Effect of anisotropy of the speed of light in the experiment. Changing the time scale.

Summary.
All theories of mechanics, using the speed of light in the calculations are based on using only the isotropic speed of light.Since it is believed that the experiment with an anisotropic velocitywill give the same result, so you can use only the isotropic version of the speed of light. It is shown that the error in a statement.

Key words: anisotropic speed of light, one-way speed of light, two-way speed of light, the speed of light is isotropic.

The theoretical calculations are isotropic speed of light. Assuggested in theory: you can not change the outcome of the experiment by using an anisotropic velocity.

Consider a thought experiment. The rod moves in a straight line. This line passes through several laboratories. In one laboratory senta light signal near the butt of the rod. In another laboratory show that the light signal is only slightly ahead of the rod.

That is, if you do not consider relativistic changes, we can assumethe speed of the rod coincides with the speed of light. This is done tosimplify the experiment and calculations. To compare the length of the rod at different speeds of light. Rod length is measured after the synchronization of clocks in one of the laboratories, according toEinstein's famous procedure (measurement of length). Then consider the space-time diagram of traffic separately for isotropic speed of light (Fig. 1) and anisotropic (Fig. 2). The diagrams depict the world line of motion of the rod ends. What is the anisotropy? The speed of light to the observer at twice thespeed of light from the observer. The ratio is chosen as an example, the actual ratio may be different. Observer's point is denoted "0".The length of the rod is measured at one value of time. The length of the rod in the figure indicate the blue stripes.

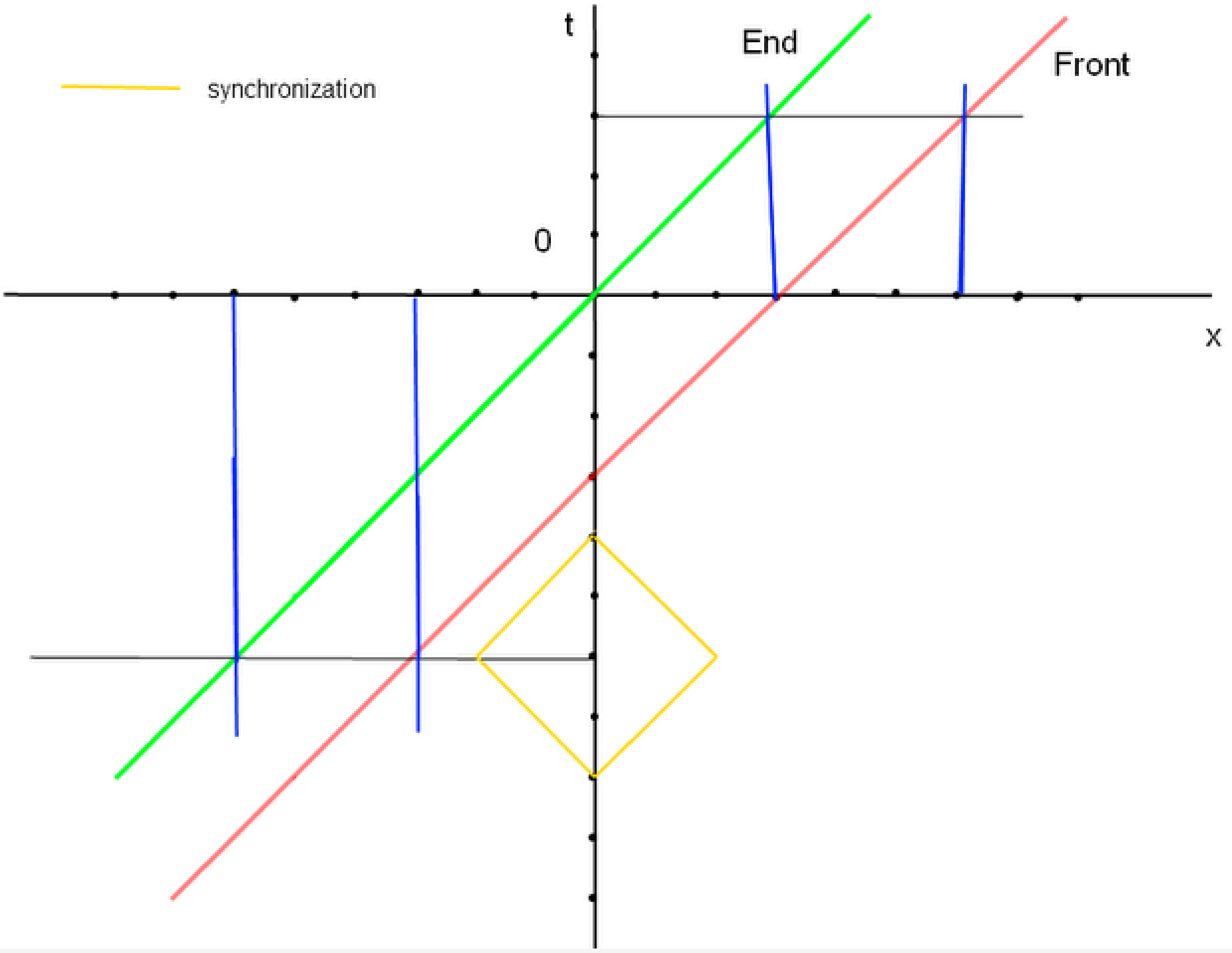

Figure 1.

