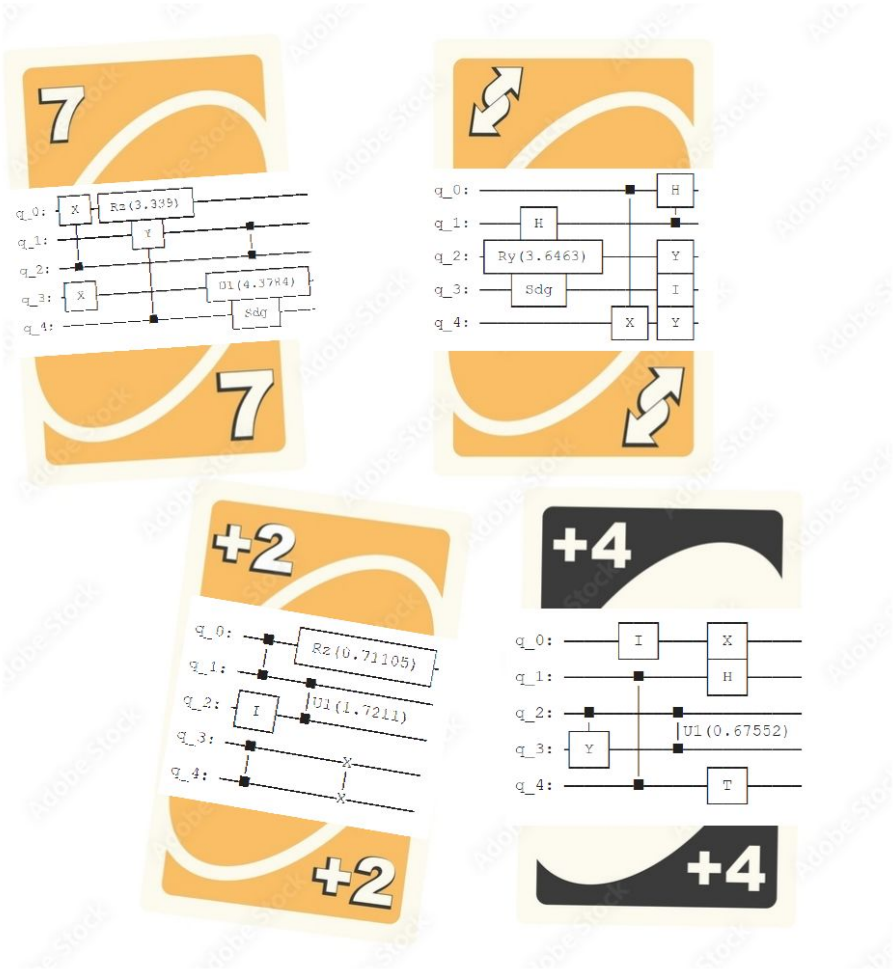
Quantum Uno-Jenga

Classical Uno

- Any card you put down must either be the same color or the same number with the card in the center.

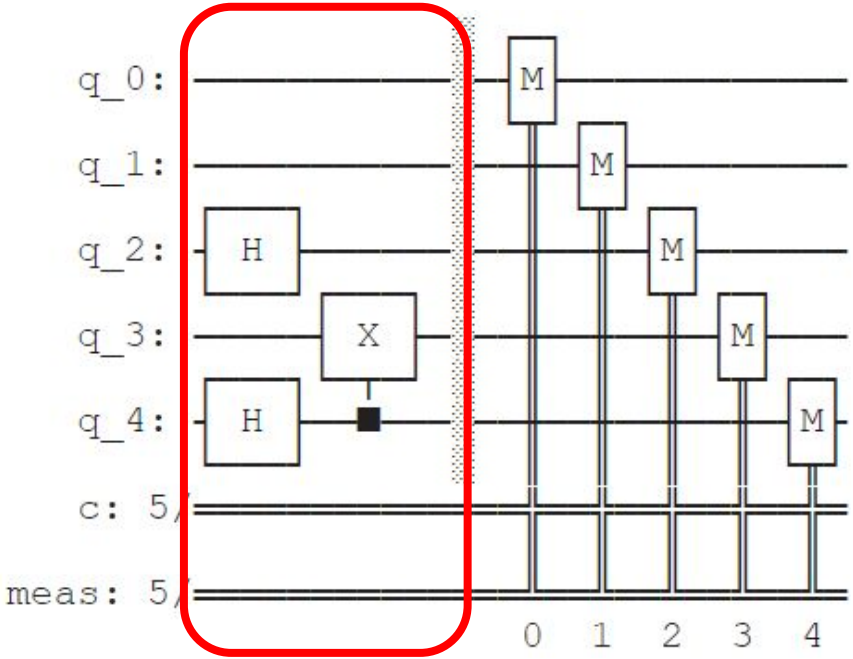
Quantum Uno

- Each card has a different random circuit on it.
- Each new card you put down, adds the new circuit to the previous one.



