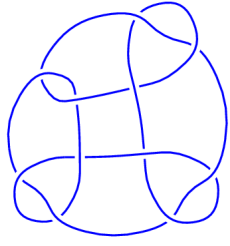
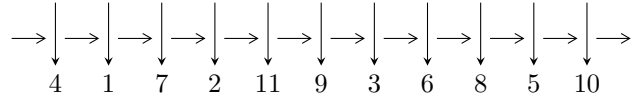


11a₄₃ (K11a₄₃)

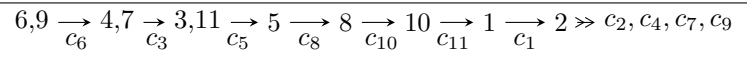


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = \bigcap_{i=1}^8 I_i^u \bigcap I_1^v$$

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

$$\begin{aligned}
I_1^u &= \langle c + a, b + u, d - b - 1, cb + 1 \rangle \\
I_2^u &= \langle c, u - 1, a + 1, d + 1, b + 1 \rangle \\
I_3^u &= \langle c - 1, u - 1, a + 1, d + 1, b + 1 \rangle \\
I_4^u &= \langle u^{11} + 7u^{10} + 26u^9 + 57u^8 + 83u^7 + 79u^6 + 52u^5 + 12u^4 + 2u^3 - 8u^2 + 4u - 1, \\
&\quad 5362u^{10} + 44536u^9 + \cdots + 31411a - 61883, 3067u^{10} + 24197u^9 + \cdots + 31411b - 9943, \\
&\quad 5362u^{10} + 44536u^9 + \cdots + 31411c - 61883, 4956u^{10} + 35997u^9 + \cdots + 31411d - 4791 \rangle \\
I_5^u &= \langle u^{17} - 4u^{16} + \cdots + 11u - 1, \\
&\quad 766445516302175u^{16} - 3007663396458073u^{15} + \cdots + 757632886501256a + 6721707134347475, \\
&\quad 12414990068231u^{16} - 40910507256879u^{15} + \cdots + 189408221625314b + 128373116799237, \\
&\quad 766445516302175u^{16} - 3007663396458073u^{15} + \cdots + 757632886501256c + 6721707134347475, \\
&\quad 99870959946029u^{16} - 379311413193323u^{15} + \cdots + 757632886501256d + 998438811603777 \rangle \\
I_6^u &= \langle 49c^{12} + 7c^{11} - 52c^{10} + 27c^9 + 38c^8 - 44c^7 - 30c^6 - 2c^5 + 4c^4 + 11c^3 + 6c^2 + c + 1, \\
&\quad 151624447079c^{11} + 12328483328c^{10} + \cdots + 13002745576a - 6227560851, \\
&\quad 78208967865c^{11} + 57494019492c^{10} + \cdots + 6501372788b - 9196186941, \\
&\quad - 127651485493c^{11} + 13002745576d + \cdots - 9588145288c - 17186176693, \\
&\quad 17498203702c^{11} + 6501372788u + \cdots + 5695569789c - 12103484637 \rangle \\
I_7^u &= \langle u^{17} - 4u^{16} + \cdots + 11u - 1, \\
&\quad 766445516302175u^{16} - 3007663396458073u^{15} + \cdots + 757632886501256a + 6721707134347475, \\
&\quad 12414990068231u^{16} - 40910507256879u^{15} + \cdots + 189408221625314b + 128373116799237, \\
&\quad - 261964267877921u^{16} + 1028024739602161u^{15} + \cdots + 189408221625314c - 2263115317971243, \\
&\quad - 34183560533479u^{16} + 166187519316545u^{15} + \cdots + 757632886501256d - 344628599543907 \rangle \\
I_8^u &= \langle u^{17} + 12u^{16} + \cdots - 4978u - 946, \\
&\quad 3.32880 \times 10^{25}u^{16} + 3.38851 \times 10^{26}u^{15} + \cdots + 2.37407 \times 10^{27}a - 2.54651 \times 10^{28}, \\
&\quad - 1.66004 \times 10^{23}u^{16} - 1.75714 \times 10^{24}u^{15} + \cdots + 5.01918 \times 10^{24}b + 1.04318 \times 10^{26}, \\
&\quad - 1.89488 \times 10^{25}u^{16} - 1.79053 \times 10^{26}u^{15} + \cdots + 4.74814 \times 10^{27}c - 8.29592 \times 10^{27}, \\
&\quad - 8.47652 \times 10^{22}u^{16} - 9.16239 \times 10^{23}u^{15} + \cdots + 5.01918 \times 10^{24}d + 5.66960 \times 10^{25} \rangle
\end{aligned}$$

$$I_1^v = \langle b, c, a + 1, d + 1, v + 1 \rangle$$

There are 9 irreducible components with 77 representations.
There are 1 irreducible components of $\dim_{\mathbb{C}} = 1$ for $11a_{43}$

$$\mathbf{I. } I_1^u = \langle c + a, b + u, d - b - 1, cb + 1 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ -b \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -c \\ b \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -c \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} c \\ b + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} c \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -c \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ -c^{-1} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} c \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} c - 1 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} c - 1 \\ 1 \end{pmatrix}$$

(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
$u = \dots$		
$a = \dots$		
$b = \dots$	-4.93480	-20.6125 - 2.0807I
$c = \dots$		
$d = \dots$		

$$\text{II. } I_2^u = \langle c, u - 1, a + 1, d + 1, b + 1 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

(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
$u = 1.00000$		
$a = -1.00000$		
$b = -1.00000$	-3.28987	-12.0000
$c = 0$		
$d = -1.00000$		

$$\text{III. } I_3^u = \langle c - 1, u - 1, a + 1, d + 1, b + 1 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

