SOME INTRICATE NONINVERTIBLE LINKS

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Let L be an oriented, ordered link imbedded in the oriented 3-sphere S^3, and let μ and κ be integers such that $1 \leqq \kappa < \mu$. We say that L is a *generalized noninvertible link for the pair* μ, κ (or a $(\mu, \kappa)I$ *link*) if it satisfies:

(i) *L has μ components*;

(ii) *Each sublink with κ or fewer components is invertible*;

(iii) *Each sublink with more than κ components is noninvertible.*

L is *invertible* provided it is of the same (oriented) type as its inverse. The *inverse* of L is obtained by reversing the orientation of each component of L.

Now $(2, 1)I$ links were exhibited in [2] and a $(\mu, \mu-1)I$ link was given in [3] for each $\mu \geqq 3$. In this announcement we outline the construction of a generalized noninvertible link for each pair μ, κ such that $1 \leqq \kappa < \mu$ and $\mu \geqq 3$. Details will appear elsewhere.

1. Two propositions.

The following propositions clear the way for the constructive type proof of the main Theorem 2.1. An induction argument together with results of [2] yields a proof of

PROPOSITION 1.1. *For each integer $\mu \geqq 2$, there exists a $(\mu, 1)I$ link in S^3.*

The combined contents of [2] and [3] are stated in

PROPOSITION 1.2. *For each integer $\mu \geqq 2$, there exists a $(\mu, \mu-1)I$ link in S^3.*

2. $(\mu, \kappa)I$ links.

The main result is

THEOREM 2.1. *For each pair of integers μ, κ such that $1 \leqq \kappa < \mu$, there is a generalized noninvertible link $\mathfrak{L}$ in S^3 satisfying* (i), (ii), *and* (iii) *of the introduction.*

OUTLINE OF CONSTRUCTION. By Propositions 1.1 and 1.2, we need consider only those integers μ, κ for which $2 \leqq \kappa < \mu - 1$. We relax this, however, and assume only that $2 \leqq \kappa < \mu$.

Set $\nu = \binom{\mu-1}{\kappa}$. Let $Q_1, \ldots, Q_\nu$ be a collection of disjoint 3-cells in S^3

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