The Five-dimensional model: descriptions and implications

Valentino Giudice

Abstract

Description of the Five-dimensional model

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1 Basics

A purpuse of the Five-dimensional model is to facilitate some reasonings that may be complicated or even inchoerent if the four-dimensional model is used (in with there are four dimensions: three space dimensions and one time dimension). You can schematize time travels, time paradoxes, exchanges of energy between the past, the present and the future and more.

In the Five-dimensional model a time dimension is added, so, according to the Five-dimensional model, our universe has five dimensions: three space dimensions and two time dimensions.

The second time dimension join space and time and is the cause of the main characteristics of the Five-dimensional model.

The two time dimensions are represented one vertically and the other one horizontally. The vertical one is the dimension present also in the four-dimensional model, while the horizontal one is the dimension introduced by the Five-dimensional model.

One of the basic principles is that there is no difference between choosing to observe the universe by using the horizontal or the vertical dimension as reference time.

In the representations of the Five-dimensional model each point represents a single (three-dimensional) instant.

Each vertical line in the non-curved basic model is called "time unit". Essentially a time unit is our universe according to the four-dimensional model. Time units are all congruent to each other.

1.1 First version of the Five-dimensional model

According to the first version of the Five-dimensional model (which is wrong), in Figure 2 there is a representation of a non-curved universe, without exchanges of energy between different times.

In each time unit the downmost point represents the Big Bang.

1.2 Issues

This version of the model has some issues: it is not possible to represent a curvature or a moving body in the rightmost time unit, because pieces of matters would leave the universe, so not all the time units would be identical. The model is therefore inconsistent.

1.3 The Five-dimensional model: the actual version

The solution to the problems outlined above is to consider time (both vertical and horizontal) infinite. In this way we have countless time units, and each time unit is endless in its turn. The representation of the Five-dimensional model is therefore a sheaf of straight lines (Figure 2).

2 Phenomena and implications

2.1 Time dilation

In the Five-dimensional model time dilation is represented as a variation of the motion of the body which undergoes it. In fact, the body, in addition to move along one or more space dimensions, moves right along the horizontal dimension (Figure 3).

For simplicity, the trajectory of the body is represented only once even if it is present in each time unit. The more the body moves fast through the space, the more its trajectory is skewed.

We can call α the angle between a vertical line and the graphically visible trajectory of the body (Figure 4).

It is possible to obtain this negative angle using the equation:

$$\alpha = -\arctan\left(\sqrt[-2]{1-\frac{v^2}{c^2}} - 1\right) \tag{1}$$

The higher the speed of the body is, the lower the angle is.

It is also possible to obtain a reverse formula:

$$v = c\sqrt{1 - [\tan(-\alpha) + 1]^2} \tag{2}$$

This last allows us to derive the speed of a body by the graphic inclination of its trajectory.

When a body moves at high speeds through the space, it moves along the horizontal dimension exactly as if it was a space dimension. The perceived time should always be measured along the vertical dimension (Figure 5).

When the body stops its own moviments and it is at its destination, it is shifted to the right respect to a body with has stayed motionless, even if the two bodiyes were in the same condition at the beginning (Figure 6).

Both the bodies has felt the same time span, but in the end conditions the moving body is in a future moment respect to the body remained motionless: this effect is the time dilation.

An observer remained stationary, who could be the blue body represented in Figure 6, keeps on detecting the moving body, even in that last one is in another time unit (more to the right), because it has been "replaced" by the same body coming from a time unit more to the left. This is true in each instant. The result is that if a motionless observer performs measurements over a moving system, it will have the perception that, inside of it, time flows more slowly.

2.2 Photons

Photons are a special case: their speed is light speed. The below equation is valid for photons:

$$\alpha = -\frac{\pi}{2} \tag{3}$$

Graphically, the motion of photons is a special case: an horizontal line. That means that time does not flow if we consider photons as a reference.

2.3 Gravity

Gravity is represented in a similar way to time dilation, except that in this case it is needed to imagine a space dimension, as depth.

