

Sundial with "multitudinous faces"?

The Urth list — 25 messages, 9 voices, 12 May 2011

<https://urth.darkrealm.vip/thread/urth/6005>

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beet 31425 — 12 May 2011, 07:27

Hi folks-- first-time poster. Doing a pretty detailed re-read of New Sun.

I'm having trouble visualizing the sundial in the Atrium of Time. It's described as "one of those old, faceted dials whose multitudinous faces give each a different time." And later, there is a reference to "one of its gnomons", implying it has more than one. What kind of a sundial has multiple faces and gnomons? I'm having trouble visualizing it. Any thoughts?

btw, it's pretty cool that "Aspice ut aspiciar", translated as "Look on me that I might be looked upon", is an appeal made to the sun (not to a human bystander).

-Jason

Jeff Wilson — 12 May 2011, 08:26 · in reply to beet 31425

On 5/12/2011 2:27 AM, beet 31425 wrote:

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<http://www.harrietjames.sundials.co.uk/restoration.htm>

Jeff Wilson - jwilson at io.com

Computational Intelligence Laboratory - Texas A&M Texarkana

< <http://www.tamut.edu/CIL> >

Son of Witz — 12 May 2011, 13:22 · in reply to Jeff Wilson

I was asking the same question recently.

On the page Jeff linked to, there is one that looks almost like a cube with cut corners. I'd seen it, wondering how it could be a sundial. Well I think the photo I saw was without the restored gnomons. I thought it looked like a good contender for the Multi-faceted form, but I couldn't see how it was a sundial. This picture makes it clear. Thanks.

I love the idea that it's become its own gnomon. Meta-Level-Alert!

On May 12, 2011, at 1:26 AM, Jeff Wilson <jwilson at io.com> wrote:

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Antonin Scriabin — 12 May 2011, 13:28 · in reply to Son of Witz

Here are some decent pictures of multifaceted sundials with multiple gnomons:

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<http://www.liverpoolmuseums.org.uk/nof/sun/access/images/sd3a.jpg>

On Thu, May 12, 2011 at 9:22 AM, Son of Witz <[Sonofwitz at butcherbaker.org](mailto:Sonofwitz@butcherbaker.org)> wrote:

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Antonin Scriabin — 12 May 2011, 13:33 · in reply to Antonin Scriabin

One of the pictures is from this website:

http://www.liverpoolmuseums.org.uk/nof/sun/access/sd3_moreinfo.html

This explains quite a lot about how such sundials work. Pretty fascinating! The only quirk is that this particular one was more of a design and engineering feat, since all the faces were to show the same time at a given moment, while the one described by Severian shows different times on different faces. I suppose it would not be too hard to configure the different sides so that they give times with a specific differentiation, so that you could know the time elsewhere on the planet.

On Thu, May 12, 2011 at 9:28 AM, Antonin Scriabin
<kierkegaurdian at gmail.com> wrote:
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Thanks for the pictures, and thanks for the page that describes what a multi-faceted sundial might actually be used for. I wouldn't quite say of these sundials that each face tells "a different time" as Severian does; I wonder if they're purposely configured that way (as Antonin suggests), or if perhaps they just don't work very well billions of years in the future.

(At any rate, on a symbolic or mood-setting level, this bizarre image of multiple, contradictory times is another touch-- like the archaic words-- that serves to make the connection between Severian's time and ours obscure and unfathomable.)

-Jason

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Son of Witz — 12 May 2011, 16:29 · in reply to Antonin Scriabin

Thanks for that page.

I don't know, I think the description could fit, in that each face DOES give a different time, in that the each have a specific time range. Each has some patch of hours.

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Gwern Branwen — 12 May 2011, 16:30 · in reply to Son of Witz

On Thu, May 12, 2011 at 12:29 PM, Son of Witz

<Sonofwitz at butcherbaker.org> wrote:

I don't know, I think the description could fit, in that each face DOES give a different time, in that the each have a specific time range. Each has some patch of hours.

