, passes off fabrications of the mind that depict the work or its author as despicable as the genuine conclusions of a sound evaluation of the submitted work. This is blatantly unethical as it violates the principle of scrupulousness, one of the basic principles of good scientific practice. But the pseudoskeptic feels good about it *because* they acted this way—not the other way around. This spinozistic mechanism explains how pseudoskepticism arises in peer review: even renowned experts can be brought by their emotions to respond this way. Double-blind peer review may successfully prevent biases against an author, an author’s gender, or an author’s affiliation, but it cannot prevent such blatantly unethical referee responses to the content of a submission. So, it happens that this way scientific findings that are not in line with core beliefs of the referee(s) are kept out of important scientific journals.

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Pseudoskepticism in peer review reports rarely surfaces in the public domain because these reports are confidential, but it is not something that rarely occurs, nor is it limited to any particular branch of science: its occurrence in physics, mathematics, philosophy is so widespread that probably every working researcher has encountered it at least once in his or her career. Indications that it already in the 1950's occurred on a large scale can be found in the literature, e.g. (Schweber, 1989). In addition, pseudoskepticism isn't confined to confidential peer review reports: it also occurs in articles published under the guise of impartial opinion in newspapers, university weeklies, and popular science journals. In particular when from the hand of professional scientists with a university affiliation, or even a Nobel laureate, a pseudoskeptical article can severely discredit someone's work because readers generally trust authorities and will therefore believe the allegations to be true.

Now one can be complacent with the situation that modern science finds itself in, but pseudoskepticism poses a major structural problem that rears its ugly head time and time again in responses to works that are not in line with mainstream research programs. In (Cabbolet, 2014) preventive measures have been suggested, including the proposal to start treating pseudoskepticism as scientific misconduct, but the problem is quite persistent and needs to be addressed. The purpose of this paper is to give the tell-tale signs of pseudoskepticism. This might help editors to recognize it in peer review reports or articles submitted for publication, thus giving a reason for rejection (one can easily say to a referee: look, that review report of yours doesn't satisfy our standards, write a decent one). For the members of the general public this might help to distinguish pseudoskepticism from genuine scientific skepticism.

Below seven tell-tale signs of pseudoskepticism are given.<sup>1</sup> The crux is that in science, it is not the case that "anything goes" when commenting on someone else's work: these tell-tale signs indicate that an author uses tactics that are inadmissible in science. That doesn't mean that each of them is always present in a pseudoskeptical attack, but any single one of these tell-tale signs is a serious indication of dishonesty and foul play—in other words, that the piece is not written with truth finding in mind, but merely to discredit someone's work. Of course, a pseudoskeptic may be *incompetent* in the topic of the work they condemn. But still the tell-tale signs of pseudoskepticism then point to *dishonesty*, because an individual evaluating someone else's work ought to be competent in its subject area—a case in which a scientist writes a pseudoskeptical attack on a work on a topic outside his area(s) of competence would be a bad case of 'epistemic trespassing', a term introduced by Ballantyne (2019).

### **#1: ad hominem attacks.**

Typically, a pseudoskeptic is so eager to portray the author of the targeted work as an amateur that they resort to ad hominem attacks: this is a rhetorical technique that is absolutely inadmissible in a scientific discourse, and therefore this is the number one tell-tale sign that a piece is nothing but a pseudoskeptical attack. Here ad hominem attacks are taken to include name calling and other ways of insulting.

It is thus a real giveaway when the author of the targeted work is called "incompetent", an "amateur", a "charlatan", a "crackpot", "ignorant", "only out to brag about it in a pub", etc. So, the occurrence of any of these words alone is already an indication that the entire piece is of doubtful merit.

Of course it can happen that someone, say, researcher A, has misunderstood a result, and one can then write in a reply that obviously the result was misunderstood by A to mean X, while in reality it means Y. But that is a very specific reply, well within the framework of a scientific discussion, that addresses the argument of A: pseudoskepticism, on the other hand, typically concerns lashing out at the author *instead of* addressing the argument.

### **#2: vitriolic tone.**

Typically, a pseudoskeptical attack reads like an indictment and portrays the targeted work as despicable: usually this is done by riddling the text with belittling phrases and strong pejoratives. Consequently, the piece has a vitriolic or even libelous tone that is immediately evident even from a quick superficial reading: that tone is the tell-tale sign of pseudoskepticism.