All the space is curved by a gravitational field, the time unit behaves just like a bedsheet. Bodies naturally follow the folds of this sheet, thus "invading" other time units.

Also in this case an (apparent) slowing of time happens, for exactly the same reasons for which it happens in case of high speed.

But speed does not curve time units, but makes bodies "escaping" from them. This does not happen by effect of gravity.

2.4 Blacks holes

Blacks holes are a case very similar to photons. Blacks holes can be represented as an (almost) horizontal line too. All the time unit is curved by the effect of a black hole.

Bodies which are more close to it, so, naturally tend to move closer it and their time so start slowing down because a motion along the horizontal axis (due to gravity and not to speed) starts by them.

3 Un dubbio: una prova

One of the basic principles is that there is no difference between choosing to observe the universe by using the horizontal or the vertical dimension as reference time.

Imagining how a body which, at a certain moment of its existence, make a travel to the future is possible. Its trajectory would be the one represented in Figure 7.

We can represent it for each time unit (Figure 8).

Apparently, wantonly deciding which of the two time dimensions choose as reference time is not possible (Figure 9).

Actually, this representation is misleading.

To understand better the situation, it is useful to represent the universe as a grid and draw the body whenever, using it as a reference, a second passes (Figure 15).

And repeat for each time unit (Figure 15).

Now we can choose, as the convention says, to use the vertical dimension as reference time and to be stationary observers. We can choose a random time unit (Figure 12).

What we see is represented in Figure 13.

Now we can choose to observe the body using the horizontal dimension as reference time (Figure 14).

What we see is shown in (Figure 15).

These two images (Figure 13 and Figure 15) are identical.

There is no difference between the horizontal time dimension and the vertical one. Conventionally, the vertical one is used.

4 Philosophical implications

The Five-dimensional model might result in two philosophical implications.

The first one is that when we move, thereby increasing our speed, we are leaving a place (time unit) forever, and we cannot return. We are just allowed visit similar places. Also when we meet a person, we will never see her or him again.

The second one is that all the life of our universe is predetermined. In fact, this model is static and unchangeable: we cannot influence our fate.

These two implications are both wrong.

The first one does not consider that the Five-dimensional model represents the universe. When we return into a place, even if the time unit is another one, it is still the same place, a part of our universe. The same is true for people.

The second one does not consider quantum phisics, according to which, anyway, randomness actually exists, so we cannot predict anything, neither according to the Five-dimensional model.

5 Final Notes

This text has been written by Valentino Giudice:

http://valentinogiudice.altervista.org/

You can find the original italian version of this article here:

http://vixra.org/pdf/1402.0149v1.pdf
Thank you for reading!

