1176-57-44   **Cole W Hugelmeyer*** (`coleh@math.princeton.edu`). *Generalized Finite-Type Theories of Knots.*

We present various new generalizations of the finite type theory of knots by establishing a relationship between generalized finite type theories of knot-like structures and diagrammatic combinatorial systems for representing those structures. By inventing suitable new combinatorial diagram systems for representing knots and knot-like structures, we can obtain new generalized finite type theories. We will demonstrate this through three examples: the standard finite type theory and its relationship with the recently invented diagram system of clasp diagrams, the finite type theory of delta moves and a new diagram system called looms, and the finite type theory of structures we call virtual transverse knots. The finite type theory of delta moves may have applications to unknotting number, and the theory of virtual transverse knots leads to many interesting and difficult conjectures. (Received January 08, 2022)