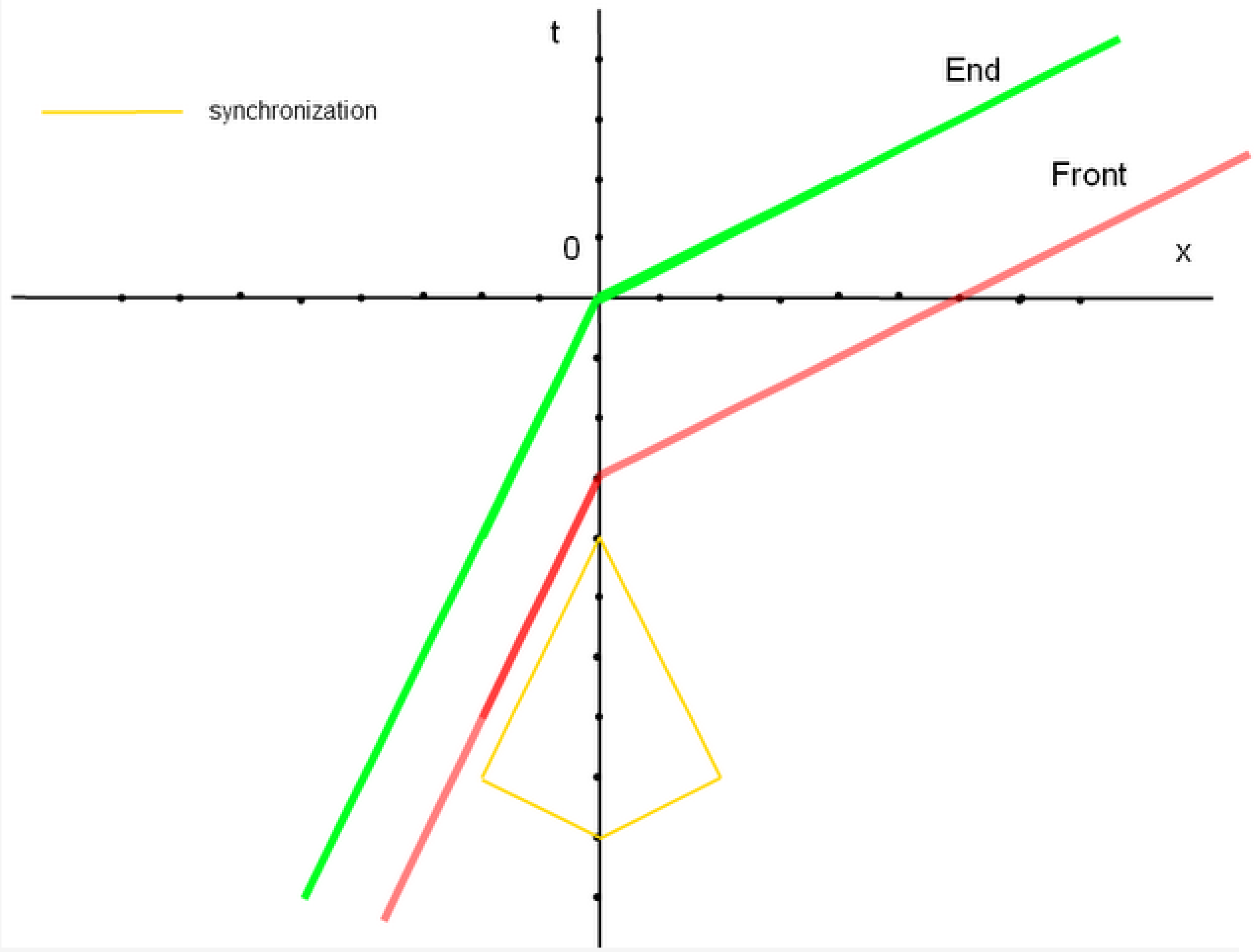

Figure 2.

After synchronizing the other figures. This changes the chart. FromFigure 2 it goes to the Figure 1.

