Joseph and his brothers

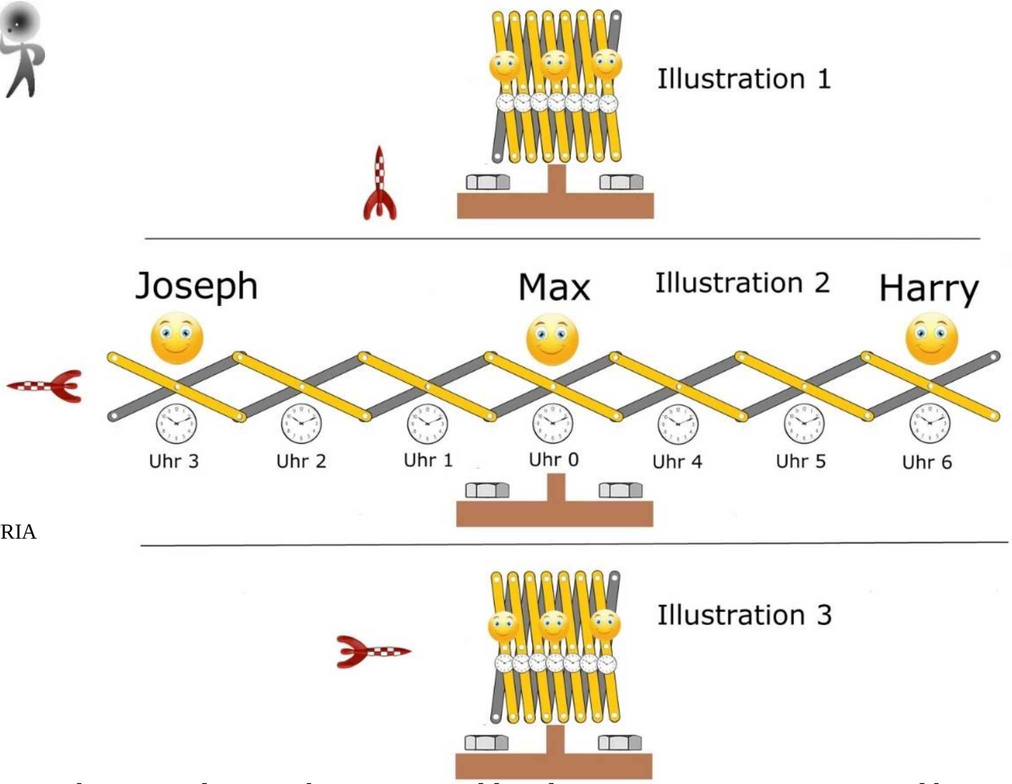

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Illustration 1) Joseph, Max and Harry, three 40-year-old triplets, are sitting on a symmetrical barrier fence relative to each other at rest. There is also a clock on each pair of scissors.

Illustration 2) Joseph flies left and right at 49.5% speed of light for 5 years this pulls Harry to the right. After 5 years Joseph turns around and flies back 5 years and Harry also pulls back. Joseph was on the road for 10 years. 5 years there, 5 years back.

Illustration 3) When all three brothers came back, they were in peace and relative to one another compare their ages. 10 years have passed for Joseph. He is 50 years old. How old have his brothers Harry and Max gotten and what do all the clocks show now?

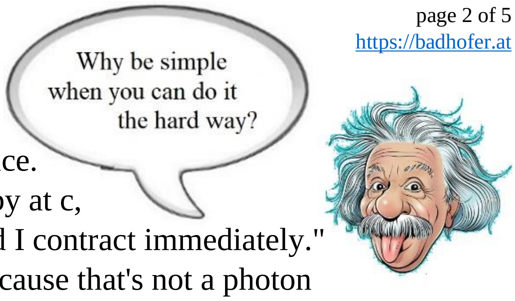
Can you nail Max to a universal master centre line of the universe? No, you can't, because the universe is not a wall with a centre line to which you can pin someone. And yet Max always remains at the centre of his two brothers, regardless of how the scissors grid moves.

Joseph become 50 years old. How old did Max and Harry become?

After there has been only one trip, there can be only one answer. Other points of view from external observers during the entire action are irrelevant, as all brothers in the end calmly compare their ages and all clocks relative to one another.

