The Shape of Time

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What is the shape of time? Is it round? Flat? Rectangular? Bumpy? None of these seem to describe the shape of time very well. Thus for time itself has defied credible description.

However, all objects experience time passage at some rate. That rate is determined by the speed of the object relative to "Absolute Still" (see the Variable Time Article). Relative to Absolute Still, the faster an object travels the less time passage it experiences, the slower it travels the more time passage it experiences.

The rate that time passage changes with changes in speed can be graphed - or it could be if it were known. But even if it is not known considering the possible shapes the graph could take can be enlightening. The possible shapes of this "Speed/Time Curve" is the subject of this article.

Why?

Why would the shape of this curve be of interest to anyone? Because we're on it - and starting to move around on it.

The earth and everything on it are experiencing time passage at some rate because of it's speed relative to Absolute Still. The earth's condition is somewhere along the Speed/Time Curve. As long as the people of the earth content themselves with crawling around on its surface the shape of the curve will only be of interest to some scientists, but that's not happening.

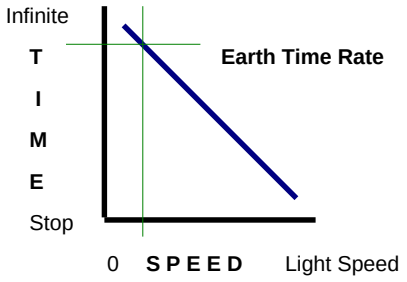
Some nations are spending billions of dollars sending craft out into space. Some of these space craft are achieving speeds, relative to Absolute Still, that are slightly different from that of the earth. These space craft are experiencing time passage at a different rate. How different depends on the shape of the curve.

The shape of the Speed/Time Curve at near earth speeds affects communications with these space craft, the reliability of these space craft, and perhaps the desirability of riding on them.

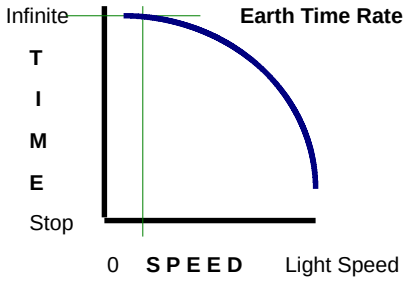
The Possible Shapes

The Speed/Time Curve can assume a variation of but three basic shapes. I call them "straight line", "bulging curve", and "sagging curve".

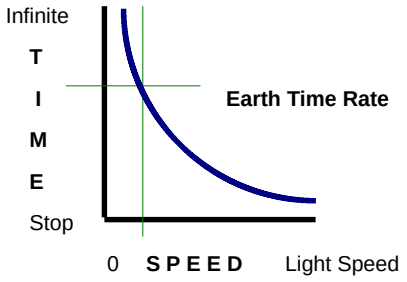
Straight Line Graph



Bulging Curve Graph



Sagging Curve Graph



In all three of the preceding graphs the rate of time passage an object experiences is

measured on the vertical axis and the speed of the object relative to Absolute Still is measured on the horizontal axis. The graph line represents the possible relationship between them.

On the graphs I have marked an Earth Time Rate. This is for illustration only, I have no idea where the earth situation is be on the Speed/Time Curve. However I do suspect that it's toward the slow end of the speed scale. If the earth were moving very fast differences would be seen between looking ahead and looking back. Everything I read is adamant that no difference exists. If the difference can't be measured yet, the earth must be at only a small fraction of the speed of light.

Admittedly all of the graphs have a problem of an infinite value on the vertical axis. I can't help it, I don't know how fast time can go - we'll just stay away from that end.

So. What do the graphs show?

The Straight Line Graph shows a constant linear relationship between speed and rate of time passage. At any point along the line the same change in speed will produce the same change in the rate of time passage. This is true of both increasing speed and decreasing speed. From Absolute Still (0) to the Speed of Light the slope of the line is constant.

