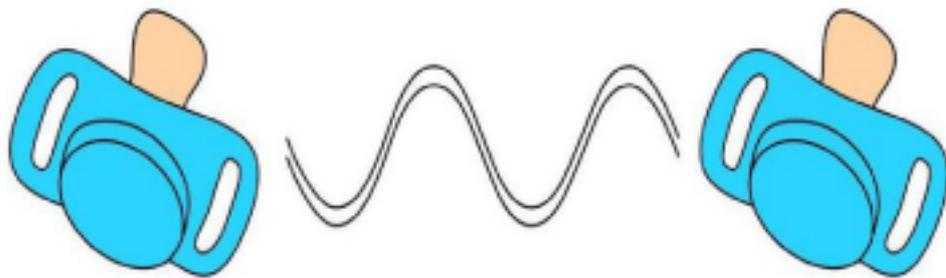


Quantum Entanglement for Babies 🎤



by Chris Ferrie

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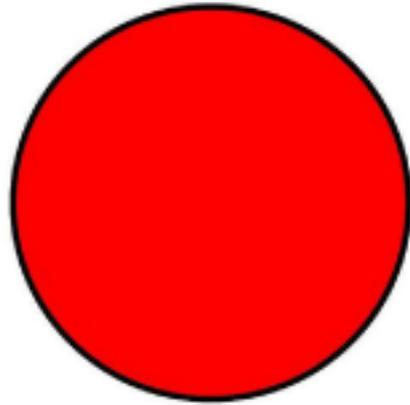
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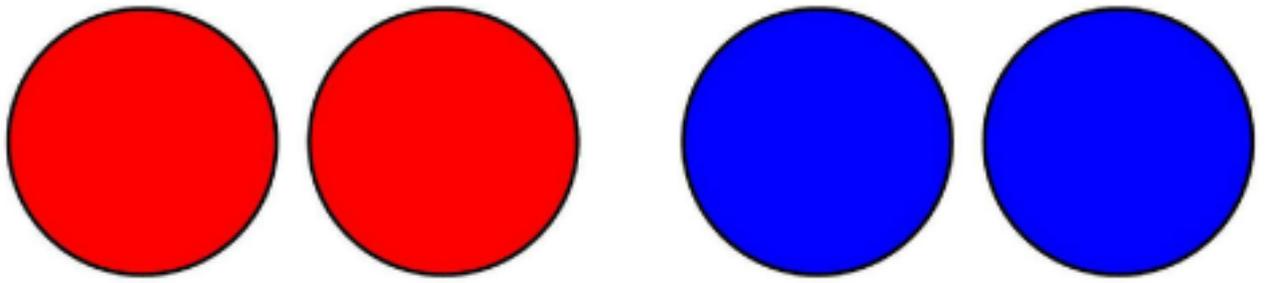


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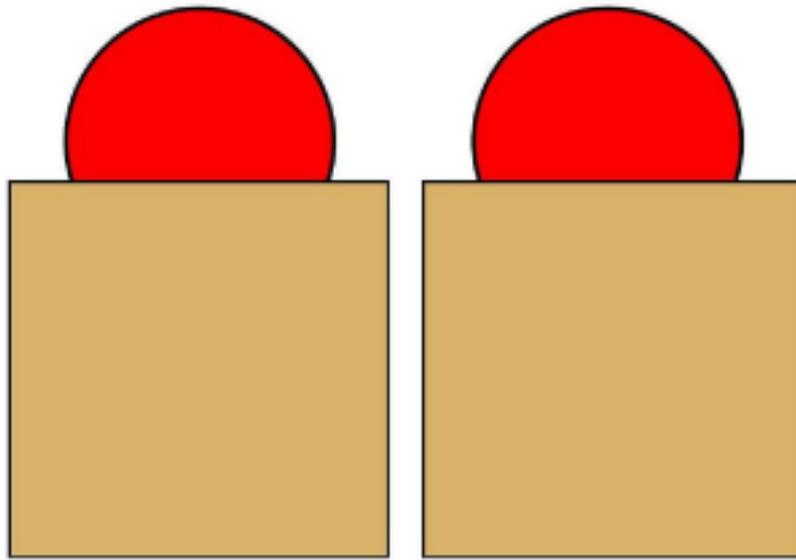
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This is a ball. 🎱

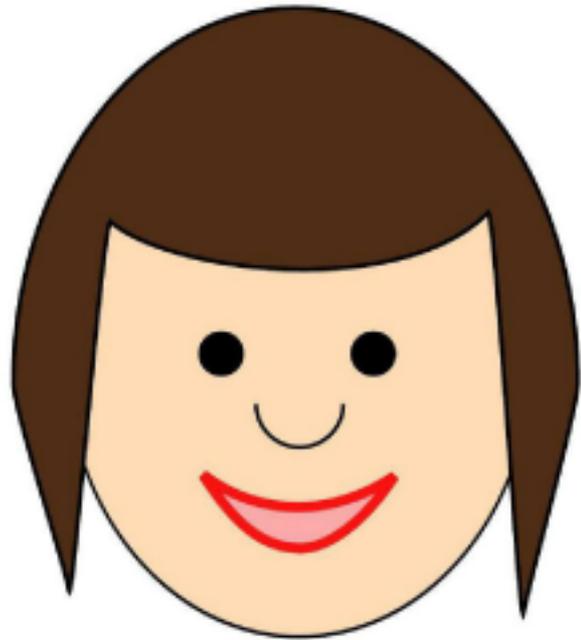
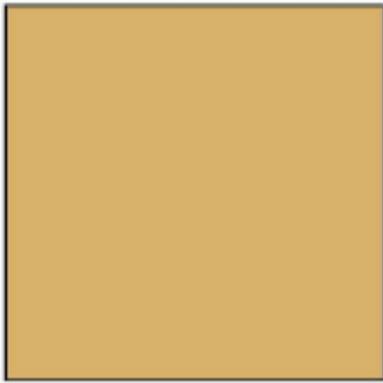


- **Two red balls.**
Two blue balls.