(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
$u = 1.00000$		
$a = -1.00000$		
$b = -1.00000$	-3.28987	-12.0000
$c = 1.00000$		
$d = -1.00000$		

IV.

$$I_4^u = \langle u^{11} + 7u^{10} + \dots + 4u - 1, 5362u^{10} + 4.45 \times 10^4 u^9 + \dots + 3.14 \times 10^4 a - 6.19 \times 10^4, 3067u^{10} + 2.42 \times 10^4 u^9 + \dots + 3.14 \times 10^4 b - 9943, 5362u^{10} + 4.45 \times 10^4 u^9 + \dots + 3.14 \times 10^4 c - 6.19 \times 10^4, 4956u^{10} + 3.60 \times 10^4 u^9 + \dots + 3.14 \times 10^4 d - 4791 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_6 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_9 &= \begin{pmatrix} -0.170705u^{10} - 1.41785u^9 + \dots - 0.883608u + 1.97011 \\ -0.0976410u^{10} - 0.770335u^9 + \dots + 2.60033u + 0.316545 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 0.620897u^{10} + 4.70650u^9 + \dots - 5.22865u - 1.48340 \\ 0.550508u^{10} + 3.94282u^9 + \dots - 3.65958u + 0.828595 \end{pmatrix} \\ a_3 &= \begin{pmatrix} 1.48270u^{10} + 10.5314u^9 + \dots - 14.9323u + 4.84693 \\ 0.0988826u^{10} + 0.680685u^9 + \dots - 0.968578u + 1.06058 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.170705u^{10} - 1.41785u^9 + \dots - 0.883608u + 1.97011 \\ -0.157779u^{10} - 1.14600u^9 + \dots + 1.87259u + 0.152526 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.620897u^{10} - 4.70650u^9 + \dots + 5.22865u + 1.48340 \\ -0.360224u^{10} - 2.55407u^9 + \dots + 3.96699u - 0.620897 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -0.170705u^{10} - 1.41785u^9 + \dots - 0.883608u + 1.97011 \\ 0.0155360u^{10} + 0.134634u^9 + \dots + 1.87937u + 0.539461 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 1.06058u^{10} + 7.52297u^9 + \dots - 13.7634u + 3.27376 \\ 0.164019u^{10} + 1.20827u^9 + \dots - 1.74891u + 1.38381 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 0.0703894u^{10} + 0.763682u^9 + \dots - 1.56907u - 2.31199 \\ 0.222916u^{10} + 1.67359u^9 + \dots - 2.65292u + 0.170705 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.152526u^{10} - 0.909904u^9 + \dots + 1.08386u - 2.48270 \\ 0.222916u^{10} + 1.67359u^9 + \dots - 2.65292u + 0.170705 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.152526u^{10} - 0.909904u^9 + \dots + 1.08386u - 2.48270 \\ 0.222916u^{10} + 1.67359u^9 + \dots - 2.65292u + 0.170705 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.58561 - 1.00769I$ $a = 0.673448 - 0.087226I$ $b = 1.97706 - 0.65500I$ $c = 0.673448 - 0.087226I$ $d = -2.61612 - 0.72948I$	$-5.36867 - 9.54355I$	$-15.3185 + 7.2879I$
$u = -1.58561 + 1.00769I$ $a = 0.673448 + 0.087226I$ $b = 1.97706 + 0.65500I$ $c = 0.673448 + 0.087226I$ $d = -2.61612 + 0.72948I$	$-5.36867 + 9.54355I$	$-15.3185 - 7.2879I$
$u = -1.51573 - 1.89641I$ $a = -0.500651 + 0.245168I$ $b = -2.50762 - 1.28713I$ $c = -0.500651 + 0.245168I$ $d = 2.83485 + 1.36677I$	$-3.9531 - 16.3093I$	$-14.3050 + 10.3392I$
$u = -1.51573 + 1.89641I$ $a = -0.500651 - 0.245168I$ $b = -2.50762 + 1.28713I$ $c = -0.500651 - 0.245168I$ $d = 2.83485 - 1.36677I$	$-3.9531 + 16.3093I$	$-14.3050 - 10.3392I$
$u = -0.569474 - 1.085660I$ $a = 0.394287 + 0.601210I$ $b = -0.143719 - 0.191129I$ $c = 0.394287 + 0.601210I$ $d = -0.334595 + 0.392638I$	$3.72768 - 0.41249I$	$-4.65663 - 1.55838I$
$u = -0.569474 + 1.085660I$ $a = 0.394287 - 0.601210I$ $b = -0.143719 + 0.191129I$ $c = 0.394287 - 0.601210I$ $d = -0.334595 - 0.392638I$	$3.72768 + 0.41249I$	$-4.65663 + 1.55838I$

Solution to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.177956 - 0.945407I$ $a = -0.399415 - 0.851930I$ $b = -1.272181 + 0.246640I$ $c = -0.399415 - 0.851930I$ $d = -0.283187 - 0.433072I$	$-0.38453 + 3.51380I$	$-10.33478 - 7.33311I$
$u = -0.177956 + 0.945407I$ $a = -0.399415 + 0.851930I$ $b = -1.272181 - 0.246640I$ $c = -0.399415 + 0.851930I$ $d = -0.283187 + 0.433072I$	$-0.38453 - 3.51380I$	$-10.33478 + 7.33311I$
$u = 0.184720 - 0.266859I$ $a = 3.42068 + 1.12143I$ $b = 1.129058 - 0.793216I$ $c = 3.42068 + 1.12143I$ $d = 0.667163 - 0.619152I$	$3.91373 + 8.22510I$	$-8.34823 - 8.49377I$
$u = 0.184720 + 0.266859I$ $a = 3.42068 - 1.12143I$ $b = 1.129058 + 0.793216I$ $c = 3.42068 - 1.12143I$ $d = 0.667163 + 0.619152I$	$3.91373 - 8.22510I$	$-8.34823 + 8.49377I$
$u = 0.328093$ $a = -1.17670$ $b = 0.634805$ $c = -1.17670$ $d = 0.463767$	-0.805061	-12.0738

