

Title: The Impossibility of Reverse Resolution: A Structural Model of Time and Informational Collapse
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Abstract: This paper explores a hypothetical challenge to the model of time as informational resolution. It asks: what if reverse resolution were possible? While most models of time allow motion through a temporal dimension, this theory frames time as the residue of collapse — the structure left behind after uncertainty resolves through an observer. The paper examines the implications of reverse resolution, finds it incompatible with the underlying model, and clarifies how this framework fundamentally redefines time, travel, and causality. It also considers the deeper meaning of what it would *entail* if reverse resolution were, even hypothetically, allowed.

1. Introduction: Resolution as the Foundation of Time

Previous work established time as the structural residue of resolution — not as a universal flow, but as the trace left when uncertainty collapses within a system. In this model:

- An **observer** is any structure that allows information to flow through it.
- **Resolution** is the event where uncertainty ends and structure is defined.
- **Time** is the sequencing of such resolution events.

Time, therefore, is not a backdrop or container. It is a **consequence** of informational collapse.

This paper considers a hypothetical inversion: could a system resolve in reverse?

2. Reverse Resolution Defined

To resolve in reverse would mean more than rewinding a process. It would require:

- Reintroducing uncertainty into a previously settled state
- Undoing structural collapse
- Restoring a system to its prior uncollapsed informational potential

This is not playback. This is *de-resolution*. It is not forgetting — it is **unmaking** the original form.

In effect, it challenges the assumption that resolution is one-directional.

3. Time Travel in Other Frameworks

Most depictions of time travel assume that time is a dimension — a landscape that can be traversed. You move through it like space. This enables scenarios where one can visit the past, change it, or observe it as it was.

In those models: - The past is a place - The future is a destination - Paradoxes arise from changes to a fixed timeline

In this paper's model: - The past is a **resolution** - The future is **unresolved potential** - Time is not a road but a **residue of collapse**

Thus, "travel" would require not motion but **reversal of resolution**.

4. Why Reverse Resolution Fails

Resolution is not a reversible operation in this framework because:

- Collapse **eliminates uncertainty**. That state cannot be recovered by simply inverting.
- Structure is **path-dependent**. Once a form is selected, alternatives are not just hidden — they are eliminated.
- An observer's identity is **defined by past resolutions**. To un-resolve is to unmake the observer.

Reverse resolution would imply: - Un-collapsing boundaries - De-defining identity - Re-entering superposition from outside the system

No structure in this model supports that. To allow it would mean abandoning the foundational definitions.

5. Implications for Time Travel

Time travel, in this framework, is not motion — it would require: - Undoing resolution events - Reconstructing uncertainty without external interference

This differs fundamentally from cinematic or relativistic models. Here: - The past cannot be re-entered - The future cannot be visited - One only moves forward through **collapse**, not through traversal

Time is not an axis. It is the **scar of resolution**. To travel in time would mean **reopening the wound**, which no structure supports.

However, actions like **repair** or **modification** can occur — not as a reversal, but as *overlay*. These operations do not undo a resolution but add new layers of structure on top of existing ones. Repair is not reverse time; it is recursive resolution: treating the previous state as new input and resolving again. Modification is not reversal, but re-engagement with prior information, producing a new outcome while the original resolution remains part of the system's memory.

Thus, so-called "time travel" through modification is better understood as **progressive structural recursion** — not as moving backward, but as building forward *with reference* to what has already been resolved.

6. Hypothetical Exceptions

What if a system *could* reverse a resolution? - It would have to contain within itself **both the collapsed and uncollapsed state** - It would have to be its own observer and un-observer - It would violate the clean boundary between form and flow

This suggests an entity or system beyond current definition — one that doesn't collapse, or collapses and expands in perfect symmetry. A **higher-order observer**.

But even in this case, such reversal would not be travel. It would be **unweaving reality**, not walking backward through it.

This opens new speculative territory: if resolution were *not* strictly one-way, then the universe would have to include structures capable of *re-manifesting uncertainty* from certainty — essentially producing informational potential from informational closure. Such structures would not merely reverse events, but **reverse the very act of becoming**.

7. Conclusion: Time as Irreversible Collapse

Reverse resolution is a contradiction under the informational model of time. Resolution is the act of informational closure. Time is the trace of that closure. To reverse it would be to remove structure from structure, identity from form.

Thus: - The past cannot be re-entered - The future cannot be predicted - Only resolution can occur

Time moves in one direction — not because of entropy, but because of **informational collapse**. And collapse cannot be reversed.

Time is not a tunnel — it is a scar. And scars don't open backwards.

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