Cell level actions of Moduli Space

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Abstract

There is a cell decomposition of the moduli space of Riemann surfaces with punctured boundary components in terms of graphs. Using these graphs we provide actions of the cells on the Hochschild complex of a Frobenius algebra. In principle this is done by associating a function to each graph and then dualizing. Hence we also get a representation of the cells into the cyclic cohomology of the algebra. This work generalizes Deligne's conjecture and its cyclic version from the level of trees to the level of moduli space.