The Bulging Curve Graph shows a non linear relationship between speed and the rate of time passage. As speed increases each unit of increase has a greater impact on the rate of time passage. The greatest changes in the rate of time passage are achieved at the high end of the speed scale. From Absolute Still (0) to the Speed of Light the slope of the line is positive, speeding up a certain amount always has a greater impact on the rate of time passage than slowing down by the same amount.

The Sagging Curve Graph also shows a non linear relationship between speed and the rate of time passage. However here as speed increases each unit of increase has a smaller impact on the rate of time passage. The greatest changes in the rate of time passage are achieved at the lower end of the speed scale. From Absolute Still (0) to the Speed of Light the slope of the line is negative, speeding up a certain amount always has a smaller impact on the rate of time passage than slowing down by the same amount

So which is it?

I don't know. My gut tells me that since nothing else in the Universe seems to be linear it's probably not the straight line graph - but it could be. Of the Bulging Curve and the Sagging Curve, the Sagging Curve is the more exciting - but it could be either, .

How can we find out?

By attaching special radio transmitters to space craft. These transmitters should send out a carefully controlled timed pulse signal on a specific and tightly controlled frequency. During flights the signal should be closely monitored on earth paying particular attention to frequency shifts and changes in pulse rate. On earth the received signal frequency and pulse rate will increase when the space craft is experiencing rates of time passage greater than earth's (that is when it is traveling slower than earth with respect to Absolute Still, at the speeds currently achievable this would be when it is traveling back down the path of the earth's travel). A decrease in frequency and pulse rate will indicate the opposite. Noting the direction of travel when these events occur can be used to determine the direction to Absolute Still. Using the speed difference from earth speed and the time passage rate difference from the earth time passage rate the slope of the Speed/Time Curve at near earth speeds can be calculated - perhaps enough data can be gathered to project the shape of the curve.

The required data may have already been gathered by agencies controlling space craft. Perhaps shifts in frequency during radio communications have already been noted, but attributed to less than perfect equipment. Finding such shifts in the history logs would definitely provide early validation.

The Shape of Time

Why the direction thing?

If the earth were not moving, if it were absolutely still, moving in any direction would result in a slower rate of time passage. But it is moving, it is traveling along at some speed in some direction, generating the rate of time passage that we experience and consider in all of our planning. Because the earth is speeding along in a particular direction in relation to Absolute Still, anything moving away from the earth will have a different speed in relation to Absolute Still.

Any craft that is moving away from earth in a direction that is generally out along the earth's projected path will attain a speed that is greater, in relation to Absolute Still, and generate a rate of time passage that is slower than on earth. Much thought and speculation has gone into this situation.

However any craft that is moving away from earth in a direction that is generally back along the path the earth has traveled will have a speed that is slower, in relation to Absolute Still, and will generate a rate of time passage that is faster than on earth. From the earthly point of view, where the craft was planned and build, the craft will appear to age rapidly and perhaps begin to suffer failures.

In space travel direction becomes even more important, it can determine more than just destination.

So why is the Sagging Curve more exciting?

At speeds around the suspected earth speed it offers the largest rate of time differences. Of the three shapes the Sagging Curve has the greatest slope in the area of near earth speed. This presents the possibility of designing voyages that could experience significant increases in time passage. And design them with the technology available or currently in development.

Why the Interest in Speeding up Time

It's where the action is for most people. Most people will not ride in space craft, most will be earthbound. But earthbound people can send things out to experience a different rate of time then get them back.

Sending something out into space to have it experience less time than we do on earth is boring. It is also not very productive, even if we could send something out at speeds that would make time stop for it, we would still have to wait, in earth time, for a time difference to accumulate.

However on the "speed up side", if the shape of the Speed/Time Curve permits, it could be possible to send things out in such a way that they accumulate large amount of time passage in a small amount of earth time.

In a society based on making things go faster and happen faster, the prospect of sending something out, having it accomplish a years work, and coming back a week later has got to be exciting.

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