'Space' and 'Length', 'Time' and 'Duration':
and
How Measurement of 'Time' is different from the measurement of 'Length'

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Abstract: The terms: 'space' and 'time' need some clarification. What contracts in special-relativity is 'length' of 'physical-objects', not 'space'. What gets dilated in special-relativity is 'duration' of a 'process', not 'time'. 'Space' is there, and 'objects' are in 'space'; so a ruler can measure 'length' of an 'object'. Our eyes can directly see the 'space'. Whereas 'time' is a 'mental-concept'; the 'duration-between-two-tiks-of-a-clock' is defined as a 'duration-of-one-second'; actually there is nothing like 'time'.

The Description:

The so-called 'relativistic-time-dilation' means, 'extension-of-duration-of-a process' as perceived by 'relativistically-moving-observers'. Such relativistic 'length-contraction' and 'time-dilation' can be alternatively-understood' as described in a recent paper:titled: "Wave-theoretical insight into the Relativistic length-contraction and time-dilation-of-super-nova-light-curves", by Hasmukh K. Tank, published in Advanced Studies in Theoretical Physics. Full-text PDF is freely available at:

http://www.m-hikari.com/astp/astp2013/astp...7-20-2013-2.pdf

An elephant is an objectively real entity; an object in front of you. So when you close your eyes, the elephant 'disappears'. But even when you close your eyes, the perception of 'space' remains; which means that 'space' is a 'subjective' reality, whereas 'length' is an objective reality. Similarly, 'time' is a 'subjective reality'; and ticking of clocks is an 'objective-reality'. A physical process may take longer time at higher velocities. The observations of super-novae light-curves are explainable as a physical process; as done in the article of the above link. Thus, neither the 'space' contracts; nor the 'time' undergoes any 'dilation'; only the lengths of objects appear to contract as explained in the article, and the 'duration' of a 'process' appears to get 'extended' as explained in the article.

In the cases of 'general relativity' and 'sub-atomic-world', the direction of time is not knowable from the observations. We can take help of thermodynamics, in which the process flow-es from order to disorder, to judge the direction of 'time'!

Thus, we need to use better terminologies for 'contraction-of-space', 'expansion-of-space' and 'time-dilation'.