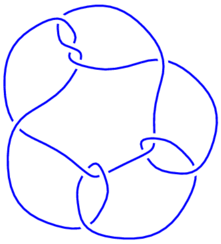
$11a_{181}$ ($K11a_{181}$)



[1]

Arc Sequences

↑	↓	↓	↓	↑	↑	↓	↓	↓	↑	↓
7	1	9	8	11	2	3	4	5	6	10

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{6} I_i^u$$

$$\begin{aligned}
I_1^u &= \langle u^2 + 1,\ a + 1,\ b - u + 2 \rangle \\
I_2^u &= \langle u^{10} + u^9 + 4u^8 + 4u^7 + 6u^6 + 6u^5 + 3u^4 + 3u^3 + 1,\ u^9 + 4u^7 + 5u^5 + a - 3u + 1, \\
&\quad - u^9 - 3u^7 - 3u^5 - u^2 + b + u \rangle \\
I_3^u &= \langle u^{12} + 3u^{10} - 2u^9 + 4u^8 - 4u^7 + 3u^6 - 4u^5 + u^4 - 2u^3 + u^2 - u + 2,\ -u^{11} - 3u^9 - 4u^7 - u^5 + u^3 + 2a + u \\
&\quad u^{10} + 2u^8 - u^7 + 2u^6 - u^5 + u^4 - u^3 + b - u + 1 \rangle \\
I_4^u &= \langle u^{14} + u^{13} + 4u^{12} + 4u^{11} + 9u^{10} + 9u^9 + 11u^8 + 11u^7 + 10u^6 + 10u^5 + 6u^4 + 5u^3 + 4u^2 + 2u + 1,\ a - 1, \\
&\quad u^{13} + 2u^{12} + 4u^{11} + 6u^{10} + 9u^9 + 12u^8 + 11u^7 + 10u^6 + 10u^5 + 10u^4 + 6u^3 + 3u^2 + 2b + 3u + 1 \rangle \\
I_5^u &= \langle u^5 - u^4 + 2u^3 - u^2 + u - 1,\ a - 1,\ 2u^3 - u^2 + b + 2u - 2 \rangle \\
I_6^u &= \langle a^{10} + 5a^9 + 14a^8 + 26a^7 + 34a^6 + 32a^5 + 24a^4 + 15a^3 + 8a^2 + 3a + 1, \\
&\quad a^9 + 4a^8 + 9a^7 + 13a^6 + 12a^5 + 7a^4 + 5a^3 + 3a^2 + b + 1, \\
&\quad - 2a^8 - 8a^7 - 19a^6 - 29a^5 - 29a^4 - 19a^3 - 11a^2 - 5a + u - 2 \rangle
\end{aligned}$$

There are 6 irreducible components with 53 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. $I_1^u = \langle u^2+1,\ a+1,\ b-u+2\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0\\-1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-1\\u-2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u-1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u+1\\-u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-1\\u-1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-1\\u-1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-1\\u-1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad - 1.00000I$ $a = -1.00000$ $b = -2.00000 - 1.00000I$	-1.64493	-8.00000
$u = \quad 1.00000I$ $a = -1.00000$ $b = -2.00000 + 1.00000I$	-1.64493	-8.00000

