

Classical Causality

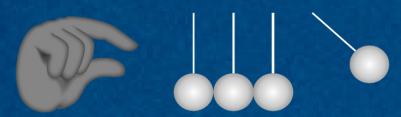
causality – the relationship between cause and effect

- The Term classical causality refers to the rules that govern the manifestation of causality in classical physics.

In classical causality, cause must come chronologically before effect.



Cause



Effect

Classical causality views time as an arrow that only points forward.



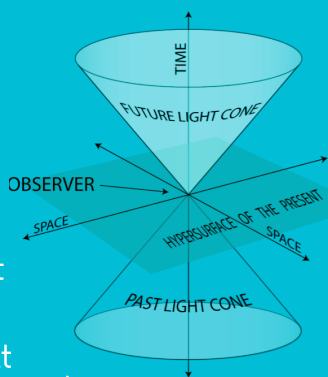
Background

Classical physics refers to the behavior of phenomena that can be observed normally without having to observe the properties or behavior of subatomic particles.

Current Models of Causality

There are currently three interpretations of causality in classical physics, which mostly focus on the relationship between an observed interpretation of "cause and effect" and the role of time.

In the Newtonian Theory of Classical Causality and Einstein's Theory of Special Relativity, time is independent of the observer, but Newton viewed that time is separate from what is observed while Einstein viewed that time is part of an entity called "Spacetime," a model of the universe that unifies space and time.

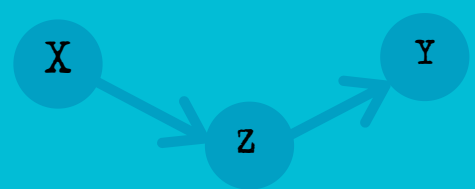


Meanwhile, Einstein's other model, General Relativity, views that time is dependent on the observer's experience.

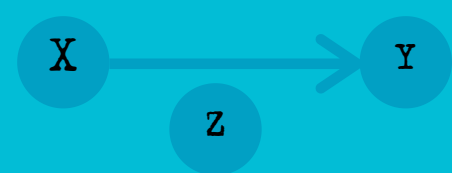
Our Findings

Suppose you have two correlated phenomena X and Y, and a hidden phenomena Z. There are 3 scenarios possible in classical phenomena :

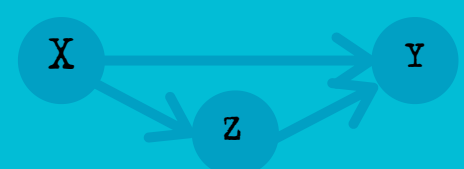
Scenario 1: Z causes phenomena Y to happen, not X (indirect cause)



Scenario 2: X causes Y to happen (direct cause)



Scenario 3: Both X and Z cause Y to happen



References:

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Images:

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