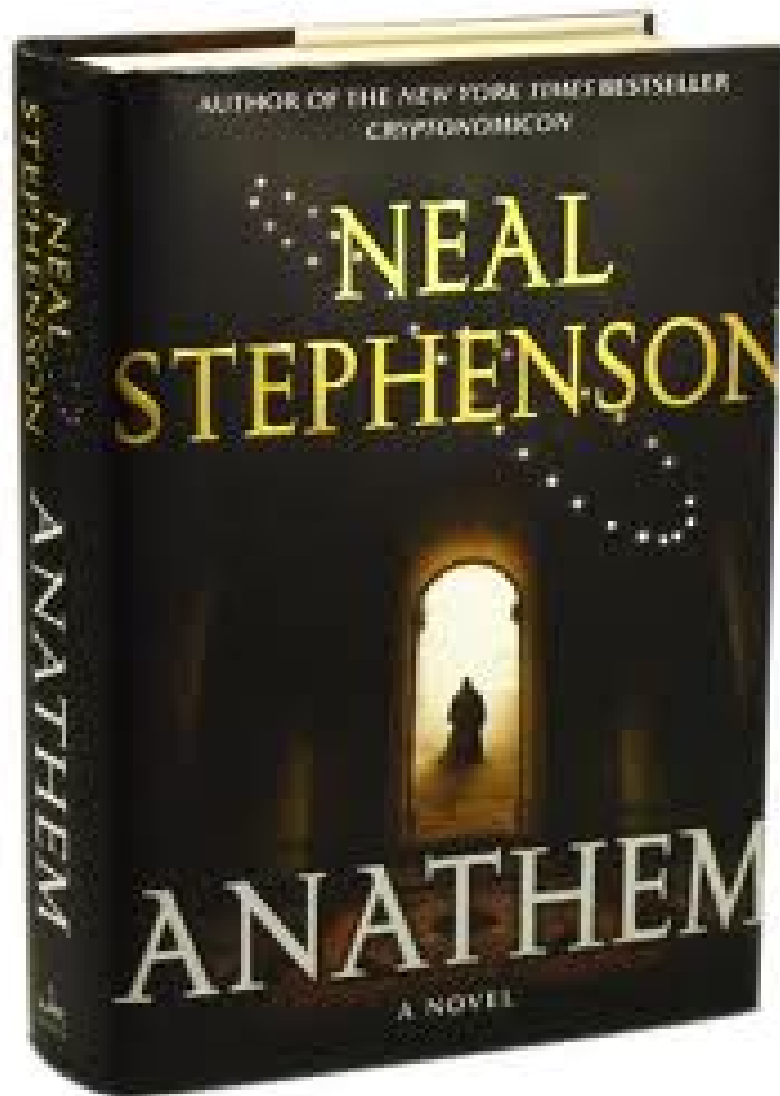
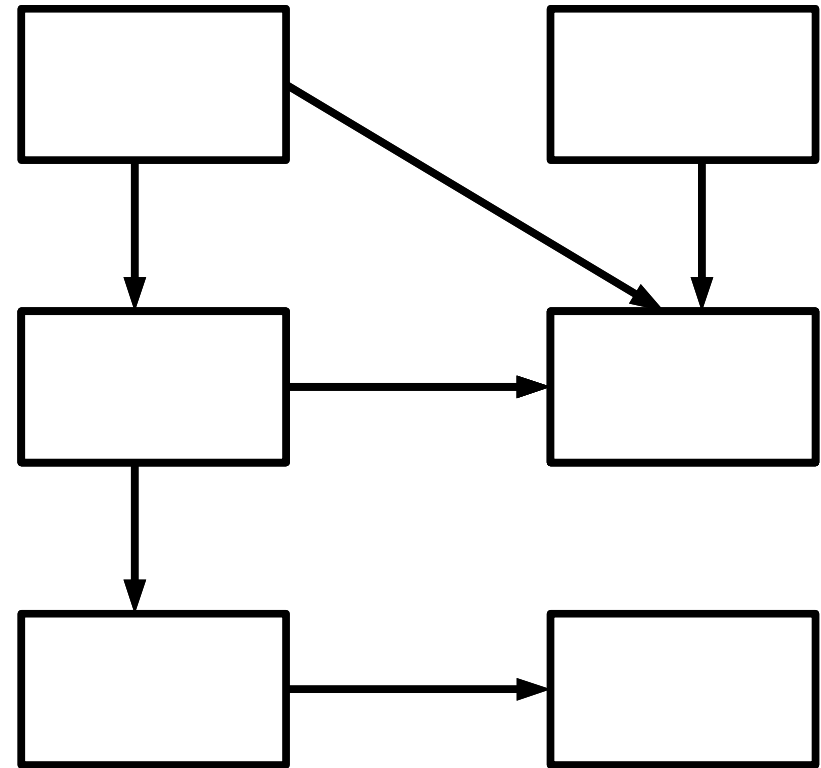