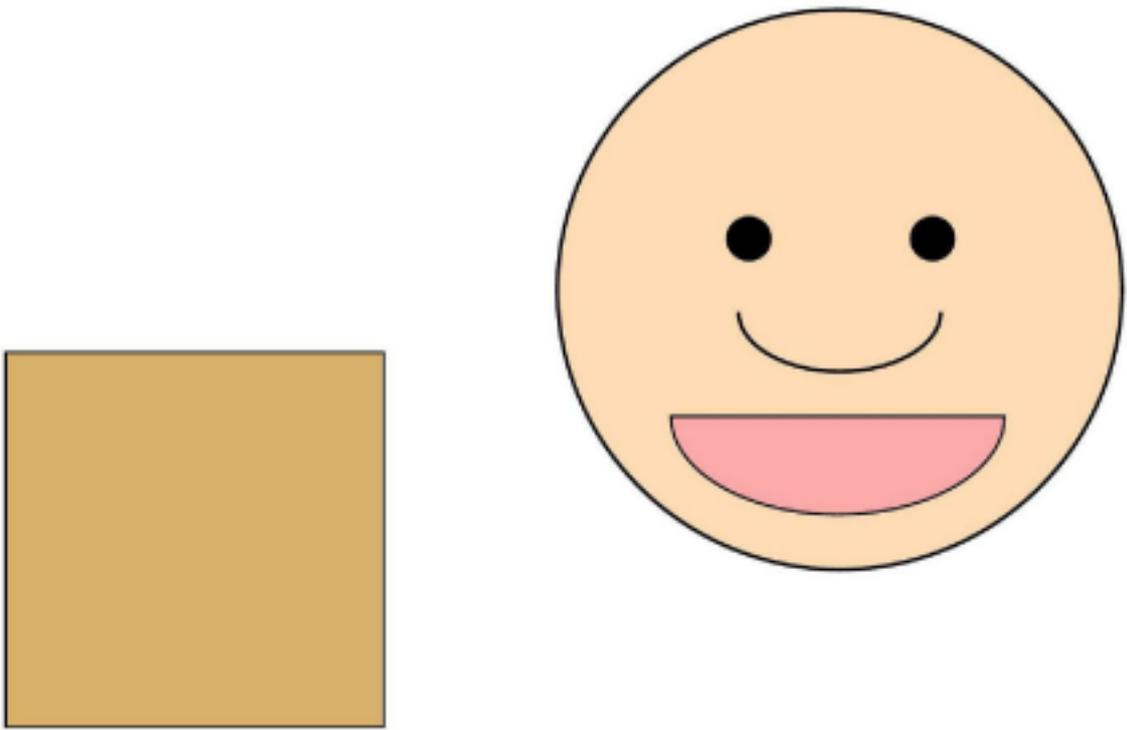
**We pick two balls of
the same color and
hide them in boxes.**



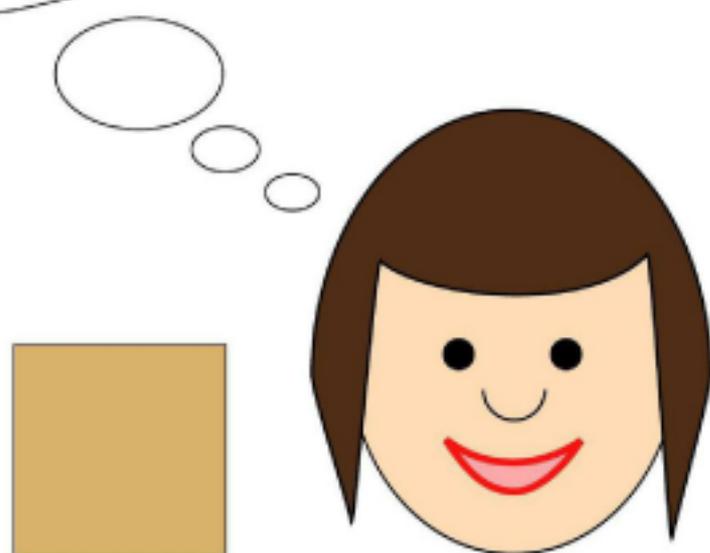
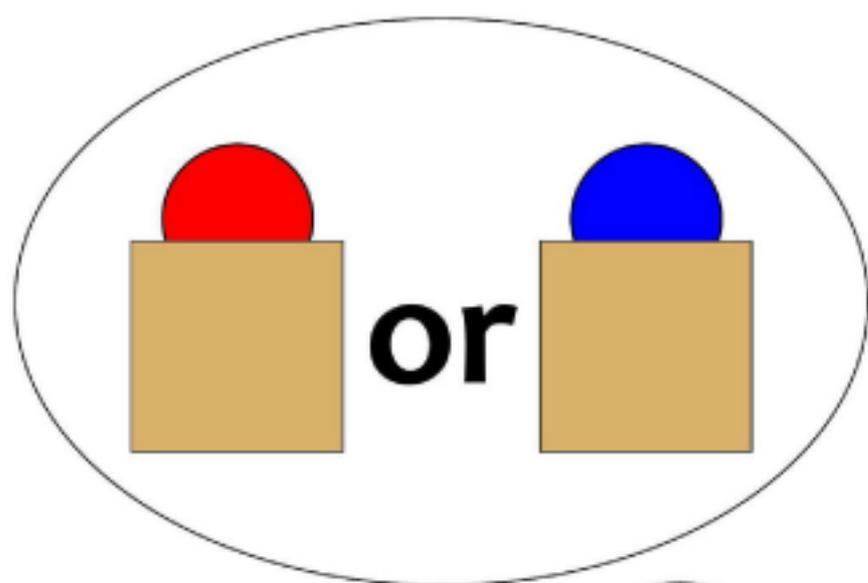


One box for Alice.



