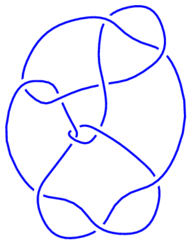
$11a_{38}$ ($K11a_{38}$)



[1]

Arc Sequences

$$\to \underset{4}{\downarrow} \to \underset{1}{\downarrow} \to \underset{8}{\uparrow} \to \underset{2}{\downarrow} \to \underset{9}{\uparrow} \to \underset{11}{\downarrow} \to \underset{3}{\uparrow} \to \underset{6}{\uparrow} \to \underset{5}{\uparrow} \to \underset{7}{\downarrow} \to \underset{10}{\uparrow} \to$$

Solving Sequence

$$3,7 \xrightarrow[c_7]{} 8 \xrightarrow[c_3]{} 4,11 \xrightarrow[c_6]{} 6 \xrightarrow[c_8]{} 9 \xrightarrow[c_5]{} 5 \xrightarrow[c_{10}]{} 10 \xrightarrow[c_{11}]{} 1 \xrightarrow[c_2]{} 2 \ggg c_1, c_4, c_9$$

Representation Ideals

$$I = \bigcap_{i=1}^{3} I_i^u \bigcap I_1^v$$

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

$$I_2^u = \langle a^{18} + a^{16} + a^{15} + 2a^{14} + 6a^{13} + 4a^{12} + 8a^{11} + 7a^{10} + 5a^9 + 8a^8 - a^7 - 2a^6 - 4a^5 - 6a^4 - a^3 + a + 1,$$
$$3152a^{17} + 1931b + \cdots - 3464a + 3663,\ -5196a^{17} + 1931u + \cdots + 280a - 5933 \rangle$$

$$I_3^u = \langle u^{50} - 2u^{49} + \cdots - 80u + 64,\ 6.45012 \times 10^{51}u^{49} + 1.50399 \times 10^{52}u^{48} + \cdots + 1.95736 \times 10^{54}a + 5.53276 \times 10$$
$$- 1.04898 \times 10^{52}u^{49} + 3.10631 \times 10^{52}u^{48} + \cdots + 9.78680 \times 10^{53}b + 1.83455 \times 10^{54} \rangle$$

$$I_1^v = \langle 2b^4 + 5b^3 + 6b^2 + 3b + 1,\ -4b^3 - 10b^2 - 10b + v - 3,\ a \rangle$$

There are 4 irreducible components with 78 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.

$$\boldsymbol{I_1^u = \langle u^6 - 3u^4 + 2u^2 + 1,\ -u^4 + 2u^2 + a - 1,\ u^5 - 2u^4 - 3u^3 + 3u^2 + b + 2u\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^4 - 2u^2 + 1 \\ -u^5 + 2u^4 + 3u^3 - 3u^2 - 2u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^5 - 3u^3 + 2u \\ u^5 + u^4 - 3u^3 - 2u^2 + 2u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^4 - 2u^2 + u + 1 \\ -u^5 + u^4 + 3u^3 - 2u^2 - u + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^4 + u^2 + 1 \\ -u^4 + u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^4 - 2u^2 + 1 \\ -u^5 + u^4 + 3u^3 - 2u^2 - 2u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ u^4 - u^2 - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.307141 - 0.215080I$ $a = 0.122561 + 0.744862I$ $b = -0.83738 + 2.17456I$	$3.02413 + 2.82812I$	$3.50976 - 2.97945I$
$u = -1.307141 + 0.215080I$ $a = 0.122561 - 0.744862I$ $b = -0.83738 - 2.17456I$	$3.02413 - 2.82812I$	$3.50976 + 2.97945I$
$u = - 0.569840I$ $a = 1.75488$ $b = 1.18504 + 1.75488I$	-1.11345	-3.01951
$u = 0.569840I$ $a = 1.75488$ $b = 1.18504 - 1.75488I$	-1.11345	-3.01951
$u = 1.307141 - 0.215080I$ $a = 0.122561 - 0.744862I$ $b = 0.65234 - 1.92944I$	$3.02413 - 2.82812I$	$3.50976 + 2.97945I$
$u = 1.307141 + 0.215080I$ $a = 0.122561 + 0.744862I$ $b = 0.65234 + 1.92944I$	$3.02413 + 2.82812I$	$3.50976 - 2.97945I$

