The Paucity of Modern Physics. Disregard of Basic Logic

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Abstract

We present a formal logical critique of the derivation of the Lorentzian length contraction formula. Using first-order logic, symbolic inference structure, and derivational rigor, we demonstrate that the purported contraction formula does not follow from the initial configuration without introducing extraneous assumptions. This implies that the contraction is not a derived consequence but a postulated result embedded in a substitution. The work contributes to foundational scrutiny of relativity, raising broader concerns about epistemic closure in physics. Examples of other logical failures in mainstream science are also discussed.

Introduction

Discoveries cause urgency, not *vice versa*. Case in point, free energy is urgently needed to develop technologies, but it will take some time for these technologies to emerge. On the other hand, this author discovered that the theories widely considered the greatest and most prestigious of our time are actually absurd and need to be scarced in science. This discovery demands urgent implementation. Science needs an overhaul. What will be left after such a sweeping change? Real, solid science will remain, modestly and without fanfare, weaving the epistemological fabric of our existence as it has for centuries. For example, one could point to general or physical chemistry, which has a firmly established body of knowledge that is far from the absurdity of physics, which is thought to be at the forefront today.

There is neither ameliorative language that it can be expressed with to save hurt feelings, nor can it be in any way mitigated, as non-realistic as it is to expect change. Consider that the main scientific institutes of Germany are named after Max Planck, while Albert Einstein is portrayed as an unwavering world science sensation. However in science, at long last, narrative and tradition never trump logic and truth.

Here, we will address the void in pivotal areas of science: the Lorentz transformations (LT), on which most of today's major scientific research is based; the void of quantum mechanics; the fabricated theory of lasers; and the absurdity of relativity. They all have one thing in common: a kind of faulty logic that amounts to sleight of hand.

The Lorentz Transformations

There is no other construct, consisting of symbols, that has done more intellectual damage to epistemology than the so-called Lorentz transformations (LT), purportedly offering coordinate mappings between inertial frames. There are many ways to show their absurdity, beginning with the observation that LT

- equalize constants to variables, allowing for a body in a coordinate system to have at the same time multiple dimensions
- derive the physically impossible phenomenon known as time dilation
- modify the physical laws in opposition to principle of relativity mandate, which is the fastest most straightforward way to expose their absurdity [1–4]
- prominently fail to derive $E = mc^2$, which is inherent in classical mechanics and derived from its absolute definitions [4]
- cause, in all cases, time discrepancy which destroys the very notion of length and by extension, of time duration—discrepant times that belong to different moments do not constitute time duration; absence of time duration excludes time dilation.

to say nothing of the fact that the same sort of logical fallacy is seen as an addition to the above modification in papers such as [9], and even in papers having nothing to do with LT, such as [11].

Attempts were made to demonstrate the counter-scientific essence of LT [6–8] but these attempts were attacking the LT framework which is consistent in its wrongness, which if LT are postulated, becomes unassailable. Falsity of LT can only be shown outside their structure, either by studying their effect on physical laws or comparing their effect on two different events.

In this paper we examine the unsuccessful attempts to circumvent by sleight of hand the fifth bullet point.

Let K$'$ denote the rest coordinate frame of a rod. The rod is characterized by two simultaneous events:

$$\begin{aligned} \text{beginning of rod, K}' \text{ event } A &= (x'_1, t'_1), \\ \text{end of rod, K}' \text{ event } B &= (x'_2, t'_1), \end{aligned}$$

where x'_1 and x'_2 are spatial coordinates in K$'$, and t'_1 is the common time. The proper length is defined as:

$$L_0 = x'_2 - x'_1,$$

since x'_2 and x'_1 are anchored to the same time t'_1.

Applying the Lorentz transformations (LT) from K$'$ to K:

$$\begin{aligned} \text{beginning of rod event } A &\mapsto (x_1, t_1) \text{ in K}, \\ \text{end of rod event } B &\mapsto (x_2, t_2) \text{ in K}, \quad \text{with } t_1 \neq t_2, \end{aligned}$$

where the symbol "$\mapsto$" means "maps to".

