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The qubits and the equations of physics

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Here I show that a classical or a quantum bit state plus one simple operation, a flipping action, are sufficient ingredients to derive a quantum dynamical equation that rules the sequential changes of the state. Uniformity of time arises due to the composition rule of the actions. Then, by assuming that a freely moving massive particle is the qubit carrier, it is found that both, the particle evolution in physical space and the qubit state, change in time according to the Pauli-Schrödinger equation. This approach suggests the following conjecture: because it carries one qubit of information the particle motion in 3D space has its description enslaved by the very existence of the internal degree of freedom. It is compelled to be no more described classically (Hamilton equation) but by a wavefunction. I also briefly discuss the Dirac equation in terms of qubits.

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