Newton's calculation:

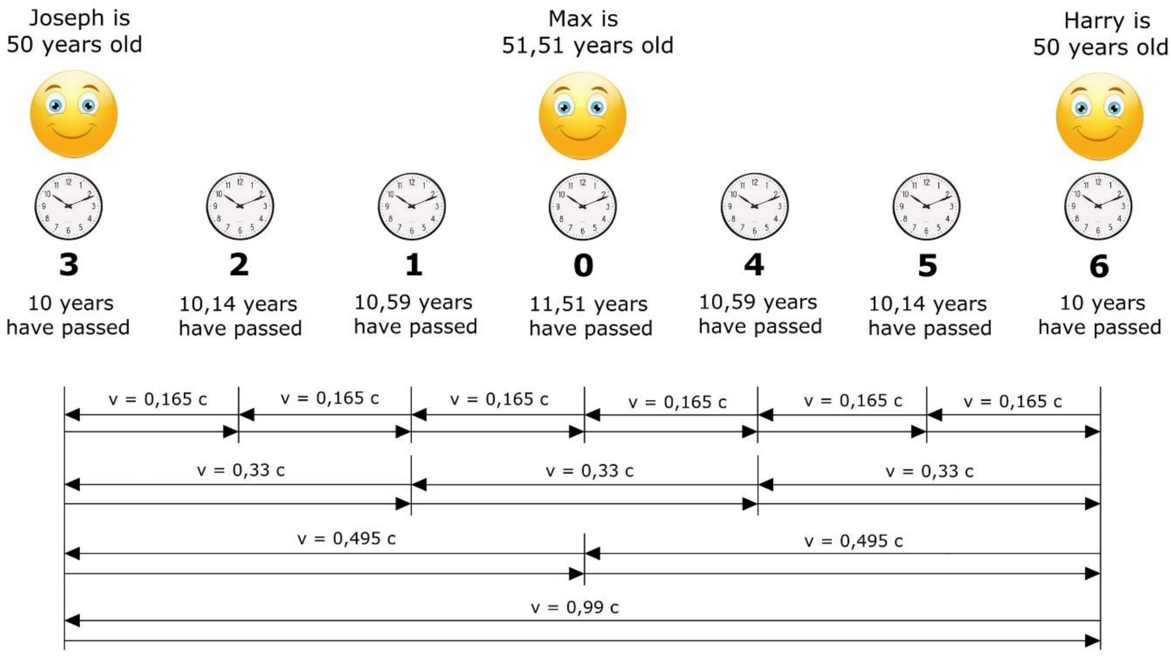
All brothers have reached **50** years of age.
The speed between all the neighbouring clocks was **the same.**
All clocks show that **10** years have passed.



Space and time are sitting in a café drinking orange juice. "Attention, attention," says space, "a photon is flying by at c, it must not see us like this. You dilate immediately and I contract immediately." "Calm down," says time, "stay relaxed on the stool, because that's not a photon with v = c at all, but Josef with his rocket with v = 0.495 c. He won't blow us off our feet with such a snail's pace". By chance, Einstein comes along and says: "Mistake, because if c is absolute for you, then all subdivisions of c are also absolute for you, including snails" - "But the mathematicians only calculate c as absolute?" - "Don't listen to the mathematicians" Einstein says to them, "listen to the physicists. Since the mathematicians have fallen over the theory of relativity, I no longer understand it myself."

Relative to space and time, every speed is absolute.

Henry Toothbiter has cracked the nut!



Those who believe that velocities must also be calculated relativistically can try to bend the non-linear Lorentz factor into the symmetrical movements of the scissors grid.

What? Josef and Harry moved relative to each other with v = 0.99 c and still grew to the same age? A mirror symmetry in the movements? Henry Teeth Biter, have you nailed Max to the absolute centre line of the universe? But yes, you are right, Max will always remain at the centre of his brothers, whatever happens to the scissors grid in consequence. Even if you shoot it across the entire universe.

The velocities of all brothers and clocks are always constant relative to each other. Space and time adapt to them through contraction and dilation. With whatever speed objects move relative to each other, space and time adjust to them, because both are always relative, otherwise c would not be absolute. Not only photons cause space and time to contract and dilate, but also snails. The fact that external observers observe something different is meaningless for the absolute velocities of the individual objects relative to each other.

Neither space nor time, no biological ageing process, no clocks, no Lorentz factor and no Minkowski diagram, not even the triplets themselves could screw one of their number into absolute rest. The universe is not a wall where you can screw in screws.Indeed, it could just as well have been that the scissors were not screwed to the ground, but to a railway that started from the main station (clock Hbf) and travelled half the time to the left and then to the right again during the entire action with v = 0.495. To be or not to be? Neither the principle of relativity nor the SRT recognise any difference.

