

Experimental Proof for Gödel Theorem on Time

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Abstract

In 1949, Gödel postulated a theorem that stated: "In any universe described by the theory of relativity, time cannot exist". Gödel idea was that fourth coordinate of space-time is not time. Fourth coordinate is spatial too. In this article will be shown that on the base of elementary perception and experimental data Gödel theorem is right. With eyes one observes universe is in a continuous change. A change n gets transformed into a change $n+1$, the change $n+1$ into a change $n+2$ and so on. Clocks measure a frequency, velocity and numerical order of change. Experimental data confirms that changes and clocks do not run time; they run in space only. Time is not a part of space. Fourth coordinate of space-time is spatial too. Space itself is timeless. Physical time that is clocks run is man created physical reality. Fundamental arena of the universe is timeless space. In the timeless space into which massive bodies and elementary particles move there is no past and no future. Past and future belong to the inner neuronal space-time that is a result of neuronal activity of the brain.

Key words: Gödel theorem on time, change, time, space-time, inner time, intuitive time, observer

Introduction

According to Gödel fourth coordinate of space-time is not time. Fourth coordinate is spatial too (1). Elementary perception supports Gödel vision. In the universe one observes material change in space. Time as a part of space cannot be observed, experienced and cannot be measured. Experimental data confirms that with clocks we measure a frequency $\gamma(s^{-1})$, velocity $v(ms^{-1})$ and numerical order $n...n+1...n+2...$ of material changes that occur in a space. Time as a run of clocks is a measure of material change that runs in space.

Recent research confirms we experience stream of changes in a linear concept of the inner neuronal time that is based in neuronal activity of the brain. The brain is the "local" creator inner space-time as our special maps of the reality we observe and participate in. Consequent experience of changes in a "past-present-future" perspective is a result of neuronal dynamics in certain areas of the brain (2). Gödel named inner time "intuitive time".

Perception, processing, experience

We perceive changes that occur in the universe through our eyes. Then the information about the changes is processed by the brain into the inner time, and finally becomes our experience. Between the perception and the experience there is processing through the inner time that creates a distortion of perception. However, once we become aware of the inner time, called "intuitive time" by Gödel, we can experience changes directly as they occur.

indirect experience
change – perception - processing through the inner time – indirect experience of the observer

direct experience
change - perception (eyes) - direct experience of the observer

Fourth Coordinate of Space-time is Spatial

In his book "A World Without Time: The Forgotten Legacy of Gödel and Einstein" Yourgrau manages to convey fairly clearly what exactly Gödel demonstrated in his short paper, taking Einstein's theory of relativity and focussing on the knotty time-issue, presenting a world model in which he could show "that t , the temporal component of space-time, was in fact another spatial dimension".

Gödel vision of fourth coordinate of space-time " $X_4 = i \times c \times t$ " being spatial too Gödel is supported by experimental data which conforms that physical time which is run of clocks ("tick" of clocks) is not a part of space in which change occurs. With clocks we do not measure time as a fourth dimension of space. With clocks we measure frequency, velocity and numerical order of change that run in space. In Special Theory of Relativity the fourth coordinate of space X_4 is a product of imaginary number i , light speed and number t that represents "tick" of clock: $X_4 = i \times c \times t$. The fundamental arena of the universe in which changes occur is 4 dimensional timeless space.

Prevalent opinion in physics is that stream of change run in time as a physical reality although there is no experimental data for such interpretation. As we experience changes through linear concept of inner time Gödel called "intuitive time" we are not aware that changes run in the timeless space only and not in time.

Conclusion

Conviction in today physics is that time is a part of space and so space-time a fundamental physical reality in which change occurs. There is no experimental data for this conviction. Elementary perception and experimental data confirms that physical time is run of clock in space. Space-time is a mathematical model merely. Gödel vision of fourth coordinate of space-time being spatial too is proved.

References:

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