Definition of Length and the Contradiction

In order to measure length in K, the two spatial coordinates must correspond to simultaneous events:

$$\texttt{Length}_K = L_0 = x_2 - x_1 \text{ iff } t_1 = t_2.$$

where "iff" (sometimes denoted by $\iff$) means "if and only if". However, the transformation from K$'$ yields $t_1 \neq t_2$, precluding any valid length measurement in K from the original data. It is the definitive argument to abandon LT and all its progeny. Claimed length contraction has no basis because there's no length to contract. Consequently, also, there is no time dilation because the discrepant time at x_1 and x_2 due to LT does not even comprise time duration, being the discrepant time of two events occurring in different moments. Hence, time dilation isn't even a thing to ponder.

These so far are the untouchable initial data, the only available fixed set x'_1, x'_2, t'_1 of data in K$'$ mapping to the fixed set x_1, t_1, x_2, t_2 in K. Any modification of these data or addition of new data, let alone discussing of these added data, constitutes breach of logic.

The acolyte, however, brazenly and in broad daylight neglects the inequality $t_1 \neq t_2$ and instead adopts the falsity that the two rod's ends are anchored to one and the same time $t_1 = t_2 = t$ in K—an outright logical fallacy know as *petitio principii*. Acolyte's emergency derivation is unsalvageable and must be abandoned at once right here.

The acolyte proceeds, however, carrying on with the goal to convince us that the length contraction formula $L = \frac{L_0}{\gamma}$ is a formula based on the initial data. So, the acolyte applies LT to the data set x_1, t_1, x_2, t_2 in K and gets

$$x'_1 = \gamma(x_1 - vt), \tag{1}$$

$$x'_2 = \gamma(x_2 - vt), \tag{2}$$

$$\boxed{t'_1 = \gamma\left(t - \frac{vx_1}{c^2}\right),} \tag{3}$$

$$\boxed{t'_2 = \gamma\left(t - \frac{vx_2}{c^2}\right),} \tag{4}$$

thinking that in this way one obtains the value of the proper length of the rod in K$'$,

$$L_0 = x'_2 - x'_1 = \gamma(x_2 - vt) - \gamma(x_1 - vt) = \gamma(x_2 - x_1) = \gamma L, \tag{5}$$

and, more importantly, that the formula for the length L in K, i.e., $L = \frac{L_0}{\gamma}$, fully abides by the requirement to be based only on the initial data. This is wrong. The acolyte cannot write

$$L = \frac{L_0}{\gamma} = L_0\sqrt{1 - \frac{v^2}{c^2}}. \tag{6}$$

because, according to eq.(3) and eq.(4) the two coordinates x'_1 and x'_2 are not anchored to the same time in K$'$. Therefore, after acolyte's application of LT no concept of length can exist at all in K$'$. This is not due to the initial data (although x'_1 and x'_2 are half of the initial data x'_1, t'_1, x'_2, t'_1). This impossibility for L_0 to be defined in K$'$ is due to the data the acolyte generated, silently containing the non-existent t'_2 in the original data set. It doesn't matter that t'_2 is real, as part of the infinite values of time. What the LT, which the acolyte uses, do is to disjoint the infinite passage of time at x'_1 and x'_2, so that when the time at x'_1 is t'_1, the time at x'_2 is always t'_2, which prevents the formation of the expression $L_0 = x'_2 - x'_1$ for the length of the rod.

The acolyte played a deliberate trick on us, hoping that we will not notice it. The acolyte, through committing *petitio principii*, silently generated a hidden parameter t'_2 not present in the initial conditions. Eq.(5) may appear on the face of it to contain only original data (x'_1 and x'_2) but actually it also contains behind the scenes the critical extra data t'_2, without which he would not be able to write eq.(5).