II. $I_2^u = \langle a^{18} + a^{16} + \cdots + a + 1,\ 3152a^{17} + 1931b + \cdots - 3464a + 3663,\ -5196a^{17} + 1931u + \cdots + 280a - 5933\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ 2.69083a^{17} - 1.89694a^{16} + \cdots - 0.145003a + 3.07250 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.69083a^{17} - 1.89694a^{16} + \cdots - 0.145003a + 3.07250 \\ 2.69083a^{17} - 1.89694a^{16} + \cdots - 0.145003a + 3.07250 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 5.65251a^{17} - 4.21750a^{16} + \cdots - 0.915070a + 8.95753 \\ 5.65251a^{17} - 4.21750a^{16} + \cdots - 0.915070a + 7.95753 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a \\ -1.63231a^{17} + 1.21077a^{16} + \cdots + 1.79389a - 1.89694 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.63231a^{17} - 1.21077a^{16} + \cdots - 0.793889a + 1.89694 \\ 1.63231a^{17} - 1.21077a^{16} + \cdots + 0.206111a + 1.89694 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ -1.63231a^{17} + 1.21077a^{16} + \cdots + 1.79389a - 1.89694 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ 2.69083a^{17} - 1.89694a^{16} + \cdots - 0.145003a + 3.07250 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ -5.84982a^{17} + 4.28327a^{16} + \cdots + 4.09891a - 7.54946 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 2.69083a^{17} - 1.89694a^{16} + \cdots - 0.145003a + 3.07250 \\ -5.70948a^{17} + 3.90316a^{16} + \cdots + 4.25686a - 8.12843 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.28327a^{17} + 3.42776a^{16} + \cdots + 2.69964a - 4.84982 \\ -8.72967a^{17} + 6.90989a^{16} + \cdots + 4.37804a - 13.1890 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.28327a^{17} + 3.42776a^{16} + \cdots + 2.69964a - 4.84982 \\ -8.72967a^{17} + 6.90989a^{16} + \cdots + 4.37804a - 13.1890 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.428243 - 0.664531I$ $a = -1.073281 - 0.181251I$ $b = -0.852589 + 0.729027I$	$-1.89061 - 0.92430I$	$-3.71672 + 0.79423I$
$u = -0.428243 + 0.664531I$ $a = -1.073281 + 0.181251I$ $b = -0.852589 - 0.729027I$	$-1.89061 + 0.92430I$	$-3.71672 - 0.79423I$
$u = -1.073950 - 0.558752I$ $a = -0.753544 - 0.018996I$ $b = -0.160109 + 0.328823I$	$5.69302I$	$-5.51057I$
$u = -1.073950 + 0.558752I$ $a = -0.753544 + 0.018996I$ $b = -0.160109 - 0.328823I$	$-5.69302I$	$5.51057I$
$u = 1.002193 + 0.295542I$ $a = -0.564973 - 1.108892I$ $b = 0.71778 - 2.09555I$	$1.89061 + 0.92430I$	$3.71672 - 0.79423I$
$u = 1.002193 - 0.295542I$ $a = -0.564973 + 1.108892I$ $b = 0.71778 + 2.09555I$	$1.89061 - 0.92430I$	$3.71672 + 0.79423I$
$u = -0.428243 - 0.664531I$ $a = -0.170665 - 0.733123I$ $b = -0.554650 - 0.963771I$	$-1.89061 - 0.92430I$	$-3.71672 + 0.79423I$
$u = -0.428243 + 0.664531I$ $a = -0.170665 + 0.733123I$ $b = -0.554650 + 0.963771I$	$-1.89061 + 0.92430I$	$-3.71672 - 0.79423I$
$u = 1.002193 - 0.295542I$ $a = -0.144447 - 1.072947I$ $b = 0.89677 - 1.71766I$	$1.89061 - 0.92430I$	$3.71672 + 0.79423I$
$u = 1.002193 + 0.295542I$ $a = -0.144447 + 1.072947I$ $b = 0.89677 + 1.71766I$	$1.89061 + 0.92430I$	$3.71672 - 0.79423I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.073950 - 0.558752I$ $a = \quad 0.093225 - 0.937930I$ $b = -0.74450 - 1.61243I$	$5.69302I$	$-5.51057I$
$u = -1.073950 + 0.558752I$ $a = \quad 0.093225 + 0.937930I$ $b = -0.74450 + 1.61243I$	$-5.69302I$	$5.51057I$
$u = -1.073950 + 0.558752I$ $a = \quad 0.660318 - 0.956927I$ $b = -0.56097 - 2.04611I$	$-5.69302I$	$5.51057I$
$u = -1.073950 - 0.558752I$ $a = \quad 0.660318 + 0.956927I$ $b = -0.56097 + 2.04611I$	$5.69302I$	$-5.51057I$
$u = \quad 1.002193 - 0.295542I$ $a = \quad 0.709420 - 0.035945I$ $b = \quad 0.221407 + 0.163524I$	$1.89061 - 0.92430I$	$3.71672 + 0.79423I$
$u = \quad 1.002193 + 0.295542I$ $a = \quad 0.709420 + 0.035945I$ $b = \quad 0.221407 - 0.163524I$	$1.89061 + 0.92430I$	$3.71672 - 0.79423I$
$u = -0.428243 + 0.664531I$ $a = \quad 1.24395 - 0.91437I$ $b = \quad 0.03685 - 2.36126I$	$-1.89061 + 0.92430I$	$-3.71672 - 0.79423I$
$u = -0.428243 - 0.664531I$ $a = \quad 1.24395 + 0.91437I$ $b = \quad 0.03685 + 2.36126I$	$-1.89061 - 0.92430I$	$-3.71672 + 0.79423I$