It occurred to me that the sundials probably date back to Urth's interstellar empire if not earlier. Maybe they tell times on different
worlds.

gwern

<http://www.gwern.net>

Dan'l Danehy-Oakes — 12 May 2011, 16:34 · in reply to Gwern Branwen

On Thu, May 12, 2011 at 9:30 AM, Gwern Branwen <gwern0 at gmail.com> wrote:

It occurred to me that the sundials probably date back to Urth's interstellar empire if not earlier. Maybe they tell times on different
worlds.

I don't see how you could do that - a sundial is limited to a 24-hour cycle (during about half of which it isn't showing anything).

Dan'l Danehy-Oakes

James Wynn — 12 May 2011, 17:59 · in reply to Dan'l Danehy-Oakes

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I would think you could. Any regular tick-tock could analogize a time using a different synch. It would be incredibly complex though since a day somewhere else would be represented by more or less than a single cycle of the sun.

However, doesn't Relativity eliminate the meaning of synchronous time for locations separated

by many lightyears? I'm not an expert on this but it seems I read something that implied that. For example, traveling in a worm-hole (such the ones in the Stargate franchise) is actually Time-travel as well.

J

Dan'l Danehy-Oakes — 12 May 2011, 18:03 · in reply to James Wynn

On Thu, May 12, 2011 at 10:59 AM, James Wynn <crushtv at gmail.com> wrote:
I would think you could. Any regular tick-tock could analogize a time using a different synch. It would be incredibly complex though since a day somewhere else would be represented by more or less than a single cycle of the sun.

Well, that was my point...

However, doesn't Relativity eliminate the meaning of synchronous time for locations separated by many lightyears? I'm not an expert on this but it seems I read something that implied that. For example, traveling in a worm-hole (such the ones in the Stargate franchise) is actually Time-travel as well.

If there's FTL travel then some aspect of relativity is untrue.

But: taking relativity at face value, there is no such thing as "time travel" -- or for that matter "space travel." There is only spacetime travel through a four-dimensional manifold. To move to another point in space is to move to another point in spacetime, and so to travel in spacetime. To move to another point in time while standing still, as one does at a rate of one second per second, is also to move to another point in spacetime. The problem is _why_ time is different and can't be navigated at-will the way the other three dimensions can, and no satisfactory answer to that has yet been proposed.

Dan'l Danehy-Oakes

James Wynn — 12 May 2011, 18:32 · in reply to Dan'l Danehy-Oakes

Dan'l Danehy-Oakes wrote:
If there's FTL travel then some aspect of relativity is untrue.

I understood that only traveling @Lightspeed that was contrary to relativity and that that was the problem wormholes were supposed to circumvent?

Dan'l Danehy-Oakes wrote:
The problem is _why_ time is different and
can't be navigated at-will the way the other three dimensions can, and
no satisfactory answer to that has yet been proposed.

Unless space-time is deterministic, in which case we only THINK we move through space at will.

J

Jerry Friedman — 12 May 2011, 20:00 · in reply to James Wynn

From: James Wynn

Gwern: > >> It occurred to me that the sundials probably date back to Urth's
interstellar empire if not earlier. Maybe they tell times on different
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It would have to be magic. Sundials don't have a regular tick-tock.

However, doesn't Relativity eliminate the meaning of synchronous time for locations separated by many lightyears?

There's no problem if they're not moving at relativistic speeds with respect to each other (contrary to occasional double-talk that Poul Anderson permitted himself).

So maybe not different worlds, but different whorls. If a generation starship's day is the same length as Urth's, it's no problem. Having a different face instead of a different scale of hours is showing off, but obviously people have done that. (Thanks to all who linked to the interesting photos.)

I'm not an expert on this but it seems I read something that implied that. For example, traveling in a worm-hole (such the ones in the Stargate franchise) is actually Time-travel as well.

If you can get from one place to another faster than light, as with a wormhole, then you **can** use that to travel faster than light.

Jerry Friedman

James Wynn — 12 May 2011, 20:35 · in reply to Jerry Friedman

I would think you could. Any regular tick-tock could analogize a time using a different synch. It would be incredibly complex though since a day somewhere else would be represented by more or less than a single cycle of the sun.

Jerry Friedman wrote:

It would have to be magic. Sundials don't have a regular tick-tock.

Sure they do. It's the yearly cycle of the sun. And that cycle (and fractions of it) can be used to synchronize anything.

