CHAPTER 5

The Undifferentiated Boundary of Time

What came before the Big Bang? Name an earlier state, and you can ask the same thing of that one. Chapter 5 argues that the feeling of a bottomless pit is misleading. At the boundary the question aims at, it is “not unanswered but unaskable”.

One observation does the work. Time orders states as earlier and later. An ordering needs at least two states that differ. The book calls a state with no internal distinction at all equality. Any state with at least one distinction is diversity. Chapter 3 argued that every possible state is one or the other, with nothing in between.

So the regress question has two landing places. At equality the word “before” has nothing to order. The chapter shows that the chain of moments can end without ending at a moment. Picture the numbers above 0 and below 1. They come as close to 0 as you like, and 0 is not one of them. The chain can be bounded in that way, by something that is no part of it.

Time needs things that differ

The relation “earlier than” needs two states it can take in one order and not the other. Two states that cannot be told apart give it no such direction. The chapter does not claim that things alike in every way must be one thing. Its claim is about what an ordering requires. The point survives the rival pictures of time. Each of them needs moments that differ in its own way.

The question that runs out

Now take any state and ask what came before it. In the first case the state is diverse. It holds at least one distinction, so “before” has something to work with. The question is in good order. Its answer is another diverse state, in which case you ask again, or it is equality. In the second case the state is equality. Here the question assumes a condition the state excludes, so it is ill-formed. Asking what lies beyond equality is like asking what colour silence is.

The decisive step is that there is no third case. Chapter 3 argued that the two options exhaust the field, and why no third could be produced. Anyone proposing one must mark it off from both, and marking off is already a difference.

This differs from a shrug. Saying that the universe began, and that is that, accepts the question and declines to answer it. The chapter says instead that the question’s standing expires.

The chapter then offers a picture of its own: an eternal switch with two positions. ON is diversity, where space, time, limits and identity are present. OFF is equality. OFF is not empty space. The chapter warns that an endless

expanse of emptiness is still a picture of diversity. Equality is neither “very large” nor “very long”. It is being with no features at all, which lacks every identity and is indistinguishable from non-being while still being present. There is no third position and no broken one. Reality may be always ON, or a diverse phase with OFF at each end, or many such phases, or one OFF boundary and then ON for ever. Each case yields eternity of one kind or the other. The chapter takes no side between an endless past and a bounded one.

The chapter corrects the picture. OFF names the boundary of a phase. It is never a term inside a sequence.

Kant’s two proofs and a third option

Immanuel Kant set out two arguments that look equally good. The first says the world has a beginning in time. If it did not, an infinite series of states would have had to elapse before now. Such a series can never be completed step by step. The second says the world has no beginning. A beginning would need empty time behind it. Nothing in empty time could mark out the moment where things start.

Kant’s own answer made time a form of how things appear to us. Anyone who holds that time is real cannot take that route. Kant diagnosed a different shared assumption. Both halves take for granted that an end point of time, if there is one, must be a first moment. The third option is a boundary of time that falls outside time, so the series has a limit and no first term.

The second half wanted empty time before the first moment. There is now no first moment for it to sit behind. The first half is met by measuring the series instead of counting it. Infinitely many moments lie before any moment you pick, inside a stretch of finite length. Kant’s premise therefore bites only if a finite stretch holds no actual infinity of instants. The chapter says the thesis never argued for that, and would have to.

The chapter leaves open whether Kant was right that the antinomy shows the limits of reason. What it claims to show is that the antinomy “does not compel transcendental idealism”.

One boundary for two chains

Chapter 4 followed a different chain: grounding, the relation of what holds in virtue of what. That relation is usually taken to involve no time at all. Time needs distinction, yet distinction does not need time. A frozen photograph has differences and no change. So a timeless state may still be full of differences, and the chapter cannot argue from “timeless” to “no distinctions”. Chapter 4 reached equality by its own route. On the branch where time has a boundary, the chain of moments ends there too. The reason is general. Any relation that does real work holds between items that are not identical. So all such relations run out where distinctions do.

The chapter argues that the two end points are one in number. A second end point would need some feature setting it apart, and any such feature would be a distinction. There is one way to have no distinctions, which is to have none. A multiverse theorist has one route left: two featureless silences are told apart by their surroundings. So let two universes each end at equality, told apart by what each bounds.

The chapter replies on two counts. The first is that the borrowing has no hooks. A silence borrows its identity through relations it really stands in. Nothing stands in such a relation to a state with no features. That count rests on a result the book has already defended. The second count compares the stretches that two separated series bound. Only the second uses an assumption which Chapter 4’s appendix lists as unproven.

Two questions remain, and the chapter separates them sharply. The first asks what feature of equality produced diversity. That question is foreclosed. Equality has no capacities and no tendencies for a cause to fasten onto. The second asks why the diverse side is populated at all. That question is in good order, because diversity could have failed to obtain. Yet its answer cannot exist, since any answer would cite features of a featureless boundary. So on the branch where time has a boundary, the chapter owns the fact as brute. It calls the fact the obtaining residue: one structureless fact, that the switch is ON. On both branches, it says, something has always existed.

The objections the chapter answers

The first objection comes from the tenseless view of time, on which earlier and later is a bare ordering of positions. It needs only positions that are two, so perhaps equality could hold one. The chapter replies that being two is already a difference, and a state with no parts offers nothing to be non-identical.

The second objection asks for a mechanism. If equality is wholly undifferentiated, how did it give rise to anything? The chapter answers that the demand assumes a sequence it has already withdrawn. Equality is earlier than no state, so no change out of equality ever occurred. On the terminating branch, what obtains is a diverse series with equality as its bound. Whatever obtains is possible. The chapter concedes that this argument is thin as an explanation. It also marks a division of labour. Its claim is structural, about what the boundary must be like. It makes no cosmological claim about how the universe came to hold the diversity it does. Physics supplies that part.

What the chapter claims

The chapter gives three results, and all three are graded *established*. That is the rung below the book’s top mark. It means the result is validly drawn from premises the book defends. A challenger must reject one of them.

The first result is that time depends on distinction, and that the regress of earlier states dissolves at equality. The second is the eternal switch, together

with the resolution of Kant’s first antinomy on realist terms. Both are held with no condition attached.

The third is that the chain of grounds and the chain of moments end at one and the same state. This one carries a condition. It holds on the branch where the chain terminates. It also carries a question the book defers: whether equality is possible at all. The claim that the count is one leans as well on that unproven assumption about comparing separated series.

The chapter’s own notes count three results and treat the residue as a cost already priced in. On both branches the chapter keeps one unexplained fact. It claims that no rival found so far keeps a smaller one.

Chapter 6 takes up the question this one leaves standing. If both chains end at a state of zero complexity, can that state think, know, intend or create? The whole prime mover tradition assumes that it can.