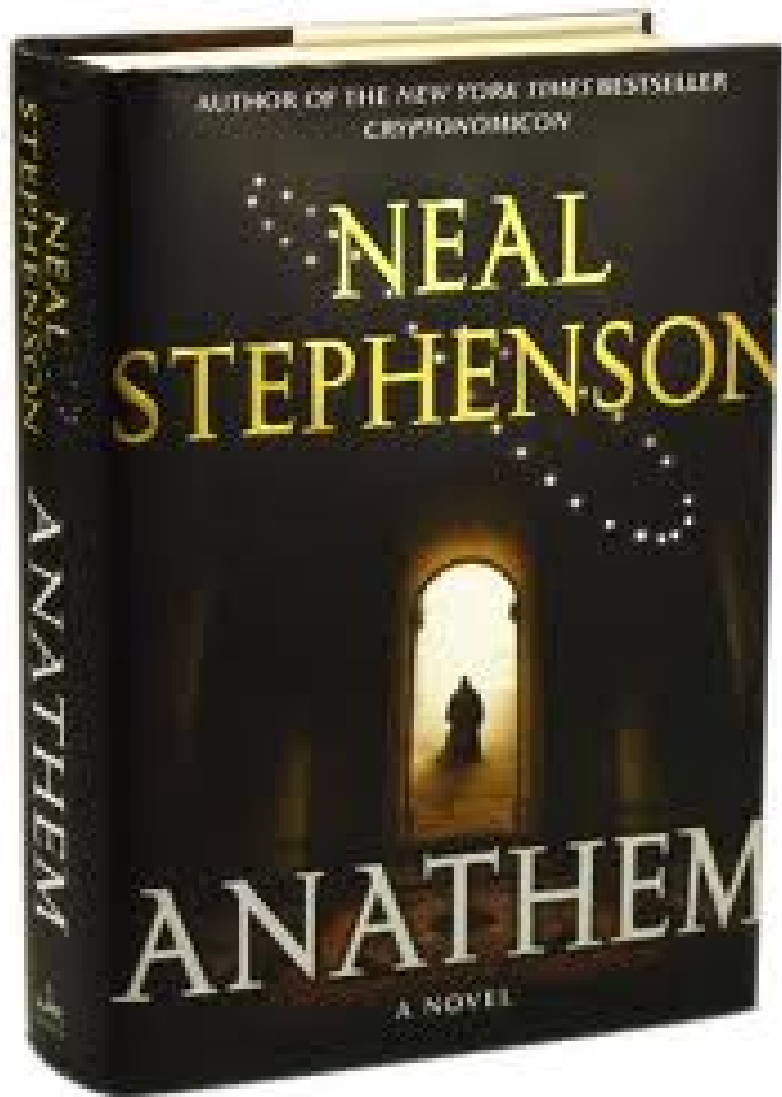