I'm not an expert on this but it seems I read something that implied that. For example, traveling in a worm-hole (such the ones in the Stargate franchise) is actually Time-travel as well.

Jerry Friedman:

If you can get from one place to another faster than light, as with a wormhole, then you **can** use that to travel faster than light.

But I got the idea somewhere that the actual mathematics of the wormhole theory does not allow you to cheat Relativity, so that the farther you travel (that is, the greater the actual distance of your destination) then your speed is all the faster than FTL travel and you therefore (likely) move back further in Time as well. It's just that when you return, you move the other way in Time so you don't notice.

Of course, I might have been taken in by metaphor: They could have been actually saying that if you travel instantaneously to a distant star, you are moving FORWARD in Time since the star we can see from Earth is some number years ago. Or something along those lines.

Anyway, it's probably not physically possible even if you could muster the near infinite energy to do it. There's all that Space being constantly created between us and the stars. We have enough trouble maintaining RF connectivity. Can you imagine the problems establishing a

physical connection between two distant locations? Too bad because I really want one of those doors from "Howl's Moving Castle".

J

PS Incidentally, it's very annoying for me to watch movies that involve FTL travel. They never plot the Time distortions caused by their daily job. Captain Kirk spends months in Warp and never gets back to Earth just after he left (except when he goes back to 1968).

Jeff Wilson — 13 May 2011, 05:22 · in reply to Dan'l Danehy-Oakes

On 5/12/2011 11:34 AM, Dan'l Danehy-Oakes wrote:

On Thu, May 12, 2011 at 9:30 AM, Gwern Branwen<gwern0 at gmail.com> wrote:

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I don't see how you could do that - a sundial is limited to a 24-hour cycle (during about half of which it isn't showing anything).

The animal statues in the atrium suggest a degree of ornamentation that might include curved reflectors that transform the various motions of the earth with regard to the sun into a series of curves with arbitrary periods through a sufficiently advanced application of analytical geometry. IIRC The Astronauts' Memorial at the Kennedy Space Center uses a similar principle to illuminate the names of the the Apollo I and Challenger crews and a few others on the appropriate anniversary dates, and is located close by the Rocket Garden, hint hint.

http://als.wikipedia.org/wiki/Datei:KSC_Rocket_Garden.jpg

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< <http://www.tamut.edu/CIL> >

Jerry Friedman — 13 May 2011, 17:47 · in reply to James Wynn

From: James Wynn crushtv at gmail.com

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Jerry Friedman wrote:

It would have to be magic. Sundials don't have a regular tick-tock.

Sure they do. It's the yearly cycle of the sun. And that cycle (and fractions of it) can be used to synchronize anything.

But there are no moving parts ticking that you can attach something too.

I guess you could have a photocell on the dial that notes when the shadow passes it (and distinguishes that from clouds and from shadows of random apprentices). Those times could be fed to a microprocessor that translates this timing to the period of some other planet and manipulates the gnomon, dial, or light source of another sundial to fake the time in some zone of another planet. But it all seems rather rococo and unreliable, even for the Citadel.

Let me try to explain the same thing as Dan'l and Sergei. When the sun is at a certain place in the sky (I mean when Urth is aiming the Citadel at a certain angle to the sun), the sundial will

show a certain time. A day later, the sundial will show a similar time, and 365 days later [*], an even more similar time. But if it was morning on Mongo during the first reading, there's no reason for it to be morning on Mongo at the later two readings, since Mongo's day presumably isn't the same length as Urth's.

[*]?You'd do even better?1461 days later, since the year isn't a whole number of days.

I'm not an expert on this but it seems I read something that implied that.

For example, traveling in a worm-hole (such the ones in the Stargate franchise) is actually Time-travel as well.

Jerry Friedman:

If you can get from one place to another faster than light, as with a wormhole, then you *can* use that to travel faster than light.

Sorry, you can use that to travel *backwards in time*.

But I got the idea somewhere that the actual mathematics of the wormhole theory does not allow you to cheat Relativity, so that the farther you travel (that is, the greater the actual distance of your destination) then your speed is all the faster than FTL travel and you therefore (likely) move back further in Time as well. It's just that when you return, you move the other way in Time so you don't notice.

