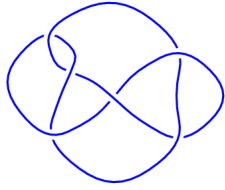
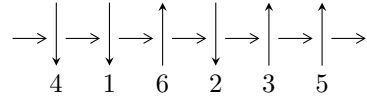


6<sub>3</sub> (K6a<sub>1</sub>)

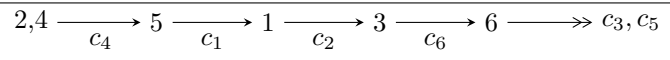


1

**Arc Sequences**



**Solving Sequence**



**Representation Ideals**

$$I = I_1^u$$

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

There are 1 irreducible components with 6 representations.

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

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

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_6 = \begin{pmatrix} u^4 - u^2 + 1 \\ -u^4 \end{pmatrix}$$

(ii) Obstruction class =  $-1$

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

(iv) Complex Volumes and Cusp Shapes

Solution to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.002193 - 0.295542I$	$-1.89061 - 0.92430I$	$-3.71672 + 0.79423I$
$u = -1.002193 + 0.295542I$	$-1.89061 + 0.92430I$	$-3.71672 - 0.79423I$
$u = 0.428243 - 0.664531I$	$1.89061 - 0.92430I$	$3.71672 + 0.79423I$
$u = 0.428243 + 0.664531I$	$1.89061 + 0.92430I$	$3.71672 - 0.79423I$
$u = 1.073950 - 0.558752I$	$5.69302I$	$-5.51057I$
$u = 1.073950 + 0.558752I$	$-5.69302I$	$5.51057I$

## II. u-Polynomials

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

### III. Riley Polynomials

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