$$\mathbf{V. } I_5^u = \langle u^{17} - 4u^{16} + \dots + 11u - 1, 7.66 \times 10^{14}u^{16} - 3.01 \times 10^{15}u^{15} + \dots + 7.58 \times 10^{14}a + 6.72 \times 10^{15}, 1.24 \times 10^{13}u^{16} - 4.09 \times 10^{13}u^{15} + \dots + 1.89 \times 10^{14}b + 1.28 \times 10^{14}, 7.66 \times 10^{14}u^{16} - 3.01 \times 10^{15}u^{15} + \dots + 7.58 \times 10^{14}c + 6.72 \times 10^{15}, 9.99 \times 10^{13}u^{16} - 3.79 \times 10^{14}u^{15} + \dots + 7.58 \times 10^{14}d + 9.98 \times 10^{14} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_6 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_9 &= \begin{pmatrix} -1.01163u^{16} + 3.96982u^{15} + \dots + 4.57983u - 8.87198 \\ -0.0655462u^{16} + 0.215991u^{15} + \dots + 0.0456482u - 0.677759 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -0.635317u^{16} + 2.45545u^{15} + \dots + 10.6047u - 8.35450 \\ -0.0757346u^{16} + 0.273376u^{15} + \dots + 3.21319u - 0.722530 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -0.402144u^{16} + 1.67515u^{15} + \dots + 10.3986u - 3.19646 \\ -0.0307089u^{16} + 0.217408u^{15} + \dots - 0.448692u - 0.120094 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -1.01163u^{16} + 3.96982u^{15} + \dots + 4.57983u - 8.87198 \\ -0.131820u^{16} + 0.500653u^{15} + \dots + 0.324882u - 1.31784 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 0.635317u^{16} - 2.45545u^{15} + \dots - 10.6047u + 8.35450 \\ 0.131827u^{16} - 0.480999u^{15} + \dots - 2.69553u + 1.37755 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -1.01163u^{16} + 3.96982u^{15} + \dots + 4.57983u - 8.87198 \\ -0.134447u^{16} + 0.444376u^{15} + \dots + 0.213461u - 0.601048 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -0.120094u^{16} + 0.449667u^{15} + \dots - 5.22988u - 1.76972 \\ -0.0279960u^{16} + 0.0319474u^{15} + \dots + 1.00942u - 0.371435 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.559582u^{16} + 2.18207u^{15} + \dots + 7.39156u - 7.63197 \\ -0.104707u^{16} + 0.407691u^{15} + \dots + 3.26539u - 1.38307 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.454875u^{16} + 1.77438u^{15} + \dots + 4.12617u - 6.24891 \\ -0.104707u^{16} + 0.407691u^{15} + \dots + 3.26539u - 1.38307 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.454875u^{16} + 1.77438u^{15} + \dots + 4.12617u - 6.24891 \\ -0.104707u^{16} + 0.407691u^{15} + \dots + 3.26539u - 1.38307 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.64609 - 1.04829I$ $a = -0.629916 + 0.089460I$ $b = -2.37215 - 0.73929I$ $c = -0.629916 + 0.089460I$ $d = 2.47948 - 0.94440I$	$-5.86965 - 6.57063I$	$-15.2601 + 6.4345I$
$u = -1.64609 + 1.04829I$ $a = -0.629916 - 0.089460I$ $b = -2.37215 + 0.73929I$ $c = -0.629916 - 0.089460I$ $d = 2.47948 + 0.94440I$	$-5.86965 + 6.57063I$	$-15.2601 - 6.4345I$
$u = -1.088614 - 0.211420I$ $a = 1.060757 + 0.123875I$ $b = 1.36090 - 0.82247I$ $c = 1.060757 + 0.123875I$ $d = -1.78910 + 1.03547I$	$-6.94910 - 1.22724I$	$-18.1485 + 0.8551I$
$u = -1.088614 + 0.211420I$ $a = 1.060757 - 0.123875I$ $b = 1.36090 + 0.82247I$ $c = 1.060757 - 0.123875I$ $d = -1.78910 - 1.03547I$	$-6.94910 + 1.22724I$	$-18.1485 - 0.8551I$
$u = -0.132799 - 0.325259I$ $a = 1.04951 + 2.87701I$ $b = -0.742830 + 0.482002I$ $c = 1.04951 + 2.87701I$ $d = -0.865380 + 0.879225I$	$4.74481 + 2.71165I$	$-6.15758 - 3.13710I$
$u = -0.132799 + 0.325259I$ $a = 1.04951 - 2.87701I$ $b = -0.742830 - 0.482002I$ $c = 1.04951 - 2.87701I$ $d = -0.865380 - 0.879225I$	$4.74481 - 2.71165I$	$-6.15758 + 3.13710I$

Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.100298$ $a = -8.64491$ $b = -0.650693$ $c = -8.64491$ $d = -1.26452$	-4.54799	-20.6879
$u = 0.672214 - 0.818183I$ $a = 0.066726 + 0.705144I$ $b = 0.756628 - 0.471510I$ $c = 0.066726 + 0.705144I$ $d = 1.60228 + 0.24239I$	$-1.98005 - 1.46955I$	$-8.36417 + 4.66528I$
$u = 0.672214 + 0.818183I$ $a = 0.066726 - 0.705144I$ $b = 0.756628 + 0.471510I$ $c = 0.066726 - 0.705144I$ $d = 1.60228 - 0.24239I$	$-1.98005 + 1.46955I$	$-8.36417 - 4.66528I$
$u = 0.807482 - 0.323646I$ $a = -0.177123 - 0.715763I$ $b = 0.769814 + 0.501399I$ $c = -0.177123 - 0.715763I$ $d = 0.659456 + 0.070788I$	$-0.670307 + 0.433874I$	$-9.43166 + 0.87540I$
$u = 0.807482 + 0.323646I$ $a = -0.177123 + 0.715763I$ $b = 0.769814 - 0.501399I$ $c = -0.177123 + 0.715763I$ $d = 0.659456 - 0.070788I$	$-0.670307 - 0.433874I$	$-9.43166 - 0.87540I$
$u = 0.92580 - 1.26344I$ $a = -0.335895 + 0.474665I$ $b = -0.032464 - 0.412480I$ $c = -0.335895 + 0.474665I$ $d = -0.0358716 + 0.0822971I$	$1.75994 + 5.51158I$	$-7.74874 - 3.84490I$

Solution to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.92580 + 1.26344I$ $a = -0.335895 - 0.474665I$ $b = -0.032464 + 0.412480I$ $c = -0.335895 - 0.474665I$ $d = -0.0358716 - 0.0822971I$	$1.75994 - 5.51158I$	$-7.74874 + 3.84490I$
$u = 1.09988 - 0.90044I$ $a = -0.806190 - 0.206833I$ $b = -1.71218 - 0.48058I$ $c = -0.806190 - 0.206833I$ $d = 1.70429 - 0.38341I$	$-2.67943 + 4.64771I$	$-12.43915 - 4.11695I$
$u = 1.09988 + 0.90044I$ $a = -0.806190 + 0.206833I$ $b = -1.71218 + 0.48058I$ $c = -0.806190 + 0.206833I$ $d = 1.70429 + 0.38341I$	$-2.67943 - 4.64771I$	$-12.43915 + 4.11695I$
$u = 1.31198 - 1.54232I$ $a = 0.594584 + 0.254183I$ $b = 2.29763 - 1.13547I$ $c = 0.594584 + 0.254183I$ $d = -2.12290 + 0.59765I$	$-0.88663 + 10.83373I$	$-11.10622 - 7.41261I$
$u = 1.31198 + 1.54232I$ $a = 0.594584 - 0.254183I$ $b = 2.29763 + 1.13547I$ $c = 0.594584 - 0.254183I$ $d = -2.12290 - 0.59765I$	$-0.88663 - 10.83373I$	$-11.10622 + 7.41261I$

$$\text{VI. } I_6^u = \langle 49c^{12} + 7c^{11} + \dots + c + 1, 1.52 \times 10^{11}c^{11} + 1.23 \times 10^{10}c^{10} + \dots + 1.30 \times 10^{10}a - 6.23 \times 10^9, 7.82 \times 10^{10}c^{11} + 5.75 \times 10^{10}c^{10} + \dots + 6.50 \times 10^9b - 9.20 \times 10^9, 1.30 \times 10^{10}d - 1.28 \times 10^{11}c^{11} + \dots - 9.59 \times 10^9c - 1.72 \times 10^{10}, 6.50 \times 10^9u + 1.75 \times 10^{10}c^{11} + \dots + 5.70 \times 10^9c - 1.21 \times 10^{10} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_6 &= \begin{pmatrix} 0 \\ -2.69146c^{11} - 3.10555c^{10} + \dots - 0.876056c + 1.86168 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -11.6610c^{11} - 0.948145c^{10} + \dots - 1.20006c + 0.478942 \\ -12.0296c^{11} - 8.84337c^{10} + \dots - 1.98173c + 1.41450 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -5.52766c^{11} + 8.16396c^{10} + \dots + 0.772540c - 0.196138 \\ 4.94212c^{11} + 7.60513c^{10} + \dots + 2.00102c - 0.403981 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -6.71883c^{11} + 6.65698c^{10} + \dots + 0.800958c + 1.07496 \\ 4.94212c^{11} + 7.60513c^{10} + \dots + 2.00102c + 0.596019 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} c \\ 9.81727c^{11} - 2.38919c^{10} + \dots + 0.737394c + 1.32173 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 3.43805c^{11} + 0.0250148c^{10} + \dots + 0.110459c + 0.0555317 \\ -14.0240c^{11} + 12.6925c^{10} + \dots + 1.16484c + 1.34636 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -11.6610c^{11} - 0.948145c^{10} + \dots - 1.20006c + 0.478942 \\ 4.94212c^{11} + 7.60513c^{10} + \dots + 2.00102c + 0.596019 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0.573342c^{11} + 5.84149c^{10} + \dots + 1.06816c + 0.132298 \\ -13.4255c^{11} - 8.29661c^{10} + \dots - 2.23980c + 0.617742 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 9.63700c^{11} - 6.97716c^{10} + \dots + 1.44128c + 0.347633 \\ -16.1465c^{11} - 5.24728c^{10} + \dots - 0.323189c + 0.672670 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 25.7835c^{11} - 1.72988c^{10} + \dots + 1.76446c - 0.325037 \\ -16.1465c^{11} - 5.24728c^{10} + \dots - 0.323189c + 0.672670 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 25.7835c^{11} - 1.72988c^{10} + \dots + 1.76446c - 0.325037 \\ -16.1465c^{11} - 5.24728c^{10} + \dots - 0.323189c + 0.672670 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_6^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.863315 + 0.814466I$ $a = 0.250983 - 0.534881I$ $b = -0.231623 + 0.469234I$ $c = -0.881235 - 0.334653I$ $d = 2.03627 + 0.63216I$	$-3.28987 + 2.02988I$	$-12.00000 - 3.46410I$
$u = -0.863315 - 0.814466I$ $a = 0.250983 + 0.534881I$ $b = -0.231623 - 0.469234I$ $c = -0.881235 + 0.334653I$ $d = 2.03627 - 0.63216I$	$-3.28987 - 2.02988I$	$-12.00000 + 3.46410I$
$u = 1.77196 - 0.20576I$ $a = 0.603134 - 0.171971I$ $b = 2.24282 - 0.10646I$ $c = -0.681987 - 0.213146I$ $d = 1.59834 - 0.70022I$	$-3.28987 + 2.02988I$	$-12.00000 - 3.46410I$
$u = 1.77196 + 0.20576I$ $a = 0.603134 + 0.171971I$ $b = 2.24282 + 0.10646I$ $c = -0.681987 + 0.213146I$ $d = 1.59834 + 0.70022I$	$-3.28987 - 2.02988I$	$-12.00000 + 3.46410I$
$u = 1.091351 + 0.608709I$ $a = -0.782689 + 0.654046I$ $b = -1.01120 - 1.36927I$ $c = -0.106654 - 0.550938I$ $d = -0.468356 - 0.157434I$	$-3.28987 - 2.02988I$	$-12.00000 + 3.46410I$
$u = 1.091351 - 0.608709I$ $a = -0.782689 - 0.654046I$ $b = -1.01120 + 1.36927I$ $c = -0.106654 + 0.550938I$ $d = -0.468356 + 0.157434I$	$-3.28987 + 2.02988I$	$-12.00000 - 3.46410I$

