GLOBALISING JONES AND ALEXANDER POLYNOMIALS (AND THEIR QUANTUM GENERALISATIONS) VIA CONFIGURATIONS IN THE PUNCTURED DISC

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Abstract. Jones and Alexander polynomials are two important knot invariants and we obtain both of them from a *common topological perspective*, based on configurations on *ovals and arcs* in the punctured disc. The model is a graded intersection (in two variables) between *two explicit Lagrangians in a configuration space*. We consider links as closures of braids which, in turn, as mapping classes, act on the punctured disc. Then, we prove that the intersection before specialisation is (up to a quadratic quotient) an invariant which globalises the two invariants, given by an explicit interpolation between the Jones and Alexander polynomials.

Secondly, we discuss a *unified topological model* for their quantum generalisations, *coloured Jones and Alexander polynomials*, from a graded intersection in a *symmetric power of a surface*. If time permits, we present topological models for the corresponding 3-manifold quantum invariants.

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