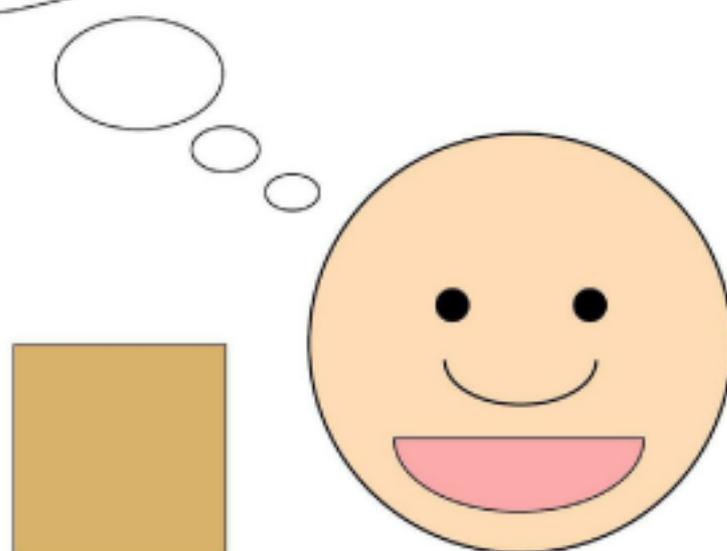
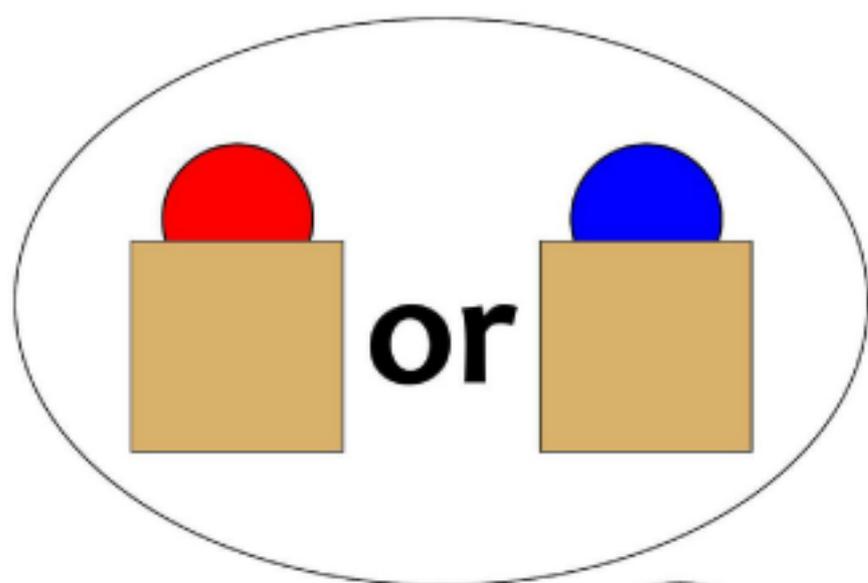


One box for Bob. 🗣️



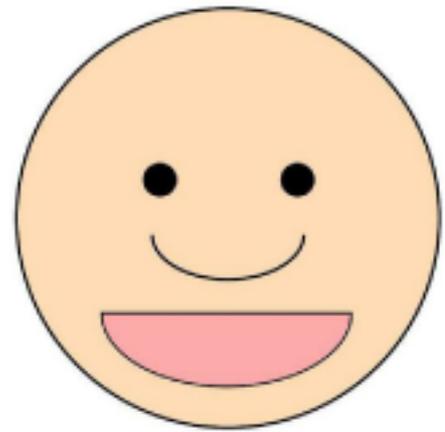
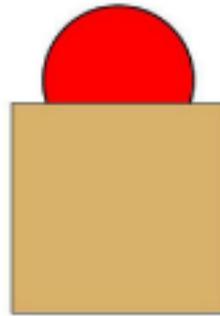
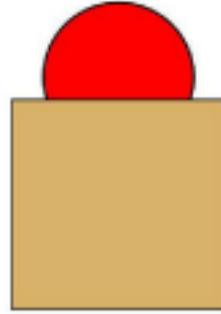
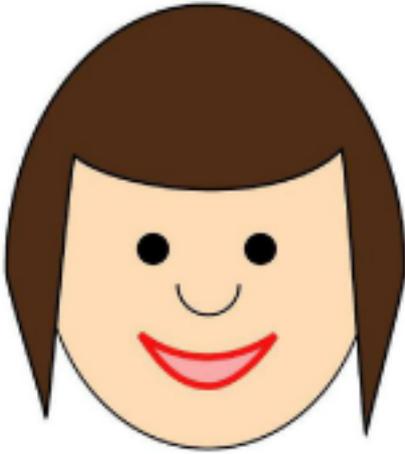
**Alice does not know
what is in her box.**



