Objective reality as the spine and subjective realities as the bushes of a Kesten tree of consistent stories

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Explaining how subjective experience comes out of today's physics is hard. And we can't deny experience — it's the one thing we're sure of. So flip the problem: start from experience and explain how "objective reality" shows up. This work addresses long-standing questions in idealism and physics: Why does there appear to be a single immortal objective reality shared among many subjective realities? Why is there no apparent direct interaction between subjective realities? Why does influence appear to run one-way from objective reality to subjective realities (a main reason why materialism dominates science and philosophy)? Why does this shared objective reality appear deterministic on the surface but indeterministic underneath? And why does today's physics struggle with subjective experience? An idealist reading of the anthropic principle leads to a Kesten tree of consistent stories. The Kesten tree's spine is identified as objective reality, with the bushes representing otherwise independent subjective realities. Causally, influence runs one-way from the spine to the bushes; inferentially, conditioning on bush-level events updates the posterior over spine trajectories — an attractive entry point for exploring agency. To maximally extend the tree's life, features of nodes on the spine that influence the spine's evolution (read: observed features) are chosen so as to minimally collapse the space of possible completions. Because the evolution of observed features in objective reality adds little information — and is therefore highly predictable — macroscopic determinism emerges. Although conditioning on long-run survival modifies the kernel along the spine, bushes continue to evolve under the original kernel. This split helps explain why today's physics struggles to speak directly to subjective experience.

In the latter half of the previous century, physicists working in the materialist branch of science and philosophy articulated the anthropic principle. It says that the values of physical constants are what they are because that is what they need to be for there to eventually be physicists telling stories about them. Stories are the central object in the idealist branch of science and philosophy. The anthropic principle is therefore a window from materialism into idealism. In fact, from idealism it much more simply reads:

Experience is a long-run consistent story

Our belief that our experience is told from a singular first-person point of view is the direct result of a common reasoning error: the conflation of experience with memory. We do not have memories of being others; therefore, we believe we are a singular individual. Fixing this error dissolves the temptation to structure the plot a priori from a singular first-person point of view. I instead see the latter as a special case of a more general (and therefore less presumptuous) tree structure that I adopt:

Experience is a long-run consistent story tree

Let Ω be the set of complete, consistent stories. Each node label l (its state, record so far: events, facts, beliefs, etc.) is a finite prefix (partial script). That prefix is *consistent* exactly when it's compatible with at least one complete story in Ω.

Define the possibility set (the remaining completions):

$$C(l) := \{\omega \in \Omega : l \text{ is a prefix of } \omega \text{ allowing equality}\}.$$

If $C(l) = \emptyset$, then l is inconsistent. Child labels are just longer prefixes l' that extend l. Consistency says: every child l' must satisfy

$$C(l') \subseteq C(l).$$

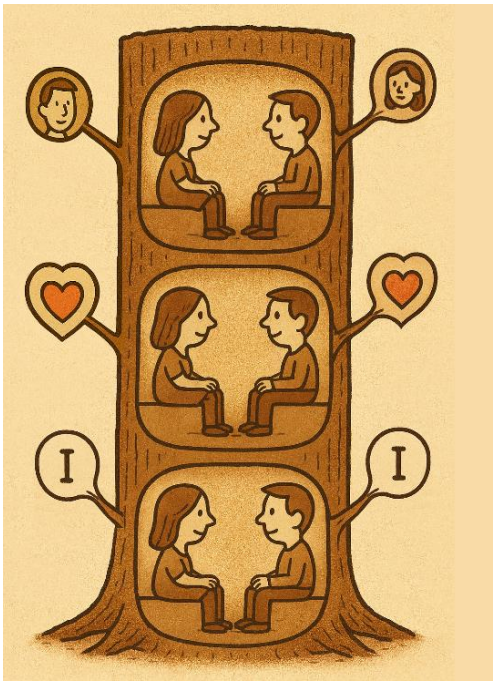

Figure 1: short love story told by a Kesten tree of consistent stories

A fixed probability kernel K maps an incomplete parent node's label l to a random finite multiset of child labels. The same kernel K is applied at each incomplete node and independently across incomplete nodes. The kernel does not produce child labels that are inconsistent extensions of the parent.

A well-known result is that conditioning the tree on long-run survival yields a Kesten tree: a tree with a singular immortal spine shared by many mortal bushes emanating from it[1]:

Experience is a Kesten tree of consistent stories

Obvious interpretation: the singular immortal spine is so-called shared "objective reality" and the many mortal bushes are the many subjective realities (see Figure 1 for illustration). All bushes (subjective realities) overlap on nodes in the spine. By the consistency condition described above, this means that all subjective realities share the same objective reality. Apart from this shared objective reality, the subjective realities are separate and independent.

