

Frequency Interpretation of a Wave Function, and a Vertical Waveform Treated as A 'Quantum Leap'

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Abstract : Born's probability interpretation of wave functions would have led to nearly identical results had he chosen a frequency interpretation instead. Logically, Born may have assumed that only one electron was under consideration, making it nonsensical to propose a frequency wave. Author's suggestion: the actual experimental results were not of a single electron; rather, they were groups of reflected x-ray photons. The vertical waveform used by Schrödinger in his Particle in the Box Theory makes sense if it was intended to represent a quantum leap. The author extended the single vertical panel to form a bar chart: separate panels would represent different energy levels. The proposed bar chart would be populated by reflected photons. Expansion of basic ideas: Part of Schrödinger's 'Particle in the Box' theory may be valid despite negative criticism. The waveform used in the diagram is vertical, which may seem absurd because real waves decay at a measurable rate, rather than instantaneously. However, there may be one notable exception. Supposedly, following from the theory, the Uncertainty Principle was derived - may a Quantum Leap not be represented as an instantaneous waveform? The great Schrödinger must have had some reason to suggest a vertical waveform if the prevalent belief was that they did not exist. Complex wave forms representing a particle are usually assumed to be continuous. The actual observations made were x-ray photons, some of which had struck an electron, been reflected, and then moved toward a detector. From Born's perspective, doing similar work the years in question 1926-7, he would also have considered a single electron - leading him to choose a probability distribution. Probability Distributions appear very similar to Frequency Distributions, but the former are considered to represent the likelihood of future events. Born's interpretation of the results of quantum experiments led (or perhaps misled) many researchers into claiming that humans can influence events just by looking at them, e.g. collapsing complex wave functions by 'looking at the electron to see which slit it emerged from', while in reality light reflected from the electron moved in the observer's direction after the electron had moved away. Astronomers may say that they 'look out into the universe' but are actually using logic opposed to the views of Newton and Hooke and many observers such as Romer, in that light carries information from a source or reflector to an observer, rather the reverse. Conclusion: Due to the controversial nature of these ideas, especially its implications about the nature of complex numbers used in applications in science and engineering, some time may pass before any consensus is reached.

Keywords : complex wave functions not necessary, frequency distributions instead of wave functions, information carried by light, sketch graph of uncertainty principle

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