II. $\boldsymbol{I^u_2 =}$
$\boldsymbol{\langle u^{10}+u^9+\cdots+3u^3+1,\ u^9+4u^7+5u^5+a-3u+1,\ -u^9-3u^7-3u^5-u^2+b+u\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^4+u^2+1\\u^4\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^7-2u^5-2u^3\\-u^7-u^5+u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^9-4u^7-5u^5+3u-1\\u^9+3u^7+3u^5+u^2-u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^8-3u^6-3u^4+1\\-u^8-2u^6+2u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^6-u^4+1\\-u^6+u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^9-4u^7-5u^5+3u-1\\-1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^5+2u^3+u\\u^5+u^3-u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^5+2u^3+u\\u^5+u^3-u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.839548 - 0.070481I$ $a = -0.41982 + 1.46477I$ $b = -0.532832 - 0.975467I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = -0.839548 + 0.070481I$ $a = -0.41982 - 1.46477I$ $b = -0.532832 + 0.975467I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = -0.383413 - 1.200423I$ $a = -0.185143 + 0.579662I$ $b = -0.705989 + 0.920516I$	-2.40108	-3.48114
$u = -0.383413 + 1.200423I$ $a = -0.185143 - 0.579662I$ $b = -0.705989 - 0.920516I$	-2.40108	-3.48114
$u = -0.090539 - 1.215345I$ $a = -0.652254 - 0.327614I$ $b = -2.03017 - 0.33768I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = -0.090539 + 1.215345I$ $a = -0.652254 + 0.327614I$ $b = -2.03017 + 0.33768I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = 0.383851 - 1.270633I$ $a = -0.766259 + 0.590120I$ $b = -2.69987 + 0.11834I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = 0.383851 + 1.270633I$ $a = -0.766259 - 0.590120I$ $b = -2.69987 - 0.11834I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = 0.429649 - 0.392970I$ $a = 0.52347 - 1.43528I$ $b = -0.531133 + 0.220073I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = 0.429649 + 0.392970I$ $a = 0.52347 + 1.43528I$ $b = -0.531133 - 0.220073I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$

III. $I_3^u = \langle u^{12} + 3u^{10} + \cdots - u + 2,\ -u^{11} - 3u^9 - 4u^7 - u^5 + u^3 + 2a + u + 1,\ u^{10} + 2u^8 - u^7 + 2u^6 - u^5 + u^4 - u^3 + b - u + 1\rangle$

(i) Arc colorings

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

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

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

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

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

$$a_8 = \begin{pmatrix} -u^7 - 2u^5 - 2u^3 \\ -u^7 - u^5 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{11} + \frac{3}{2}u^9 + \cdots - \frac{1}{2}u - \frac{1}{2} \\ -u^{10} - 2u^8 + u^7 - 2u^6 + u^5 - u^4 + u^3 + u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{11} - \frac{1}{2}u^9 + \cdots + \frac{1}{2}u - \frac{1}{2} \\ -u^{11} - u^9 + u^8 + u^5 - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{2}u^{11} - u^{10} + \cdots + \frac{3}{2}u + \frac{3}{2} \\ -u^{10} + u^9 - 2u^8 + 2u^7 - 2u^6 + u^5 + u^4 + u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^{11} + \frac{3}{2}u^9 + \cdots - \frac{1}{2}u - \frac{1}{2} \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{2}u^{11} + \frac{1}{2}u^9 + \cdots - \frac{1}{2}u + \frac{1}{2} \\ u^{11} + u^9 + u^6 - 2u^5 - u^2 + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{2}u^{11} + \frac{1}{2}u^9 + \cdots - \frac{1}{2}u + \frac{1}{2} \\ u^{11} + u^9 + u^6 - 2u^5 - u^2 + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.696319 - 0.473577I$ $a = \ \ 0.027346 + 1.243497I$ $b = -0.187013 - 0.342071I$	$5.07386 - 3.39374I$	$2.36018 + 3.51762I$
$u = -0.696319 + 0.473577I$ $a = \ \ 0.027346 - 1.243497I$ $b = -0.187013 + 0.342071I$	$5.07386 + 3.39374I$	$2.36018 - 3.51762I$
$u = -0.508695 - 1.194486I$ $a = -0.178421 + 0.665057I$ $b = -0.400184 + 0.993631I$	$-1.52175 + 8.77346I$	$-2.43784 - 5.90094I$
$u = -0.508695 + 1.194486I$ $a = -0.178421 - 0.665057I$ $b = -0.400184 - 0.993631I$	$-1.52175 - 8.77346I$	$-2.43784 + 5.90094I$
$u = -0.420932 - 1.237559I$ $a = -0.792614 - 0.609724I$ $b = -2.70873$	-9.81751	-10.6818
$u = -0.420932 + 1.237559I$ $a = -0.792614 + 0.609724I$ $b = -2.70873$	-9.81751	-10.6818
$u = \ \ 0.170932 - 1.042906I$ $a = -0.947679 + 0.319225I$ $b = -2.11687$	-3.86646	-13.1629
$u = \ \ 0.170932 + 1.042906I$ $a = -0.947679 - 0.319225I$ $b = -2.11687$	-3.86646	-13.1629
$u = \ \ 0.569850 - 0.878821I$ $a = \ \ 0.017677 - 0.803795I$ $b = -0.187013 - 0.342071I$	$5.07386 - 3.39374I$	$2.36018 + 3.51762I$
$u = \ \ 0.569850 + 0.878821I$ $a = \ \ 0.017677 + 0.803795I$ $b = -0.187013 + 0.342071I$	$5.07386 + 3.39374I$	$2.36018 - 3.51762I$