Let me remind the clock synchronization procedure:

We consider two points A and B. At time T1a on the clock sends a light signal (point A). He goes to B. Then the signal is reflected in B.The signal returns to A at the time on the clock T2A. Clocks aresynchronized, if at the time of reflection (at B) establishes the time TV = (T1a + T2A) / 2

Now let us recall the procedure of measuring the length of the moving rod:

We consider the trajectory of the rod. All points are synchronized. Allerrors are ignored. At some point - photography. Determine the point where the beginning and end of the rod. The distance between these points gives the length of the rod.

We perform the synchronization. The clock does not depend on the speed of the signal in one direction. They are calculated from theaverage speed in both directions.

The experimental results are the same. Since there is a mismatch in the construction of the diagram.

Consider the diagram before point "0" and after the point of "0". The letter C will denote the time interval between the arrival of the ends of the rod to the point "0". The letter D denotes the time interval between the departure ends of the rod from the point of "0". Setting up time synchronization is not performed at the "0". Thus, the world lines do not change their position (at "0") in sync.

It is known (from the conditions of the problem) that the rate ofmovement to the point of "0" is approximately two times greater than the rate after the point of "0".
Only one rod, it is logical to assume that C is approximately twotimes more D. Since the speed of the ends - (arrival and departure) are different. And this ratio is completely independent, can or can not determine the length of the moving rod.

On the world line of the rod ends - arrival should coincide with their departure. If this is to consider and take into account the difference C and D, it becomes clear that for different speeds of light diagram should be in a different time scale.