III. $\boldsymbol{I^u_3 =}$
$\boldsymbol{\langle u^{50}-2u^{49}+\cdots-80u+64,\ 6.45\times10^{51}u^{49}+1.50\times10^{52}u^{48}+\cdots+1.96\times10^{54}a+5.53\times10^{53},\ -1.05\times10^{52}u^{49}+3.11\times10^{52}u^{48}+\cdots+9.79\times10^{53}b+1.83\times10^{54}\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-u^2+1\\-u^2\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.00329532u^{49}-0.00768379u^{48}+\cdots+1.56093u-0.282664\\0.0107183u^{49}-0.0317397u^{48}+\cdots-0.252145u-1.87451\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0.0223917u^{49}-0.0346078u^{48}+\cdots-0.155843u-2.15660\\0.0448476u^{49}-0.0599152u^{48}+\cdots+0.956963u-3.24017\end{pmatrix}$$

$$a_9 = \begin{pmatrix}0.00109794u^{49}-0.0200136u^{48}+\cdots-1.43316u+0.567328\\0.0161193u^{49}-0.0266586u^{48}+\cdots+1.27631u-1.60898\end{pmatrix}$$

$$a_5 = \begin{pmatrix}0.0222683u^{49}-0.0273431u^{48}+\cdots-0.572764u-2.86156\\0.0344285u^{49}-0.0498647u^{48}+\cdots+0.170169u-2.30196\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.00329532u^{49}-0.00768379u^{48}+\cdots+1.56093u-0.282664\\0.0232364u^{49}-0.0411724u^{48}+\cdots+0.678909u-2.78808\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.0121602u^{49}-0.0225216u^{48}+\cdots+0.742933u+0.559595\\0.0172113u^{49}-0.0259237u^{48}+\cdots+0.804520u-2.18684\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.00111578u^{49}-0.0103880u^{48}+\cdots-0.0779663u+0.607838\\0.0409097u^{49}-0.0610233u^{48}+\cdots+0.575401u-3.89663\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.00111578u^{49}-0.0103880u^{48}+\cdots-0.0779663u+0.607838\\0.0409097u^{49}-0.0610233u^{48}+\cdots+0.575401u-3.89663\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.49474 - 0.29701I$ $a = 0.355287 + 0.484782I$ $b = 0.21795 + 2.10665I$	$1.85024 + 1.51739I$	$-1.25416 + 1.73219I$
$u = -1.49474 + 0.29701I$ $a = 0.355287 - 0.484782I$ $b = 0.21795 - 2.10665I$	$1.85024 - 1.51739I$	$-1.25416 - 1.73219I$
$u = -1.266715 - 0.096929I$ $a = -0.289480 - 0.887759I$ $b = 0.14053 - 2.29473I$	$6.04456 - 2.16278I$	$8.79757 + 2.89733I$
$u = -1.266715 + 0.096929I$ $a = -0.289480 + 0.887759I$ $b = 0.14053 + 2.29473I$	$6.04456 + 2.16278I$	$8.79757 - 2.89733I$
$u = -1.22350 - 0.76980I$ $a = -0.056439 - 0.950947I$ $b = 0.19850 - 2.72965I$	$-3.6196 + 15.6826I$	$-0.92508 - 9.22598I$
$u = -1.22350 + 0.76980I$ $a = -0.056439 + 0.950947I$ $b = 0.19850 + 2.72965I$	$-3.6196 - 15.6826I$	$-0.92508 + 9.22598I$
$u = -1.174389 - 0.484424I$ $a = -0.057030 + 0.970004I$ $b = 0.30508 + 2.46269I$	$4.31618 + 5.59634I$	$6.06047 - 4.87396I$
$u = -1.174389 + 0.484424I$ $a = -0.057030 - 0.970004I$ $b = 0.30508 - 2.46269I$	$4.31618 - 5.59634I$	$6.06047 + 4.87396I$
