On Finite Asymptotic Superdeterminism

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https://www.youtube.com/watch?v=A0da8TEeaeE&lc=UgxKxtAkJRM5QCgBHXZ4AaABAg

Sabine, I gather your idea is to start with a Feynman diagram whose functionals have finite length and resolution since they start in some earlier past (e.g., a lab setup) and end at some later past (e.g., a lab measurement). You extend those functionals to the beginning and end of time, giving them effectively infinite resolution as with any wave train Fourier transform (comms 101).

With the added resolving power of infinitely long functionals, the bundle of in-phase functionals shrinks to a diameter of zero in XYZ space, and the whole blurry mess of *probability* functions disappears. The opportunity for a "pilot wave" also disappears since pilot waves are another way of expressing the fuzziness and uncertainty of Feynman's finite path integrals. Your infinitely tight in-phase functionals eliminate that too. You end up with precisely what Minkowski proposed for relativity, only at the quantum level via your infinite extension of the path integral. Retrocausality, or whatever folks want to call it, is inherent in this approach since those infinite-length functionals convey infinitely precise information in both directions.

Your justification for treating the unknown future as known — and it's an excellent one — is that the principle of least action in the quantum domain *works* by using Dirac's functionals, which are inherently time-embedded.[1]

So here's the oddly simple problem: By eliminating all quantum uncertainty, specifically by compressing the in-phase bundle to an infinitesimal diameter in their XYZ slice, you also make each such point infinitely massive. Planck uncertainty doesn't suddenly give you a pass merely because you used path integrals, especially since path integrals and quantum uncertainty are two sides of the same Fourier-transform coin.

Yes, I know, renormalization, or this trick, or that trick, whatever. Particle physics, in particular, stopped bothering with deep debugging and regression analysis decades ago, preferring to slap messy fixes on top of bad ideas. Been there, done that. You're still violating quantum uncertainty with all of this.

The good news is that your idea is closer to correct than most if you can drop all the Minkowski (and Hilbert, oh my) nonsense about spacetime providing infinite resolution for precisely zero cost. Your model sounds essentially correct *in the non-existent limit of infinite energy*. But observationally — via labs, telescopes, and actual data — our universe doesn't have infinite energy. It would collapse if it did, and notably, it doesn't.

The fix is to treat your model as a finite, quantum-limited *approximation* of a block universe. Does it see into the future? Yes. Does it reach into the past, sometimes doing profoundly weird things? Check. Do simple events here entangle themselves with events in the indefinitely distant future, possibly even billions of years hence (think cosmic photons)? Sure. Is the future fully determined? *No.* It's not even close.

For any finite complex system, you can only encode a level of certainty proportional to the total energy of your carrier wave. Our carrier wave is the total positive energy of our universe — the sum of its visible matter, radiation, and dark "matter." This sum is vast, but it's *not* infinite. That's especially true after you divvy it up for the task of moving around all of those Higgs-mechanism rest-mass fermions that are the true marvels of our universe.

Are some items transcendent across ages of time? Sure, though you mostly need to go to the photons and neutrinos for good examples. Are other items locked down so tightly that they see no further than a few millimeters into the past or future? Again, sure. Atoms in warm, dense matter are an excellent example of mundane, minimally transcendent items. Be honest: Were you seriously worried the atoms in your body would suddenly go quantum on you and drift off into the cosmos? [2] Chemistry only works because complex compounds in warm matter only engage in the more localized, less chaotic forms of functional transcendence. Most things having narrow, focused transcendence is a good thing, not a bad one.

Finally, in searching for citations on the idea that the universe might simultaneously support an asymptotic version of Sabine's superdeterminism and an uncertain future in which people can still, to some degree, choose their fates, I only found one relevant quote. It's an apt one, though:

"I don't know if we each have a destiny, or we're all just floating around, accidental like on a breeze. But I think, maybe, it's both." --F. Gump, 1994

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[1] Dirac's remarkable insight was that such an odd approach would work for quantum mechanics. Oddly, he grew to despise his own idea. He doubled down on using only Hamiltonians and was generally annoyed at Feynman for having so much success with path integrals. I suspect that bothered Feynman since Dirac was one of the few early quantum figures he genuinely respected.

[2] Observation is momentum pairs. Atoms do it, and even chemical bonds do it. It's part of how physics is going to become seriously fun again.

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