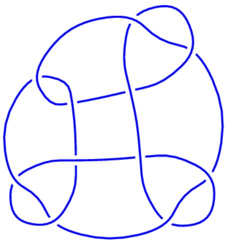
$11n_{75}$ ($K11n_{75}$)



1

Arc Sequences

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

Solving Sequence

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

Representation Ideals

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

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

$I^u_1 = \langle c,\ b-1,\ u-1,\ da-1\rangle$
$I^u_2 = \langle a,\ c,\ b-1,\ d-1,\ u-1\rangle$
$I^u_3 = \langle a,\ b-u,\ c+u,\ u^3-u^2+1,\ -u^2+d+u-1\rangle$
$I^u_4 = \langle a,\ b-u,\ u^4-u^2+c+u-1,\ u^6+u^5-2u^4+2u^2-2u-1,\ 2u^5-u^4-3u^3+4u^2+d-u-2\rangle$
$I^u_5 = \langle b,\ c,\ d-1,\ u-1,\ a+1\rangle$
$I^u_6 = \langle b^{10}-b^9-b^8+3b^7-2b^5+b^4+4b^3-3b^2-4b+4,$
$4b^9-3b^8+12b^6+3b^5-12b^4+b^3+21b^2+19d-2b-7,$
$-49b^9+51b^8+19b^7-109b^6+6b^5+14b^4-17b^3-186b^2+91b+76a+62,$
$-37b^9+23b^8+19b^7-73b^6-42b^5+54b^4-33b^3-142b^2+76c+47b+98,$
$21b^9-11b^8-19b^7+25b^6+30b^5-6b^4-47b^3+58b^2+37b+76u-70\rangle$
$I^u_7 = \langle -u^5+2u^3-u^2+b+1,\ u^4-u^2+c+u-1,\ u^6+u^5-2u^4+2u^2-2u-1,$
$-u^5+u^4+2u^3-2u^2+a+2u+2,\ 2u^5-u^4-3u^3+4u^2+d-u-2\rangle$
$I^u_8 = \langle u^{13}+2u^{12}-5u^{11}-10u^{10}+9u^9+14u^8-10u^7+u^6+14u^5-8u^4-13u^3-3u^2+8u+4,$
$153u^{12}+312u^{11}+\cdots+1228a+972,\ 41u^{12}+204u^{11}+\cdots+1228b+730,$
$-357u^{12}-728u^{11}+\cdots+2456c-1654,\ -503u^{12}-496u^{11}+\cdots+1228d-2726\rangle$

$I^v_1 = \langle a,\ d,\ v-1,\ c+1,\ b+1\rangle$

There are 9 irreducible components with 41 representations.
There are 1 irreducible components of $dim_{\mathbb{C}} = 1$ for $11n_{75}$

I. $I_1^u = \langle c,\ b-1,\ u-1,\ da-1\rangle$

(i) Arc colorings

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

(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
$u = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	1.64493	$9.85070 + 0.18976I$

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(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
$u =$	1.00000		
$a =$	0		
$b =$	1.00000	0	0
$c =$	0		
$d =$	1.00000		

III. $I_3^u = \langle a,\ b - u,\ c + u,\ u^3 - u^2 + 1,\ -u^2 + d + u - 1\rangle$

(i) Arc colorings

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

(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
$u = -0.754878$ $a = 0$ $b = -0.754878$ $c = 0.754878$ $d = 2.32472$	1.11345	9.01951
$u = 0.877439 - 0.744862I$ $a = 0$ $b = 0.877439 - 0.744862I$ $c = -0.877439 + 0.744862I$ $d = 0.337641 - 0.562280I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = 0.877439 + 0.744862I$ $a = 0$ $b = 0.877439 + 0.744862I$ $c = -0.877439 - 0.744862I$ $d = 0.337641 + 0.562280I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$

IV.

