

A fusion category is the underlying algebraic data of a  $2 + 1$ -dimensional (“Turaev-Viro”) topological quantum field theory.

$\Sigma \rightsquigarrow A(\Sigma)$  a f.d. vector space  
a surface

$M^3 : \Sigma^{in} \rightarrow \Sigma^{out} \rightsquigarrow A(M) : A(\Sigma^{in}) \rightarrow A(\Sigma^{out})$   
a cobordism

## Example (Temperley-Lieb)