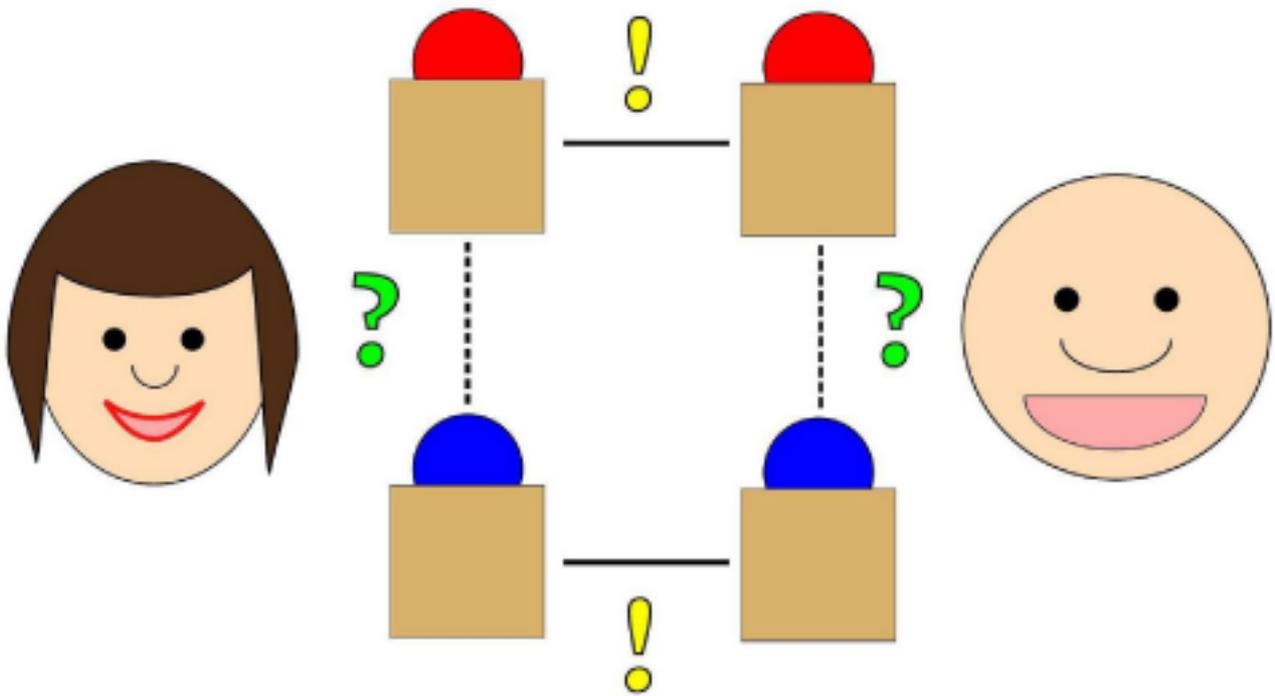


**Bob does not know
what is in his box.**



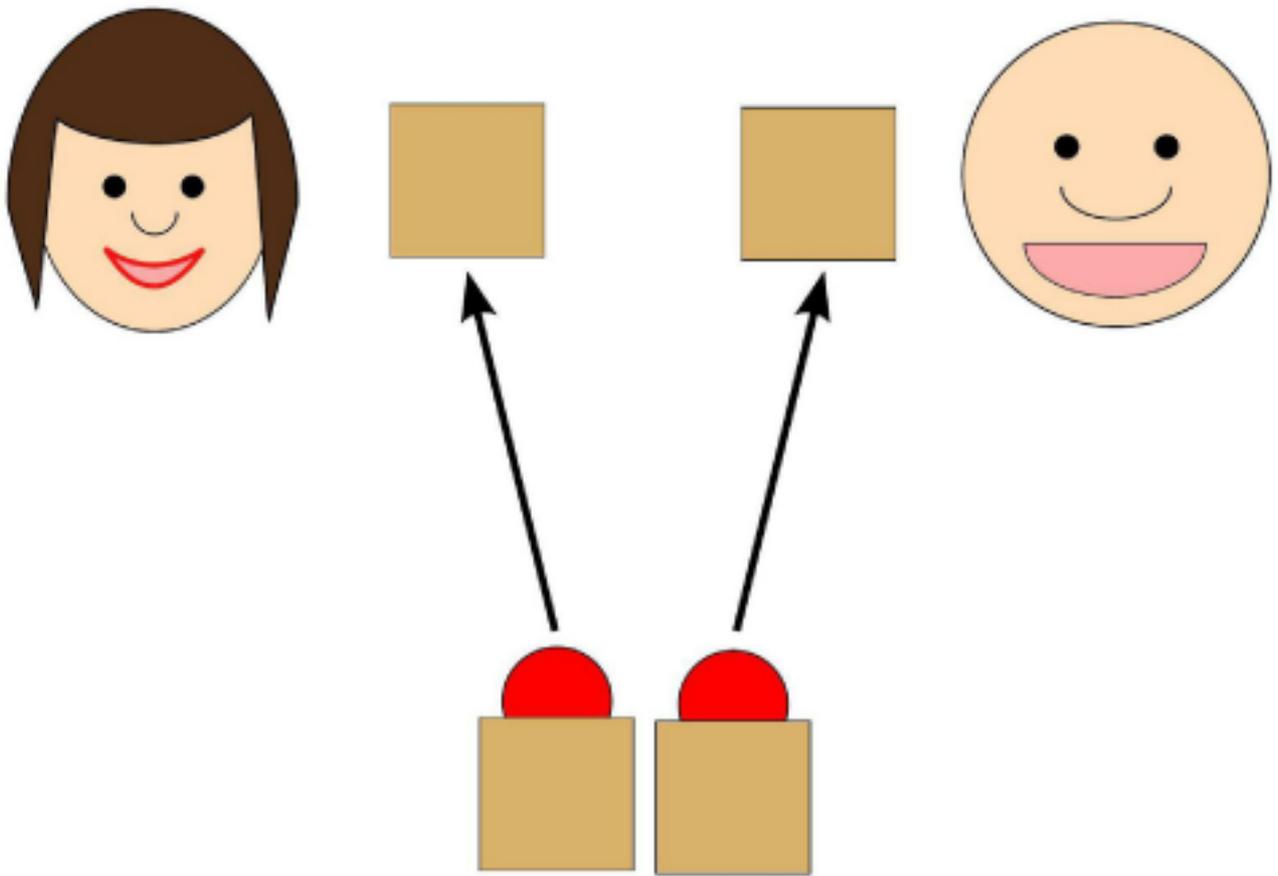


**But they always have
the same color! 🎧**

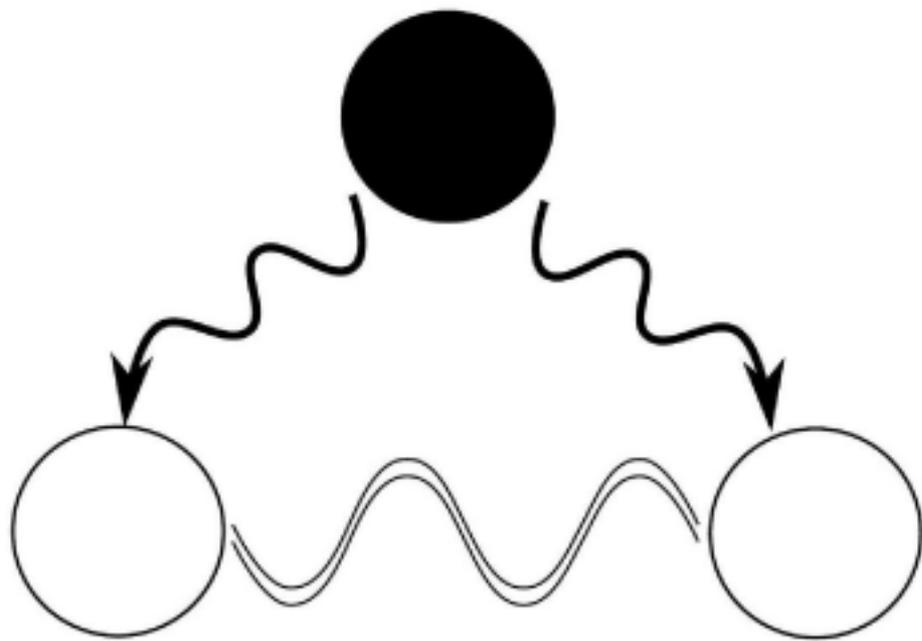


Alice and Bob **do not** know what is in each box. Alice and Bob **do** know that the contents of their boxes are the same. How?



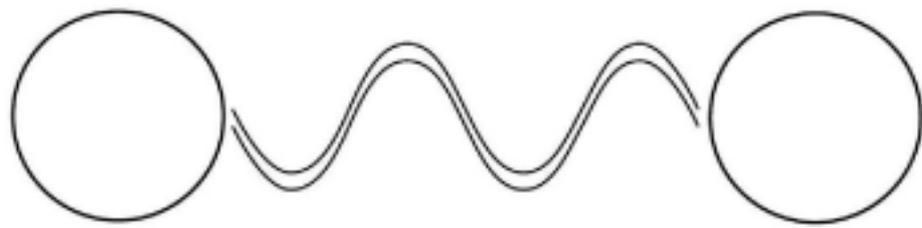


Because we put the balls in the boxes, we always know what color is in each box! 🎵



In quantum physics, a particle can decay into two entangled particles.