$\boldsymbol{I_4^u = \langle a,\ b-u,\ u^4-u^2+c+u-1,\ u^6+u^5+\cdots-2u-1,\ 2u^5-u^4+\cdots+d-2\rangle}$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix} -u^4 + u^2 - u + 1 \\ -2u^5 + u^4 + 3u^3 - 4u^2 + u + 2 \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.47043 - 0.10268I$ $a = 0$ $b = -1.47043 - 0.10268I$ $c = 0.083785 - 0.894804I$ $d = 0.14251 + 2.74752I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = -1.47043 + 0.10268I$ $a = 0$ $b = -1.47043 + 0.10268I$ $c = 0.083785 + 0.894804I$ $d = 0.14251 - 2.74752I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$u = -0.379278$ $a = 0$ $b = -0.379278$ $c = 1.50244$ $d = 0.918028$	1.11345	9.01951
$u = 0.592989 - 0.847544I$ $a = 0$ $b = 0.592989 - 0.847544I$ $c = 0.916215 - 0.894804I$ $d = -0.235028 + 0.695513I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$u = 0.592989 + 0.847544I$ $a = 0$ $b = 0.592989 + 0.847544I$ $c = 0.916215 + 0.894804I$ $d = -0.235028 - 0.695513I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = 1.13416$ $a = 0$ $b = 1.13416$ $c = -0.502436$ $d = 0.267010$	1.11345	9.01951

V. $I_5^u = \langle b,\ c,\ d-1,\ u-1,\ a+1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

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

VI. $\boldsymbol{I^u_6 = \langle b^{10} - b^9 + \cdots - 4b + 4,\ 4b^9 + 19d + \cdots - 2b - 7,\ -49b^9 + 51b^8 + \cdots + 76a + 62,\ -37b^9 + 76c + \cdots + 47b + 98,\ 21b^9 + 76u + \cdots + 37b - 70\rangle}$

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ -0.276316b^9 + 0.144737b^8 + \cdots - 0.486842b + 0.921053 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ 0.131579b^9 + 0.0263158b^8 + \cdots + 0.184211b - 0.105263 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.486842b^9 - 0.302632b^8 + \cdots - 0.618421b - 1.28947 \\ -0.210526b^9 + 0.157895b^8 + \cdots + 0.105263b + 0.368421 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.131579b^9 - 0.0263158b^8 + \cdots - 0.184211b + 1.10526 \\ 0.131579b^9 + 0.0263158b^8 + \cdots + 0.184211b - 0.105263 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.644737b^9 - 0.671053b^8 + \cdots - 1.19737b - 0.815789 \\ b \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.486842b^9 - 0.302632b^8 + \cdots - 0.618421b - 1.28947 \\ -0.276316b^9 + 0.144737b^8 + \cdots - 0.486842b + 0.921053 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0263158b^9 + 0.394737b^8 + \cdots + 1.76316b - 1.57895 \\ b^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.276316b^9 - 0.144737b^8 + \cdots + 0.486842b - 0.921053 \\ -b^3 + b \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0263158b^9 + 0.394737b^8 + \cdots + 1.76316b - 1.57895 \\ b^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.434211b^9 + 0.486842b^8 + \cdots + 1.90789b - 3.44737 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.434211b^9 + 0.486842b^8 + \cdots + 1.90789b - 3.44737 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I^u_6	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.331409 + 0.386277I$ $a = 3.38443 - 0.78229I$ $b = -1.184729 - 0.098919I$ $c = -0.76001 - 1.23514I$ $d = -0.014754 + 0.532228I$	$2.91669 - 1.13882I$	$7.28192 + 6.05450I$
$u = 0.331409 - 0.386277I$ $a = 3.38443 + 0.78229I$ $b = -1.184729 + 0.098919I$ $c = -0.76001 + 1.23514I$ $d = -0.014754 - 0.532228I$	$2.91669 + 1.13882I$	$7.28192 - 6.05450I$
$u = 1.49784$ $a = -0.53688 - 1.32884I$ $b = -0.748922 - 0.826228I$ $c = 0.911163$ $d = -0.546383$	-5.22495	1.71424
$u = 1.49784$ $a = -0.53688 + 1.32884I$ $b = -0.748922 + 0.826228I$ $c = 0.911163$ $d = -0.546383$	-5.22495	1.71424
$u = -1.58033 + 0.28256I$ $a = 0.539372 - 0.945885I$ $b = 0.443519 - 1.107389I$ $c = -0.195567 - 1.002697I$ $d = -0.21205 + 2.53203I$	$-10.17382 + 6.99719I$	$0.86096 - 3.54683I$
$u = -1.58033 - 0.28256I$ $a = 0.539372 + 0.945885I$ $b = 0.443519 + 1.107389I$ $c = -0.195567 + 1.002697I$ $d = -0.21205 - 2.53203I$	$-10.17382 - 6.99719I$	$0.86096 + 3.54683I$

