**Block time and the Teletransporter Problem**

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**Abstract**

**Based on the success of Einstein’s theories of relativity it has become a prevalent view that past, present and future equally exist in a block universe. However, block time is in contradiction with our experience, where the present appears to exist in a way that other times do not. Here I propose that this contradiction can be resolved by recognising that the special status of the present results from the illusion of self-permanence. If a different self exists in the past, present and future then the special status of the present is explained in a block universe.**

1. Block time

In the ordinary view of time (that defines our grammar) time is split into three distinct regions called past present and future. What was the present becomes the past, and what was the future becomes the present. This view is formalised in presentism, which holds that only the present exists.

However, presentism is difficult to reconcile with Einstein’s theories of relativity. For example, The Special Theory of Relativity shows that absolute simultaneity does not exist. With the right arrangement of reference frames, two observers can agree that one event is happening now (in the present) but disagree about another event. If all reference frames are equally valid, and it is a premise of relativity that they are, then it follows that both observers are correct. If it is maintained that only events in the present exist then existence becomes observer dependent.

Based on these arguments block time has become the standard philosophical theory of time. In this theory past and future events (from a particular reference frame) are as real as present ones. Time is one of the dimensions in an eternal 4D block-universe. The arguments for this were laid out formally by Rietdijk and Putnam and have been expanded on by many since.(Rietdijk [1966]; Putnam [1967])

Nevertheless there have been persistent objections to block time. Most significantly, block time is in apparent contradiction with our experience. We experience now rather than 10 minutes ago, but given that 10 minutes ago is as real as the present it is not obvious why this should be the case. Block time being counter to our experiential intuition is the most significant objection against it. Lucas summarised the problem well:(Lucas [1989])

*The Block universe gives a deeply inadequate view of time. It fails to account for the passage of time, the pre-eminence of the present, the directedness of time and the difference between the future and the past*

It is these failings that need to be addressed. We take it for granted that we do not directly experience the past. The past is over and does not exist now. However, this is at the heart of the contradiction. Modern physics implies that the past does exist, so why does the past-self not seem to exist in experience?

2. The Teletransporter Problem

 The teletransporter problem is at the heart of the philosophical understanding of self. In this thought experiment, a material copy of a person is made at the same time as the original is destroyed. On one account this situation is no different to ordinary survival. A person continues to exist with the same memories, intentions, and apparent first person experience. There is psychological and physical continuity. However, if we suppose there was a teleporter malfunction and the original copy is not destroyed, there is a contradictory set of implications. The result would be two distinct people and we can imagine ourselves in the situation of the original person after the copy has been made. It seems that correcting the malfunction by destroying the original person would be identical to death from their first person perspective.

Parfit discusses this problem in detail (Parfit [1984]). If we take the reductionist materialist account of teletransportation then there can be no distinction from ordinary survival. The material body and the material mind continue to exist, and consequently the person continues to exist as normal. At the same time there is a question of direct experience to be explained. In the case of the malfunction, it would not be much comfort to the original copy to detail their continued material existence. The result is a contradiction: the malfunction thought experiment says that during teletransportation a person ceases to exist, however materialism says that creating the copy is sufficient for the person to continue to exist.

Parfit reconciles these views by concluding that the materialist account is correct that teletransportation is identical to ordinary survival, but in the negative sense: the contradiction is resolved by removing the assumption that a person continues to exist in either case. If a teletransported copy is a new person, then so is the future state of someone in ordinary survival. In Parfit’s terms “ordinary survival is about as bad as being destroyed and replicated”.

The terminology of calling the past or future state of a person a “different person” has been the subject of much debate and so requires clarification. Past and present states of a person are the same in that they have psychological and usually material continuity with each other. However, the teletransportation problem shows that this account does not capture everything we mean by personhood. A copy of you has psychological continuity with the past you, but we have no hesitation in distinguishing two copies as different people. This is because they (presumably) would not share the same direct experience. If we distinguish the copies *a* and *b* as “different people”, then we cannot call their shared past version *c* the “same person” as *a* and *b*  without violating the law of identity. We either have to call the copies the same person or acknowledge that past and present states are not the same person. Fundamentally this arises because the past and present you are distinct in the conventional way that we distinguish people from each other: they have separate direct experience.

3. A Parfitian account of block time

If the block time view is correct then there are significant consequences for the status of the self. First, it is posited that experiences are events in space time. Most obviously this follows from materialism with the correspondence of experience to brain states. Block time affirms that all space-time events coexist. Consequently, it follows that the past you is (grammar aside) experiencing your past in the same way that you are experiencing the present. These experiences are evidently separate to those of your present self. Your past self exists as a real person with their own real experiences. This account is Parfitian despite having been derived totally separately from Parfit’s thought experiments.

This Parfitian account of personhood also offers explanatory power. If the “you” that existed 5 minutes ago is a distinct self, then it is explained why you (in the present) do not have their experience. The past “you” and the present you are in a different place in time rather than space, but otherwise the phenomenon is the same as normal: separate people have separate experiences.

In addition, this account reproduces the passage and direction of time starting from only the direction of causation. A series of distinct persons, each with memories from the previous, will experience a passage of time towards the future. The only requirement is that events cause memories. It has been argued before that the direction of time reduces to causal ordering.(Mellor [1998]) Here a direct explanation is offered for the correspondence between the apparent direction of time and the direction of causation.

This is a significant result as it offers a new and consistent explanation of our experience of time. The experience of the present and the flow of time would be accounted for conventionally if the present was special and time did in fact flow, but there is no indication that the present is physically fundamental. Likewise the problem of making distinctions between teleported copies of you and future versions of you is solved if we assume there is no distinction. The past self being a different person can explain the fact that we experience the present in what our physical theories suggest is block time. It is otherwise a mystery why we do not directly experience 5 minutes ago.

**References**

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