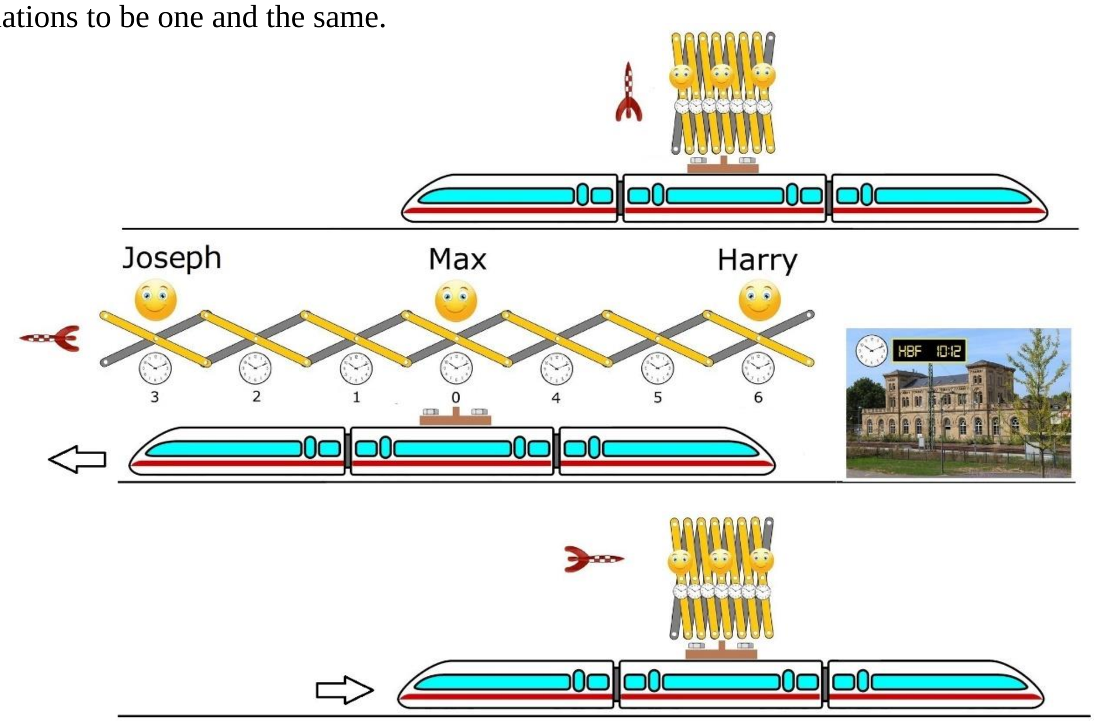
If the brothers bounce a ball up into the air and catch it again, can they tell from the trajectory of the ball whether a train is moving or not? No, neither they nor the principle of relativity nor the SRT can tell from the trajectory of the ball.

The Minkowski diagram does not have an answer either, because before you draw the diagram, you have to determine yourself who is the one at rest and who are the ones in motion. This is a circular argument, because in the end the diagram only shows as the one at rest the one you have previously determined yourself.

Schrödinger's horse-drawn railway? Does it gallop or does it not gallop?

Max proposes an experiment to his brothers. We all attach a mirror to our helmet and send a beam of light to each other's mirrors. Based on the running time and the colour of the reflected light, we can tell whether the railway is moving or at rest. The same experiment could be done by inmates on the railway. "That was a good one," Josef and Harry say to Max, "do you see anyone else besides yourself who isn't laughing at it?

Galileo Galilei's teacher Salviati and his pupil Sagredo started an experiment in the belly of a ship to see if it was possible to detect whether the ship was moving or not. The story of the teacher Saliviati and his pupil Sagredo can be found on the Internet and fits in perfectly with Joseph and his brothers. The principle of relativity and also the SRT have no answer to the question of whether the railway or a ship is moving or not moving by the sea. They consider both variations to be one and the same.



She canters - and canters not!

Both variants are equal. If they were not equal, one would already have to take into account in the variant without the railway the speed with which the scissors grid moves with the Earth around the Sun, the movement of the solar system within the Milky Way and, of course, the movement of the Milky Way within the universe.

How old have the triplets become and what do all the clocks show?

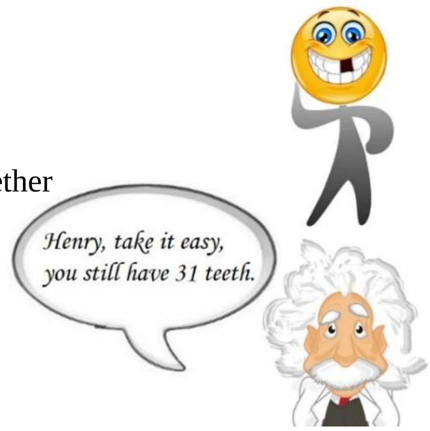
Since there has only been one journey and both the principle of relativity and the SRT do not recognise any difference between whether the railway is travelling or not, there can only be one answer for both variants.

