Review of: "Determining When Schrödinger's Cats Die"

Eric D. Carlson[1]

1 Wake Forest University

Potential competing interests: No potential competing interests to declare.

It is difficult to tell what the basic point of this article is. It correctly points out that in a realistic version of the Shrödinger's cat experiment, there will be a slight delay between the decay of the atom and the demise of a hypothetical cat. The article states that the mean time for death is one hour, but in fact what is described is the *half-life* of the source; the time during which there is a fifty percent probability of a decay occurring. As the article notes, the probability of the cat being dead in this time is therefore slightly *less* than one half.

The most important conclusion is that the system is not a simple two-state system of a living or dead cat, but at least a three-state system, including the case where the atom has decayed but the diabolical machine has not yet performed its work. Though true, what difference does this make? The point of the thought experiment is simply that under a certain interpretation of quantum mechanics, the cat is in a superposition of both dead and alive states, which is apparently absurd, until the moment of observation.

I will also point out that the graphs shown do not do a good job illustrating the point. The curves show the probability of the cat being dead rising to 50% in a bit over an hour, then falling back to 0% in the next hour. Since dead cats stay dead, the curves should be monotonically rising. The *shape* of the curves is well known. If t represents the time in hours, then the probability of an atomic decay not yet occurring would be simply 2^{-t}, and if there is a delay time d, then the probability of the cat being alive is 2^{d-t}.

The paper seems to think that this has something to do with how precisely one is determining the time of death. This method would never be used for measuring the rate of decay of an atom, this is irrelevant. The idea isn't measuring *when* the cat is dead, just *whether* it is dead. Hence the measurement described seems pretty much irrelevant.