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Dijkgraaf-Witten theory is an example of a topological quantum field theory. It gives a procedure for manufacturing manifold invariants from a finite group G and a cohomology class $\eta \in H^n(G; \mathbb{C}^*)$. Attempting a similar construction where \mathbb{C} is replaced by an arbitrary field k , one encounters some obstacles when the characteristic of k divides the order of G .

I'll discuss some mathematics which arises from a careful study of these obstacles, and the associated theory of "ambidexterity".

If time permits, I'll describe some joint work with Mike Hopkins, showing that these obstacles can be surmounted in the setting of $K(n)$ -local homotopy theory.