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A graphical calculus for the Jack inner product on symmetric functions

Starting from a graded Frobenius superalgebra B , we consider a graphical calculus of B -decorated string diagrams. From this calculus we produce algebras consisting of closed planar diagrams and of closed annular diagrams. The action of annular diagrams on planar diagrams can be used to make clockwise (or counterclockwise) annular diagrams into an inner product space. It turns out that this space can be identified with the space of symmetric functions equipped with the Jack inner product at Jack parameter $\dim B_{\text{even}} - \dim B_{\text{odd}}$. In this way, we obtain a graphical realization of that inner product space. This is joint work with Anthony Licata and Daniele Rosso.