## Hamiltonian origins of a special class of interacting BF models in an arbitrary even spacetime dimension

Starting from the Lagrangian formulation of a special class of interacting topological BF models in an arbitrary even spacetime dimension deduced previously by a particular deformation method, here we investigate its Hamiltonian roots in the light of the general result according to which each theory with nontrivial gauge symmetries at the Lagrangian level always originates in a system subject to at least a set of first-class constraints (and possibly also some second-class ones, although not necessarily). The coupled model and its free (non-interacting) limit are compared and contrasted within the Hamiltonian setting. We find that the Hamiltonian properties of the two systems (the self-coupled one and its free limit) are completely complementary in the sense that if one displays a first-class constraint set with an open gauge algebra that is on-shell reducible, then the other exhibits an Abelian algebra and a set of reducibility relations that holds off-shell at the level of its corresponding first-class constraints.

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