[1] Ω's consistency constraint tends to shrink the completion space as l grows in length; along most directions you eventually run out of completions. Although I do not explicitly stipulate the same criticality/subcriticality condition as in Kesten's framework — namely, that the average number of children is less than or equal to 1 — I am intuitively assuming that Ω's consistency constraint acts as a proxy for this.

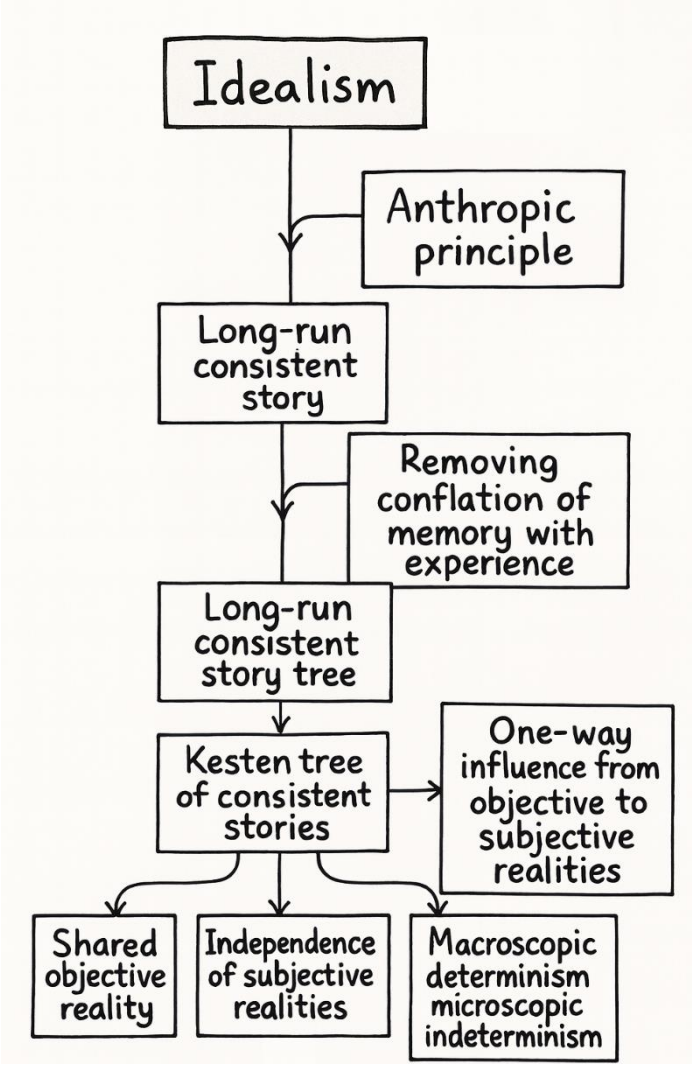

Figure 2: summary

Because causal influence runs one-way from the spine to the bushes, my purely idealist framework explains why "objective reality" *appears* to be more fundamental than subjective realities (a main reason why materialism dominates science and philosophy). Inferentially, conditioning on bush-level events updates the posterior over spine trajectories — an attractive entry point for exploring agency.

Furthermore, to maximally extend the tree's life, features of nodes on the spine that influence the spine's evolution (read: observed features) are chosen so as to minimally collapse the space of possible completions[2]. Because the evolution of observed features in objective reality adds little information — and is therefore highly predictable — macroscopic determinism emerges.

Although conditioning on long-run survival modifies the kernel along the spine, bushes continue to evolve under the original kernel. This split helps explain why today's physics struggles to speak directly to subjective experience.

Starting from idealism, injecting the anthropic principle, and removing the conflation of memory with experience leads us in under two pages to the resolution of central challenges in idealism and physics: (1) explaining immortal shared reality, (2) the lack of direct access from one subjective reality to another, (3) why influence appears to run one-way from objective to subjective realities (a main reason why materialism dominates science and philosophy), (4) the emergence of macroscopic determinism from fundamental microscopic indeterminism, and (5) why today's physics struggles to speak directly to subjective experience.

[2] I intuitively expect that, in this branching process, paths which leave more completions open are precisely those that support long-run survival; conditioning on a long-run spine therefore biases us toward nodes that minimally collapse completion space.