Of course, I might have been taken in by metaphor: They could have been actually saying that if you travel instantaneously to a distant star, you are moving FORWARD in Time since the star we can see from Earth is some number years ago. Or something along those lines.

I don't understand the mathematics of wormholes. What you're talking about seems to involve definitions and maybe indeed metaphor.

Anyway, it's probably not physically possible even if you could muster the near infinite energy to do it.

So true.

There's all that Space being constantly? created between us and the stars. We have enough trouble maintaining RF connectivity. Can you imagine the problems establishing a physical connection between two distant locations? Too bad because I really want one of those doors from "Howl's Moving Castle".

J

PS Incidentally, it's very annoying for me to watch movies that involve FTL travel. They never plot the Time distortions caused by their daily job. Captain Kirk spends months in Warp and never gets back to Earth just after he left (except when he goes back to 1968).

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Jerry Friedman

Jeff Wilson — 13 May 2011, 18:05 · in reply to Jerry Friedman

On 5/13/2011 12:47 PM, Jerry Friedman wrote:
From: James Wynn crushtv at gmail.com

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Is it the same time everywhere on Mongo at once? :)

Of course, I might have been taken in by metaphor: They could have been actually saying that if you travel instantaneously to a distant star, you are moving FORWARD in Time since the star we can see from Earth is some number years ago. Or something along those lines.

Since the rate of time's progression is relative, you can't say travel is instantaneous without saying in which frame of reference it is measured as instantaneous. Since other, equally valid frames of reference measure the time between your departure and your arrival as having finite, you can switch over to a frame where it was negative, and do the instantaneous thing in that one, then find one where that was negative, and do it again, etc., and that's how you end up returning before you left.

Well, if there's FTL travel, then something is wrong with relativity (as I think Dan'l said), so we don't have a basis to say what would happen.

There are numerous relativity-compatible physics models that seem to allow for time travel, but explain the lack of observed time travel by positing it requires improbable arrangements of high-unobtainable resources. Robert L Forward's negative mass as dramatized in his novel TIMEMASTER is once example: matter whose density is negative causes a negative curvature of space-time, opposing the positive curvature from positive mass, among other weird things, but complies with all known physical laws.

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James Wynn — 13 May 2011, 19:18 · in reply to Jeff Wilson

Jerry Friedman wrote:

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I don't see why this seems unimaginable. The vibration rate of a quartz crystal is no less random a time-keeping sequence than the cycle of the Urth around Sol. A sun-dial that monitored the time on another planet would be extremely complex, and --for civilization that can travel to other stars-- more of a curiosity than an object of utility. But there is no reason that it would not be possible (as long as the other planet had a stable orbit). I don't really think that Wolfe ever considered what the various sun-dials monitored. They had symbolic value only.

Jeff Wilson wrote:

Is it the same time everywhere on Mongo at once? :)

Obviously this is an issue with any set of synchronized clocks, not just sun-dials. Presumably, in the case under discussion, it would tell the time at a major city on another planet.

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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.

J

Jerry Friedman — 13 May 2011, 19:26 · in reply to Jeff Wilson

From: Jeff Wilson <jwilson at io.com>

On 5/13/2011 12:47 PM, Jerry Friedman wrote:

From: James Wynn crushtv at gmail.com

Let me try to explain the same thing as Dan'l and Sergei. When the sun is at a certain place in the sky (I mean when Urth is aiming the Citadel at a certain angle to the sun), the sundial will show a certain time. A day later, the sundial will show a similar time, and 365 days later [*], an even more similar time. But if it was morning on Mongo during the first reading, there's no reason for it to be morning on Mongo at the later two readings, since Mongo's day presumably isn't the same length as Urth's.

Is it the same time everywhere on Mongo at once? :)

SF lore:

<http://books.google.com/books?id=92TqYdj56TcC&pg=PA146>

I did make this mistake when talking about time on the Whorl in an earlier post.

Of course, I might have been taken in by metaphor: They could have been actually saying that if you travel instantaneously to a distant star, you are moving FORWARD in Time since the star we can see from Earth is some number years ago. Or something along those lines.

