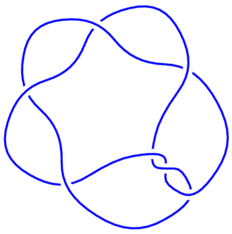
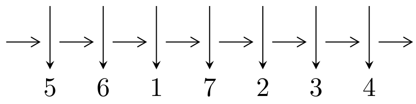
7_3 $(K7a_5)$



[1]

Arc Sequences



Solving Sequence

$$1,4 \xrightarrow[c_3]{} 3 \xrightarrow[c_7]{} 7 \xrightarrow[c_4]{} 5 \xrightarrow[c_1]{} 2 \xrightarrow[c_6]{} 6 \twoheadrightarrow c_2, c_5$$

Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^6 - u^5 + 3u^4 - 2u^3 + 2u^2 - u - 1 \rangle$$

There are 1 irreducible components with 6 representations.

[1]The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u = \langle u^6 - u^5 + 3u^4 - 2u^3 + 2u^2 - u - 1 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^4 - u^2 + 1 \\ u^5 - u^4 + 2u^3 - u^2 + u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^4 - u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^4 - u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^4 + 4u^3 - 8u^2 + 4u - 10$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.413150$	-0.738851	-13.4168
$u=-0.138835-1.234445I$	$2.96024-1.97241I$	$-4.57572+3.68478I$
$u=-0.138835+1.234445I$	$2.96024+1.97241I$	$-4.57572-3.68478I$
$u=\quad 0.408802-1.276377I$	$-3.69558+4.59213I$	$-8.58114-3.20482I$
$u=\quad 0.408802+1.276377I$	$-3.69558-4.59213I$	$-8.58114+3.20482I$
$u=\quad 0.873214$	-7.66009	-12.2695

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_2, c_5 c_6	$(u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1)$
c_3, c_4, c_7	$(u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_2, c_5 c_6	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)$
c_3, c_4, c_7	$(y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1)$