The archetypical belittling phrase is “every first-year student could have come up with the same thing”. Illustrative examples of strong pejoratives are “nonsense”, “perverse”, “a disgrace”, “worthless”, “meaningless”, “inferior”, “devoid of content”, “complete rubbish”, and the like, which are then typically said about the targeted work as a whole.

Of course, there are also pejoratives that are used in a scientific discourse, such as ‘logically inconsistent’, ‘mathematically at fault’, ‘conceptually incoherent’, but these have a precise meaning and must be proven when used. The belittling phrases and pejoratives used by pseudoskeptics, on the other hand, have no scientific meaning whatsoever and are not admissible in a scientific paper: they merely express an author’s dislike of the targeted work. However, as Feynman put it: when we have a new theory then it is not relevant whether we like it or not, the only relevant question is whether it is consistent with experimental data (Feynman, 2011, 16-3).

### **#3: non-specific comments.**

In science, when commenting on someone else’s work, one very specifically addresses the details of the work in question. A pseudoskeptic, however, typically doesn’t go through the hard work of really understanding the targeted work. This feature manifests itself in superficiality of the comments: typically, a pseudoskeptical attack has less detail than title and abstract of the targeted work. It is therefore a tell-tale sign of pseudoskepticism when a piece concerns nothing but negative allegations at the metalevel, that is, negative allegations about the targeted work *as a whole*, without going into the details of the targeted work.

More often than not, these allegations also apply to established scientific theories, which immediately shows that the negative statements are not an argument against the targeted work. A typical example is to state that the targeted work is nothing but a bunch of formulas, as if that is somehow a bad thing: the same can be said of virtually all established theories, which shows that it isn’t a real argument.

### **#4: absence of proof.**

Another typical feature of pseudoskeptics is that they have no shame: one of the most shameless ways to attack someone else’s work is to put forward outright fabrications, which, if true, would imply gross incompetence of the author of the targeted work. But fabrications cannot be proven by their very nature. Consequently, absence of proof of the (usually grave) allegations in a piece is a sure tell-tale sign of pseudoskepticism at its worst, and a strong indication that the piece may contain fabricated allegations.

An illustrative example is an absence of proof of the one statement that is probably the most abused phrase of all in modern science: “this work is of insufficient scientific quality”. In a pseudoskeptical attack, this is typically said of the targeted work *without* specifying which criteria of scientific quality are not met, and why or how they are not met—there are peer review reports that consist of just this one phrase.

### **#5: false metaphors.**

In science, comments on someone else’s work remain confined to that work: one doesn’t indulge oneself in metaphors. In a pseudoskeptical attack, however, often the targeted work is compared to a theory that is known to be false or that is obviously ridiculous, *as if* it is the same thing. Illustrative examples are phrases like “this is the same as saying that the earth is flat”, or “this is the same as saying that the phenomenon is caused by angels”: these are tell-tale signs of a pseudoskeptical attack.

There are more sophisticated cases, but the point is that this use of metaphors is a rhetorical technique that is absolutely inadmissible in a scientific discourse. The error is the same in all these cases: contrary to what is stated by the pseudoskeptic, it is *not at all* the same thing.

### **#6: contradiction with history and basic principles of science.**

When attacking a new theory that has not yet been experimentally tested, a pseudoskeptical piece often blatantly contradicts well-known facts from the history of science, as well as basic scientific principles. The three archetypical examples that turn up time and time again are (i) stating that

scientific discoveries are nowadays only made by large international collaborations, to insinuate that the work of a single author cannot be a scientific discovery; (ii) stating that scientific theories are always developed from experimental facts, to insinuate that anything else cannot ever be a scientific theory; and (iii) using an accepted model (other than Einstein's Special Relativity) *beyond its established area of application* as a criterion of truth, to insinuate that a work that contradicts that model cannot be a scientific theory.<sup>2</sup>

The arguments (i) and (ii) completely ignore that virtually all of modern science is built on the work of individuals, who more often than not theoretically predicted phenomena before these were experimentally observed (Einstein: time dilation and curved world line of a photon; Dirac: antimatter), and who often did their groundbreaking work in relative isolation (Einstein, Bohr). The argument (iii) ignores the fact that historical breakthroughs in science often went squarely against the accepted model of the time, and contradicts a basic principle of science, put into words by Feynman as follows: "experiment is *the sole judge* of scientific truth" (Feynman, 2011, 1-1).

