# Perspectives on the field of time travel in addition to various other subjects

Recently I had been playing a VN named **Steins; Gate**, giving me a new view on what, theoretically, time travel could be, the implications of it and how we can approach time travel in the future. Let's start by looking at how the concept of the universe is approached in the VN. The universe revolves around the hypothetical **Everett-Wheeler model**, however with some amendments. The universe is made up of an infinite amount of 'worldlines', with said worldlines being made up of an infinite amount of alternate worlds. An easier way to approach this is imagine that an alternate world is a piece of yarn, with a worldline being a larger piece of yarn being made up of an infinite amount of said smaller pieces of yarn, all intertwined to make one large worldline. The 'intertwine' part is interesting, as subworldlines (I shall be referring to the smaller pieces of yarn as subworldlines, or subworlds, from this point onwards for conciseness' sake) converge on each other through so-called **'Attractor Fields'**, which are essentially events which happen in every subworld in that worldline. This is the basis of the **Everett-Wheeler model**. The existence of such theories may not be new to some, as the same model is named in the posts of **John Titor**, a user on the Time Travel Institute and Art Bell's Post-to-Post forums from the year 2000 to 2001. This alleged time traveller posted about how he arrived in the year 2000 in a time machine (more on that later) and previously in the year 1975 to recover an **IBM 5100** [1] to debug programs accessible only with the 5100- Titor had claimed to have arrived from the year 2036, when 5100's did not exist anymore (presumably due to have been destroyed). He also revealed details of the 5100's hidden functions, such as a proprietary programming language which only the 5100 could use, later confirmed by former IBM employees. A significant part of his forum posts also included warnings about variant Creutzfeldt-Jakob disease[2], also known commonly as mad cow disease. While it remains an incredibly rare illness, cases became much more prevalent from the year 2000 to 2004, however the point still stands. How did Titor know, or knew what was going to happen? Most people nowadays would write the whole incident, if one could call it that, as a hoax however one can, for the sake of a thought experiment, assume the predictions were not simply random guesses, and the predictions that *didn't* come true were a result of Titor appearing in 'our' subworld, which leads neatly into my next topic of **divergence**. Divergence, as a theory relating to the Everett-Wheeler

*Figure 1, an IBM 5100 computer with integrated tape deck.*

[1] Figure 1.

[2] Variant Creutzfeldt–Jakob disease (vCJD) is a rare neurodegenerative disease usually transmitted by consuming beef products contaminated with bovine spongiform encephalopathy (BSE). It is commonly known as 'mad cow disease'.

model, is a measurement of how far one is from their 'original' subworld, being measured for example in the VN as a percentage, with a percentage of zero denoting that the person observing the subworld is in their 'original' subworld (for conciseness' sake I shall call the original subworld the 'alpha' subworld). While a time traveller from a different subworld would be observing a divergence of greater than zero, anyone other than the traveller would observe a divergence of zero due to 'originating' from the timeline in which they are viewing the divergence – that is to say, their alpha subworld. This causes conflicting perceptions[3]. While on the surface this may be a minor problem, it could theoretically lead to a paradox due to said conflicting perceptions. This is impossible if we consider the Novikov self-consistency conjecture, which states that if an event could lead to or cause a paradox, the probability of the event is zero, therefore making it impossible for paradoxes to occur. This would mean either: a) the ability to travel through time is impossible (in the universe where the traveller observes divergence) due to causing conflicting viewpoints, or b) the act of observing divergence is impossible due to causing a paradox. Such other examples of paradoxes involving the conjecture of self-consistency includes Polchinski's paradox[4], which is a potentially paradoxical thought experiment in which a billiard ball is launched into a wormhole at such an angle in which it travels through time if it continues along the same trajectory that it was launched at it would hit its' past self, therefore preventing the ball from ever entering the wormhole. There are multiple self-consistent solutions, including one developed by Fernando Echeverria and Gunnar Klinkhammer which uses a revised version of the scenario where the ball emerges from the wormhole at a different angle than the angle it was shot in at, leading to the ball that travelled giving its younger self which was being originally launched into the wormhole a glancing shot, therefore allowing the younger ball to enter the wormhole at the resultant angle the older ball exited at[5]. Later developments showed that there was an infinite amount of self-consistent resolutions for an infinite amount of angles. However, the principle of self-consistency assumes that there is only one timeline and that if the Everett-Wheeler model holds true said subworlds and worldlines are inaccessible. This

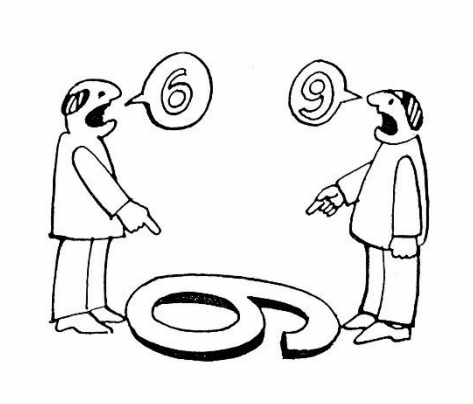


*Figure 2, a simple example of people perceiving different things.*

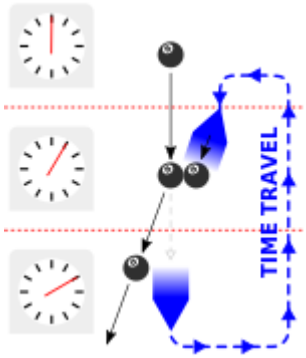


*Figure 3, Polchinski's paradox.*

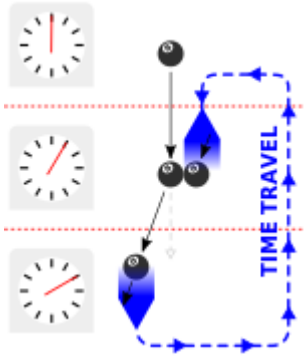


*Figure 4, the Echeverria-Klinkhammer resolution*

[3] Figure 2.
[4] Figure 3.
[5] Figure 4.

