

Measurement Without an Observer

On the Spatial Stabilization of Determinacy in the MNO Model

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Abstract

The so-called measurement problem of quantum mechanics is usually formulated as an epistemic problem: how does a determinate measurement outcome arise from a formally open state description? The prevailing answers either operate with additional entities (collapse, many worlds, consciousness, information) or with perspectival relativizations, without categorially clarifying the status of measurement itself.

The present text proposes a different reading. Building on the MNO model of ontological recurrence and the determination of the observer as a spatial category, it is argued that the measurement problem is not a problem of knowledge, but a spatial–ontological boundary phenomenon. Measurement does not denote the access of an observer to a system, but an enforced stabilization of determinacy at the point where open physical dynamics are structurally no longer integrable.

Within this framework, determinacy does not appear as the result of cognition, but as the minimal form of world under conditions of ontological overload. The measurement problem thus does not disappear through a new interpretation, but through the abandonment of a false categorial presupposition: the assumption that observation is primarily an epistemic event.

(This paper is an interface text. The author's primary research corpus employs an autistic, non-linear, rhythmically recursive writing mode that cannot be fully preserved in academic English without structural loss of epistemic function.)

This paper stands in relation to:

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1. The Measurement Problem as a Categorical Misunderstanding

In its classical form, the measurement problem asks how a single, determinate measurement outcome can arise from a superposition of determinate states. This question already implies a problematic assumption: that measurement is a special act, distinct from the rest of physical dynamics, and therefore requires an additional explanation.

Regardless of the interpretation chosen, this assumption remains in place. Either a collapse is postulated, a branching of the world is assumed, or the relativity of states is emphasized. In all cases, the problem is formulated epistemically: as a question of who knows or observes what, and when.

The present approach intervenes at an earlier point. It does not ask how knowledge arises, but why a situation arises at all in which determinacy becomes necessary.

2. MNO: Recurrence Instead of a Special Event

Within the MNO model, reality is not a continuously updated state, but passes through cyclical phases of openness, condensation, and renewed emergence. Stability is not a default condition, but a local result of limited capacity to sustain openness.

In this model, measurement does not appear as an external intervention, but as a point of enforced stabilization within a general ontological cycle. It is not a special event, but a boundary case: the moment at which open dynamics can no longer be sustained and must be transferred into a stable form.

3. The Observer as a Spatial Response

Decisive here is the redefinition of the observer. The observer is not an entity, not a subject, and not a physical system, but a space-internal operation: a local folding of world that gives rise to perspective and eventhood.

In this sense, a measurement outcome is not the result of an observation, but the result of a spatial response to non-integrability. Where physical openness can no longer be coherently maintained, space forms a zone of perspectival stability. This zone is what classically appears as the “observer.”

Determinacy is thus not an epistemic achievement, but an ontologically minimal solution under strain.

4. Measurement as Spatial Stabilization

In this reading, measurement is not a transition from ignorance to knowledge, but a transition from unsustainable openness to local stability. The measurement outcome is not a collapse of a state, but the form in which world can persist under constraint.

The question “Why this outcome?” is therefore not answered causally, but is reconfigured categorially. It does not ask for a hidden dynamics, but marks the point at which further openness is structurally excluded.

5. Consequences for the Measurement Problem

From this perspective, the measurement problem loses its paradoxical character. It does not disappear because a new interpretation is offered, but because the underlying assumption is abandoned that measurement is primarily an epistemic act.

Measurement is:

- not an act of access,
- not an information update,
- not an event of consciousness,

but a spatial stabilization of determinacy under conditions of ontological non-integrability.

6. Conclusion

The present approach does not compete with decoherence theories or with formal quantum mechanics; rather, it addresses the categorial precondition under which concepts such as decoherence, event, and probability become meaningful at all.

This approach does not solve the measurement problem in a technical sense. It shifts it to a level at which its paradoxical form is no longer meaningful. Where observation is no longer understood as an epistemic event, but as a spatial response to overload, the question of “collapse” loses its sense.

Measurement is not an exception within physics.
It is the point at which world is forced to take form.