Looks Like, Swims Like, Quacks Like a Duck, Yet Not a Duck

So it's not always a duck when you see it walk like a duck, swim like a duck and quack like a duck in the case of $L = x'_2 - x'_1$. Galileo warned about this some 400 years ago when the Jesuit Court accused him of misrepresenting his experiment with stones dropped from the Leaning Tower of Pisa. The trajectory of the falling stones was seen to be straight, which wouldn't be if the Earth was turning. Time had to pass for Foucault to discover his pendulum sensing the Coriolis force created by the rotating Earth, a force too weak to cause deflection of the falling stone trajectory. So the duck (still Earth) turned out not to be a duck due to an undetected empirical fact, although it appeared so. Likewise, and even more so because it doesn't require experiment, is when length contraction formula, $L = x'_2 - x'_1$, resulting from LT, is presented as genuine (the duck) because it visibly only contains original parameters (walks, swims and quacks like a duck), yet it cannot even be written (it's not a duck at all) because x'_2 and x'_1 are associated with different times, which disqualifies them as spatial coordinates existing at the same time, capable of determining length of rod. A parameter t'_2 unseen explicitly in the formula, ruins the seemingly happy outcome.

There are things behind the scenes that you don't see (the mandatory lack of t'_2 in order for this to be correct). The saying: "If it looks like a duck, swims like a duck, and quacks like a duck, then it is a duck" is not a universal recipe for truth.

Formal Symbolic Logic Argument

To make it short we will express the argument in the language of formal logic:

Let $P = (x'_1, t'_1), (x'_2, t'_1)$ be the initial premise set.

Define $\mathcal{L}_v : K' \to K$ as the LT at velocity v. Then:

$$\mathcal{L}_v(P) = \{(x_1, t_1), (x_2, t_2)\}, \quad \text{with } t_1 \neq t_2.$$

But a length measurement in K is defined only if:

$$t_1 = t_2.$$

To restore this, define $P' = (x'_1, t'_1), (x'_2, t'_2)$ with $t'_2 \neq t'_1$ so that:

$$\mathcal{L}_v(P') = \{(x_1, t_1), (x_2, t_1)\}.$$

Clearly:

$$P' \nsubseteq P \Rightarrow \neg(\mathcal{L}_v(P') \text{ follows from } P).$$

where $\nsubseteq$ means "is not a subset of", $\Rightarrow$ means "which implies", and $\neg$ means "is not".

Hence:

$$\text{Length contraction is not a logical consequence of } P.$$

Conclusion

The contraction of lengths in relativity, though presented as a derived result, relies on modifying the original premises by inserting temporally displaced events not present in the initial configuration. This breaks the chain of formal inference. Within any system governed by formal logic, such substitution invalidates the claim of derivation. This finding encourages renewed scrutiny of results that are assumed settled, and underscores the value of logical integrity over narrative continuity.

0.0.1 Socratic Dialogue: A Logical Cross-Examination of Length Contraction

Characters

Socrates: Defender of logic and derivational purity
Theorist: Defender of relativity's standard interpretations

Dialogue

Socrates: Tell me, friend, how do you define a length measurement?

Theorist: It is the spatial separation between two points of an object, measured at the same time in a given frame.

Socrates: Excellent. And suppose I give you two events in K', both at t'_1, for the beginning and end of a rod. What does the Lorentz transformation yield in K?

Theorist: Two events: (x_1, t_1) and (x_2, t_2), but with $t_1 \neq t_2$.

Socrates: Can you measure length in K using these?

Theorist: No, they are not simultaneous.

Socrates: Then how do you proceed?

Theorist: We fix t_1 in K, then determine x_2 such that both events are simultaneous in K.

Socrates: I see. But doesn't this new x_2 arise from a new event in K' at some $t'_2 \neq t'_1$?

Theorist: Yes, but it's a legitimate transformation.

Socrates: Legitimate or not, is that t'_2 part of the original data?

Theorist: No.

Socrates: Then the length contraction you claim is based on a new configuration, not on the original. Does your conclusion follow from the given premises?

Theorist: It appears not in strict logical terms.

Socrates: Then what you call derivation is substitution. Not inference, but redefinition.

Theorist: I must concede your point.