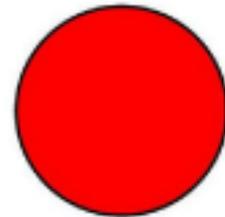
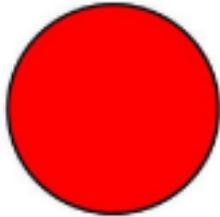




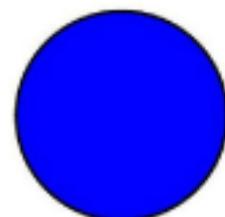
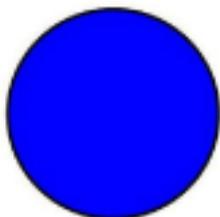
Entangled **particles**
share a special bond.

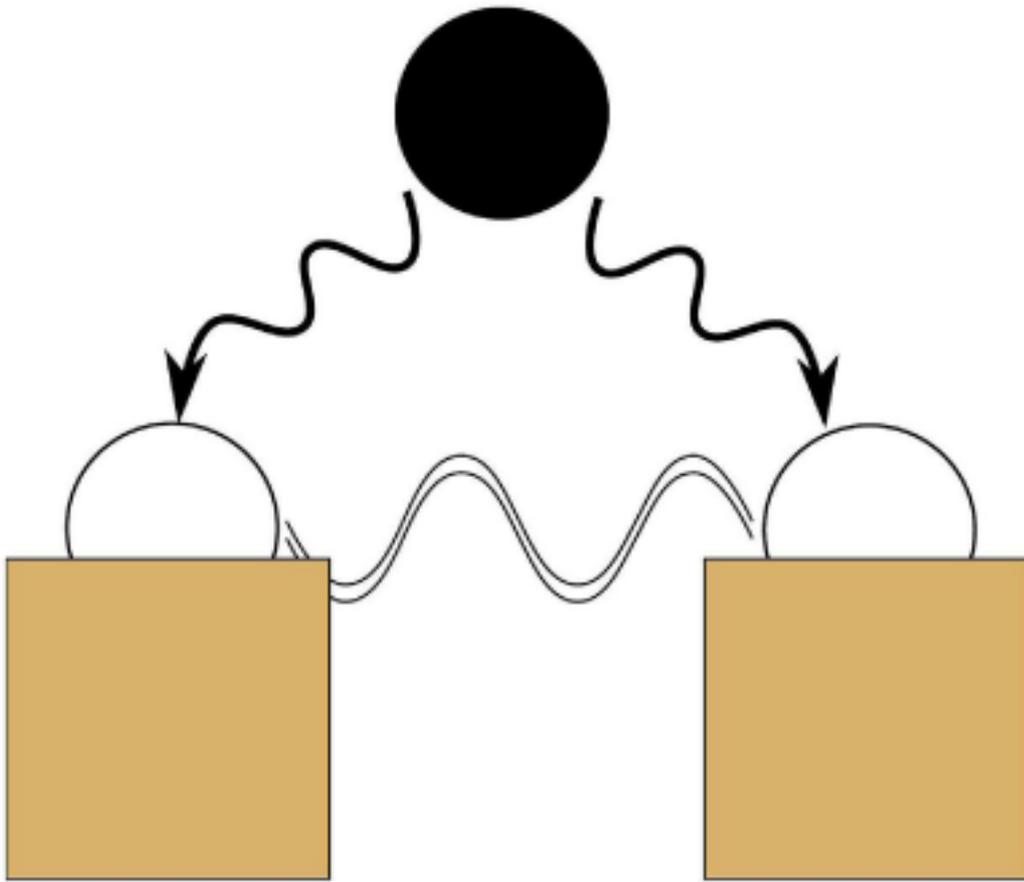


When one is measured to be **red**, the other will be **red**.

