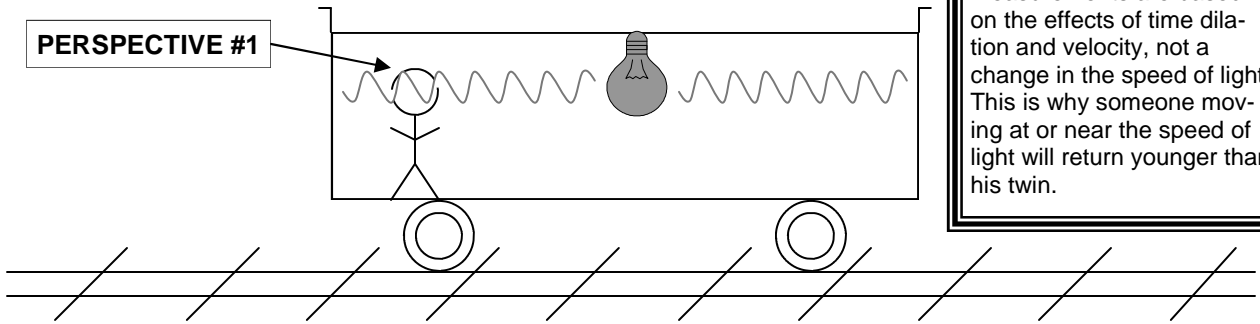


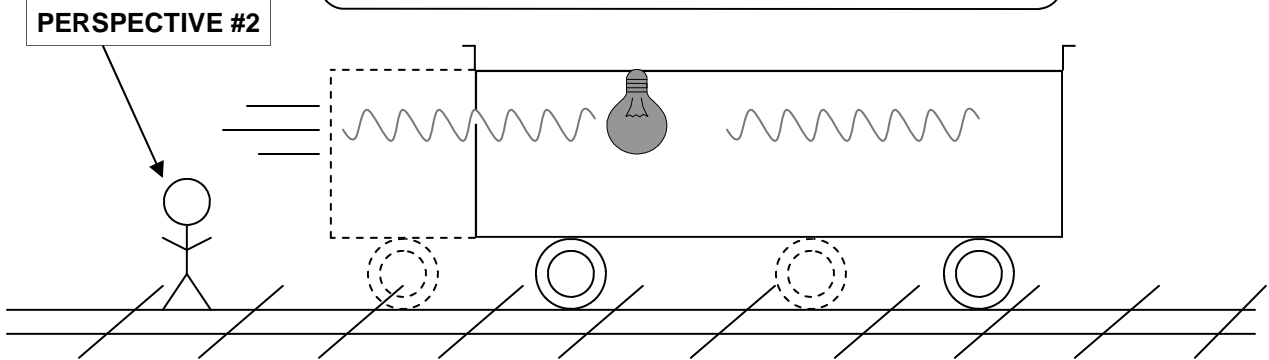
Figure 2.1: **SPECIAL RELATIVITY**

In all three perspectives and in all directions, light moves at the same speed (c). The speed of light is constant. But the differing relative perspectives show the light beam will reach a portion of the train at different intervals yet only from their discrepant-velocity perspectives. Basically, the contrasting measurements are based on the effects of time dilation and velocity, not a change in the speed of light. This is why someone moving at or near the speed of light will return younger than his twin.

The first perspective is of a *stationary* observer measuring the light beams while standing inside a *stationary* train. The light reaches both ends of the train at the same time.



The second perspective is of a *stationary* observer measuring the light beams while standing outside observing a *moving* train. From this perspective, the light reaches the back of the train just **BEFORE** it reaches the front.



The third perspective is of an outside *moving* observer measuring the light beams while the train also is *moving*. The observer is moving faster than the train. From this perspective, the light reaches the back of the train just **AFTER** it reaches the front.

