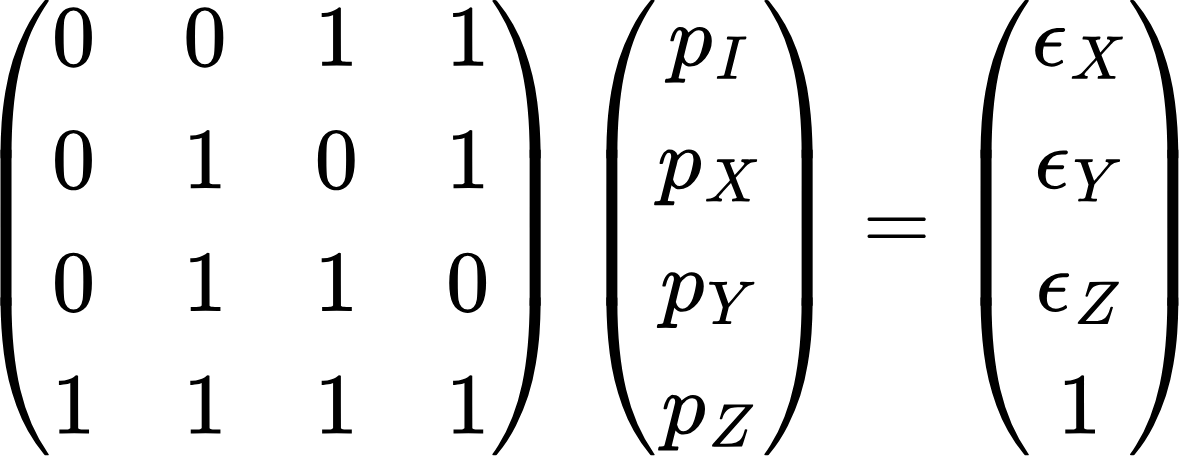
How are Pauli parameters inferred from syndromes?

A Pauli qubit channel is defined by 4 probabilities: pI, pX, pY, pZ. Pauli qubit channels act as binary symmetric channels when inputs are the eigenstate of the Pauli operator.

In the X-basis:

So by measuring syndromes in each basis, we can estimate , ,

The relation between these error rates and Pauli parameters can be written as a matrix equation:



This equation can be solved for . So each Pauli probability is just a linear combination of the observed error rates.