

Unknotting Operations of Rotation Type

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1. Introduction.

This paper is concerned with knots and links in S^3 . Nakanishi [5] showed that six replacements appearing in the Conway Third Identity are all unknotting operations and determined the number of the equivalence classes for the equivalence relation generated by each replacement for a μ component link.

Aida [1] generalized two replacements of them to an n -gon move and showed that it is an unknotting operation.

In this paper we generalize the rest of six replacements to moves of polygon type similarly as Aida did, and show that any μ component link can be deformed into a trivial knot by a finite sequence of each of these moves.

We refer to Burde and Zieschang [2] or Rolfsen [6] for standard definitions and results in knot theory.

2. Preliminary results and main theorems.

J. H. Conway [3] introduced the potential function for a link with labels. We consider replacements appearing in the Conway Third Identity. Let L_1, L_2, L_3 and L_4 be four links which differ only in one place as is shown in Fig. 2-1.

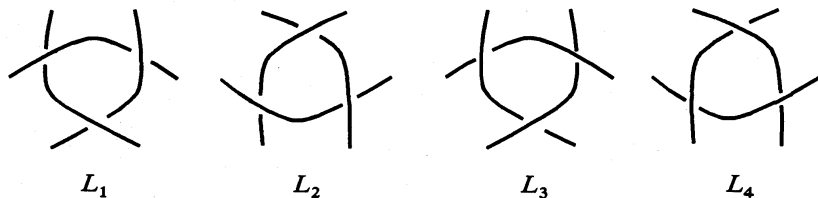


FIGURE 2-1

Nakanishi [5] defined Δ_{ij} -moves as a local move between a link diagram of L_i and L_j , and showed that each Δ_{ij} -move is an unknotting operation.

Received September 12, 1991

Revised February 13, 1992