Permissive Determinism

Universe as a Tree with Simultaneous Growth of Roots and Shoots

Abstract — This paper attempts to explore theoretical plausibility of a deterministic universe capable of accommodating freedom by postulating certain requisite features for the set of initial conditions (without probing into the nature of deterministic laws). In another sense this paper codifies a reaction to McTaggart's argument for the unreality of time.

1 – A general version of determinism is the thesis that the state of the universe at time $\mathtt{t}$ is dictated by its initial conditions $\mathtt{I}_0$ at the origin of the universe $\mathtt{t} = 0$ and strict laws of physics $\mathtt{L}$:

$$\mathtt{S}\,(\mathtt{t}) \;=\; \mathtt{L}\,(\,\mathtt{t}\,,\,\mathtt{I}_0\,).$$

2 – However a deterministic universe in which the set of initial conditions itself has a temporal character (so the term $\mathtt{I}_0$ is to be interpreted as $\mathtt{I}(\mathtt{t})|_{\mathtt{t}=0}$) can accommodate freedom if there are entities in the universe capable of altering initial conditions, hence altering otherwise pre-determined future states as time progresses forward. But the deterministic aspect of the universe would be propelled to the verge of triviality, self-defeat and unruliness (if not sheer impossibility) if the initial conditions are updated to just about any values unrestrictedly. Only certain moves in time are legitimate.

3 – The (first) update in initial conditions taking place at time $\mathtt{t} = \tau$ from $\mathtt{I}_0$ to $\mathtt{I}(\tau)$ is legitimate only if the states of the universe that the new initial conditions generate are non-disruptive to the causal history of the states up to time τ had they superseded $\mathtt{I}_0$ right from the outset:

$$\mathtt{S}\,(\mathtt{t}) \;=\; \mathtt{L}\,(\,\mathtt{t}\,,\,\mathtt{I}_0\,) \;=\; \mathtt{L}\,(\,\mathtt{t}\,,\,\mathtt{I}(\tau)\,) \qquad \forall \mathtt{t}\;\; \mathtt{t} < \tau,$$

as if $\mathtt{I}_0$ is determined at $\mathtt{t} = 0$ only *minimally* but awaiting further precisification at later times nonetheless. One way the anticipation may be at work is by recurrent continuous alternation at $\mathtt{t} = 0$ among higher-precision and legitimate values realizable at $\mathtt{t} = \tau$.

4 – Perhaps (more extremely) *only* the occasions in which the initial conditions undergo precisification enabled by the free entities thus operative constitute discrete temporal moments in the universe. And if $\mathtt{I}(\mathtt{t})$ is conceived as traveling from $\mathtt{t} = 0$ towards $\mathtt{t} \to -\infty$, rather than in the forward direction like that of the states of the universe, the entire operation may be described as shifting the origin of the universe from $\mathtt{t} = 0$ to $\mathtt{t} \to -\infty$.