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The  $\star$ -product of the Kauffman bracket quantization defines an infinite sequence of bilinear pairings on the algebra of complex  $SL(2, \mathbb{C})$ -characters of the fundamental group of an oriented surface. We prove a formula, which expands the terms of this sequence in a two-variable polynomial algebra of resolution operations of diagrams on  $F$ . The degree  $k$  elements in this algebra can be interpreted as string topology operations defined by sums of weighted resolutions of the  $k$ -element subsets of the set of crossings of a diagram. The highest degree term of resolution operation in the quantum order  $k$  pairing is a natural *alternating*  $k$ -resolution operation. The lower order terms can be explicitly identified by obvious counting degeneracies and contractible loop correction terms. (Received September 20, 2005)