

What is time?

Time is something we measure with a clock. If we want to specify properties of a system that involve real time, then our specification needs to describe a clock. For example, if we want to say that it takes 5 seconds for the system to do something, then we will have to add a variable whose value represents the time shown on the clock.

I like to write such real-time specifications in terms of a variable *now* that represents an ideal clock that keeps perfect time. In such specifications, the passage of time is represented by a step that increases the value of *now*. These specifications typically allow steps that leave *now* unchanged. A sequence of such steps represents a sequence of operations that are considered all to happen at the same time.

The word “time” in my explanation of the temporal operator \Box is not what we usually mean by time.

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