



## ON THE WAVE NATURE OF TIME

*«Time present and time past  
are both perhaps present in time future,  
and time future contained in time past»*

Burnt Norton, T.S. Eliot

Let us consider this thought experiment.

A time source, placed somewhere, generates identical instants, which we assume to be fundamental. In front of it, a plane opaque surface with two fine slits in it, behind which a receiver (*time present*) serves as a target.

Let us start collecting the hits on the target. The plotted curve depicts the counts.

We can now proceed to answer the question: «How does time point to the target?»

Hypothesis: instants can be divided into two classes: those that have passed through slit 1 (*time past*) and those that will pass through slit 2 (*time future*).

Were this assumption true, only those going through slit 1 would have affected the result.

Quite the opposite, both slits appear to be simultaneously open because a certain interference is exhibited: the plot is the same as that of Young's double-slit experiment with electromagnetic waves.

*Time future and time past are both perhaps present in time present.*

How does such a phenomenon come about? Do instants travel as if both ways were always open? What complicated paths, back and forth, do they follow?

*The passage we don't take and the passage we take <point to one end, which is always present>.*

If we were to manage to close slit 2, we would actually get a smooth one-peak curve slightly shifted upward (bottom-left figure). But if we closed slit 1, we would surprisingly get the same smooth one-peak curve shifted downward.

*Time future is contained in time present.*

And if we peeped into either slit (bottom-right figure), tracking which one each instant goes through, we would observe, for each slit, the same curve as if the other were closed. The two curves would, point by point, add up to an overall smooth one-peak curve, centred right behind the slits.

*Do we disturb time around the corner?*