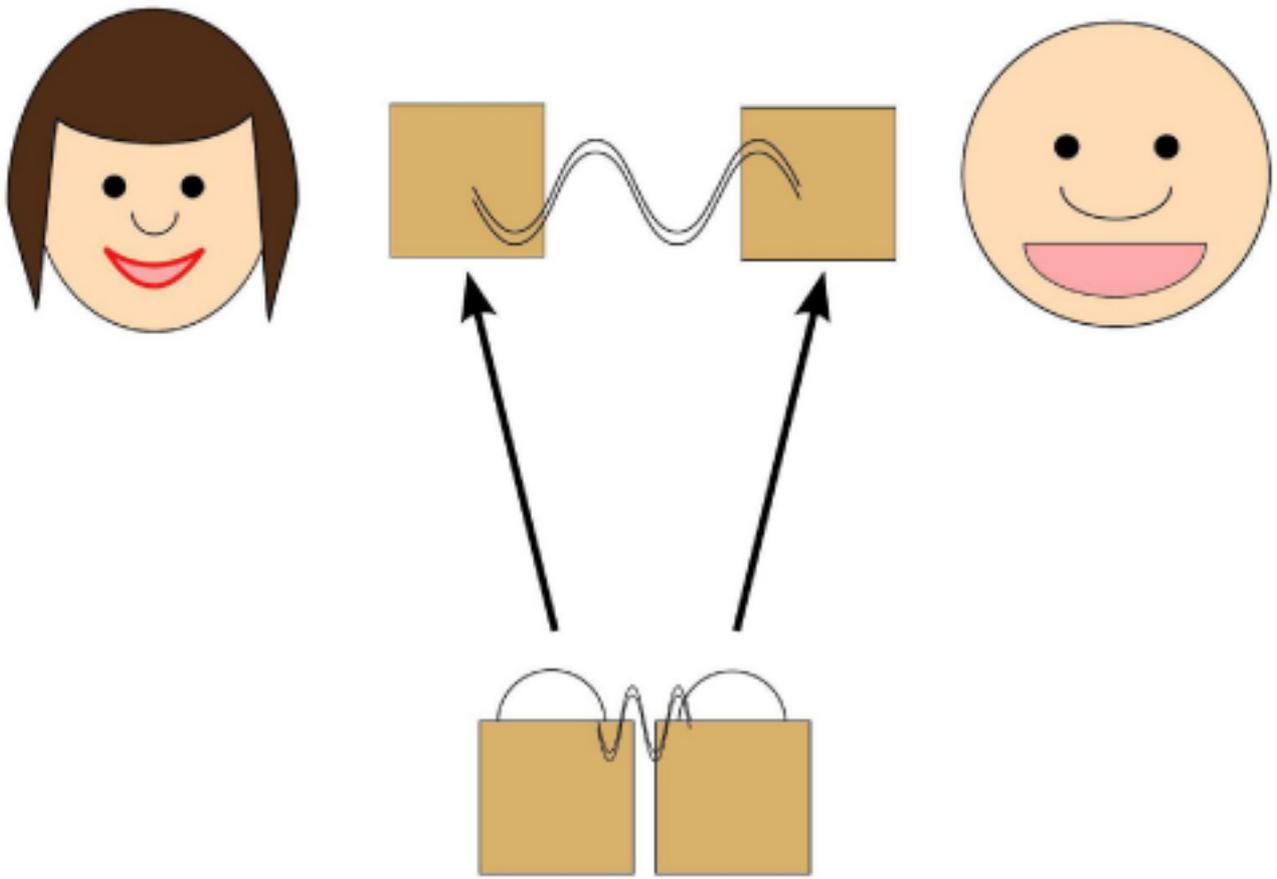


When one is measured to be **blue**, the other will be **blue**.



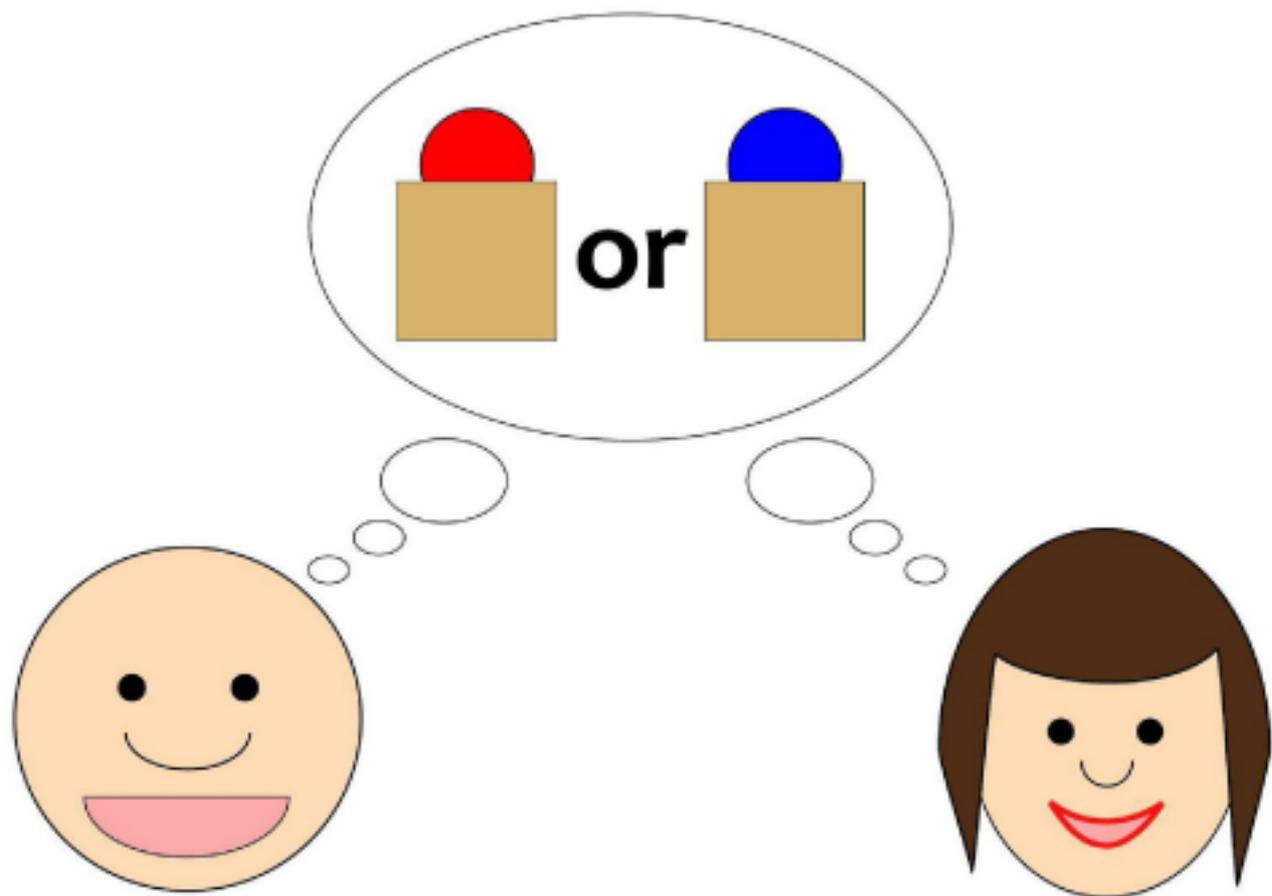


We let the entangled particles decay into the two boxes. 🎧



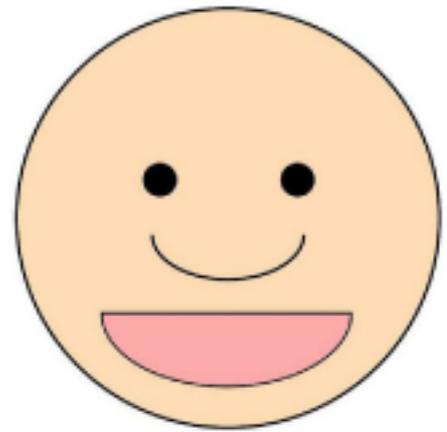
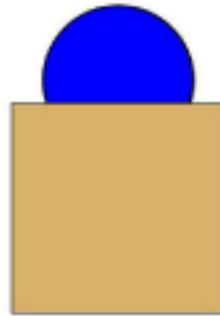
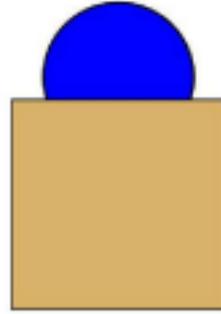
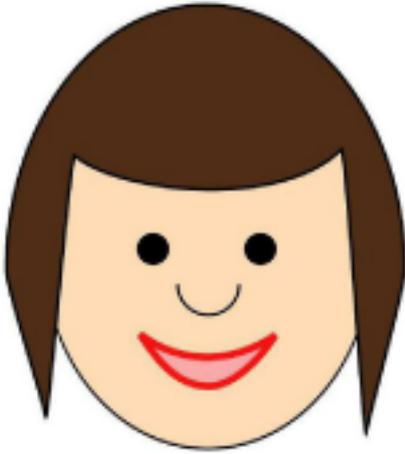
**We give the boxes
to Alice and Bob.**