### **#7: straight to the mass media.**

It is a bad sign when a scientific claim is taken straight to the mass media (e.g. the cold nuclear fusion case), but it is an equally bad sign when an attack on someone else's work is taken straight to the mass media. Typically, a pseudoskeptic who wants to publicly denounce someone else's work doesn't attempt to publish his "evaluation" in a peer reviewed journal: they take their allegations straight to the mass media. Even worse are pseudoskeptical attacks in the mass media, where the targeted work hasn't even been published: there are cases in which celebrity scientists had privileged access to a work as a referee, and then decided to depict the (unpublished) work as despicable in the mass media. So, an editor of a newspaper or university weekly who sees that an attack on someone's work is submitted for publication, should be wary—especially when the piece contains grave accusations—that going straight to the mass media is a tell-tale sign that the piece is nothing but a pseudoskeptical attack, and an indication that it may contain fabrications.

In addition, but that is not an immediate tell-tale sign, pseudoskeptics *never* acknowledge that their allegations were false. In science, if researcher A publishes a claim and researcher B refutes it, then the honorable thing to do for A is to publish a (self-)retraction to keep the literature truthful and reliable (Fanelli, 2016). While such honest retractions rarely happen post publication, in everyday scientific practice it's just another day at the office: if an honest researcher presents work in progress to their peers and one or more of the results gets refuted, then they acknowledge that. But not so the pseudoskeptic. Even when confronted with conclusive proof that their allegations are false, they will refuse to publish a retraction or to acknowledge—publicly or privately—that the claims were fabricated: the typical pseudoskeptic will stick to their fabrications as if not a word has been said—as in the Biblical proverbs, like a dog back to his own vomit, or like a washed sow back to the mud pool (2 Pet. 2:22). This surfaces only after some discussion, yet it indicates that the original piece was a pseudoskeptical attack.

## **Notes**

<sup>1</sup>While these tell-tale signs have been derived from real controversies, there is some overlap with the unpublished essays by Beaty (1996) and Boerner (2003), which are available on the internet. The difference is that the tell-tale signs presented here are general, while Beaty and Boerner mention specific examples (e.g. of ad hominem attacks).

<sup>2</sup>Of course a new work is unscientific if it makes predictions that contradict the outcome of well-established experiments. E.g. we *know* that the gravitational force on an object above the earth's surface is larger than that on an identical object at identical height above the moon's surface: if a new work predicts otherwise, then it is false—no question about it. But there is a huge difference between contradicting things that are *known* to be the case on account of well-established experimental results, and contradicting things that are *believed* to be the case on account of extrapolating the validity of a theoretical model beyond its established area of application: the latter is even a *necessity* for a scientific

revolution. The pseudoskeptical attacks meant here confuse these two scenarios in a grotesque way: these attacks concerns variations of “dear Dr. Schroedinger, it is well known that electrons orbit nuclei as particles on continuous trajectories. Therefore, your wave mechanics is complete rubbish.”

## References

- Ballantyne, N. (2019). Epistemic trespassing. *Mind*, 128, 367-395.
- Beaty, W.J. (1996). *Symptoms of pathological skepticism*. Unpublished. Retrieved October 14, 2024, from <http://www.amasci.com/pathsk2.html>
- Boerner, R. (2003). *Seven warning signs of bogus skepticism*. Unpublished. Retrieved October 14, 2024, from <https://www.newdualism.org/pseudoskeptics/seven%20warning%20signs2.html>
- Cabbolet, M.J.T.F. (2014). Scientific misconduct: three forms that directly harm others as the modus operandi of mill’s tyranny of the prevailing opinion. *Science and Engineering Ethics*, 20(1), 41-54.
- Fanelli, D. (2016). Set up a ‘self-retraction’ system for honest errors. *Nature*, 531, 415
- Feynman, R. 2011. *The Feynman Lectures On Physics. Vol 1. New Millennium Edition*. Basic Books.
- Schweber, S.S. (1989). Some reflections on the history of particle physics in the 1950’s. In L.M. Brown, M. Dresden, L. Hoddeson (Eds), *Pions To Quarks* (668–693). Cambridge University Press.
- Truzzi, M. (1987). On pseudo-skepticism. *Zetetic Scholar*, 12-13, 3-4.