

Bing

Retrocausality, or backwards causation, is a concept of cause and effect in which an effect precedes its cause in time, meaning a later event affects an earlier one. This concept is not typically part of quantum theory, but some physicists have been exploring it because it can potentially resolve some long-standing puzzles in quantum physics.

In quantum physics, the distinction between cause and effect is not made at the most fundamental level, so time-symmetric systems can be viewed as causal or retrocausal. However, retrocausality does not mean that signals can be communicated from the future to the past—such signaling would be forbidden even in a retrocausal theory due to thermodynamic reasons.

Instead, retrocausality means that when an experimenter chooses the measurement setting with which to measure a particle, that decision can influence the properties of that particle (or another particle) in the past, even before the experimenter made their choice. In other words, a decision made in the present can influence something in the past.

It's important to note that this is a complex and highly debated topic in the field of quantum physics, and the concept of retrocausality is not widely accepted as part of the standard interpretation of quantum mechanics.