

The paper begins with the fundamental study of knots and the reasons the hope existed that knot theory would be applicable in other fields such as describing the atoms structure. The paper continues to explain how early researchers like Gauss, came across the first known link invariants to establish differences between knots such as the linking number. The reader then learns about Maxwell and his creation of knot diagrams representing over and under crossings. Also, it is explained that Maxwell found ways to alter diagrams that were later referred to as Reidemeister moves. Tait and other researchers then organized the first table of knots and conjectured the minimal number of crossings necessary to represent each knot. Tait's conjectures are also included within the paper. The development of braid theory is then explained including relations with knot theory. The section on the work of Alexander describes and defines the Alexander polynomial and mentions that the polynomial cannot distinguish between the chirality of knots. Reidemeister's work is then described, showing that diagrams of knots can be manipulated with only three moves. More knot invariants are explained such as the Conway polynomial and Jones polynomial along with their axioms. The relationship between the Jones polynomial and other polynomials such as the HOMFLY and Bracket polynomials is also described in historical context. Furthermore, Vassiliev's idea of the double point and Vassiliev invariants are described. Finally, the author describes the relations between knot theory and other disciplines such as biology and statistics, explaining that knot theory's influence in other fields continues to grow.