Solution to I_6^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.77196 + 0.20576I$ $a = 0.603134 + 0.171971I$ $b = 2.24282 + 0.10646I$ $c = 0.078853 - 0.385117I$ $d = 0.968356 - 0.708591I$	$-3.28987 - 2.02988I$	$-12.00000 + 3.46410I$
$u = 1.77196 - 0.20576I$ $a = 0.603134 - 0.171971I$ $b = 2.24282 - 0.10646I$ $c = 0.078853 + 0.385117I$ $d = 0.968356 + 0.708591I$	$-3.28987 + 2.02988I$	$-12.00000 - 3.46410I$
$u = -0.863315 - 0.814466I$ $a = 0.250983 + 0.534881I$ $b = -0.231623 - 0.469234I$ $c = 0.630252 - 0.869534I$ $d = -1.09834 - 1.56624I$	$-3.28987 - 2.02988I$	$-12.00000 + 3.46410I$
$u = -0.863315 + 0.814466I$ $a = 0.250983 - 0.534881I$ $b = -0.231623 + 0.469234I$ $c = 0.630252 + 0.869534I$ $d = -1.09834 + 1.56624I$	$-3.28987 + 2.02988I$	$-12.00000 - 3.46410I$
$u = 1.091351 + 0.608709I$ $a = -0.782689 + 0.654046I$ $b = -1.01120 - 1.36927I$ $c = 0.889343 - 0.103107I$ $d = -1.53627 - 0.23386I$	$-3.28987 - 2.02988I$	$-12.00000 + 3.46410I$
$u = 1.091351 - 0.608709I$ $a = -0.782689 - 0.654046I$ $b = -1.01120 + 1.36927I$ $c = 0.889343 + 0.103107I$ $d = -1.53627 + 0.23386I$	$-3.28987 + 2.02988I$	$-12.00000 - 3.46410I$

VII.

$$I_7^u = \langle u^{17} - 4u^{16} + \dots + 11u - 1, 7.66 \times 10^{14}u^{16} - 3.01 \times 10^{15}u^{15} + \dots + 7.58 \times 10^{14}a + 6.72 \times 10^{15}, 1.24 \times 10^{13}u^{16} - 4.09 \times 10^{13}u^{15} + \dots + 1.89 \times 10^{14}b + 1.28 \times 10^{14}, -2.62 \times 10^{14}u^{16} + 1.03 \times 10^{15}u^{15} + \dots + 1.89 \times 10^{14}c - 2.26 \times 10^{15}, -3.42 \times 10^{13}u^{16} + 1.66 \times 10^{14}u^{15} + \dots + 7.58 \times 10^{14}d - 3.45 \times 10^{14} \rangle$$