$u = -1.089063 - 0.646090I$ $a = 0.731164 - 0.121773I$ $b = 0.462481 + 0.214939I$	$-3.37785 + 4.34752I$	$-0.97473 - 2.40737I$
$u = -1.089063 + 0.646090I$ $a = 0.731164 + 0.121773I$ $b = 0.462481 - 0.214939I$	$-3.37785 - 4.34752I$	$-0.97473 + 2.40737I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.083127 - 0.424102I$ $a = 0.191585 - 1.050901I$ $b = 0.48045 - 2.86591I$	$-6.75514 + 5.91277I$	$-2.21392 - 5.18403I$
$u = -1.083127 + 0.424102I$ $a = 0.191585 + 1.050901I$ $b = 0.48045 + 2.86591I$	$-6.75514 - 5.91277I$	$-2.21392 + 5.18403I$
$u = -0.936602 - 0.118293I$ $a = 0.600148 - 0.490455I$ $b = -0.324437 + 0.167372I$	$-0.08204 + 3.21276I$	$0.42949 - 6.66311I$
$u = -0.936602 + 0.118293I$ $a = 0.600148 + 0.490455I$ $b = -0.324437 - 0.167372I$	$-0.08204 - 3.21276I$	$0.42949 + 6.66311I$
$u = -0.595443 - 0.355867I$ $a = -1.81742 - 0.59127I$ $b = 0.346194 - 0.269924I$	$-8.47083 - 2.48602I$	$-1.45090 - 5.51453I$
$u = -0.595443 + 0.355867I$ $a = -1.81742 + 0.59127I$ $b = 0.346194 + 0.269924I$	$-8.47083 + 2.48602I$	$-1.45090 + 5.51453I$
$u = -0.538092 - 1.149575I$ $a = -1.006406 + 0.091155I$ $b = 0.803010 - 0.172920I$	$-5.83333 - 8.80963I$	$-2.37769 + 6.43347I$
$u = -0.538092 + 1.149575I$ $a = -1.006406 - 0.091155I$ $b = 0.803010 + 0.172920I$	$-5.83333 + 8.80963I$	$-2.37769 - 6.43347I$
$u = -0.473630 - 0.961275I$ $a = 0.233986 + 0.855356I$ $b = -0.542253 + 0.653242I$	$-5.28661 + 1.41187I$	$-2.51524 - 3.36613I$
$u = -0.473630 + 0.961275I$ $a = 0.233986 - 0.855356I$ $b = -0.542253 - 0.653242I$	$-5.28661 - 1.41187I$	$-2.51524 + 3.36613I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.399787-0.467256I$ $a=-0.791826-0.431376I$ $b=-1.45430-0.11400I$	$-1.97039-0.78230I$	$-5.45253-2.09256I$
$u=-0.399787+0.467256I$ $a=-0.791826+0.431376I$ $b=-1.45430+0.11400I$	$-1.97039+0.78230I$	$-5.45253+2.09256I$
$u=-0.024298-0.854586I$ $a=\ \ 1.152350-0.352605I$ $b=-0.267079-0.573439I$	$0.969303-1.022447I$	$4.86262+1.22345I$
$u=-0.024298+0.854586I$ $a=\ \ 1.152350+0.352605I$ $b=-0.267079+0.573439I$	$0.969303+1.022447I$	$4.86262-1.22345I$
$u=\ \ 0.232434-1.128492I$ $a=\ \ 0.950846+0.347836I$ $b=-0.797700+0.037565I$	$-4.19193+3.67253I$	$-1.22751-2.31471I$
$u=\ \ 0.232434+1.128492I$ $a=\ \ 0.950846-0.347836I$ $b=-0.797700-0.037565I$	$-4.19193-3.67253I$	$-1.22751+2.31471I$
$u=\ \ 0.257076-0.420882I$ $a=\ \ 1.06691-1.18237I$ $b=\ \ 0.253202-0.417499I$	$0.426067-1.178946I$	$4.63590+6.06198I$
$u=\ \ 0.257076+0.420882I$ $a=\ \ 1.06691+1.18237I$ $b=\ \ 0.253202+0.417499I$	$0.426067+1.178946I$	$4.63590-6.06198I$
$u=\ \ 0.449533-0.975399I$ $a=-1.065658-0.039577I$ $b=\ \ 0.440217-0.399594I$	$-0.28876+5.04770I$	$1.29595-6.45390I$
