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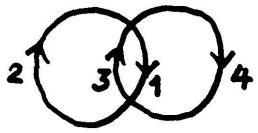
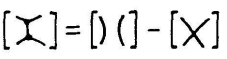
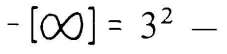


There are many instances of this sort of expansion outside of the theory of knots and links. For example, the following expansion (compare [78]) for *trivalent plane graphs G*



gives states that are locally four-valent plane graphs. If the value of a state S is taken to be *three raised to the number of crossing circuits in S*, then [G] is the number of colorings of the edges of G with three colors so that three distinct colors meet at each vertex of G. The existence of such a coloring for a trivalent plane graph is well known to be equivalent to finding a four-coloring of its faces so that no two faces that share an edge receive the same color. It is a delicate matter to determine when [G] is non-zero.



$$= 3^2 - 3 = 6 .$$

Other conventions, more closely related to tensor formalisms are discussed in [78] and [58].

In general, these pictorial expansions are a way to express the vertex weights of a model in a fashion that is easy to relate with the geometry of the diagrams themselves.

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Louis H. Kauffman

Department of Mathematics, Statistics and Computer Science
University of Illinois at Chicago, Box 4348
Chicago, Illinois 60680 (USA)

and

Institut des Hautes Études Scientifiques
35, route des Chartres
F-91440, Bures-sur-Yvette (France)