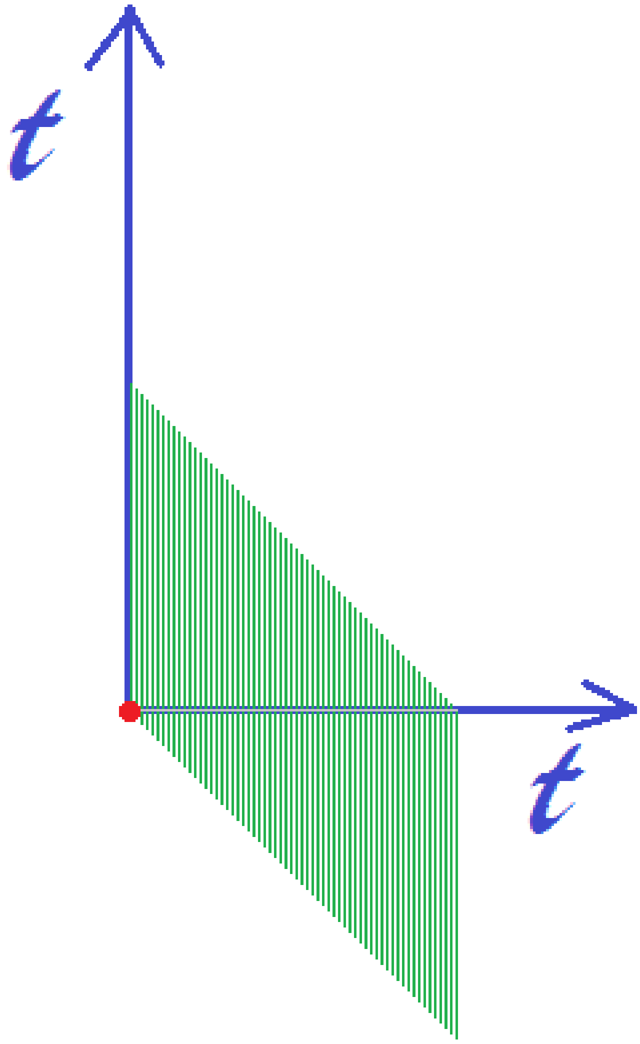

Figure 1: Representation of the first version of the Five-dimensional model

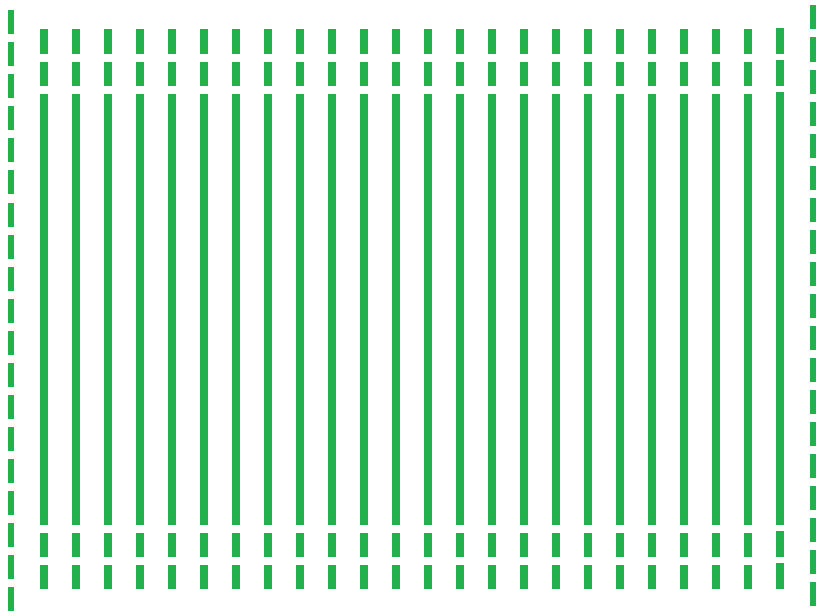

Figure 2: Representation of the actual version of the Five-dimensional model without curvatures

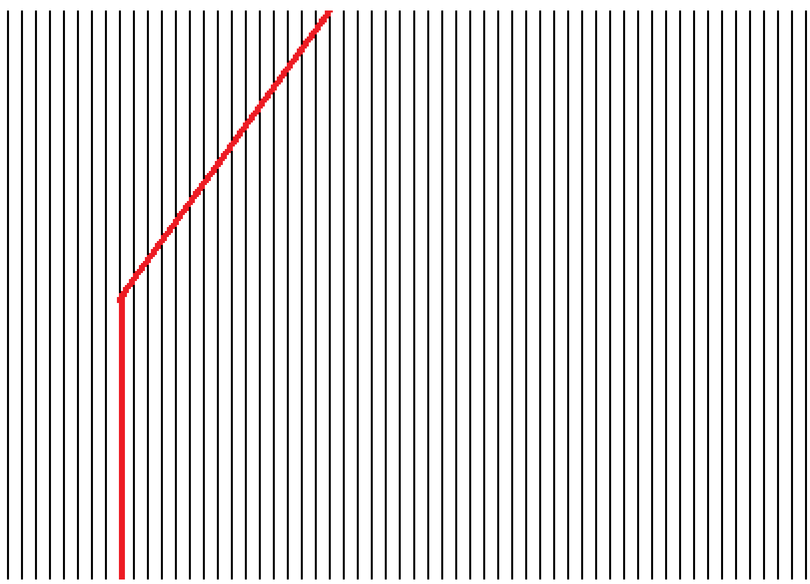

Figure 3: Representation of a first stationary and then moving body according to the Five-dimensional model

