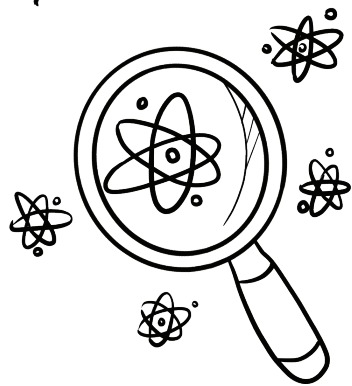


Quantum and Measurement



Quantum Bits "Qubits"



You cannot measure them because...

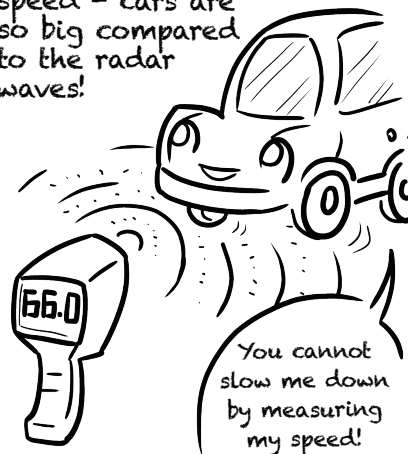
- They are fragile.



- Measurement methods cause problems.

Measurements: Non-intrusive?

Police radar guns do not affect a car's speed - cars are so big compared to the radar waves!



Measurements: Side Effects

Some measurements do not affect what is being measured... but they do something else!



X-rays are commonly used in hospitals to produce photographs for checking bone fractures.

But... They could potentially cause cancer when people are exposed unprotected!



If you time how long you can hold your breath...



You would do just fine the first time, but...

You cannot hold your breath as long the second time, without resting in-between.



This is caused by the side effects of such measurements

Measurements: Disturb Aspects Measured



Putting together Quantum and Measurement

The measurement of a 0 or 1 of a qubit disturbs the state of the qubit that you are trying to measure.



And quantum states - states of the minimal amount of physical entity - are so small that a single photon may alter it.



Find more Quantum Computing zines here:

<https://www.epiqc.cs.uchicago.edu/resources/>

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