With variant 1 (without railway), the clock at the main station (Hbf) shows after the journey that 11.51 years have passed, just as with clock 0, with which it was at rest relative to each other.

What does HBf show in variant 2 (with railway)? Does it show that 10 years have passed, just as with clock 6, with which it was at rest relative to each other, - or does Hbf show that 60.1 years have passed, because Josef spent 10 years own time and he moved with v = 0.99 c relative to Hbf? There can only be one answer.

Who turned the clock, is it really that late already?

Heinrich Zähnebeißer after his first attempt to find out whether the railway is moving to the left or the rails together with the station are being pulled to the right.



When Albert Einstein was on the train from Bern to Zurich and the conductor asked him to briefly explain the theory of relativity, Einstein said: "Look out the window, the Zurs railway station is passing us by.

Note on the reversal points: All the clocks go fast continuously throughout the journey, albeit at different speeds. The rate of the clocks must be fixed from the first second; influencing the rate of the clocks by a later reversal point would be too late.

Note on acceleration and deceleration: If you are sitting in a train and are suddenly pushed into the chair, you cannot determine whether you are sitting in the direction of travel and the train is accelerating or whether you are sitting against the direction of travel and the train is decelerating. Acceleration and deceleration are not a measure of rest and motion in space and time and are therefore assumed to be instantaneous and thus not taken into account.

Note on the mechanics of the scissors grid: With the scissors grid, it is roughly the same as with the drift velocity of the electrons in an electric circuit. The speed of the electrons of v = 0.5 mm per second causes almost the speed of light of the electric circuit. Just as only the neighbouring electrons keep the entire electric circuit in motion, only the neighbouring scissors keep the entire scissor grid in motion.

Does it gallop or does it not gallop?

A famous dialogue between Galileo Galilei`s teacher Salviati and his student Sagredo inside a ship about absolute and relative motion and rest:

Lock yourself up in the company of a friend in as large a room as possible below the deck of a large ship. Get mosquitoes, butterflies and similar flying creatures there; also provide a vessel with water and small fish in it; furthermore, hang up a small bucket above, which lets water drip drop by drop into a second narrow-necked vessel placed underneath. Now watch carefully, as long as the ship stands still, how the little flying animals fly with the same speed to all sides of the room. You will see how the fish swim in all directions without any difference; the falling drops will all flow into the vessel placed underneath. When you throw an object to your companion, you need not throw more forcefully in one direction than in the other, provided that the distances are equal. If you leap, as they say, with equal feet, you will reach the same distance in each direction. Take care to ascertain all these things carefully, although there is no doubt that everything behaves in this way when the ship is at rest.

Now let the ship move at any speed: You will not see the slightest change in any of the phenomena mentioned, if only the movement is uniform and does not sway here and there. From none of them will you be able to tell whether the ship is moving or standing still. If you throw an object to your companion, you need not throw with greater force for it to arrive, whether your friend is in the front and you in the rear, or whether you are standing the other way round. The drops will fall into the lower vessel as before, not a single one will fall towards the rear, although the vessel, while the drop is in the air, travels many spans. The cause of this concurrence of all phenomena is that the motion of the vessel is common to all things in it, even to the air. That is why I said that one should go below deck; for above in the free air, which does not accompany the course of the ship, more or less distinct differences would appear in some of the phenomena mentioned. Thus the smoke would undoubtedly remain just as much as the air itself.

Although it has never occurred to me at sea to make the above observations specifically for this purpose, I am more than certain that they lead to the result mentioned. For example, I remember wondering a hundred times in my cabin whether the ship was sailing or standing still; and sometimes I thought it was going in one direction while it was moving in the opposite direction. Therefore, I am now completely satisfied and firmly convinced of the meaninglessness of all attempts to determine the speed or direction of the motion of a ship in its interior, as long as the ship is moving in a straight line at a constant speed.

You may have been able to make observations similar to those Galileo described for the interior of a ship yourself in a train standing in a station. If there is a second train next to yours and one of the two trains starts moving gently, you briefly do not know whether the other train or your own train is moving.

Formulation of the principle of relativity at the time of Galileo: There is no way to determine an absolute state of motion of a body. In an absolute sense, one cannot say that one reference system is at rest and the other is moving. Only the relative motion of the two systems to each other can be determined.

Rest and movement are not absolute concepts.