

That's a fair critique, and I appreciate you digging deeper—it shows you're not just taking these claims at face value, which is exactly the kind of scrutiny these conversations need. Let me clarify where I'm coming from.

This isn't a straw man—it's a tension within mainstream physicalism.

You're right that many physicalists don't *explicitly* state that reality *is* its mathematical description. But the critique isn't that physicalists overtly say this—it's that this *is what they are logically committed to* under certain formulations, particularly the theory-based conception of physicalism.

Take this definition from the *Stanford Encyclopedia of Philosophy* (SEP):

"A property is physical if and only if it is the sort of property that physical theory tells us about."

If that's your ontology, then physical properties—and therefore physical reality—are, by definition, what is described by physical theory. Physical theory is mathematical. So yes, while many physicalists wouldn't say "reality is just math," (except maybe Max Tegmark) the implication is that physical things are *nothing more than what the models describe*, which are mathematical structures. If there's something more, then physical theory is incomplete and no longer sufficient as a full ontological account.

This is where the critique comes in: **if you ground your ontology in theory-based definitions, and those theories are mathematical**, then you're left with no clear path to qualia unless you sneak in some intrinsic nature outside the theory—which looks a lot like dualism or idealism.

The "quantitative" vs. "qualitative" framing isn't just an idealist invention.

This distinction is central to the *Hard Problem of Consciousness*, famously laid out by David Chalmers (1995). He explicitly points out that physical explanations, no matter how complete, are framed in structural/functional (i.e., quantitative and relational) terms—and that they systematically leave out *qualia*, which are irreducibly qualitative.

You'll find this tension acknowledged by physicalists too:

- Galileo (as early as the 17th century) explicitly separated the "primary" properties (mathematical: size, shape, motion) from "secondary" ones (qualitative: color, taste), arguing the latter were not in the world but in the perceiver. This legacy sits at the heart of physicalist thought.
- Thomas Nagel in *What Is It Like to Be a Bat?* (1974), though not a physicalist himself, articulates this very issue: physical theory accounts for structure and function, not first-person experience.
- Joseph Levine (1983), a physicalist, coined the term "the explanatory gap" to describe the problem of connecting the physical (quantitative) to the mental (qualitative).

- Even Dan Dennett, who denies the hard problem, spends much of his work trying to dissolve it, which only shows how pressing the issue is. His theory is called “eliminative” for a reason—it effectively discards qualia rather than explaining them.

So no, the critique I’m making doesn’t come out of nowhere—it’s a central tension within physicalism, and it’s acknowledged in the literature, even by those trying to resolve it.

Emergentism and token/type physicalism still face the same underlying problem.

You’re right that there are physicalist models (e.g. token identity theory, non-reductive physicalism, emergentism) that try to soften the blow by allowing for higher-level phenomena. But these run into their own issues:

- Emergentism: If consciousness “emerges” from non-conscious stuff, then *how*? What does emergence actually mean? Unless you can point to a mechanism that bridges qualitative from purely quantitative, it’s just a placeholder.
- Non-reductive physicalism: Still leaves the mental supervening on the physical. But if the base is entirely describable in mathematical/functional terms, and the mental isn’t, how can the former give rise to the latter?
- Type/token physicalism: If every particular mental event is identical to a physical event, the same problem applies— If physical descriptions are structural and lack subjectivity, how can they be *identical* to something with qualia?

In each case, you still end up needing to explain how consciousness arises from something that, on its own terms, has *no consciousness*. That’s the core of the Hard Problem. And unless you posit that the base layer has some intrinsic (qualitative) nature—which is what idealism proposes—you’re left with brute emergence, or you deny the existence of qualia entirely (which is eliminativism).

Kant had a lot to say about our epistemic limits—specifically, that we never have access to the “thing-in-itself” (the *noumenon*), only to appearances (*phenomena*) as structured by our mind’s categories. That is, we don’t perceive reality as it is, but only as it appears to us within a cognitive framework.

This matters because physicalism often assumes we *can* access the real, objective world through science. But if Kant is right—and many still take him seriously—then any ontology that claims to describe ultimate reality is already overreaching. Physicalism, especially in its theory-based form, presumes more certainty than is epistemically warranted.

From that perspective, idealism is actually the more conservative position. It doesn’t claim to describe what exists “out there” beyond experience. It just says: *all we ever have access to is mind and experience—so let’s start there*. It refrains from positing abstractions (like brute matter) that we never encounter directly. That’s not a metaphysical indulgence—it’s epistemic humility.

You asked whether there’s a “wide and fertile ontology” between full-on physicalist abstraction and idealist mind-at-large. Honestly, that’s *exactly* the space where the most exciting debates are happening—Russellian monism, panpsychism, neutral monism, etc. These try to retain the causal-explanatory success of physicalism while grounding ontology

in something intrinsic. (Though I'm still fully convinced by Kastrupian Analytical Idealism, myself).

Bottom line: this critique of physicalism isn't a straw man—it's highlighting a legitimate consequence of defining physical properties as those described by theory. If the theory is structural and mathematical, then what it's describing *is* structure and math. The moment you acknowledge something *qualitative* beyond that description, you've stepped outside strict physicalism—whether you want to call it idealism or not.