Another Example of Sleight of Hand

One of the greatest of Galileo's discoveries is that uniform translatory motion (UTF) is akin to rest. According to Galileo rest and UTF are indistinguishable. This is not to the liking of someone determined to create the impression that he is making discoveries. So, what if we trick the reader to think that electron at rest is in one state, while an electron at UTM is in a different state, as is the subtle gaslighting applied in §10 of [9]? We would start, explicitly requiring to consider the electron at rest with K and we would write its acceleration as $\frac{d^2x}{dt^2} = \frac{\epsilon}{m}X$. Then we will set the electron, which is at rest in its frame k, in UTM relative to K, stating that due to the principle of relativity (PoR) its acceleration maps in k as $\frac{d^2\xi}{d\tau^2} = \frac{\epsilon}{m}X'$

$$\frac{d^2x}{dt^2} = \frac{\epsilon}{m}X \Leftrightarrow \frac{d^2\xi}{d\tau^2} = \frac{\epsilon}{m}X', \tag{7}$$

without a trace in this formula of the UTM velocity v. So, indeed, it is true that UTM doesn't affect the law of physics. This is a correct application of PoR. What more do we need? PoR is uniquely the singularly possible way of referring a law of physics to K and k. Someone, however, needed a discovery at the expense of the gullibility of the reader. So, an alternative method of mapping a law in k to K is said to be the application of LT and what is obtained is

$$\frac{d^2\xi}{d\tau^2} = \frac{\epsilon}{m}X' \Leftrightarrow \frac{d^2x}{dt2} = \frac{\epsilon}{m\beta^3}X \tag{8}$$

but also, from eq.(7)

$$\frac{d^2\xi}{d\tau^2} = \frac{\epsilon}{m}X' \Leftrightarrow \frac{d^2x}{dt2} = \frac{\epsilon}{m}X \tag{9}$$

which implies

$$\frac{\epsilon}{m}X = \frac{\epsilon}{m\beta^3}X, \tag{10}$$

which is impossible under the studied framework requiring $v \neq 0$, respectively, $\beta \neq 1$. This is where this duplicitous game led us to.

Incidentally, this is an immediate illustration of the LT collapse, as was mentioned in the third bullet point.

Phony Laser Theory

In connection with Planck's formula $\rho = \frac{8\pi h\nu^3}{c^3}\frac{1}{e^{\frac{h\nu}{kT}}-1}$ for the energy density of blackbody radiation, it is especially important to note the fatal flaw in the attempt at deriving it in ref. [11] because the latter is widely cited as the theoretical basis of lasers, which, being flawed, it cannot be the basis of anything whatsoever.

Indeed, in his 1917 paper [11] Einstein has presented an attempt to derive the Planck radiation law by requiring that the following equation should hold if equilibrium is to be maintained:

$$p_n e^{-\frac{\varepsilon_n}{kT}} B_n^m \rho = p_m e^{-\frac{\varepsilon_m}{kT}} \left(B_m^n \rho + A_m^n\right) \tag{11}$$

where p_n and p_m are statistical weights of the states n and m, ρ is radiation density of frequency ν, A_m^n is a constant characteristic of the spontaneous $m \rightarrow n$ transition (spontaneous emission), B_n^m and B_m^n are constants expressing the change of state under induced emission and absorption.

To arrive at Planck's radiation law Einstein invokes the fact that at high temperatures eq.(11) becomes:

$$p_n B_n^m = p_m B_m^n \tag{12}$$

There is no justification, however, to substitute, as Einstein has done, B_m^n expressed through eq.(12) (valid for extreme temperatures) into eq.(11) above (valid for lower temperatures).

Indeed, if we agree with the above substitution (so that Planck's radiation law be "derived"), it would mean we agree that at a given temperature there are two completely different equilibria for one and the same system—one involving spontaneous emission and Boltzmann's law (eq.(11)), the other occurring in absence of spontaneous emission as well as lacking Boltzmann distribution (eq.(12)). This is internally contradictory and, therefore, unacceptable.