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.885163 - 0.125190I$ $a = -0.37631 - 1.40267I$ $b = -0.400184 + 0.993631I$	$-1.52175 + 8.77346I$	$-2.43784 - 5.90094I$
$u = \quad 0.885163 + 0.125190I$ $a = -0.37631 + 1.40267I$ $b = -0.400184 - 0.993631I$	$-1.52175 - 8.77346I$	$-2.43784 + 5.90094I$

IV. $I^u_4 = \langle u^{14} + u^{13} + \cdots + 2u + 1,\ a - 1,\ u^{13} + 2u^{12} + \cdots + 2b + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^7 - 2u^5 - 2u^3 \\ -u^7 - u^5 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -\frac{1}{2}u^{13} - u^{12} + \cdots - \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ \frac{1}{2}u^{13} + u^{11} + \cdots + \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{2}u^{13} + 2u^{11} + \cdots + \frac{1}{2}u + \frac{3}{2} \\ u^6 + u^5 + 2u^4 + u^3 + u^2 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -\frac{1}{2}u^{13} - u^{12} + \cdots - \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^4 + u^2 + 1 \\ -\frac{1}{2}u^{13} - u^{12} + \cdots - \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^4 + u^2 + 1 \\ -\frac{1}{2}u^{13} - u^{12} + \cdots - \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$

(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
$u = -0.799677 - 0.138430I$ $a = 1.00000$ $b = 0.167978 - 0.055833I$	$1.59498 - 3.95770I$	$0.96673 + 2.71748I$
$u = -0.799677 + 0.138430I$ $a = 1.00000$ $b = 0.167978 + 0.055833I$	$1.59498 + 3.95770I$	$0.96673 - 2.71748I$
$u = -0.582308 - 0.988094I$ $a = 1.00000$ $b = 2.13890 + 0.43015I$	$3.60332 + 8.26243I$	$-0.67488 - 8.53661I$
$u = -0.582308 + 0.988094I$ $a = 1.00000$ $b = 2.13890 - 0.43015I$	$3.60332 - 8.26243I$	$-0.67488 + 8.53661I$
$u = -0.492502 - 1.221531I$ $a = 1.00000$ $b = 3.58015 + 0.39044I$	$-9.30050 + 9.21742I$	$-9.53627 - 6.56177I$
$u = -0.492502 + 1.221531I$ $a = 1.00000$ $b = 3.58015 - 0.39044I$	$-9.30050 - 9.21742I$	$-9.53627 + 6.56177I$
$u = -0.240054 - 0.605061I$ $a = 1.00000$ $b = -0.149866 + 0.742198I$	$-0.020113 + 1.303977I$	$-0.98002 - 6.02630I$
$u = -0.240054 + 0.605061I$ $a = 1.00000$ $b = -0.149866 - 0.742198I$	$-0.020113 - 1.303977I$	$-0.98002 + 6.02630I$
$u = 0.460484 - 0.954971I$ $a = 1.00000$ $b = 2.00495 - 1.15741I$	$-1.77357 - 5.35695I$	$-6.00056 + 9.03526I$
$u = 0.460484 + 0.954971I$ $a = 1.00000$ $b = 2.00495 + 1.15741I$	$-1.77357 + 5.35695I$	$-6.00056 - 9.03526I$

	Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.525386-1.228372I$		
$a=$	1.00000	$-4.8439-13.8790I$	$-5.49540+8.77072I$
$b=$	$3.50361-0.20992I$		
$u=$	$0.525386+1.228372I$		
$a=$	1.00000	$-4.8439+13.8790I$	$-5.49540-8.77072I$
$b=$	$3.50361+0.20992I$		
$u=$	$0.628671-0.622459I$		
$a=$	1.00000	$5.80501-1.28126I$	$3.72038+3.33843I$
$b=$	$0.754283-0.178755I$		
$u=$	$0.628671+0.622459I$		
$a=$	1.00000	$5.80501+1.28126I$	$3.72038-3.33843I$
$b=$	$0.754283+0.178755I$		