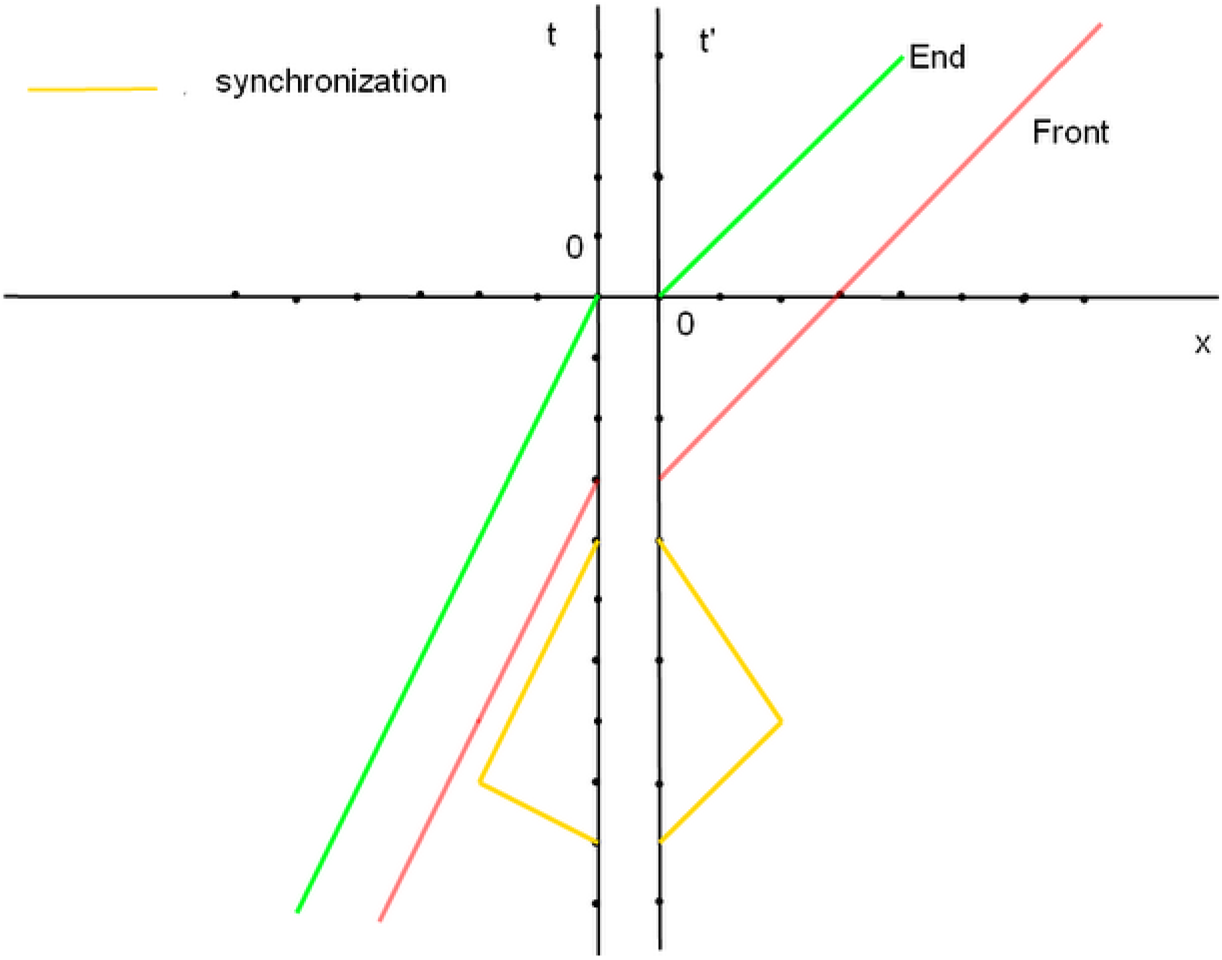

Рис. 3

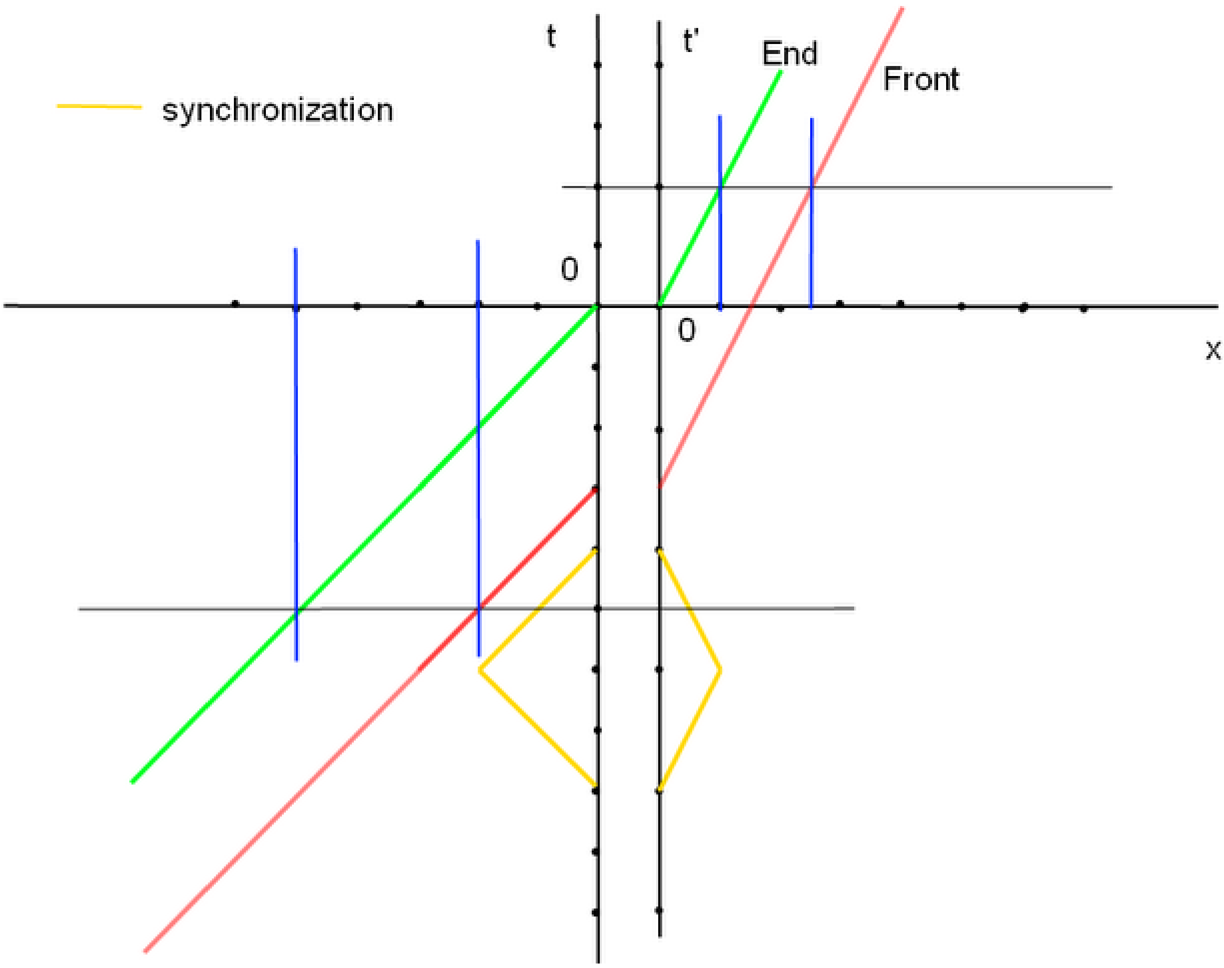

Рис.4

If we now construct a space - time diagram of Fig. 3 (anisotropicvelocity and different time scales) and Fig. 4 (clock synchronizationat these scales), the picture changed. It becomes clear that the results of measuring the length of the rod on the way to the point "0" - different from the measurement results after the "0". QED

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