Solution to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.331409+0.386277I$ $a = -0.397099-1.351198I$ $b = 0.853320-0.287358I$ $c = -0.76001-1.23514I$ $d = -0.014754+0.532228I$	$2.91669-1.13882I$	$7.28192+6.05450I$
$u = 0.331409-0.386277I$ $a = -0.397099+1.351198I$ $b = 0.853320+0.287358I$ $c = -0.76001+1.23514I$ $d = -0.014754-0.532228I$	$2.91669+1.13882I$	$7.28192-6.05450I$
$u = -1.58033-0.28256I$ $a = 0.01017-1.44676I$ $b = 1.136812-0.824833I$ $c = -0.195567+1.002697I$ $d = -0.21205-2.53203I$	$-10.17382-6.99719I$	$0.86096+3.54683I$
$u = -1.58033+0.28256I$ $a = 0.01017+1.44676I$ $b = 1.136812+0.824833I$ $c = -0.195567-1.002697I$ $d = -0.21205+2.53203I$	$-10.17382+6.99719I$	$0.86096-3.54683I$

VII. $\boldsymbol{I^u_7 = \langle -u^5+2u^3-u^2+b+1,\ u^4-u^2+c+u-1,\ u^6+u^5+\cdots-2u-1,\ -u^5+u^4+\cdots+a+2,\ 2u^5-u^4+\cdots+d-2\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.47043 - 0.10268I$ $a = 0.43165 - 1.53698I$ $b = 0.877439 - 0.744862I$ $c = 0.083785 - 0.894804I$ $d = 0.14251 + 2.74752I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = -1.47043 + 0.10268I$ $a = 0.43165 + 1.53698I$ $b = 0.877439 + 0.744862I$ $c = 0.083785 + 0.894804I$ $d = 0.14251 - 2.74752I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$u = -0.379278$ $a = -0.873164$ $b = -0.754878$ $c = 1.50244$ $d = 0.918028$	1.11345	9.01951
$u = 0.592989 - 0.847544I$ $a = -0.799335 + 0.697602I$ $b = 0.877439 + 0.744862I$ $c = 0.916215 - 0.894804I$ $d = -0.235028 + 0.695513I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$u = 0.592989 + 0.847544I$ $a = -0.799335 - 0.697602I$ $b = 0.877439 - 0.744862I$ $c = 0.916215 + 0.894804I$ $d = -0.235028 - 0.695513I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$u = 1.13416$ $a = -4.39147$ $b = -0.754878$ $c = -0.502436$ $d = 0.267010$	1.11345	9.01951

