

EXTERNAL TIME AND PERSONAL TIME. Time travel, Lewis says, involves a conflict between time and time. You travel for an hour, but you don't arrive at your destination one hour later. Instead, your destination may be two years earlier. (Compare space: could I have travelled two miles and arrived at a destination eight miles away from my departure point?) It seems that, paradoxically, the departure point and the destination of the time traveller are separated twice over by unequal periods of time—by one hour and by two years. 67

Lewis puts aside the idea of two dimensions of time. Instead, he offers a theory of change. A thing endures in time by having successive temporal parts. A thing changes if there is a qualitative difference between its temporal parts. Hence, incidentally, neither numbers nor events can change. 68 69

Then we can distinguish between personal time and external time. There are certain regularities in the life of an ordinary person: temporal parts are being replaced in some familiar way. But a time traveller has temporal parts that violate these regularities: for example, he will have an adult part that will coincide with his birth. Thus we say: 70

(22-1) Soon he will witness his past birth.

That's not how change usually happens, and how temporal parts are usually arranged. But once we introduce personal time, we could say:

(22-2) Soon[in his personal time] he will[in his personal time] witness his past birth[in external time].

One consequence of this is that an event may have two different locations in personal time: you witnessed a scene when you were seven, but having travelled to the past, you also witness it when you are twenty.

What of personal identity? If I travel back to 2000 and talk to myself, will there be two different individuals talking to each other? This can't be right. Nor is it right to say that the same individual—SB—is located in two different places. Instead, we might say that two stages of SB are located in two different places at the same time. And why to insist that these, after all, are stages of the *same* person, rather than two persons? Because there is still psychological connectedness (see Locke) between different stages—but in personal time, rather than in external time (as in the usual cases). 72

BACKWARD CAUSATION. We allow backward causation in this sense: you leave a mark on the time traveller Tim on the 20th December 2023, and this mark appears in 2000 where Tim arrived. In Tim's personal time, however, there is no backward causation: it only exists in external time. 73

CAUSAL LOOPS. More puzzling is this phenomenon. Suppose Tim travels from 2023 to 2013. He tells his earlier self (i.e. his earlier stage) how to build a time machine. So in 2023 Tim builds the time machine following the instructions of his earlier self. And why did he build the machine? Because of the instructions he received in 2013. And why did he receive those instructions? Because he built a time machine in 2023. 74

Then, for each event of this loop there is an explanation in terms of another event of the loop. But, for example, where did the knowledge of time machine engineering come from *in the first place*? Seems very fishy. But Lewis is unperturbed: if Big Bang or God are uncaused, why not such causal loops?

Question 1. Reflect on this phenomenon and on Lewis' response.

THE GRANDFATHER PARADOX. Could Tim kill his grandfather? Since, as Tim knows in 2023, the grandfather was *not* killed by Tim, this question means: can Tim travel back in time and change the past? 75

One response here is that this question shows the absurdity of time travel. On one hand, once Tim travels to 1920, say, he *can* change the past. On the other hand, the past is the *past*, and it can't be changed. Hence, Tim both can and can't kill his grandfather. Hence, there is no time travel.

Lewis prefers a different diagnosis. When we say that Tim can kill the GF, we mean: he has what it takes (the rifle, the bullets etc.). But as it happens, he *in fact* failed. Why he failed has an intelligible explanation: perhaps the gun jammed, perhaps the grandfather ducked. Still, we insist that there is more: there is a sense in which Tim *could not* kill the GF. 76

So we have two propositions:

- (22-3) a. Tim can kill the grandfather [he has what it takes].
b. Tim can't kill the grandfather [the grandfather lived, so did Tim].

There is no contradiction, Lewis insists, because 'can' is ambiguous... 77