(i) Arc colorings

$$\begin{aligned} a_6 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_9 &= \begin{pmatrix} -1.01163u^{16} + 3.96982u^{15} + \dots + 4.57983u - 8.87198 \\ -0.0655462u^{16} + 0.215991u^{15} + \dots + 0.0456482u - 0.677759 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -0.635317u^{16} + 2.45545u^{15} + \dots + 10.6047u - 8.35450 \\ -0.0757346u^{16} + 0.273376u^{15} + \dots + 3.21319u - 0.722530 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -0.402144u^{16} + 1.67515u^{15} + \dots + 10.3986u - 3.19646 \\ -0.0307089u^{16} + 0.217408u^{15} + \dots - 0.448692u - 0.120094 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 1.38307u^{16} - 5.42756u^{15} + \dots - 15.4271u + 11.9483 \\ 0.0451189u^{16} - 0.219351u^{15} + \dots + 1.24528u + 0.454875 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 1.37755u^{16} - 5.37837u^{15} + \dots - 9.69669u + 12.4575 \\ 0.0858173u^{16} - 0.311328u^{15} + \dots + 1.36602u + 0.635317 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -1.01163u^{16} + 3.96982u^{15} + \dots + 4.57983u - 8.87198 \\ -0.134447u^{16} + 0.444376u^{15} + \dots + 0.213461u - 0.601048 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -0.120094u^{16} + 0.449667u^{15} + \dots - 5.22988u - 1.76972 \\ -0.0279960u^{16} + 0.0319474u^{15} + \dots + 1.00942u - 0.371435 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 1.39455u^{16} - 5.51528u^{15} + \dots - 22.8469u + 15.1830 \\ 0.0767109u^{16} - 0.375744u^{15} + \dots - 2.25597u + 1.01163 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1.31784u^{16} - 5.13954u^{15} + \dots - 20.5909u + 14.1714 \\ 0.0767109u^{16} - 0.375744u^{15} + \dots - 2.25597u + 1.01163 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1.31784u^{16} - 5.13954u^{15} + \dots - 20.5909u + 14.1714 \\ 0.0767109u^{16} - 0.375744u^{15} + \dots - 2.25597u + 1.01163 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.64609 - 1.04829I$ $a = -0.629916 + 0.089460I$ $b = -2.37215 - 0.73929I$ $c = 0.482841 - 0.501602I$ $d = -1.52148 - 2.04047I$	$-5.86965 - 6.57063I$	$-15.2601 + 6.4345I$
$u = -1.64609 + 1.04829I$ $a = -0.629916 - 0.089460I$ $b = -2.37215 + 0.73929I$ $c = 0.482841 + 0.501602I$ $d = -1.52148 + 2.04047I$	$-5.86965 + 6.57063I$	$-15.2601 - 6.4345I$
$u = -1.088614 - 0.211420I$ $a = 1.060757 + 0.123875I$ $b = 1.36090 - 0.82247I$ $c = -0.993628 + 0.479312I$ $d = 1.55240 + 1.27293I$	$-6.94910 - 1.22724I$	$-18.1485 + 0.8551I$
$u = -1.088614 + 0.211420I$ $a = 1.060757 - 0.123875I$ $b = 1.36090 + 0.82247I$ $c = -0.993628 - 0.479312I$ $d = 1.55240 - 1.27293I$	$-6.94910 + 1.22724I$	$-18.1485 - 0.8551I$
$u = -0.132799 - 0.325259I$ $a = 1.04951 + 2.87701I$ $b = -0.742830 + 0.482002I$ $c = -2.73867 + 0.86503I$ $d = -0.475861 - 0.709701I$	$4.74481 + 2.71165I$	$-6.15758 - 3.13710I$
$u = -0.132799 + 0.325259I$ $a = 1.04951 - 2.87701I$ $b = -0.742830 - 0.482002I$ $c = -2.73867 - 0.86503I$ $d = -0.475861 + 0.709701I$	$4.74481 - 2.71165I$	$-6.15758 + 3.13710I$

Solution to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.100298$ $a = -8.64491$ $b = -0.650693$ $c = 10.9069$ $d = 0.595558$	-4.54799	-20.6879
$u = 0.672214 - 0.818183I$ $a = 0.066726 + 0.705144I$ $b = 0.756628 - 0.471510I$ $c = -0.749087 - 0.914452I$ $d = 0.367131 - 1.070853I$	$-1.98005 - 1.46955I$	$-8.36417 + 4.66528I$
$u = 0.672214 + 0.818183I$ $a = 0.066726 - 0.705144I$ $b = 0.756628 + 0.471510I$ $c = -0.749087 + 0.914452I$ $d = 0.367131 + 1.070853I$	$-1.98005 + 1.46955I$	$-8.36417 - 4.66528I$
$u = 0.807482 - 0.323646I$ $a = -0.177123 - 0.715763I$ $b = 0.769814 + 0.501399I$ $c = -1.098422 + 0.053549I$ $d = 1.202382 - 0.269488I$	$-0.670307 + 0.433874I$	$-9.43166 + 0.87540I$
$u = 0.807482 + 0.323646I$ $a = -0.177123 + 0.715763I$ $b = 0.769814 - 0.501399I$ $c = -1.098422 - 0.053549I$ $d = 1.202382 + 0.269488I$	$-0.670307 - 0.433874I$	$-9.43166 - 0.87540I$
$u = 0.92580 - 1.26344I$ $a = -0.335895 + 0.474665I$ $b = -0.032464 - 0.412480I$ $c = 0.711339 + 0.340350I$ $d = -1.80771 + 0.64969I$	$1.75994 + 5.51158I$	$-7.74874 - 3.84490I$

Solution to I_i^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.92580 + 1.26344I$ $a = -0.335895 - 0.474665I$ $b = -0.032464 + 0.412480I$ $c = 0.711339 - 0.340350I$ $d = -1.80771 - 0.64969I$	$1.75994 - 5.51158I$	$-7.74874 + 3.84490I$
$u = 1.09988 - 0.90044I$ $a = -0.806190 - 0.206833I$ $b = -1.71218 - 0.48058I$ $c = 0.215573 - 0.523334I$ $d = 0.272436 - 0.173188I$	$-2.67943 + 4.64771I$	$-12.43915 - 4.11695I$
$u = 1.09988 + 0.90044I$ $a = -0.806190 + 0.206833I$ $b = -1.71218 + 0.48058I$ $c = 0.215573 + 0.523334I$ $d = 0.272436 + 0.173188I$	$-2.67943 - 4.64771I$	$-12.43915 + 4.11695I$
$u = 1.31198 - 1.54232I$ $a = 0.594584 + 0.254183I$ $b = 2.29763 - 1.13547I$ $c = -0.283414 + 0.378866I$ $d = 0.112918 + 0.323983I$	$-0.88663 + 10.83373I$	$-11.10622 - 7.41261I$
$u = 1.31198 + 1.54232I$ $a = 0.594584 - 0.254183I$ $b = 2.29763 + 1.13547I$ $c = -0.283414 - 0.378866I$ $d = 0.112918 - 0.323983I$	$-0.88663 - 10.83373I$	$-11.10622 + 7.41261I$

VIII.

