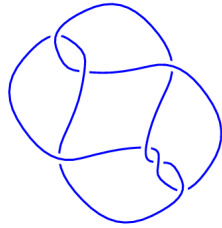
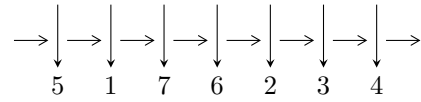


7₅ (K7a₃)

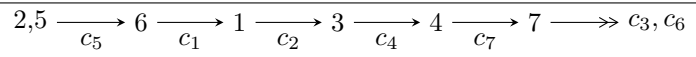


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1 \rangle$$

There are 1 irreducible components with 8 representations.

¹The knot diagram image is adapter from “C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, <http://www.indiana.edu/~knotinfo>”

$$\text{I. } I_1^u = \langle u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^7 - 2u^5 + 2u^3 - 2u \\ -u^7 - u^6 + 2u^5 + u^4 - 2u^3 - 2u^2 + 2u + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^7 - 2u^5 + 2u^3 - 2u \\ -u^7 - u^6 + 2u^5 + u^4 - 2u^3 - 2u^2 + 2u + 1 \end{pmatrix}$$

(ii) Obstruction class = -1

$$\text{(iii) Cusp Shapes} = 4u^7 - 8u^5 - 4u^4 + 8u^3 + 4u^2 - 4u - 14$$

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.031807 - 0.655470I$	$-2.37968 - 6.44354I$	$-9.42845 + 5.29417I$
$u = -1.031807 + 0.655470I$	$-2.37968 + 6.44354I$	$-9.42845 - 5.29417I$
$u = -0.603304$	-0.845036	-11.8945
$u = -0.570868 - 0.730671I$	$-1.04066 + 1.13123I$	$-7.41522 - 0.51079I$
$u = -0.570868 + 0.730671I$	$-1.04066 - 1.13123I$	$-7.41522 + 0.51079I$
$u = 0.855237 - 0.665892I$	$2.15941 + 2.57849I$	$-4.27708 - 3.56796I$
$u = 0.855237 + 0.665892I$	$2.15941 - 2.57849I$	$-4.27708 + 3.56796I$
$u = 1.09818$	-6.50273	-13.8640

II. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5	$(u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1)$
c_2, c_4	$(u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1)$
c_3, c_6, c_7	$(u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1)$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)$
c_2, c_4	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)$
c_3, c_6, c_7	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)$