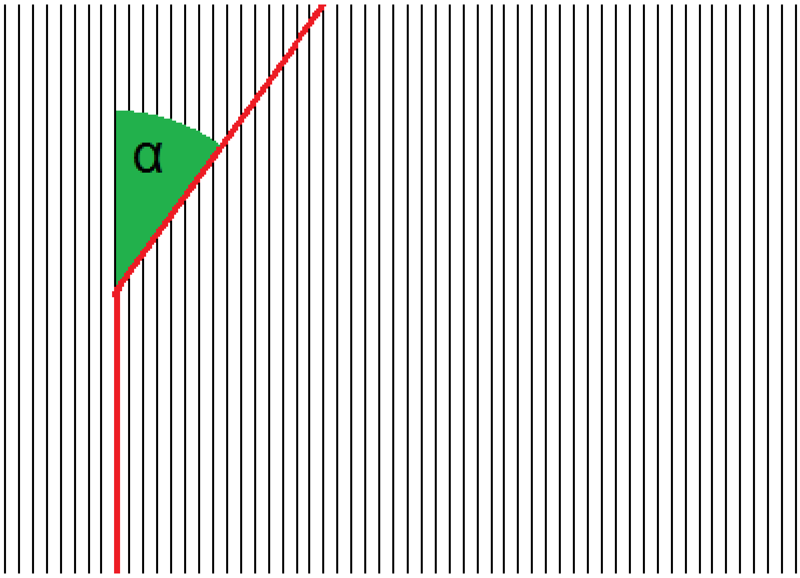

Figure 4: Representation of α in the trajectory of Figure 3

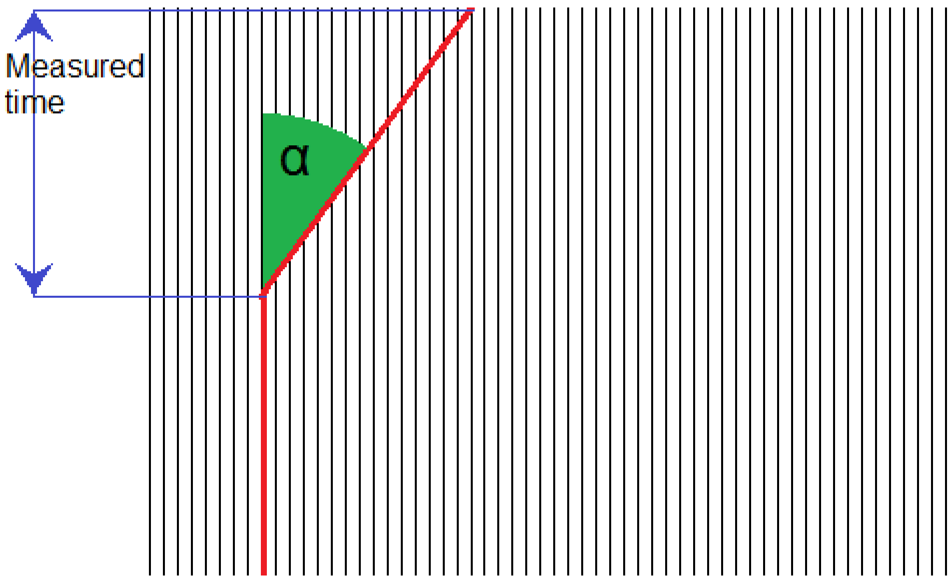

Figure 5: Highlighting of the time perceived by the moving body (by the example of Figure 2 and Figure 3) during movement

