

Time zones are about space

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This post originally appeared on a web forum dedicated to decimal time keeping systems, sometime in 2004. The notion that we ought to abolish time zones because it's simpler if everyone uses the same time really was a thing at the time. I put it here mostly because I like the clock idea.

In 1998 (Gregorian time) the Swiss watch company Swatch introduced "Internet Beat Time," in the presence of Internet guru and MIT Media Laboratory director Nicholas Negroponte. The suggested benefits with Internet Beat Time is that it divides the day into 1000 "beats," and hence is decimal, and that it did away with the annoying time zones, that are a hassle to keep track of. In the spirit of Internet coming-together-ness, we would all be able to use the same time, wherever on the globe we are.

In a CNN article about Beat Time, an interviewed software developer said: "It's a clever idea. I mean we have developers in London and Geneva, and I guess it could come in handy if I wanted to call them at a certain time and not wake them up or something."

So why have we used these silly and complicating time zones all this time, if it's so much simpler to use a single time for the whole globe?

The truth is that there already is a single, universal time that is the same for the whole world. It's called UT or UTC, (Coordinated) Universal Time. Basically, it's Greenwich Mean Time, the time on the zero meridian in England. But although some businesses, like banks, use it, there has been no movement to use it in our daily lives, as a replacement for our time zone-adjusted clocks. (Additionally, computers use UT. Any correctly configured computer can give you the correct Universal Time. No Swatch watch needed.)

The reason is that cyclic earth time, that is calendars and clocks, are about space, not time. We live our lives according to astronomical, cyclical motions, the

rotation of the earth around the sun, but especially the rotation of the earth around its own axis. The significance of the time of the day, is as an indicator of where we are in the earth's axis rotation. If I don't know where in that rotation a certain time is, knowing the time is of little use to me. I can tell if it's been five minutes since I last checked the clock, but I have no idea if it's night or day, if it's bedtime or lunchtime. The meaning of 12 o'clock is that I am now on the part of the globe that faces the sun.

In the same manner, most calendars tell us where we are in earth's rotation around the sun. When I look at a calendar, I want to know if it's time to sow or reap, put on the winter tires or put the boat back in the water. This is decided by the earth's position in that rotation.

It's just a coincidence that one of these rotations takes some particular amount of time. When we start to focus on these time units, instead of the astronomical events they were designed to keep track of, we reduce the system to one we can only use to tell relative time difference between two events. This is a useful function, but not as important as the system's main function, to tell whether it's night or day, summer or winter.

So, I think it's fair to say that the software developer above is a little confused. With a universal clock, he would know what time it is in Geneva, but he would have no idea what that time means. It becomes an arbitrary number containing no information about night or day. This is a small problem between London and Geneva, so let's pretend he needs to communicate with Singapore instead.

When it's 9 o'clock Beat Time in London, our friend knows that it's 9 o'clock in Singapore as well. But if he wants to avoid waking them up, as he says, knowing that doesn't help him. To do that, he must figure out what 9 o'clock means in Singapore. So, he needs to check the distance between London and Singapore, and see where that puts Singapore in relation to the earth's rotation around its axis.

What he's doing is basically looking up Singapore's time zone. Time zones aren't artificial constructs. They are part of the nature of cyclic earth time, and some kind of time zones are unavoidable. To illustrate how earth time is all about space, we could construct a clock that shows the time, and shows it for all time zones at once, but that is a model of earth's axis rotation. We could build this using an ordinary clock mechanism, and just change the clock face and hands.

First, we need to make the small hand move at half its normal speed, so it completes one lap around the clock face in one full, 24 hour day. Then, remove the big hand of the clock. Replace the small hand with a disc, picturing the earth seen from "above," that is with the north pole facing us. You could indicate on this

picture where on the globe the large cities are situated. Paint a sun on the clock face where 12 would be, and there you have it. The clock is really a model of the earth rotation. Looking at the illustration below you can see that it becomes trivial to keep track of the time all over the planet. The shading to (roughly) indicate night time can be done on the clock's glass cover.

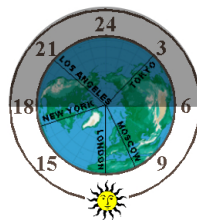


Figure 1: A clock is a model of the earth's rotation around its axis. It can also be seen as a map of a section of space always facing the sun, used as a reference system.

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