

Orbifolding Frobenius algebras

Ralph Kaufmann
Department of Mathematics
University of Southern California

Abstract

In recent years there has been a new way of looking at objects with finite group actions. Instead of just looking at the invariants of this action one also considers all fixed point sets of the various group elements together with the induced group action on them. We will discuss this strategy for Frobenius algebras. These algebras are the algebraic analogue of topological field theories whose deformations appear e.g. in the context of mirror symmetry and quantum cohomology. The structure of orbifolding we discuss is related in the same vein with quantum cohomology of orbifolds more precisely so-called orbifold Landau-Ginzburg theories which appear in mirror symmetry and in singularity theory. We will discuss the algebraic properties and the geometric interpretation of orbifolding in our setting and give the standard example of obtaining D_n by as a quotient of A_{2n-3} by $Z/2Z$ action. This theory also gives a rise to the 2nd quantization of a Frobenius A algebra $\exp(A)$. The n -th term in this formal expression is a suitable quotient of $A^{\otimes n}$ by S_n , the n -th symmetric group.