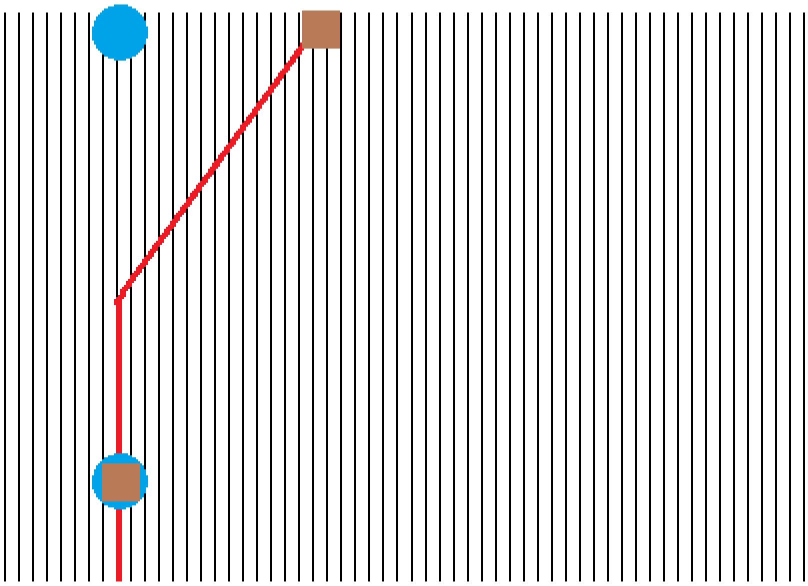

Figure 6: Representation of a stationary body and a moving one starting by the same initial conditions

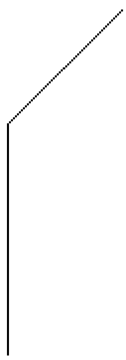

Figure 7: Trajectory of a body which, at a certain moment of its existence, makes a travel to the future

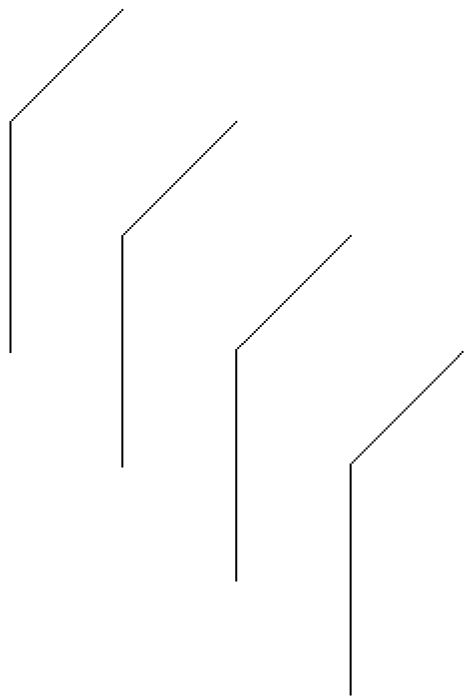

Figure 8: Trajectory of Figure 7 represented in more time units

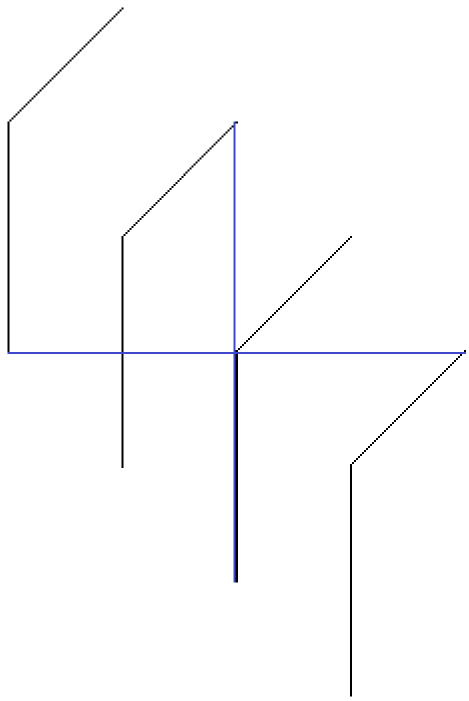

Figure 9: It seems impossible to wantonly choose which one of the two time dimensions use as reference time (the example is the same of Figure 7 and Figure 8)

