1021-55-31 **John Armstrong*** (john.armstrong@math.yale.edu), Department of Mathematics, Yale University, P.O. Box 208283, New Haven, CT 06520-8283. *Recursive algorithms for calculating link invariants by functorial extensions to tangles.* Preliminary report.

One drawback of many classical link invariants is that they lack a straightforward algorithm for computation, leading to "holes" in the table of knots. This work proposes that the remedy is to increase the domains of such invariants from sets of links to categories of tangles and to determine functors on these categories (essentially) extending the classical invariant. Such a functor automatically comes with a recursive algorithm to compute its value, yielding an algorithm to compute the classical invariant.

The extensions of the fundamental group and fundamental quandle of a link will be presented as proof-of-concept. (Received July 11, 2006)