means if we are thinking that the Everett-Wheeler model holds true, we can disregard the principle of self-consistency *if* we assume that time travel is not possible. This, again, leads nicely into my next, large topic of travelling through time alone. I will not be discussing travelling through both space and time by itself due to it being largely lumped into most theories on time travel. There are, at this point in time, a few feasible methods of TT (again, from this point onwards I shall be referring to time travel as TT for conciseness' sake), some of which I shall be discussing further in this document. To begin, I shall be discussing both wormholes and exotic matter. Wormholes, as you may already know, are 'tunnels' in spacetime between one point in space and another. Objects passing through wormholes reach or exceed the speed of light instantaneously or near-instantaneously transporting the object to the other end of the wormhole. This is quite excellent, as it allows for an easy way to travel both space and time without any supermassive or otherwise difficult to achieve structures or constructions. While this is all very well and good, there are two problems:

- ① Wormholes need to be proven to exist and be located, which in of it can be difficult to do with our current technologies. This is the lesser problem.
- The greater problem is ② the fact that to achieve full or greater-than lightspeed objects must have an incredible amount of energy even at a mass that may seem miniscule to us (e.g., a gram). The only logical explanation to this is that wormholes can only exist at the "end" of a black hole. As we all know black holes compress, or to use the technical term spaghettify objects which "fall" into the grasp of the black holes. This would essentially enable travel through a wormhole; however, the obvious problem is the spaghettification.

To solve this, one can introduce the idea of exotic matter. Exotic matter, while being purely theoretical, are materials with a negative mass - this would essentially 'cancel out' the compressive effect of the black hole, therefore enabling feasible travel through wormholes. Of course, this theory can be neither confirmed nor denied as there is no proof (or dis-proof) that exotic matter exists. We can now move on to the discussion of the next theory on travel through time, and a rather interesting one at that. This theory, which I shall name 'Memory Pre-Plantation', or MPP. This is my personal theory, and it proceeds as follows:

- The subject's memory data is scanned through the use of a device which can analyse the brain to such an extent that memories and knowledge stored in the brain can be processed as data.
- The memory data (which I shall further refer to as memdata) is sent to the past by a means of transferring data to the past.
- This 'leap' of memdata is transferred to your past self, essentially allowing you to relive any events which happened between the date of the leap and the date to which you leapt.

While this is certainly a way to travel through time, again there are problems with this.

- A machine that can transfer data to the past must be invented. While this task is not as daunting as creating a 'pure' time machine, this is still difficult obviously due to, well, transmitting anything to the past is difficult.
- Now assuming that we have a data springboard, we now need to approximate how large a full backup of a persons' memory would be. Let us assume that the subject is an exactly 18-year-old: they would have lived 6.570 days, or 9.460.800 minutes. Current estimates of such memdata from an eighteen-year-old come to entire exabytes of data, which are impossibly large by today's standards- even one exabyte is one billion gigabytes, therefore making full storage of memdata not possible at this day and age.
- If we do manage to send over the memdata, or at least a useful amount of it, there is no way of 'securing' the recipient of the data; one can only trust chance if you were to send over data from an earlier timeframe would be received by your past self and not by someone else.
- Linking into the previous point, said method of 'time travel' if one could even call it that, is only able to go as far back as the creation of the leap machine, which is a huge limitation.

Taking all of this into consideration, which is the 'true self': the one who sent their memdata into the past to be received by the past, or the receiver themselves in the past? This can be explored further in a thought experiment: a dying man on his deathbed decides to transfer his memdata to his past self 60 years ago, after which he shortly dies. His 30-year-old self now receives those memories from sixty years in the future from his now-dead future self. Which is the 'real' person- the dead future or the living self? This entices the idea of a simulacra, the idea of a copy (of something) without an original— is the living self a simulacra in of itself due to the dead future not existing yet? One can only hypothesise, for the future holds only untold beasts of mystery.

From this, I would like to move away from the subject of time travel and move onwards to a discussion about the 'self'. As far as modern technology and research has reached, the self is a collection of one's memories and experiences; memdata and all. Therefore, if one was to create an indistinguishable replica of the self with complete memdata, which would be the 'true' self? Is the 'self' comprised of one's personality? What *is* 'personality'?

The idea of simulation is one not rarely discussed in academia. The expansion of artificial intelligence, neural networks and such in these

times is exponentially growing, with obvious rising fears that these could replace humans in various fields. One such sector which relies heavily on the ‘human touch’ however is psychiatry, specifically therapeutic work and the like. A common argument amongst the various employees in these jobs are that to understand the human psyche one must be human themselves, therefore making human intelligence (as opposed to artificial) irreplaceable in these situations. If, however, one were to create a perfect simulation of a human being inside of a program or otherwise, would there be any distinction between human and artificial intelligence if one is an exact simulation of the other. Therefore, this line between the real and the hyperreal and entices the idea of the simulacra existing as a sentient being.