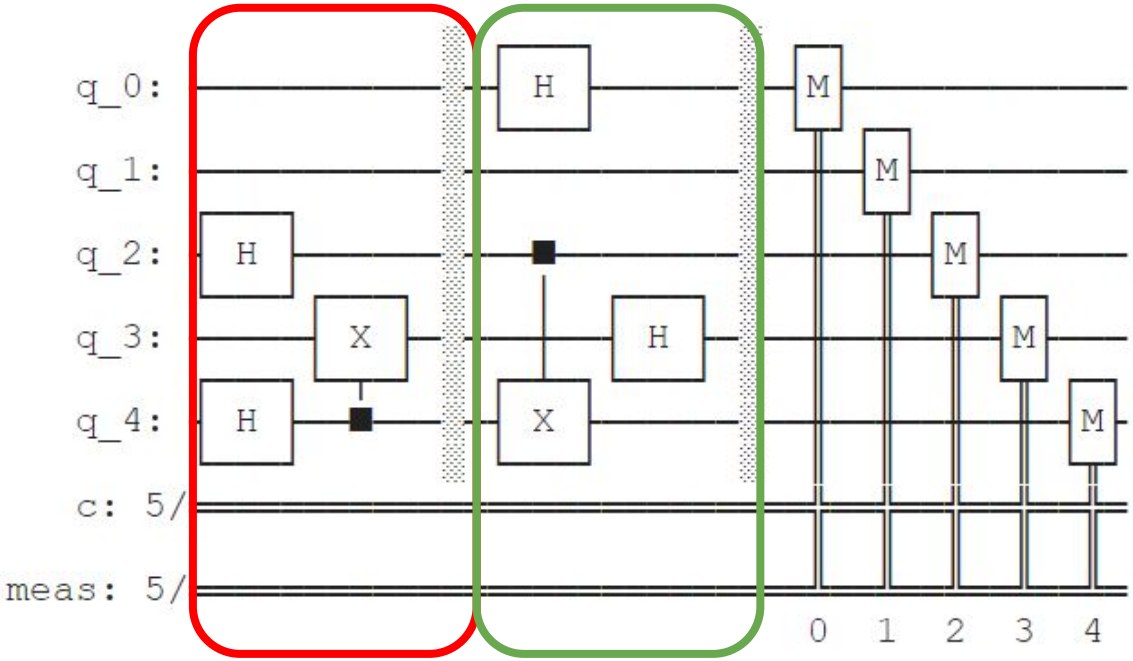
What happens when we add a card?