DimWit Networks

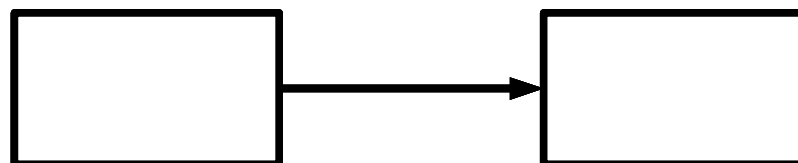
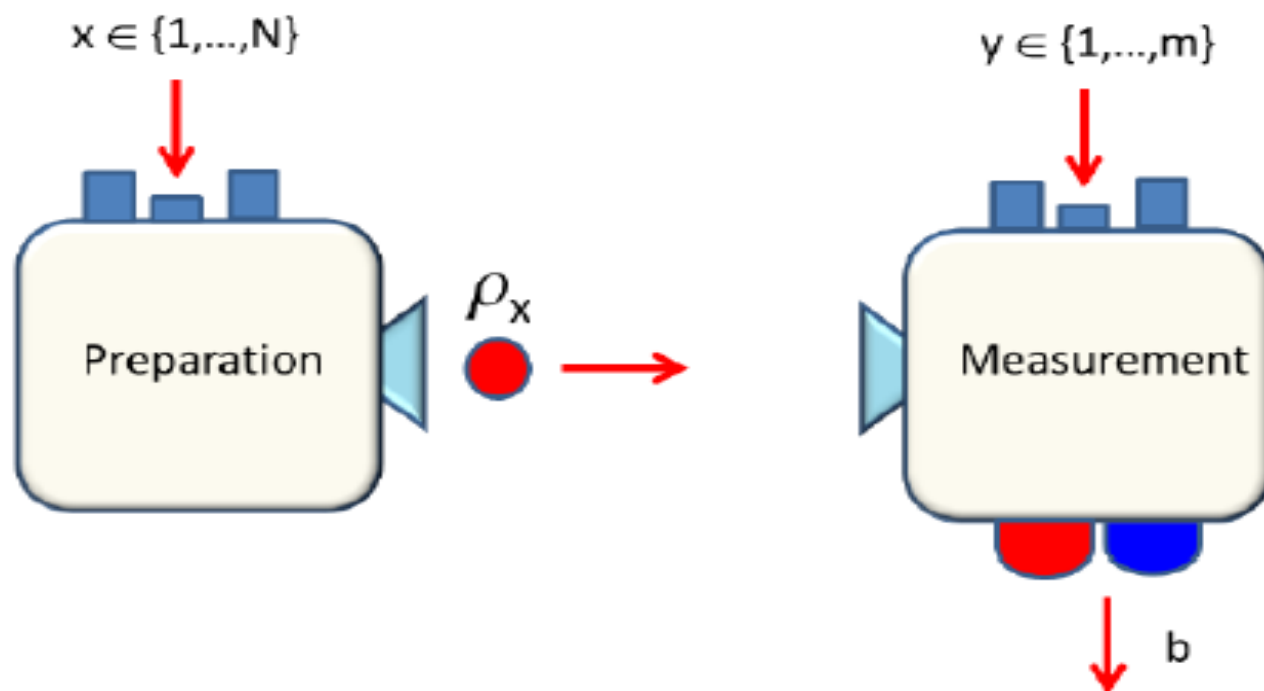
Joe Bowles, Nicolas Brunner, Marcin Pawłowski





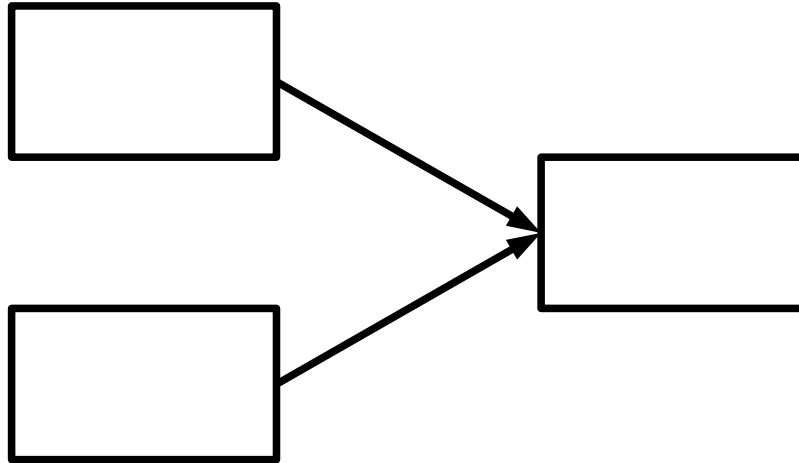


DimWit



Networks

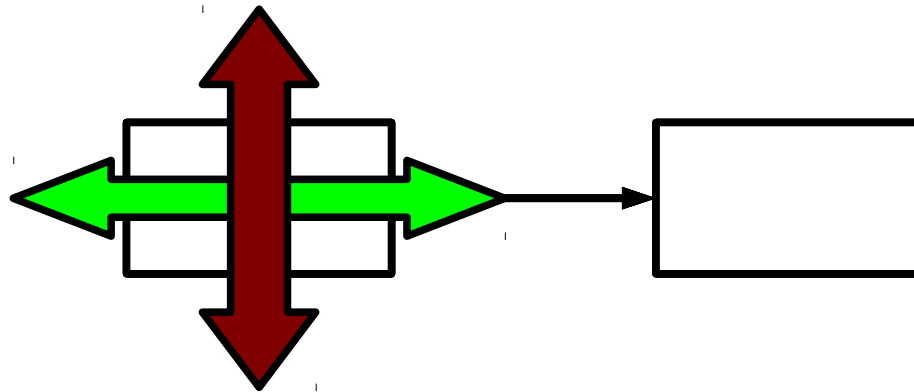
(a)