VIII. $\boldsymbol{I^u_8 = \langle u^{13} + 2u^{12} + \cdots + 8u + 4,\ 153u^{12} + 312u^{11} + \cdots + 1228a + 972,\ 41u^{12} + 204u^{11} + \cdots + 1228b + 730,\ -357u^{12} - 728u^{11} + \cdots + 2456c - 1654,\ -503u^{12} - 496u^{11} + \cdots + 1228d - 2726\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.145358u^{12} + 0.296417u^{11} + \cdots - 0.230049u + 0.673453 \\ 0.409609u^{12} + 0.403909u^{11} + \cdots + 1.54642u + 2.21987 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.124593u^{12} - 0.254072u^{11} + \cdots - 1.01710u - 0.791531 \\ -0.0333876u^{12} - 0.166124u^{11} + \cdots + 0.652280u - 0.594463 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.145358u^{12} + 0.296417u^{11} + \cdots - 0.230049u + 0.673453 \\ 0.341205u^{12} + 0.587948u^{11} + \cdots + 0.919381u + 2.19707 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.153502u^{12} + 0.214984u^{11} + \cdots + 0.427932u + 1.34283 \\ 0.0993485u^{12} + 0.00651466u^{11} + \cdots + 0.327362u + 0.866450 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0541531u^{12} + 0.208469u^{11} + \cdots + 0.100570u + 0.476384 \\ 0.0993485u^{12} + 0.00651466u^{11} + \cdots + 0.327362u + 0.866450 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.307003u^{12} + 0.429967u^{11} + \cdots + 0.355863u + 1.18567 \\ 0.302117u^{12} + 0.478827u^{11} + \cdots + 1.06107u + 2.18404 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.307003u^{12} + 0.429967u^{11} + \cdots + 0.355863u + 1.18567 \\ 0.302117u^{12} + 0.478827u^{11} + \cdots + 1.06107u + 2.18404 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_8^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.62942-0.13680I$ $a=\ \ 0.459802+1.068801I$ $b=\ \ 0.647958+1.070916I$ $c=\ \ 0.092664-1.014196I$ $d=\ \ 0.10115+2.58338I$	$-11.70801-0.17366I$	$-0.445368-1.147630I$
$u=-1.62942+0.13680I$ $a=\ \ 0.459802-1.068801I$ $b=\ \ 0.647958-1.070916I$ $c=\ \ 0.092664+1.014196I$ $d=\ \ 0.10115-2.58338I$	$-11.70801+0.17366I$	$-0.445368+1.147630I$
$u=-1.52223-0.38307I$ $a=-0.18408-1.52689I$ $b=\ \ 1.23485-0.73165I$ $c=\ \ 0.272209-0.989206I$ $d=\ \ 0.29226+2.46933I$	$-7.6949-13.5931I$	$3.46569+7.45820I$
$u=-1.52223+0.38307I$ $a=-0.18408+1.52689I$ $b=\ \ 1.23485+0.73165I$ $c=\ \ 0.272209+0.989206I$ $d=\ \ 0.29226-2.46933I$	$-7.6949+13.5931I$	$3.46569-7.45820I$
$u=-0.507731$ $a=-0.233445$ $b=-0.644275$ $c=\ \ 1.20906$ $d=\ \ 1.24703$	1.13096	8.32650
$u=-0.417771-0.584495I$ $a=\ \ 0.735190+0.985787I$ $b=-0.865536+0.462701I$ $c=-1.037440+0.827455I$ $d=-0.560607-1.010537I$	$1.87851-3.16005I$	$8.32269+6.37622I$

Solution to I_8^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.417771 + 0.584495I$ $a = 0.735190 - 0.985787I$ $b = -0.865536 - 0.462701I$ $c = -1.037440 - 0.827455I$ $d = -0.560607 + 1.010537I$	$1.87851 + 3.16005I$	$8.32269 - 6.37622I$
$u = 0.394341 - 0.970918I$ $a = -0.953053 + 0.652165I$ $b = 1.083705 + 0.709645I$ $c = -0.972271 + 0.953967I$ $d = 0.181829 - 0.820202I$	$-1.53986 + 8.66555I$	$5.43123 - 7.16460I$
$u = 0.394341 + 0.970918I$ $a = -0.953053 - 0.652165I$ $b = 1.083705 - 0.709645I$ $c = -0.972271 - 0.953967I$ $d = 0.181829 + 0.820202I$	$-1.53986 - 8.66555I$	$5.43123 + 7.16460I$
$u = 0.927403 - 0.247855I$ $a = -0.717635 + 0.462960I$ $b = 0.218164 + 0.376758I$ $c = 0.471078 - 0.548552I$ $d = -0.194640 + 0.299494I$	$-1.70980 + 0.77307I$	$-3.13297 - 1.88722I$
$u = 0.927403 + 0.247855I$ $a = -0.717635 - 0.462960I$ $b = 0.218164 - 0.376758I$ $c = 0.471078 + 0.548552I$ $d = -0.194640 - 0.299494I$	$-1.70980 - 0.77307I$	$-3.13297 + 1.88722I$
$u = 1.50155 - 0.18625I$ $a = -0.22350 - 1.56562I$ $b = -0.997004 - 0.758703I$ $c = -0.930768 + 0.143752I$ $d = 0.556488 - 0.114153I$	$-4.46546 + 5.94244I$	$3.19547 - 4.81410I$

