

## If Clocks Create Gravity, Why Do We Need Minkowski's Spacetime?

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<https://www.youtube.com/watch?v=DkRbNXILroI&lc=Ugx6eI0XnlZIur-HhuJ4AaABAq>

A Comment on the [Quanta Magazine](#) YouTube post:

*A Bet Against Quantum Gravity* (Jul 10, 2023)

<https://youtu.be/DkRbNXILroI?t=1m35s>

1:35 JO: "*Clocks run at different speeds in different places — and that, amazingly, gives you the curvature of spacetime.*" If so, why bother with spacetime at all, which has no clocks? Any clump of matter sufficiently well-structured to define an inertial frame creates its own local set of spacetime coordinates, and gravity becomes the relative clock relationships between such clumps. Gravity also becomes inherently uncertain due to the total number of clocks being finite.

Spacetime was Minkowski's intensely formalist math concept, not Einstein's. Einstein in 1905 focused entirely on physical clocks and initially found Minkowski's maths utterly baffling.

I wonder at times how the last century might have unfolded if Minkowski — who seems to have ignored the patent-clerk Einstein — had instead left the vastly more insightful Einstein alone with his clocks after Einstein began garnering recognition.

Better, I suspect.