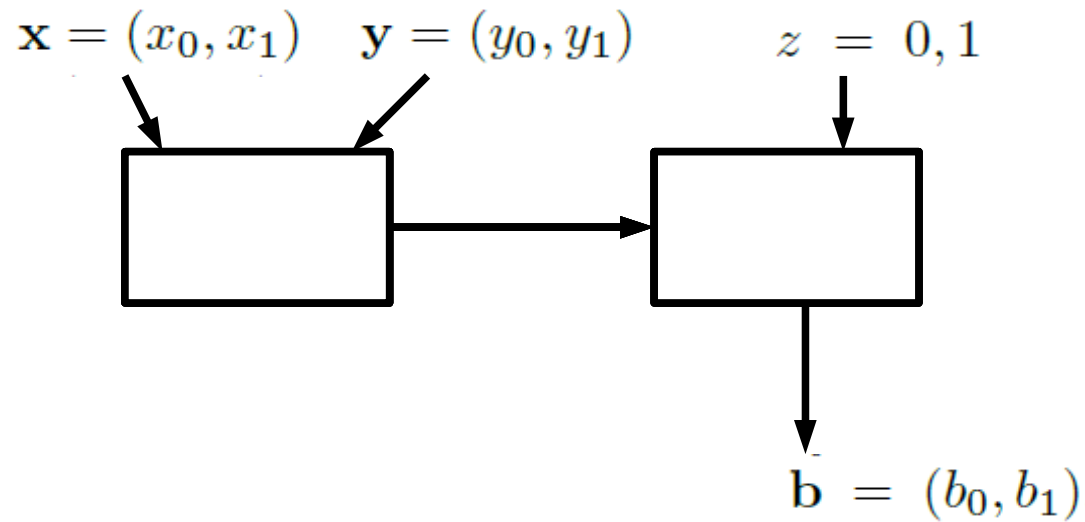
(b)



What property are we dealing with?



(a)



Success probability:

Quantum: 1

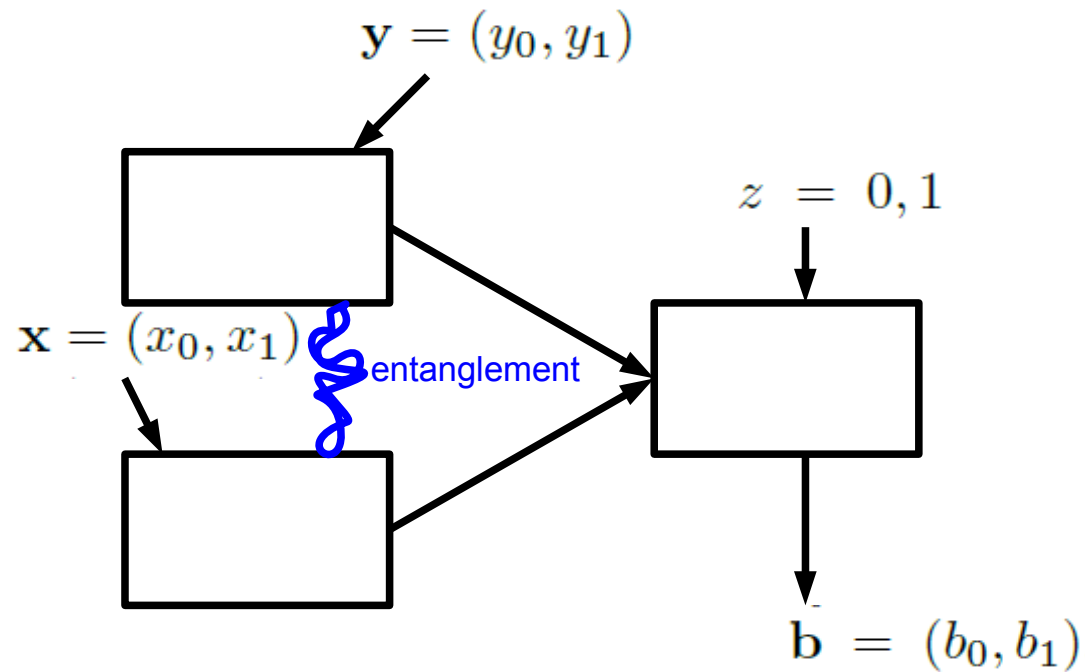
Classical: 5/8

Task:

$z = 0$ $\mathbf{b} = (x_0 \oplus y_0, x_1 \oplus y_1)$

$z = 1$ $\mathbf{b} = (x_0 \oplus y_1, x_1 \oplus y_0)$

(a)

