

relative time travel

The Urth list — 5 messages, 2 voices, 14 May 2011

<https://urth.darkrealm.vip/thread/urth/6011>

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Jeff Wilson — 14 May 2011, 05:33

See? I suppose this is why I get confused when they talk about travel in a wormhole being Time-travel. I got lost after your first sentence.

Let me try the train analogy. I'll number the steps for reference. You guys that already know this will see that I have abstracted numerous distracting features out of this account.

1. Each day, a train 600,000 km long (two light seconds) traveling north at 90% light speed pulls through a station 600,000 long without slowing.
2. This is being observed by an oppressed native from a very large distance off to one side. One day he notices the train has two new mail agents stationed at each end.
2. A hook at the head of the train picks up a bag of outgoing mail from the station. At the same time, the native observes a bag of incoming mail being picked off by a hook at the entrance of the station platform, and the station clock calls it 12:00:00 .
4. The native observes the light of the pick-up event travel from the front of the train toward the back of the train; they meet just a bit south of the middle of the platform just a bit over a second later. The station clock reads 12:00:01.
5. Later, the native observes the light from the drop=off event at the back reach the front of the train far north of the station. The station clock reads 12:00:20.
6. The mail agent at the front of the train sees the pickup happen, then drop-off happen much later.
7. The mail agent at the rear of the train sees the drop-off happen, then the pick-up happen a short time later.
8. The rookie mail agents meet for lunch in the dining car in the middle of the train and compare notes of their first day on the high-speed train. At first, each one thinks their mail transfer happened first, but...
9. ...allowing for the light-lag, the agent at the rear admits the one at the front must have happened about a second earlier than his so it's light could travel for two seconds and arrive a second afterward.
10. The agent at the front insists that it his transfer must have been more like 18 seconds ahead, because he saw the other transfer 20 seconds later, and the length of the train only accounts for two seconds.
- 11 The next day, the oppressed native calls on some pagan OT being for the power to travel instantaneously, and synchronizes his watch with the station clock, after accounting for the

time for light to travel to his position.

13. From his distant position, at 12:00:00, he travels instantly to the mail car at the front of the train and attacks the mail agent, felling him instantly. He then looks toward the rear of the train, and sees the other mail agent busy and distracted with the business of getting his mail bag ready to be snagged by a hook at the "next" station.

14. The oppressed native instantly travels to the rear of the train, and even allowing for a couple of seconds of light lag, as he arrives, he sees the second mail agent is still getting his bag ready. The oppressed native attacks and kills him, too.

15. The victorious native exults for a while but then, fearing the train may stop at this "next" station, travels instantly back to his original observation position.

16. He arrives, unnoticed by "another" oppressed native who is intent on a wristwatch and subsequently disappears in a puff of Molochian prayer.

17. Puzzled but not knowing how to investigate the "other" native's appearance, the native enjoys a victory beverage while waiting for the light of his triumph to arrive. He does a spittake when he sees himself attack the rear-end mail agent **before** the train reaches **this** station, and then **later** sees the front-end agent slain just as the front of the train emerges - in the reverse order of how he recalls the events.

More clear?

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Gerry Quinn — 14 May 2011, 15:08 · in reply to Jeff Wilson

From: "Jeff Wilson" <jwilson at io.com>

1. Each day, a train 600,000 km long (two light seconds) traveling north at 90% light speed pulls through a station 600,000 long without slowing.

I'm not sure your figures are right here...

If these are the lengths observed by the native (as it appears), then the rest length of the train is more like 1,400,000 km. The mail agents will take this into account when discussing who acted first. In their frame of reference the station is only 250,000 km long. Logic will force them to conclude that the pickup happened first.

Let's assume that they are going at only 86.7 % of c , so the time dilation factor is only 2. The train is 4 light seconds long. The station is 2 light seconds long, but they will observe it to have contracted to 1 light second long. So they will expect that the pickup will happen about 3 seconds before the drop off (a little more in fact as they are going at less than light speed, say 3.5 seconds).

6. The mail agent at the front of the train sees the pickup happen, then drop-off happen much later.

He sees the drop-off happen 7.5 seconds after he does the pickup.

7. The mail agent at the rear of the train sees the drop-off happen, then the pick-up happen a short time later.

He sees the pickup happen 0.5 seconds after he does the drop-off.

11 The next day, the oppressed native calls on some pagan OT being for the power to travel instantaneously, and synchronizes his watch with the station clock, after accounting for the time for light to travel to his position.

