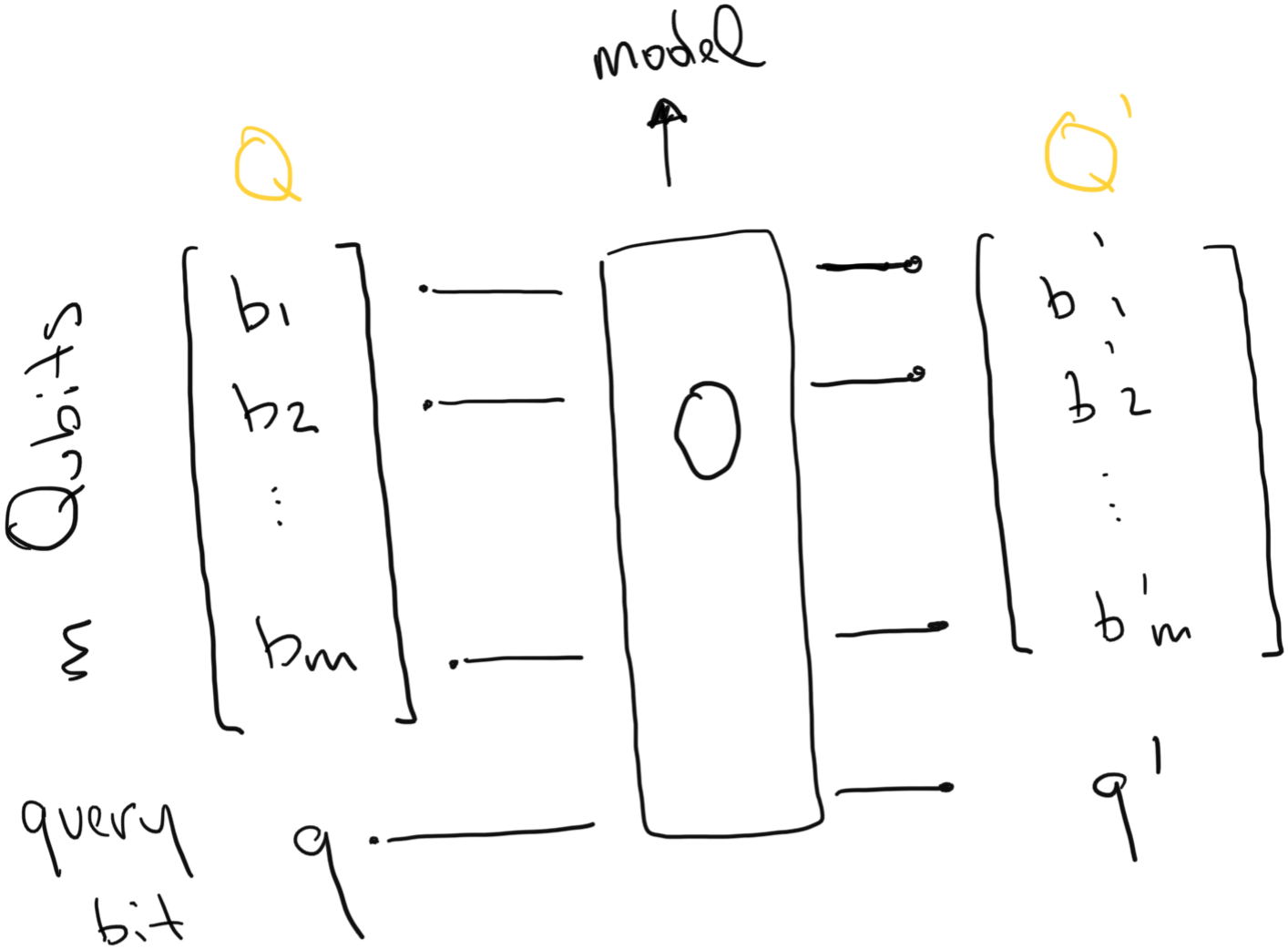
Quantum Algorithm

- Build "All-Knowing" Oracle



- Oracle is actually a quantum circuit

$O(Q): \{0,1\}^m \rightarrow \{0,1\}$

- quantum circuits can be described as "weighted" transformation matricies T, whose weights can be learned

$$O(Q): q' = TQ$$

1. Build an Oracle
   - → essentially a machine learning model
   - → learn weights of unitary operation that

map $x \longmapsto f(x)$

NOTE:: this could fail drastically

2. Apply Oracle

→ place all input qubits (Q) into a uniform superposition

→ use quantum supremacy and other "fun" math tricks

eg. Grover Operator, phase query