Since the rate of time's progression is relative, you can't say travel is instantaneous without saying in which frame of reference it is measured as instantaneous. Since other, equally valid frames of reference measure the time between your departure and your arrival as having finite, you can switch over to a frame where it was negative, and do the instantaneous thing in that one, then find one where that was negative, and do it again, etc., and that's how you end up? returning before you left.

That's what I was thinking of.

Well, if there's FTL travel, then something is wrong with relativity (as I think

Dan'l said), so we don't have a basis to say what would happen.

There are numerous relativity-compatible physics models that seem to allow for time travel, but explain the lack of observed time travel by positing it requires improbable arrangements of nigh-unobtainable resources. Robert L Forward's negative mass as dramatized in his novel TIMEMASTER is once example: matter whose density is negative causes a negative curvature of space-time, opposing the positive curvature from positive mass, among other weird things, but complies with all known physical laws.

Except the law that says there's no negative mass.

I just made that law up, but sometimes the way these things work is that they have no known conflict with physical laws for a while, and then somebody looks harder and finds one. For instance, Tipler's rotating cylinders seemed to work till somebody found that the "closed time-like loops" were entirely within the event horizon, as I recall.

Jerry Friedman

Dan'l Danehy-Oakes — 13 May 2011, 19:43 · in reply to Jerry Friedman

On Fri, May 13, 2011 at 12:26 PM, Jerry Friedman

<jerry_friedman at yahoo.com> wrote:

For instance, Tipler's rotating cylinders seemed to work

till somebody found that the "closed time-like loops" were entirely within the event horizon, as I recall.

If I recall correctly the spoiler for Tipler cylinders was Hawking's proof that it would require negative energy in some areas of the local spacetime.

Dan'l Danehy-Oakes

James Wynn — 13 May 2011, 19:56 · in reply to Dan'l Danehy-Oakes

If I recall correctly the spoiler for Tipler cylinders was Hawking's

proof that it would require negative energy in some areas of the local spacetime.

Yeah. And if we had negative energy and negative mass, we'd probably be going backwards in Time anyway.

J.

Jeff Wilson — 14 May 2011, 04:51 · in reply to Jerry Friedman

On 5/13/2011 2:26 PM, Jerry Friedman wrote:

From: Jeff Wilson<jwilson at io.com>

There are numerous relativity-compatible physics models that seem to allow for

time travel

Except the law that says there's no negative mass.

I just made that law up, but sometimes the way these things work is that they

If and when that come to pass, there will be slightly fewer methods of time travel that don't violate known laws. This number may recover as further new discoveries are made.

Jeff Wilson - jwilson at io.com
Computational Intelligence Laboratory - Texas A&M Texarkana
< <http://www.tamut.edu/CIL> >

David Duffy — 16 May 2011, 11:15 · in reply to Antonin Scriabin

I'm not sure if anyone has posted:

<http://sffmasterworks.blogspot.com/>

Scurries through in six and a half thousand words, ending

"I know I did not touch upon everything and that some of my interpretations certainly can be challenged. Nonetheless, a work like this deserves nothing less than honest people arguing over matters of interpretation, no?"

Cheers, David Duffy.

Jeff Wilson — 16 May 2011, 16:52 · in reply to David Duffy

On 5/16/2011 6:15 AM, David Duffy wrote:
I'm not sure if anyone has posted:

<http://sffmasterworks.blogspot.com/>

Scurries through in six and a half thousand words, ending

"I know I did not touch upon everything and that some of my interpretations certainly can be challenged. Nonetheless, a work like this deserves nothing less than honest people arguing over matters of interpretation, no?"

"The storyline is again resumed after yet another break in the action. "

Just a thought, has anyone ever suggested that the gaps are meant to represent missing volumes of Sev's autobiography, damaged or lost entirely along the way back from future history?

Jeff Wilson - jwilson at io.com
Computational Intelligence Laboratory - Texas A&M Texarkana
< <http://www.tamut.edu/CIL> >

David Duffy — 17 May 2011, 00:43 · in reply to Jeff Wilson

On Mon, 16 May 2011, Jeff Wilson wrote:
Just a thought, has anyone ever suggested that the gaps are meant to represent missing volumes of Sev's autobiography, damaged or lost entirely along the way back from future history?

That is definitely the case for Latro.

Cheers, David Duffy.