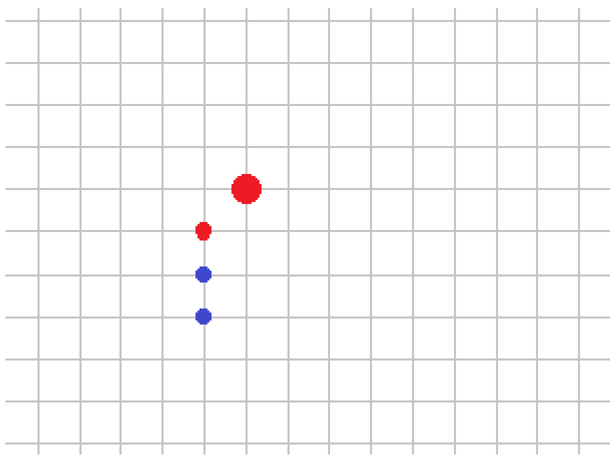

Figure 10: Alternative representation of the body of Figure 7, Figure 8 and Figure 9: the object is represented each time, by his point of view, a second passes

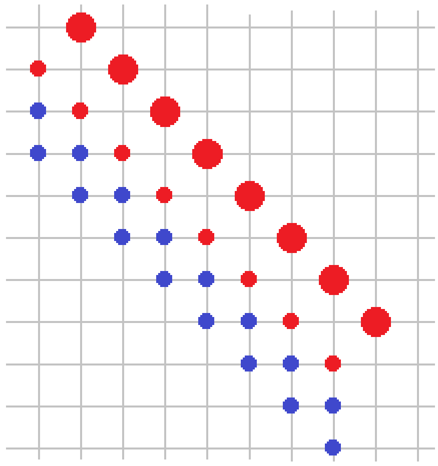

Figure 11: Representation of Figure 15, repeated for more time units

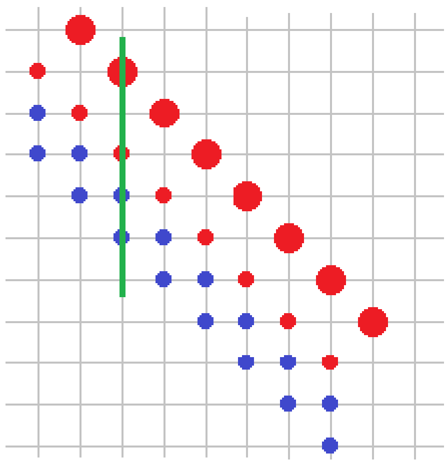

Figure 12: Highlighting of a random time unit, by the representation of Figure 15

Figure 13: Evolution of the body shown in and according to a stationary observer in the time unit selected in Figure 12

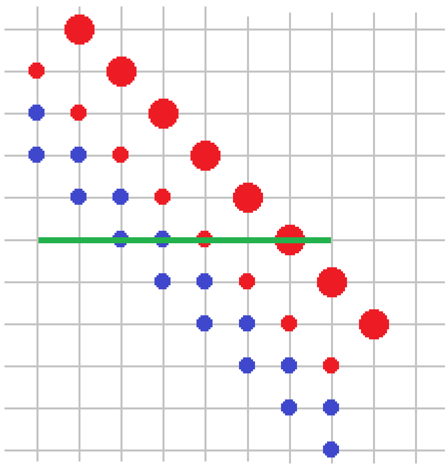

Figure 14: Highlighting of an horizontal time unit, by the representation of Figure 15

Figure 15: Evolution of the body shown in and according to a stationary observer in the time unit selected in Figure 14; the picture is identical to Figure 13