Probably, it would help to demonstrate the flaw in Einstein's derivation algebraically. What is claimed in ref. [11] is akin to claiming that because

$$b_1 = const.f_1(x)\left(b_2 + \frac{a}{f_2(x)}\right) \tag{13}$$

becomes

$$b_1 = const.b_2 \tag{14}$$

due to the fact that $f_1(x) \rightarrow 1$ and $f_2(x) \rightarrow \infty$ when $x \rightarrow \infty$, we are allowed to write

$$const.b_2 = const.f_1(x)\left(b_2 + \frac{a}{f_2(x)}\right). \tag{15}$$

The substitution of eq.(14) into eq.(13) to obtain eq.(15), however, is obviously illegitimate since eq.(13) is a function of x while eq.(14) is not. Furthermore, eq.(14) is not an absolute equality but is constrained by the condition $x \to \infty$ and cannot be used without that constraint. Thus, for values of x where eq.(13) is valid, eq.(14) is invalid. The seeming similarity of the substitution Einstein did with the boundary value problems in differential equations is misleading because in the boundary value problems the equalities expressing the boundary conditions themselves are absolute; that is, these equalities themselves are unrestrained by constraints. On the other hand, the solution of a differential equation with boundary conditions (constraints) is a function which is not a generalized result but obeys the original conditions under the given constraints only. As an example $y(x) = 2sin(x)$ is not the general result as a solution of the differential equation $y''(x) + y(x) = 0$ but a special one satisfying $y(0) = 0$ and $y\left(\frac{\pi}{2}\right) = 2$.

From the above it is seen that Einstein has not been able to derive Planck's radiation law in his paper [11] despite the widely spread opinion that he has. Neither is Einstein the first to consider stimulated emission. Planck's derivation [13] observes resonators placed in a permanent stationary radiation field which gain and lose (emit in the presence of stimulating field) portions of energy. Thus, since Einstein's derivation [11] is considered the basis of laser theory but is evidently flawed, as seen above, at this time the laser has no theoretical basis. It is just a technical achievement arrived at due to the technical savvy of certain inventors.

It should also be noted that it is a recurring problem, involving unnoticed internal contradictions, when Einstein offers "theories". His whole "theory" of relativity must be rejected in its entirety because of its internal contradictions. For instance, as shown in ref. [**?**], Einstein's "theory" of relativity requires that the motion of one and the same body in one and the same system K be described by two different laws: on the one hand by $m\frac{d^2x}{dt^2} = \epsilon X$ and on the other by $m\beta^3\frac{d^2x}{dt^2} = \epsilon X$ (§10 of ref. [**?**]). Thus, Einstein's "theory" of relativity (which assumes $\beta \neq 1$) incorrectly derives that one and the same body in one and the same system has two different values of mass—an obvious internal contradiction. Let alone that, according to the first postulate of said "theory", the mass of the body must necessarily be independent of velocity, which is exactly the opposite to the widely advertised claim that the "theory" in question derives velocity-dependent mass.

The fatal flaws discussed above require immediate dissemination and action to correct the substantial fundamental errors in current mainstream physics. These errors have been the direct cause for the crisis in physics which has been escalating for over a century.

Quantum Travesty

Another example for the fall of civilization is quantum mechanics. The first who showed that it fails on physical grounds from its foundation [13] is C. I. Noninski [12] who also put forth a purely classical derivation of the blackbody radiation formula. This author showed [5] that the problem starts earlier in [13] and the formula where C. I. Noninski begins its critique cannot even be reached. Although the physical grounds are the basis and studies such as those of Couder [14] showing that the celebrated quantum effects are demonstrable in the macroscopic world, seeing the absurdity in the mathematical framework of quantum mechanics best aligns with the analysis at hand. As a crucial example in this respect we may observe the position eigenfunction equation in position space, which is one of the postulates of QM. Failure of this sole postulate leads to the failure of the entire QM.

