

Exercises

Exercise 1. Show that the quantum dimensions satisfy

$$d_a d_b = \sum_c N_{ab}^c d_c. \quad (5.23)$$

Use this to show that our definition of quantum dimension as expectation value of a loop agrees with the definition of quantum dimension d_a as the largest eigenvalue of the matrix $[N_a]_{\mathcal{C}}^b$.

Exercise 2. Check explicitly at the level of partition function that gauging the dual symmetry recovers the original theory.

Exercise 3. Consider the algebra object $A = \bigoplus_{g \in G} g$. Show explicitly that bimodules in $\mathcal{C} = \text{Vec}_G$ over A are labeled by a representation of G .

Exercise 4. Show that module categories with a single object for $\mathcal{C} = \text{Vec}_G$ with no anomaly are classified by a 2-cocycle $\beta \in H^2(G, U(1))$.