13. From his distant position, at 12:00:00, he travels instantly to the mail car at the front of the train and attacks the mail agent, felling him instantly. He then looks toward the rear of the train, and sees the other mail agent busy and distracted with the business of getting his mail bag ready to be snagged by a hook at the "next" station.

Okay. If he simply waited 7.5 seconds he would see the drop-off, but he doesn't have time. He briefly glances out the window and sees that the station clock reads 11:59:59 (it's a light second further away compared to his starting point), then he waits 0.2 seconds. He observes that the clock now reads 11:59:59.01 (he has travelled 0.18 light seconds further from the clock, and it is also running slowly in his frame of reference).

14. The oppressed native instantly travels to the rear of the train, and even allowing for a couple of seconds of light lag, as he arrives, he sees the second mail agent is still getting his bag ready. The oppressed native attacks and kills him, too.

Okay. While he waited 0.2 seconds at the front watching the clock, the train travelled 0.18 of a light second forward in the reference frame of the station. So from here the clock reads 11:59.59.19.

15. The victorious native exults for a while but then, fearing the train may stop at this "next" station, travels instantly back to his original observation position.

16. He arrives, unnoticed by "another" oppressed native who is intent on a wristwatch and subsequently disappears in a puff of Molochian prayer.

17. Puzzled but not knowing how to investigate the "other" native's appearance, the native enjoys a victory beverage while waiting for the light of his triumph to arrive. He does a spittake when he sees himself attack the rear-end mail agent *before* the train reaches *this* station, and then *later* sees the front-end agent slain just as the front of the train emerges - in the reverse order of how he recalls the events.

He's not all that surprised. He knows that the point where he killed the rear agent was 0.18 light seconds closer to him, so naturally he will see that happen first. He killed the agents at 12:00:00 and 12:00.00.1 respectively, so the light from the second killing arrives 0.08 seconds before that from the first.

- Gerry Quinn

Jeff Wilson — 14 May 2011, 21:22 · in reply to Gerry Quinn

On 5/14/2011 10:08 AM, Gerry Quinn wrote:

From: "Jeff Wilson" <jwilson at io.com>

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ahem. "You guys that already know this will see that I have abstracted numerous distracting features out of this account."

This example is adapted from Richard Morris' TIME'S ARROWS

http://www.amazon.com/Times-Arrows-Scientific-Attitudes-Toward/dp/0671617664/ref=sr_1_1?s=books&ie=UTF8&qid=1305407823&sr=1-1#reader_0671617664

you can search for "lightning" to find his version that dodges length contraction by having no background and no definite dimensions. I tried to include some of these to give the less accustomed posters fewer indefinite things to envision at once.

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Gerry Quinn — 14 May 2011, 23:08 · in reply to Jeff Wilson

From: "Jeff Wilson" <jwilson at io.com>

On 5/14/2011 10:08 AM, Gerry Quinn wrote:

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you can search for "lightning" to find his version that dodges length contraction by having no background and no definite dimensions. I tried to include some of these to give the less accustomed posters fewer indefinite things to envision at once.

I can search but it doesn't show me the pages. That's beside the point, though. Weren't you trying to show that travel via a wormhole is time travel? I don't think your illustration shows that. In particular, you say:

"16. He arrives, unnoticed by "another" oppressed native who is intent on a wristwatch and subsequently disappears in a puff of Molochian prayer."

Nope. He arrives after he left - in my example, 0.4 seconds after he left. He doesn't ever meet himself.

To get time travel from instantaneous movement, you need a more complicated situation AND certain assumptions involving the reification of some concepts from special relativity, which are not provable in our universe, and which would certainly be false in a universe in which instantaneous travel was possible.

- Gerry Quinn

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Jeff Wilson — 15 May 2011, 01:09 · in reply to Gerry Quinn

On 5/14/2011 6:08 PM, Gerry Quinn wrote:

I can search but it doesn't show me the pages. That's beside the point, though. Weren't you trying to show that travel via a wormhole is time travel?

The wormhole example is much simpler. The negative curvature makes a bridge between two portions of space-time, and time progresses identically as measured through the wormhole. Their subjective timelines remain connected one-for-one despite their relation to the objective, external universe's timeline.

So if the traveling terminus is accelerated such that it experiences a one year trip while observers see it gone for two years, today's traveling terminus is linked to the stationary terminus of a year ago, since it has also experienced a year apart.

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