Jenga Principle of Stacking Cards



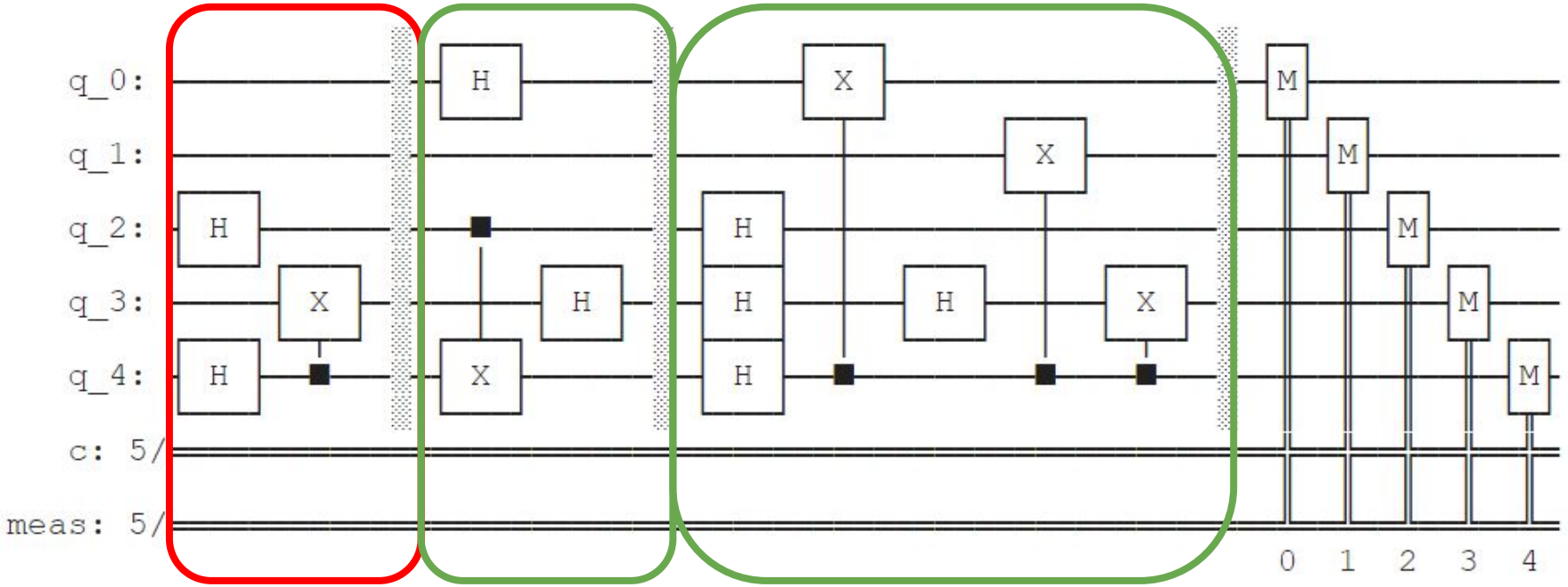
Red-2

Jenga Principle of Stacking Cards



Red-2 **Green-2**

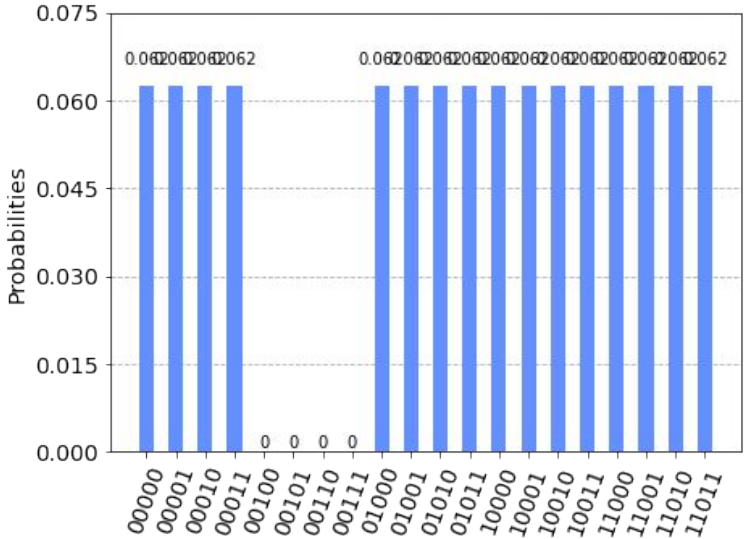
Jenga Principle of Stacking Cards



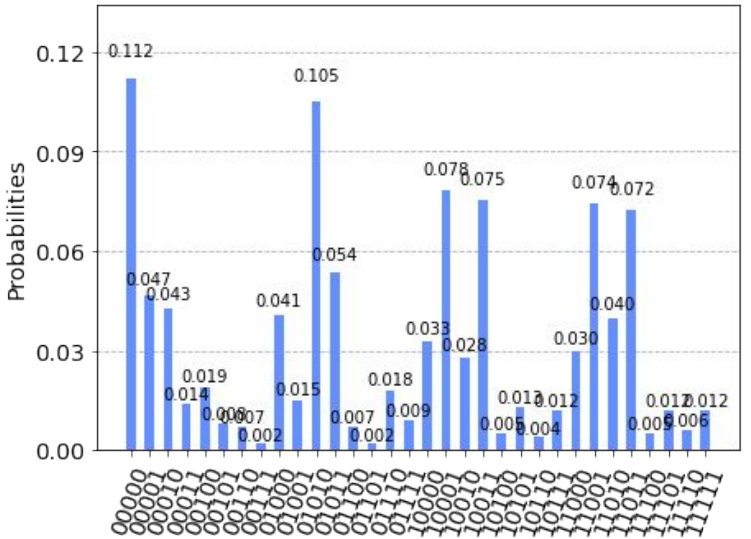
What do we do with the hardware calculation?

Simulation VS Quantum Hardware

- Ideal



- Noisy
- With increasing depth of circuit, the result has a higher chance of being erroneous.



Who is the winner?

If the overlap between the two probability functions is larger than 0.80: the last player wins

If the overlap between the two probability functions is smaller than 0.80: the previous player wins

Thank you!

Maybe to add info like this:

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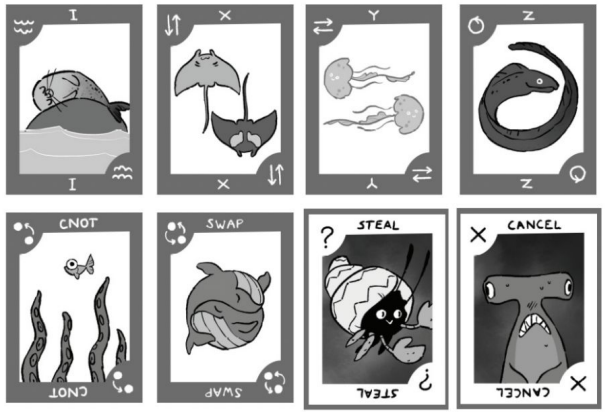

- Card game, where you play quantum gates
- With a real device, noise can be used in strategy

- Games to teach players:
  - Gameplay explicitly based on quantum programming

See zhamul.itch.io/qcards