V. $\boldsymbol{I_5^u = \langle u^5 - u^4 + 2u^3 - u^2 + u - 1,\ a - 1,\ 2u^3 - u^2 + b + 2u - 2\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2 - 1 \\ u^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -2u^3 + u^2 - 2u + 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ 2u^4 - u^3 + 2u^2 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^3 \\ u^4 + u^3 + u^2 - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -2u^3 + 2u^2 - 2u + 2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 - u^3 + u^2 - 2u + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 - u^3 + u^2 - 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.339110 - 0.822375I$ $a = 1.00000$ $b = 0.81886 + 1.65757I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = -0.339110 + 0.822375I$ $a = 1.00000$ $b = 0.81886 - 1.65757I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = 0.455697 - 1.200152I$ $a = 1.00000$ $b = 3.60486 - 0.65548I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = 0.455697 + 1.200152I$ $a = 1.00000$ $b = 3.60486 + 0.65548I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = 0.766826$ $a = 1.00000$ $b = 0.152550$	-2.40108	-3.48114

VI.

$$\boldsymbol{I^u_6 = \langle a^{10} + 5a^9 + \cdots + 3a + 1,\ a^9 + b + \cdots + 3a^2 + 1,\ -2a^8 + u + \cdots - 5a - 2\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ 2a^8 + 8a^7 + 19a^6 + 29a^5 + 29a^4 + 19a^3 + 11a^2 + 5a + 2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 2a^8 + 8a^7 + 19a^6 + 29a^5 + 29a^4 + 19a^3 + 11a^2 + 5a + 2 \\ 2a^8 + 8a^7 + 19a^6 + 29a^5 + 29a^4 + 19a^3 + 11a^2 + 5a + 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a^8 + 4a^7 + 9a^6 + 13a^5 + 12a^4 + 7a^3 + 5a^2 + 3a + 1 \\ a^8 + 4a^7 + 9a^6 + 13a^5 + 12a^4 + 7a^3 + 5a^2 + 3a \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -2a^8 - 8a^7 - 19a^6 - 29a^5 - 29a^4 - 19a^3 - 12a^2 - 6a - 2 \\ -3a^8 - 12a^7 - 28a^6 - 42a^5 - 41a^4 - 26a^3 - 17a^2 - 9a - 3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a^8 - 4a^7 - 9a^6 - 13a^5 - 12a^4 - 7a^3 - 5a^2 - 3a - 1 \\ -3a^8 - 12a^7 - 28a^6 - 42a^5 - 41a^4 - 26a^3 - 17a^2 - 9a - 3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ -a^9 - 4a^8 - 9a^7 - 13a^6 - 12a^5 - 7a^4 - 5a^3 - 3a^2 - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2a^9 + 9a^8 + 23a^7 + 39a^6 + 45a^5 + 37a^4 + 25a^3 + 14a^2 + 6a + 2 \\ 4a^9 + 18a^8 + 47a^7 + 81a^6 + 96a^5 + 80a^4 + 53a^3 + 28a^2 + 13a + 4 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2a^9 + 9a^8 + 22a^7 + 36a^6 + 39a^5 + 30a^4 + 20a^3 + 12a^2 + 4a + 2 \\ 4a^9 + 18a^8 + 45a^7 + 75a^6 + 84a^5 + 66a^4 + 44a^3 + 25a^2 + 9a + 4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2a^9 + 9a^8 + 23a^7 + 39a^6 + 45a^5 + 36a^4 + 24a^3 + 13a^2 + 7a + 2 \\ 4a^9 + 18a^8 + 47a^7 + 81a^6 + 96a^5 + 80a^4 + 54a^3 + 29a^2 + 15a + 4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2a^9 + 9a^8 + 23a^7 + 39a^6 + 45a^5 + 36a^4 + 24a^3 + 13a^2 + 7a + 2 \\ 4a^9 + 18a^8 + 47a^7 + 81a^6 + 96a^5 + 80a^4 + 54a^3 + 29a^2 + 15a + 4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I^u_6	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.339110 - 0.822375I$ $a = -1.224278 - 0.614931I$ $b = -2.03017 + 0.33768I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = -0.339110 + 0.822375I$ $a = -1.224278 + 0.614931I$ $b = -2.03017 - 0.33768I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = 0.455697 + 1.200152I$ $a = -0.819183 - 0.630878I$ $b = -2.69987 + 0.11834I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = 0.455697 - 1.200152I$ $a = -0.819183 + 0.630878I$ $b = -2.69987 - 0.11834I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = 0.766826$ $a = -0.50000 - 1.56544I$ $b = -0.705989 + 0.920516I$	-2.40108	-3.48114
$u = 0.766826$ $a = -0.50000 + 1.56544I$ $b = -0.705989 - 0.920516I$	-2.40108	-3.48114
$u = 0.455697 - 1.200152I$ $a = -0.180817 - 0.630878I$ $b = -0.532832 - 0.975467I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = 0.455697 + 1.200152I$ $a = -0.180817 + 0.630878I$ $b = -0.532832 + 0.975467I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = -0.339110 + 0.822375I$ $a = 0.224278 - 0.614931I$ $b = -0.531133 - 0.220073I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = -0.339110 - 0.822375I$ $a = 0.224278 + 0.614931I$ $b = -0.531133 + 0.220073I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_5, c_6 c_{10}	$(u^2+1)(u^5+u^4+2u^3+u^2+u+1)^3$ $(u^{10}-u^9+4u^8-4u^7+6u^6-6u^5+3u^4-3u^3+1)$ $(u^{12}+3u^{10}+2u^9+4u^8+4u^7+3u^6+4u^5+u^4+2u^3+u^2+u+2)$ $(u^{14}-u^{13}+\cdots-2u+1)$
c_2, c_{11}	$(u+1)^2(u^5+3u^4+4u^3+u^2-u-1)^3$ $(u^{10}+7u^9+20u^8+26u^7+6u^6-22u^5-19u^4+3u^3+6u^2+1)$ $(u^{12}+6u^{11}+\cdots+3u+4)(u^{14}+7u^{13}+\cdots+4u+1)$
c_3, c_4, c_8	$(u^2+1)(u^5+u^4+2u^3+u^2+u+1)(u^6+3u^4+u^3+2u^2+2u-1)^2$ $(u^{10}-u^9+4u^8-4u^7+6u^6-6u^5+3u^4-3u^3+1)^2$ $(u^{14}+2u^{13}+\cdots+3u+2)$
c_7, c_9	$u^2(u^5+u^4-2u^3-u^2+u-1)^5(u^6-3u^5+2u^4-u^3+5u^2-3u-2)^2$ $(u^{14}+2u^{13}+\cdots+12u+8)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5, c_6 c_{10}	$(y+1)^2(y^5+3y^4+4y^3+y^2-y-1)^3$ $(y^{10}+7y^9+20y^8+26y^7+6y^6-22y^5-19y^4+3y^3+6y^2+1)$ $(y^{12}+6y^{11}+\cdots+3y+4)(y^{14}+7y^{13}+\cdots+4y+1)$
c_2, c_{11}	$(y-1)^2(-1+3y-3y^2+8y^3-y^4+y^5)^3(y^{10}-9y^9+\cdots+12y+1)$ $(y^{12}-2y^{11}+\cdots-y+16)(y^{14}+3y^{13}+\cdots+28y^2+1)$
c_3, c_4, c_8	$(y+1)^2(y^5+3y^4+4y^3+y^2-y-1)$ $(y^6+6y^5+13y^4+9y^3-6y^2-8y+1)^2$ $(y^{10}+7y^9+20y^8+26y^7+6y^6-22y^5-19y^4+3y^3+6y^2+1)^2$ $(y^{14}+12y^{13}+\cdots+11y+4)$
c_7, c_9	$y^2(y^5-5y^4+8y^3-3y^2-y-1)^5$ $(y^6-5y^5+8y^4-3y^3+11y^2-29y+4)^2$ $(y^{14}-10y^{13}+\cdots+496y+64)$