

Propositions

1. The properties a self-observer observes are “in the eye of the beholder”, blurring the line between “what is” and “what is known”.
2. A self-observer that gives opposite answers to opposite questions (*consistent*), that is able to observe any freely chosen experimental proposition among a list that completely defines its state (*free*) and that knows for which question its state is properly primed to observe (*introspective*), cannot exist. (Chapter 3, *The Classical Self-observer*, Theorem 35.)
3. A self-observer can observe at most half of the properties that define its state without changing either the actuality of the observed properties, or the result of the observations of those properties. (Chapter 3, *Self-observation and the knowledge balance principle*, Proposition 37.)
4. As the outcome of an observation always relates to both the state of the observer and the state of the observed, it is a matter of both common sense and scientific integrity that observation should be characterized by the genuine attempt to maximize the chance that the outcome relates to the state of the observed rather than the state of the observer. (Chapter 3, *Self-reference and human observation*.)
5. The probability for the occurrence of an outcome for a repeated observation of identically prepared quantum systems, interacting with observer states picked randomly over the complex unit sphere, such that the chosen outcome maximizes the likelihood it pertains to the state of the observed rather than the state of the observer, coincides with the Born rule. (Chapter 5, *The probabilistic observer*, Theorem 50.)
6. Every act of observation, whether it be mediated by the vehicle of sensory perception, the technological intricacies of quantum measurement or the entire reasoning used for the validation (or refutation) of a hypothesis, can be regarded as a form of inference. (Chapter 7, *The optimal observer as a paradigm for observation*.)
7. The observer is the sentinel that guards the gates to the epistemic paradise of science. This explains why a general theory of observation is not to be found inside this paradise and why this manuscript should properly be regarded as natural philosophy.
8. If quantum mechanics offers a truly complete description of physical systems, it should also describe the system that we call ‘observer’ and falsification might as well become an internal affair, void of the scrutiny of proper experimentation. The measurement problem is in fact a solution to this problem and Proposition 2 can loosely be regarded as a classical analog.

9. It is more akin to desinformation than to bias when media outlets portray bias as desinformation.
10. The dynamical laws of physics are expressed as mathematical equalities which can always be rewritten as some quantity being equal to zero. This shows we can only describe change through quantities that do not change and one is left to wonder whether true change, if it exists, can be described mathematically at all.
11. The sum total of all knowledge humanity has collected in its entire existence can be represented in a single, finite, natural number. Nowhere I observe the universe to possess this finitary character. I take it for granted there is no limit to the growth of knowledge and yet knowledge will never cover reality.