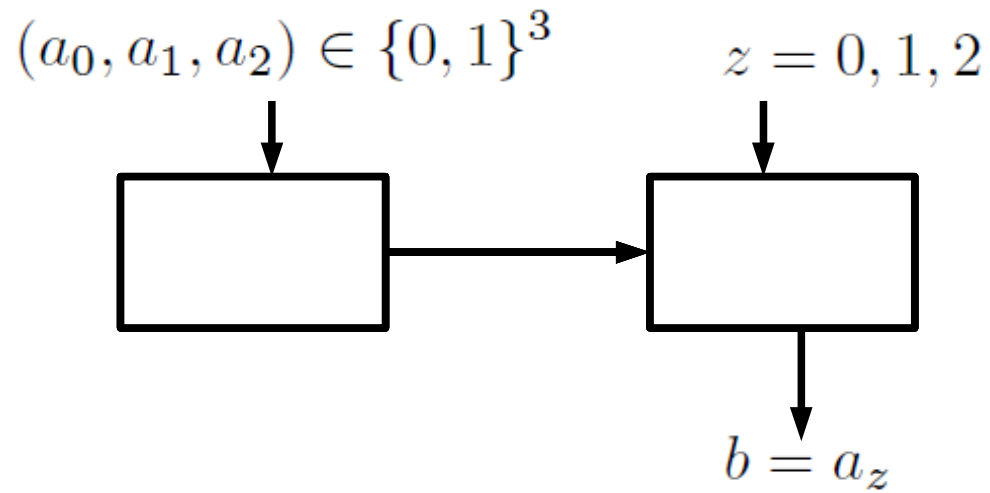


Success probability:

Quantum: $1 \rightarrow 1$

Classical: $5/8 \rightarrow 3/8$

(b)

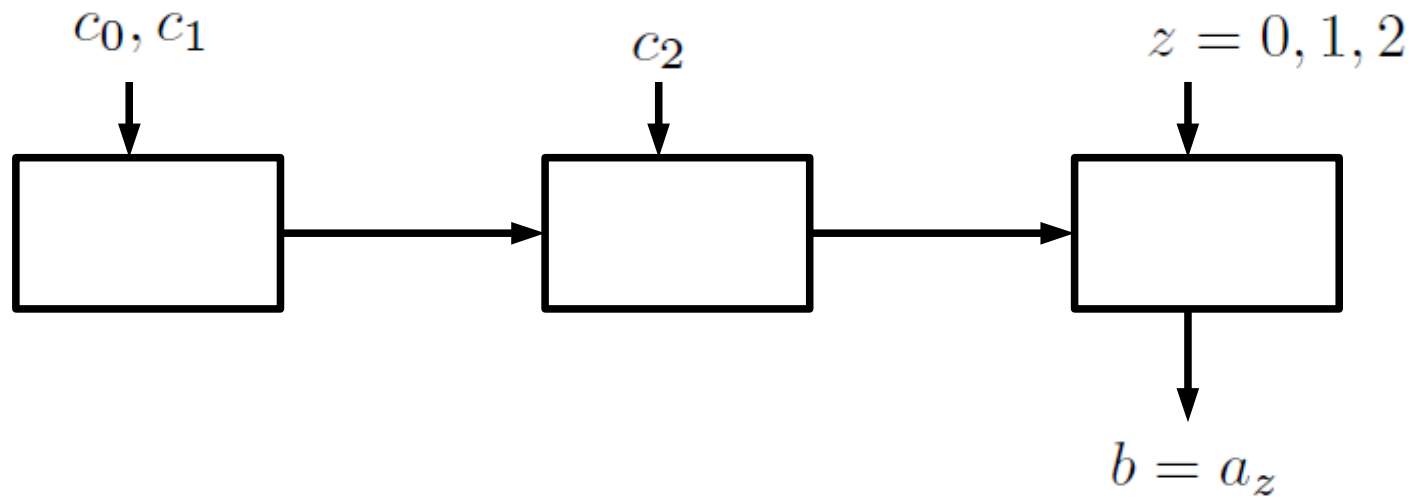


Success probability:

Quantum: 0.79

Classical: 0.75

(b)



Success probability:

Quantum: 0.79 → 0.79

Classical: 0.75 → 0.67

$$c_0 = a_0$$

$$c_1 = a_1$$

$$c_2 = a_0 \oplus a_2$$

Tip of an iceberg

- Even more parties
- Different communication bounds
- Outcomes in more places
- Variable communication paths
- Applications