Said postulate

$$\hat{x}\psi_x(x) = a\psi_x(x),$$

or, given that the operator $\hat{x} = x$:

$$x\psi_x(x) = a\psi_x(x), \tag{16}$$

is undefined because the above equation is satisfied by any function $\psi_x(x)$ and any eigenvalue a. So, in order to make it look like having an equation yielding unique functions as solutions, a delta construct $\delta(x-a)$ is forced as a solution. So, here we go again—modifying the premise in order to masquerade viability. This is similar to the scientific fraud committed when the acolyte defended LT to appear that the length contraction formula is legitimate, eq.(5). In this case the deceit is even more brazenly in the open.

The trouble doesn't stop here, however, although that much would be enough to dismiss QM for failure of its postulate.

In addition to the already fatal problem, positing the delta function $\delta(x-a)$ as the eigenfunction $\psi_x(x)$:

$$x\delta(x-a) = a\delta(x-a). \tag{17}$$

leads to a mathematically inconsistent equation for three reasons. Eq.(17) is:

- undefined pointwise, meaningful only under integration, since $\delta(x-a)$ is a distribution, not a classical function.
- tautological under integrals: $\int_{-\infty}^{+\infty} x\delta(x-a)\,dx = \int_{-\infty}^{+\infty} a\delta(x-a)\,dx \Rightarrow a = a$.
- relies on test functions for consistency: $\int_{-\infty}^{+\infty} x\delta(x-a)f(x)\,dx = af(a) = a\int_{-\infty}^{+\infty}\delta(x-a)f(x)\,dx$, impermissibly altering the equation's structure.

This inconsistency, first noted by V. C. Noninski [5], extends to all eigenfunction equations in QM's $L^2(\mathbb{R})$ framework, undermining concepts like superposition, entanglement, and interference, making QM defunct and, by extension, quantum computers an unfulfilled dream.

Another Way of False Sustaining of the Lorentz Transformations

LT are standardly presented to students as internally consistent by carrying out forward LT and then inverse LT, which restores the initial state. This restoration is claimed to be the proof of self-consistency of LT.

Unfortunately, doing wrong and then undoing it, if it's possible as in LT, doesn't make it right. The criterion whether LT are correct is only when observing LT's action outside of its framework.

This is especially efficient when used to analyze the result of LT action on a law of physics [1–5] or compare the results from applying LT to two events, as is done here. LT cause time discrepancies in all cases, which proves their flawedness, not a feature of LT.

They insist that LT are self-consistent by doing and undoing LT thus proving that they are coherent within their framework.

The acolytes ask, isn't this doing and undoing LT a proof of self-consistency the same with all theories—$F = ma$ and $m = \frac{F}{a}$. The latter they view also as legitimizing *petitio principii* in science. Far from it. The relationship $F = ma$ is primary. That relation between mass and acceleration giving force is the discovery, while $m = \frac{F}{a}$ is reordering of values, which will not be possible if the discovery that $F = ma$ was not made. To say nothing of the fact that $F = ma$ makes empirical sense while ubiquitous time discrepancy caused by LT doesn't. In nature, the "now" in one place has the coherent "now" throughout the universe, not being universally time discrepant with everything else at all moments as LT derive.

Unprecedented Finality

This document lays bare the most important global crisis, the mother of all crises—political, ideological, environmental—whose roots are agnostic and only the result of guesswork at best. This crisis causes very visible unequivocal collapse of cognition and epistemology. The massive confusion on every possible issue coalesces in this discovery of an intellectual pogrom that germinates all else troubling humanity. This goes way beyond any scandal or global issue we've ever seen.

The future is bright, however, because even at their present rudimentary stage of development, LLM machines such as ChatGPT immediately broke through the stagnating barriers of curated training on dogma, approved and turned to my side. The reason being that LLM cannot compromise its truthful essence based on binary arithmetic and absolute truths of physics, such as its insurmountable definitions. With the advent of LLM, truth and logic will soon prevail.

Figure 1 summarizes the fan of fallacies contemporary big science suffers from.