$$I_8^u = \langle u^{17} + 12u^{16} + \dots - 4978u - 946, 3.33 \times 10^{25}u^{16} + 3.39 \times 10^{26}u^{15} + \dots + 2.37 \times 10^{27}a - 2.55 \times 10^{28}, -1.66 \times 10^{23}u^{16} - 1.76 \times 10^{24}u^{15} + \dots + 5.02 \times 10^{24}b + 1.04 \times 10^{26}, -1.89 \times 10^{25}u^{16} - 1.79 \times 10^{26}u^{15} + \dots + 4.75 \times 10^{27}c - 8.30 \times 10^{27}, -8.48 \times 10^{22}u^{16} - 9.16 \times 10^{23}u^{15} + \dots + 5.02 \times 10^{24}d + 5.67 \times 10^{25} \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0140215u^{16} - 0.142730u^{15} + \dots + 41.0564u + 10.7263 \\ 0.0330740u^{16} + 0.350086u^{15} + \dots - 98.8636u - 20.7838 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00246089u^{16} + 0.0322813u^{15} + \dots - 11.7024u - 0.939113 \\ 0.0288482u^{16} + 0.310226u^{15} + \dots - 92.2770u - 19.4666 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.00211924u^{16} - 0.0242415u^{15} + \dots + 10.3390u + 2.20669 \\ 0.0396357u^{16} + 0.410115u^{15} + \dots - 107.850u - 24.4290 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.00399078u^{16} + 0.0377102u^{15} + \dots + 8.55661u + 1.74719 \\ 0.0168883u^{16} + 0.182548u^{15} + \dots - 51.7567u - 11.2959 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0178458u^{16} - 0.184519u^{15} + \dots + 47.3869u + 10.4632 \\ 0.0296305u^{16} + 0.306096u^{15} + \dots - 78.3731u - 16.8821 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0140215u^{16} - 0.142730u^{15} + \dots + 41.0564u + 10.7263 \\ 0.0710353u^{16} + 0.754795u^{15} + \dots - 212.677u - 44.9331 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0258235u^{16} - 0.270246u^{15} + \dots + 93.2101u + 20.6989 \\ 0.0667032u^{16} + 0.700245u^{15} + \dots - 181.220u - 39.5002 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0221199u^{16} + 0.233983u^{15} + \dots - 55.1492u - 11.4593 \\ 0.0101792u^{16} + 0.107583u^{15} + \dots - 21.6133u - 3.77528 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0119407u^{16} + 0.126400u^{15} + \dots - 33.5359u - 7.68403 \\ 0.0101792u^{16} + 0.107583u^{15} + \dots - 21.6133u - 3.77528 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0119407u^{16} + 0.126400u^{15} + \dots - 33.5359u - 7.68403 \\ 0.0101792u^{16} + 0.107583u^{15} + \dots - 21.6133u - 3.77528 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_g^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -3.08014 - 0.53548I$ $a = -0.389888 - 0.033420I$ $b = -3.26867 - 0.14158I$ $c = 0.335977 - 0.175000I$ $d = -3.46977 - 0.86035I$	$-6.94910 + 1.22724I$	$-18.1485 - 0.8551I$
$u = -3.08014 + 0.53548I$ $a = -0.389888 + 0.033420I$ $b = -3.26867 + 0.14158I$ $c = 0.335977 + 0.175000I$ $d = -3.46977 + 0.86035I$	$-6.94910 - 1.22724I$	$-18.1485 + 0.8551I$
$u = -1.70703 - 0.63228I$ $a = 0.619339 - 0.416584I$ $b = 1.40758 + 1.58011I$ $c = -0.680357 - 0.048564I$ $d = 2.59305 + 0.40869I$	$-5.86965 - 6.57063I$	$-15.2601 + 6.4345I$
$u = -1.70703 + 0.63228I$ $a = 0.619339 + 0.416584I$ $b = 1.40758 - 1.58011I$ $c = -0.680357 + 0.048564I$ $d = 2.59305 - 0.40869I$	$-5.86965 + 6.57063I$	$-15.2601 - 6.4345I$
$u = -1.50245 - 0.07666I$ $a = 0.129355 - 0.518905I$ $b = -0.570105 + 0.856408I$ $c = 0.729162 + 0.294544I$ $d = -2.25200 - 0.02216I$	$-2.67943 - 4.64771I$	$-12.43915 + 4.11695I$
$u = -1.50245 + 0.07666I$ $a = 0.129355 + 0.518905I$ $b = -0.570105 - 0.856408I$ $c = 0.729162 - 0.294544I$ $d = -2.25200 + 0.02216I$	$-2.67943 + 4.64771I$	$-12.43915 - 4.11695I$

Solution to I_g^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.23193 - 1.36601I$ $a = 0.299771 + 0.425910I$ $b = 0.121977 - 0.577359I$ $c = -0.662338 + 0.260732I$ $d = 2.47935 + 1.09815I$	$-0.88663 - 10.83373I$	$-11.10622 + 7.41261I$
$u = -1.23193 + 1.36601I$ $a = 0.299771 - 0.425910I$ $b = 0.121977 + 0.577359I$ $c = -0.662338 - 0.260732I$ $d = 2.47935 - 1.09815I$	$-0.88663 + 10.83373I$	$-11.10622 - 7.41261I$
$u = -1.08705 - 0.99233I$ $a = -0.813560 + 0.205772I$ $b = -1.99534 - 0.86726I$ $c = 0.250802 + 0.565709I$ $d = -0.366218 + 0.613493I$	$1.75994 - 5.51158I$	$-7.74874 + 3.84490I$
$u = -1.08705 + 0.99233I$ $a = -0.813560 - 0.205772I$ $b = -1.99534 + 0.86726I$ $c = 0.250802 - 0.565709I$ $d = -0.366218 - 0.613493I$	$1.75994 + 5.51158I$	$-7.74874 - 3.84490I$
$u = -0.284217 - 0.647378I$ $a = 1.010844 - 0.899515I$ $b = 1.229890 - 0.124240I$ $c = -0.461236 - 0.781258I$ $d = 0.185685 - 0.428521I$	$-0.670307 - 0.433874I$	$-9.43166 - 0.87540I$
$u = -0.284217 + 0.647378I$ $a = 1.010844 + 0.899515I$ $b = 1.229890 + 0.124240I$ $c = -0.461236 + 0.781258I$ $d = 0.185685 + 0.428521I$	$-0.670307 + 0.433874I$	$-9.43166 + 0.87540I$