$u=\ \ 0.449533+0.975399I$ $a=-1.065658+0.039577I$ $b=\ \ 0.440217+0.399594I$	$-0.28876-5.04770I$	$1.29595+6.45390I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.643203 - 1.007065I$ $a = 0.056675 + 0.808134I$ $b = 0.432483 + 0.880437I$	$-7.77183 + 3.25304I$	$-5.27621 - 1.64998I$
$u = 0.643203 + 1.007065I$ $a = 0.056675 - 0.808134I$ $b = 0.432483 - 0.880437I$	$-7.77183 - 3.25304I$	$-5.27621 + 1.64998I$
$u = 0.697235 - 0.535365I$ $a = 0.322304 + 1.363017I$ $b = 0.102609 + 0.589183I$	$-9.12170 - 4.13349I$	$-4.37982 + 7.84583I$
$u = 0.697235 + 0.535365I$ $a = 0.322304 - 1.363017I$ $b = 0.102609 - 0.589183I$	$-9.12170 + 4.13349I$	$-4.37982 - 7.84583I$
$u = 0.815974 - 0.347535I$ $a = 0.064289 + 1.196117I$ $b = -0.27144 + 2.74570I$	$-1.11120 - 2.63706I$	$2.56560 + 6.52941I$
$u = 0.815974 + 0.347535I$ $a = 0.064289 - 1.196117I$ $b = -0.27144 - 2.74570I$	$-1.11120 + 2.63706I$	$2.56560 - 6.52941I$
$u = 0.907272 - 0.392918I$ $a = -0.936139 + 0.382037I$ $b = 0.382290 - 0.162655I$	$-0.744870 - 0.584560I$	$0.202019 + 0.958990I$
$u = 0.907272 + 0.392918I$ $a = -0.936139 - 0.382037I$ $b = 0.382290 + 0.162655I$	$-0.744870 + 0.584560I$	$0.202019 - 0.958990I$
$u = 0.953458 - 0.598229I$ $a = -0.868701 + 0.025258I$ $b = -0.954040 + 0.490857I$	$-8.29977 - 0.42603I$	$-4.99238 + 0.29759I$
$u = 0.953458 + 0.598229I$ $a = -0.868701 - 0.025258I$ $b = -0.954040 - 0.490857I$	$-8.29977 + 0.42603I$	$-4.99238 - 0.29759I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.117614 - 0.748018I$ $a = -0.772686 - 0.192456I$ $b = -0.506726 - 0.047193I$	$-6.21564 - 9.65095I$	$-3.65977 + 5.84415I$
$u = 1.117614 + 0.748018I$ $a = -0.772686 + 0.192456I$ $b = -0.506726 + 0.047193I$	$-6.21564 + 9.65095I$	$-3.65977 - 5.84415I$
$u = 1.175850 - 0.667191I$ $a = -0.005299 + 0.940970I$ $b = -0.36440 + 2.42875I$	$1.99477 - 11.04249I$	$2.41356 + 8.76647I$
$u = 1.175850 + 0.667191I$ $a = -0.005299 - 0.940970I$ $b = -0.36440 - 2.42875I$	$1.99477 + 11.04249I$	$2.41356 - 8.76647I$
$u = 1.264421 - 0.377230I$ $a = 0.372673 - 0.797068I$ $b = -0.17642 - 2.13165I$	$5.10728 - 3.38490I$	$7.93360 + 3.33034I$
$u = 1.264421 + 0.377230I$ $a = 0.372673 + 0.797068I$ $b = -0.17642 + 2.13165I$	$5.10728 + 3.38490I$	$7.93360 - 3.33034I$
$u = 1.27251 - 0.63129I$ $a = -0.024472 - 0.927111I$ $b = -0.28887 - 2.72381I$	$-0.91239 - 9.84583I$	$1.76065 + 5.97261I$
$u = 1.27251 + 0.63129I$ $a = -0.024472 + 0.927111I$ $b = -0.28887 + 2.72381I$	$-0.91239 + 9.84583I$	$1.76065 - 5.97261I$
$u = 1.51280 - 0.01490I$ $a = -0.281665 - 0.631852I$ $b = -0.36733 - 2.39247I$	$2.35249 - 4.91231I$	$0.86750 + 6.81839I$
$u = 1.51280 + 0.01490I$ $a = -0.281665 + 0.631852I$ $b = -0.36733 + 2.39247I$	$2.35249 + 4.91231I$	$0.86750 - 6.81839I$