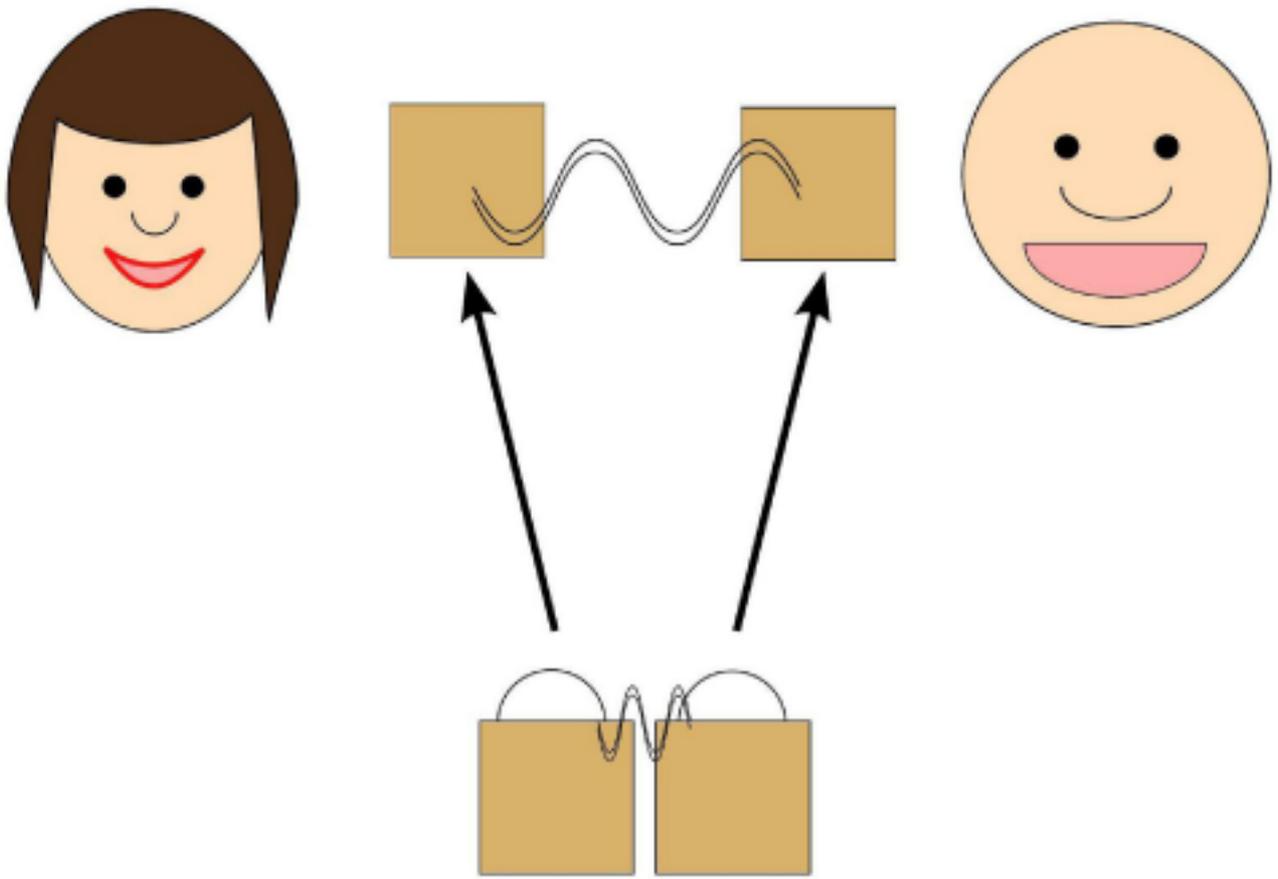


**Alice and Bob do not know
what color they will find.**



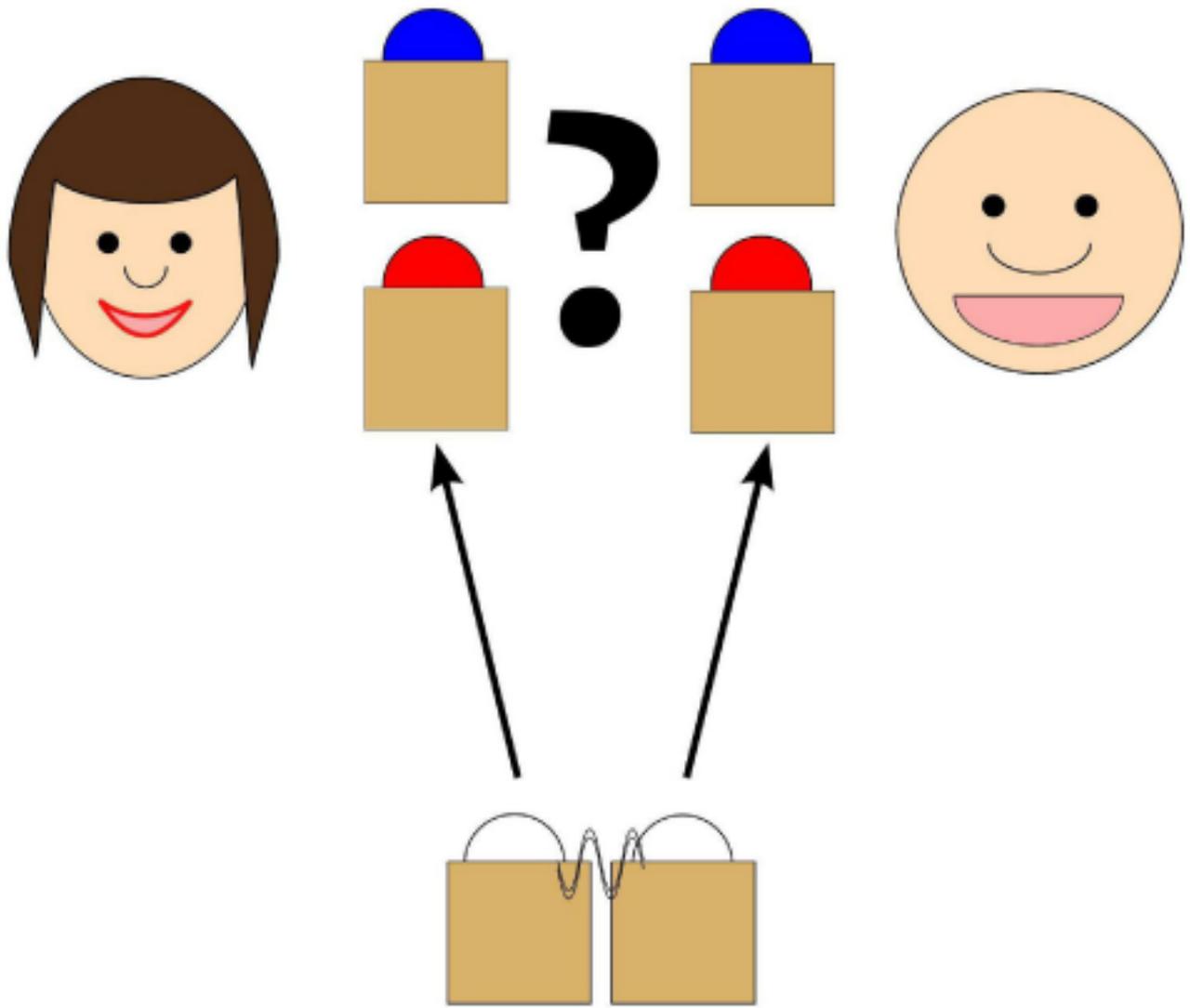


**And they always find
the same color! 🎧**



But this time even we do not know what they will find.

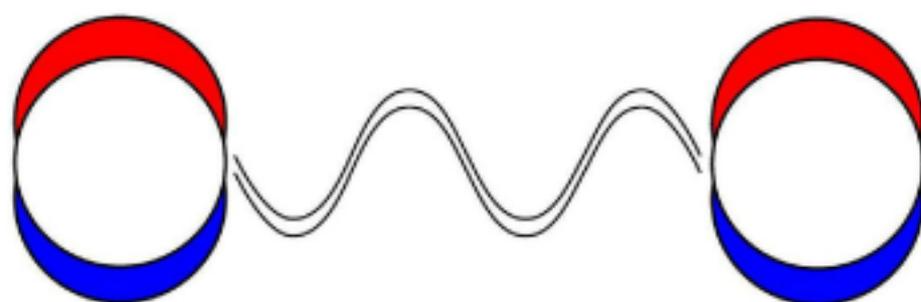




In fact, no one can know what Alice and Bob will find.



It is as if the particles decide what color they will be the moment they are measured.