Solution to I_8^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50155 + 0.18625I$ $a = -0.22350 + 1.56562I$ $b = -0.997004 + 0.758703I$ $c = -0.930768 - 0.143752I$ $d = 0.556488 + 0.114153I$	$-4.46546 - 5.94244I$	$3.19547 + 4.81410I$

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

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

X. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1, c_4	$u(u-1)^2(u^3-u^2+1)(u^5+u^4-3u^3-2u^2+2u-1)^2$ $(-1-2u+2u^2-2u^4+u^5+u^6)^2(u^{13}+2u^{12}+\cdots+8u+4)$
c_2	$u(u+1)^2(u^3+u^2+2u+1)(u^5+7u^4+17u^3+14u^2+1)^2$ $(1+8u+8u^2+6u^3+8u^4+5u^5+u^6)^2(u^{13}+14u^{12}+\cdots+88u+16)$
c_3, c_7	$u^3(u^3+u^2+2u+1)^5(u^5-3u^4+6u^3-7u^2+4u-2)^2$ $(u^{13}+2u^{12}+\cdots-4u^2+8)$
c_5	$u(u-1)(u+1)(u^3+u^2-1)^3(u^6-u^5-2u^4+2u^2+2u-1)$ $(u^{10}+u^9-u^8-3u^7+2u^5+u^4-4u^3-3u^2+4u+4)$ $(u^{13}+2u^{12}-4u^{10}+8u^8+7u^7-7u^6-8u^5+3u^4+9u^3-u^2-u-1)$
c_6, c_{11}	$u(u+1)^2(u^3+u^2-1)^3(u^6-u^5-2u^4+2u^2+2u-1)$ $(u^{10}+u^9-u^8-3u^7+2u^5+u^4-4u^3-3u^2+4u+4)$ $(u^{13}+2u^{12}-4u^{10}+8u^8+7u^7-7u^6-8u^5+3u^4+9u^3-u^2-u-1)$
c_8, c_{10}	$u(u+1)^2(u^3+u^2+2u+1)^3(u^6+5u^5+8u^4+6u^3+8u^2+8u+1)$ $(u^{10}+3u^9+\cdots+40u+16)(u^{13}+4u^{12}+\cdots-u+1)$
c_9	$u(u-1)^2(u^3+u^2-1)^3(u^6-u^5-2u^4+2u^2+2u-1)$ $(u^{10}+u^9-u^8-3u^7+2u^5+u^4-4u^3-3u^2+4u+4)$ $(u^{13}+2u^{12}-4u^{10}+8u^8+7u^7-7u^6-8u^5+3u^4+9u^3-u^2-u-1)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$y(y-1)^2(y^3-y^2+2y-1)(y^5-7y^4+17y^3-14y^2-1)^2$ $(1-8y+8y^2-6y^3+8y^4-5y^5+y^6)^2(y^{13}-14y^{12}+\cdots+88y-16)$
c_2	$(y)(y-1)^2(y^3+3y^2+2y-1)(-1-28y-210y^2+93y^3-15y^4+y^5)^2$ $(y^6-9y^5+20y^4+14y^3-16y^2-48y+1)^2$ $(y^{13}-30y^{12}+\cdots+2848y-256)$
c_3, c_7	$y^3(y^3+3y^2+2y-1)^5(y^5+3y^4+2y^3-13y^2-12y-4)^2$ $(y^{13}+6y^{12}+\cdots+64y-64)$
c_5, c_6, c_9 c_{11}	$y(y-1)^2(y^3-y^2+2y-1)^3(y^6-5y^5+8y^4-6y^3+8y^2-8y+1)$ $(y^{10}-3y^9+\cdots-40y+16)(y^{13}-4y^{12}+\cdots-y-1)$
c_8, c_{10}	$y(y-1)^2(y^3+3y^2+2y-1)^3$ $(y^6-9y^5+20y^4+14y^3-16y^2-48y+1)$ $(y^{10}+5y^9+\cdots-32y+256)(y^{13}+16y^{12}+\cdots-25y-1)$