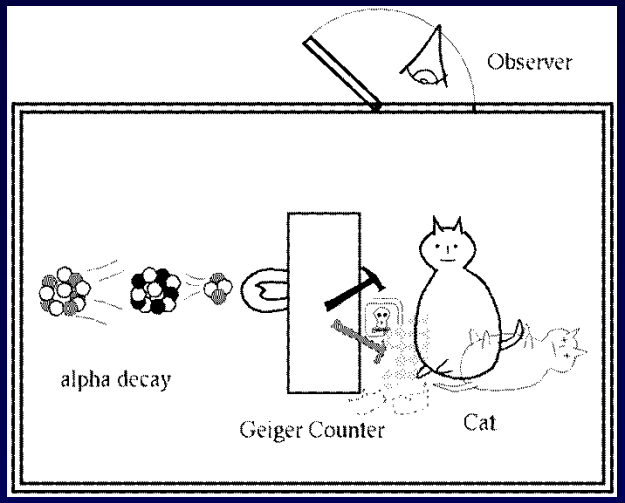
Schrödinger's Cat

According to QM, because we can't know (*i.e.*, predict), until we look inside the box, the cat is in a superposition* of being both alive and dead!

$$\Psi_{cat} = \frac{1}{\sqrt{2}}\{\psi(\text{alive}) + \psi(\text{dead})\}$$



And in fact, according to QM, when we look, *we* are put into a quantum superposition* of having seen a live and a dead cat!!

Did you ever perceive yourself as being in a superposition? (probably not …)

This paradox leads to some dispute over the applicability of QM to large objects. The experiments are difficult, but so far there is no evidence of a "size limit".

Where does it end?!?

- it doesn't end ("wavefunction of the universe")
- there is some change in physics (quantum → classical)
- "many-worlds" interpretation…

In any event, the correlations to the rest of the system cause *decoherence* and the *appearance of "collapse".*

*More correctly, we, the atom, and the cat become "entangled".