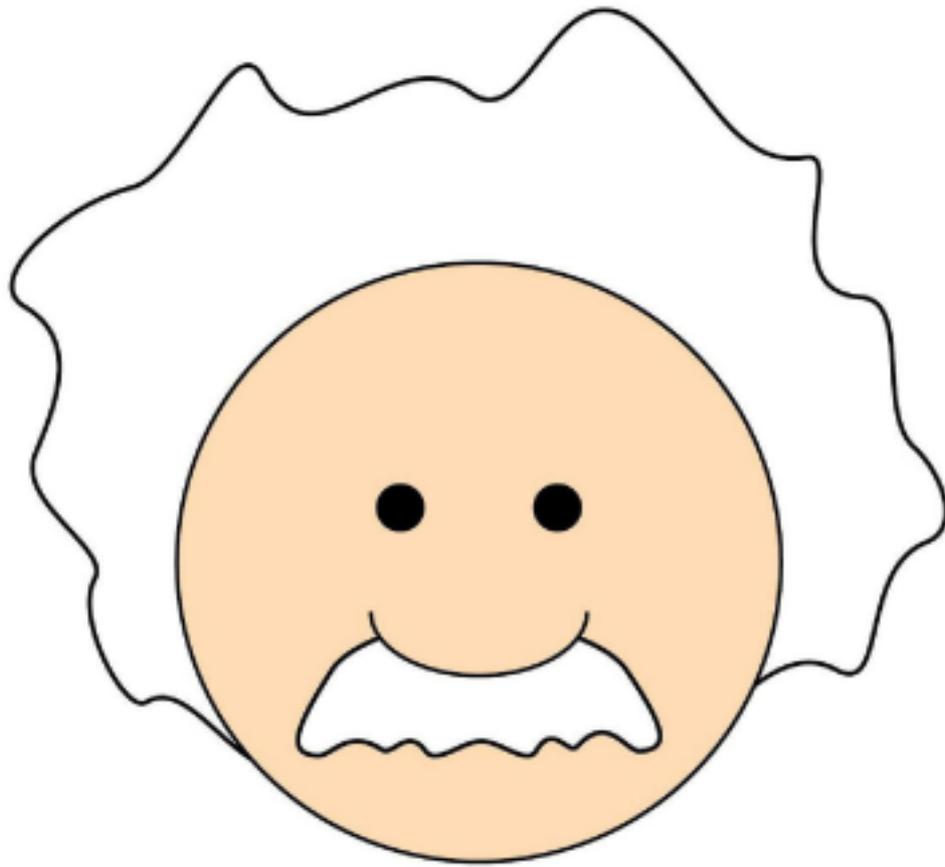


And this is true no matter how far apart they are.





**You are right, Baby,
that is strange! 🗣️**



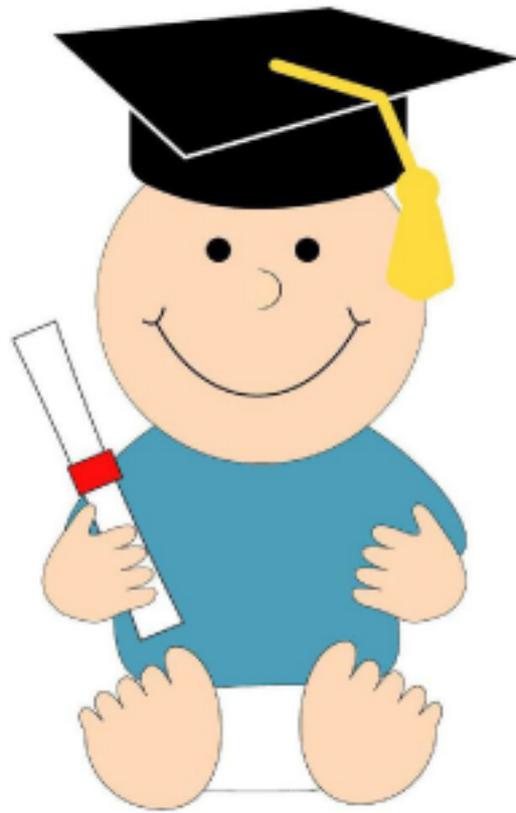
**Albert Einstein called this
"spooky action at a distance."**





**No one really understands
the nature of entanglement.**





**Baby, you could be the
first to understand it!**

