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Closed-Form Associators in a "Toy" Quotient

In the theory of finite-type invariants of knots, a key objective is to construct a "universal finite-type invariant", which takes values in a certain target space of chord diagrams. Construction of such a universal invariant can typically be reduced to determining its value on a particular kind of tangle, which represents a sort of "associativity" property. This value is usually referred to as an "associator", and it is hoped that finding an explicit expression for such an associator could offer significant knot-theoretic insights. In general, however, finding associators has proved to be an extremely difficult problem.

In this talk I will discuss how a closed-form associator can be constructed in a particular "toy" quotient of the usual target space, which may ultimately help us to construct associators in more general target spaces.