IV. $I_1^v = \langle 2b^4+5b^3+6b^2+3b+1,\ -4b^3-10b^2-10b+v-3,\ a\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}4b^3+10b^2+10b+3\\0\end{pmatrix}$$
$$a_8 = \begin{pmatrix}4b^3+10b^2+10b+3\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\b\end{pmatrix}$$
$$a_6 = \begin{pmatrix}4b^3+10b^2+10b+3\\2b^3+3b^2+2b\end{pmatrix}$$
$$a_9 = \begin{pmatrix}6b^3+11b^2+8b-1\\-2b^3-5b^2-5b-2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-4b^3-12b^2-15b-7\\1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-4b^3-8b^2-7b\\b\end{pmatrix}$$
$$a_1 = \begin{pmatrix}4b^3+12b^2+15b+7\\-1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}4b^3+12b^2+15b+8\\-1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}4b^3+12b^2+15b+8\\-1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.152300 + 0.614030I$ $a = 0$ $b = -0.971274 - 0.813859I$	$-1.43393 + 1.41510I$	$0.38954 - 3.92814I$
$v = 0.152300 - 0.614030I$ $a = 0$ $b = -0.971274 + 0.813859I$	$-1.43393 - 1.41510I$	$0.38954 + 3.92814I$
$v = -0.65230 - 2.13814I$ $a = 0$ $b = -0.278726 - 0.483420I$	$-8.43568 + 3.16396I$	$-1.51454 - 5.24252I$
$v = -0.65230 + 2.13814I$ $a = 0$ $b = -0.278726 + 0.483420I$	$-8.43568 - 3.16396I$	$-1.51454 + 5.24252I$

V. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u-1)^4(u^3+u^2-1)^2(u^6+u^5-u^4-2u^3+u+1)^3$ $(u^{50}+4u^{49}+\cdots-3u+4)$
c_2	$(u+1)^4(u^3+u^2+2u+1)^2(u^6+3u^5+5u^4+4u^3+2u^2+u+1)^3$ $(u^{50}+24u^{49}+\cdots-255u+16)$
c_3, c_7	$u^4(u^6-3u^4+2u^2+1)(u^6+u^5-u^4-2u^3+u+1)^3$ $(u^{50}-2u^{49}+\cdots-80u+64)$
c_4	$(u+1)^4(u^3-u^2+1)^2(u^6+u^5-u^4-2u^3+u+1)^3$ $(u^{50}+4u^{49}+\cdots-3u+4)$
c_5	$(u^2+1)^3(u^4+u^3+\cdots+2u+1)(u^{18}+6u^{16}+\cdots-u+1)$ $(u^{50}+2u^{49}+\cdots+76u+17)$
c_6	$(u^2+1)^3(u^4+u^3+u^2+1)(u^{18}+6u^{16}+\cdots-u+1)$ $(u^{50}+2u^{49}+\cdots+72u+17)$
c_8, c_9	$(u^2+1)^3(u^4-u^3+\cdots-2u+1)(u^{18}+6u^{16}+\cdots-u+1)$ $(u^{50}+2u^{49}+\cdots+76u+17)$
c_{10}	$(u^2+1)^3(u^4-u^3+u^2+1)(u^{18}+6u^{16}+\cdots-u+1)$ $(u^{50}+2u^{49}+\cdots+72u+17)$
c_{11}	$(u-1)^6(u^4-u^3+\cdots-2u+1)(u^{18}+12u^{17}+\cdots+3u+1)$ $(u^{50}+20u^{49}+\cdots+4370u+289)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y-1)^4(y^3-y^2+2y-1)^2(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^3$ $(y^{50}-24y^{49}+\cdots+255y+16)$
c_2	$(y-1)^4(y^3+3y^2+2y-1)^2(y^6+y^5+5y^4+6y^2+3y+1)^3$ $(y^{50}+8y^{49}+\cdots+29791y+256)$
c_3, c_7	$y^4(y^3-3y^2+2y+1)^2(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^3$ $(y^{50}-24y^{49}+\cdots-19712y+4096)$
c_5, c_8, c_9	$(y+1)^6(y^4+5y^3+\cdots+2y+1)(y^{18}+12y^{17}+\cdots+3y+1)$ $(y^{50}+52y^{49}+\cdots-846y+289)$
c_6, c_{10}	$(y+1)^6(y^4+y^3+\cdots+2y+1)(y^{18}+12y^{17}+\cdots+3y+1)$ $(y^{50}+20y^{49}+\cdots+4370y+289)$
c_{11}	$(y-1)^6(y^4+5y^3+\cdots+2y+1)(y^{18}-12y^{17}+\cdots+15y+1)$ $(y^{50}+28y^{49}+\cdots-180694y+83521)$