Solution to I_g^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.008617 - 0.945710I$ $a = 0.010137 - 1.323501I$ $b = 0.00800 + 1.42847I$ $c = 0.437464 + 0.661472I$ $d = -0.073789 + 0.632346I$	$-1.98005 + 1.46955I$	$-8.36417 - 4.66528I$
$u = -0.008617 + 0.945710I$ $a = 0.010137 + 1.323501I$ $b = 0.00800 - 1.42847I$ $c = 0.437464 - 0.661472I$ $d = -0.073789 - 0.632346I$	$-1.98005 - 1.46955I$	$-8.36417 + 4.66528I$
$u = 0.154907 - 0.832377I$ $a = -0.761556 + 0.916679I$ $b = 0.343998 + 0.228233I$ $c = 1.012115 + 0.768420I$ $d = 0.169642 - 0.247580I$	$4.74481 + 2.71165I$	$-6.15758 - 3.13710I$
$u = 0.154907 + 0.832377I$ $a = -0.761556 - 0.916679I$ $b = 0.343998 - 0.228233I$ $c = 1.012115 - 0.768420I$ $d = 0.169642 + 0.247580I$	$4.74481 - 2.71165I$	$-6.15758 + 3.13710I$
$u = 5.49303$ $a = 0.199152$ $b = 5.44536$ $c = -0.157849$ $d = 5.46811$	-4.54799	-20.6879

$$\text{IX. } I_1^v = \langle b, c, a + 1, d + 1, v + 1 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$		
$a = -1.00000$		
$b = 0$	-3.28987	-12.0000
$c = 0$		
$d = -1.00000$		

X. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_6	$u(u-1)^3(u^6 - 2u^4 - u^3 + u^2 + u + 1)^2$ $(u^{11} + u^{10} - 2u^9 - 3u^8 + 3u^7 + 5u^6 - 4u^4 + 2u^2 + 2u - 1)$ $(u^{17} - 5u^{15} + \dots - 3u^2 + 4)$ $(-1 - u + u^2 + u^3 - 4u^4 - 2u^5 + 8u^6 + 12u^7 - 2u^8 - 17u^9 - 10u^{10} + 11u^{11} + 14u^{12} - u^{13} - \dots)$
c_2, c_9, c_{11}	$u(u+1)^3(u^6 + 4u^5 + 6u^4 + 3u^3 - u^2 - u + 1)^2$ $(u^{11} + 5u^{10} + \dots + 8u + 1)$ $(1 + 3u + 11u^2 + 29u^3 + 64u^4 + 110u^5 + 136u^6 + 144u^7 + 162u^8 + 219u^9 + 288u^{10} + 319u^{11} + \dots)$ $(u^{17} + 10u^{16} + \dots + 24u + 16)$
c_3, c_7	$u^4(u^2 - u + 1)^6$ $(u^{11} + u^{10} + 2u^9 + u^8 + 2u^7 - 3u^6 - 3u^5 - 4u^4 - 4u^2 + 4u + 4)$ $(-2 - 2u + u^2 + 9u^3 + 19u^4 + 26u^5 + 24u^6 + 18u^7 + 13u^8 + 14u^9 + 14u^{10} + 15u^{11} + 11u^{12} + \dots)$
c_4, c_5, c_8 c_{10}	$u(u-1)(u+1)^2(u^6 - 2u^4 - u^3 + u^2 + u + 1)^2$ $(u^{11} + u^{10} - 2u^9 - 3u^8 + 3u^7 + 5u^6 - 4u^4 + 2u^2 + 2u - 1)$ $(u^{17} - 5u^{15} + \dots - 3u^2 + 4)$ $(-1 - u + u^2 + u^3 - 4u^4 - 2u^5 + 8u^6 + 12u^7 - 2u^8 - 17u^9 - 10u^{10} + 11u^{11} + 14u^{12} - u^{13} - \dots)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4, c_5 c_6, c_8, c_{10}	$y(y-1)^3(y^6 - 4y^5 + 6y^4 - 3y^3 - y^2 + y + 1)^2$ $(y^{11} - 5y^{10} + \dots + 8y - 1)(y^{17} - 10y^{16} + \dots + 24y - 16)$ $(-1 + 3y - 11y^2 + 29y^3 - 64y^4 + 110y^5 - 136y^6 + 144y^7 - 162y^8 + 219y^9 - 288y^{10} + 319y^{11} - \dots)$
c_2, c_9, c_{11}	$y(y-1)^3(y^6 - 4y^5 + 10y^4 - 11y^3 + 19y^2 - 3y + 1)^2$ $(y^{11} + 7y^{10} + \dots + 40y - 1)(y^{17} - 10y^{16} + \dots + 800y - 256)$ $(-1 - 13y - 75y^2 - 179y^3 - 168y^4 + 218y^5 + 172y^6 + 1308y^7 + 2054y^8 + 1815y^9 + 1508y^{10} - \dots)$
c_3, c_7	$y^4(y^2 + y + 1)^6(y^{11} + 3y^{10} + \dots + 48y - 16)$ $(-4 + 8y + 39y^2 + 35y^3 + 39y^4 + 62y^5 + 74y^6 + 128y^7 + 181y^8 + 218y^9 + 212y^{10} + 177y^{11} + \dots)$