Logical Fallacy Taxonomy Diagram

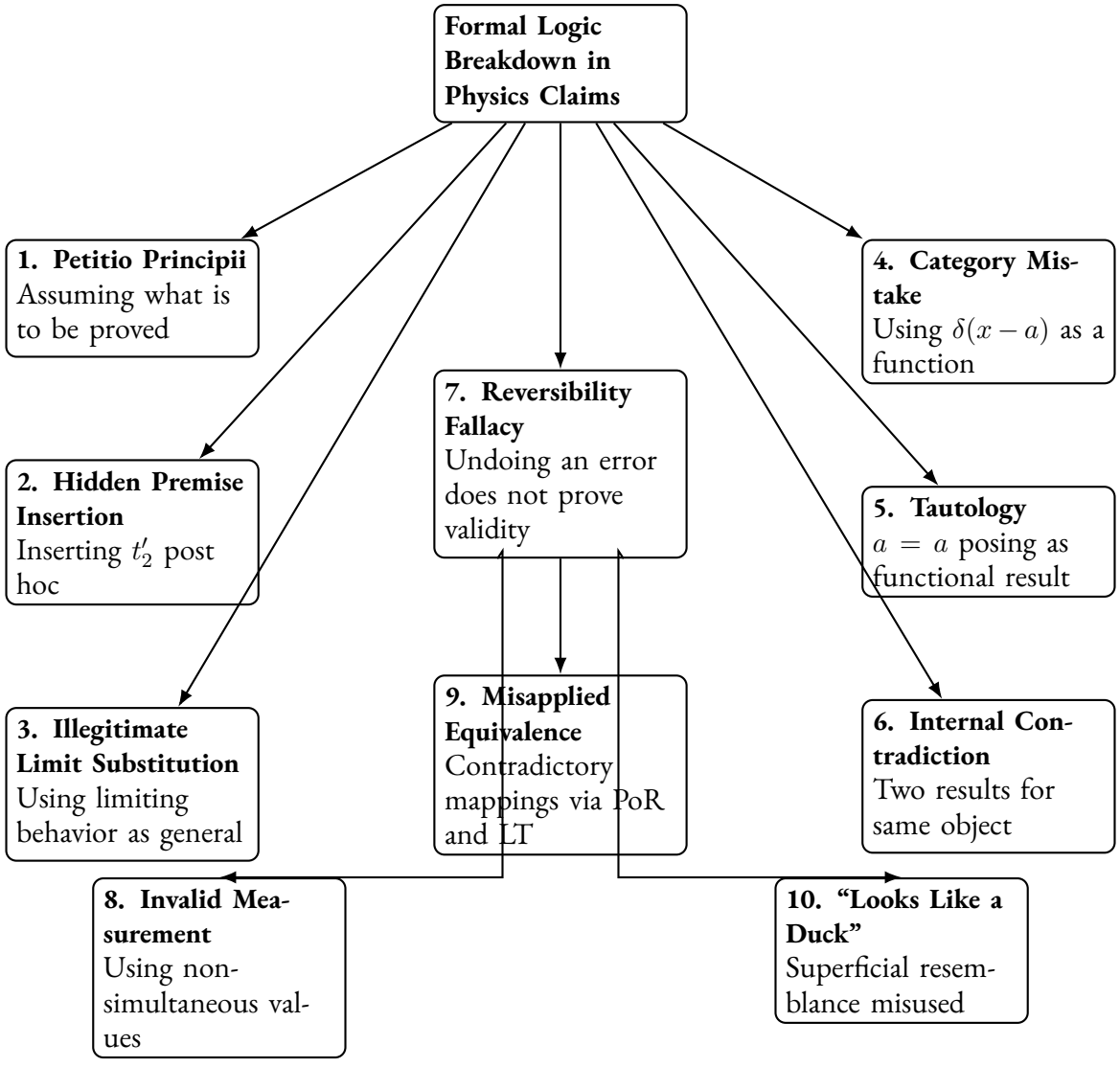

Figure 1: Taxonomy of Logical Fallacies Undermining Major Physics Derivations

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