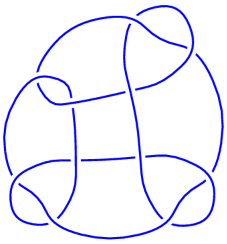
$11n_{71}$ ($K11n_{71}$)



1

Arc Sequences

$$\rightarrow \downarrow 4 \rightarrow \downarrow 1 \rightarrow \downarrow 7 \rightarrow \downarrow 2 \rightarrow \uparrow 11 \rightarrow \downarrow 9 \rightarrow \downarrow 3 \rightarrow \downarrow 6 \rightarrow \downarrow 8 \rightarrow \uparrow 1 \rightarrow \uparrow 6 \rightarrow$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{6} I_i^u \bigcap_{j=1}^{3} I_j^v$$

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

$$I_1^u = \langle b+u,\ c-a,\ d-b-1,\ ba-1\rangle$$
$$I_2^u = \langle c,\ u-1,\ a+1,\ d+1,\ b+1\rangle$$
$$I_3^u = \langle b-1,\ c-1,\ d-1,\ u+1,\ a-1\rangle$$
$$I_4^u = \langle -u^3-3u^2+8b+u-5,\ -u^3-3u^2+8d+u-5,\ -u^5-6u^4+38u^2+176a+89u+168,$$
$$-u^5-6u^4+38u^2+176c+89u+168,\ u^6+6u^5+11u^4+28u^3-u^2+30u-11\rangle$$
$$I_5^u = \langle u^{10}+10u^8-12u^7+42u^6-68u^5+164u^4-116u^3+301u^2-188u+122,$$
$$-273u^9+61u^8+\cdots+15616a+24606,$$
$$3u^9+3u^8+21u^7+u^6+27u^5+31u^4+79u^3+323u^2+128b-2u+154,$$
$$167u^9+61u^8+1365u^7-845u^6+3415u^5-2511u^4+10247u^3+8993u^2+15616c+9702u+4350,$$
$$-3u^9+7u^8-25u^7+73u^6-115u^5+195u^4-307u^3+211u^2+256d+2u+90\rangle$$
$$I_6^u = \langle u^{13}+3u^{12}+\cdots+79u-11,\ 397u^{12}+1268u^{11}+\cdots+5632a+25599,$$
$$u^{12}+u^{11}+9u^{10}-17u^9-34u^8-260u^7-406u^6-880u^5-843u^4-965u^3-611u^2+128b-439u-36,$$
$$47u^{12}+174u^{11}+\cdots+1408c+4791,\ -3u^{12}-4u^{11}+\cdots+512d-265\rangle$$

$$I_1^v = \langle b,\ c,\ v-1,\ d+1,\ a-1\rangle$$
$$I_2^v = \langle a,\ v-1,\ d-b,\ c-a,\ b^3+b^2-1\rangle$$
$$I_3^v = \langle a,\ v-1,\ b^3+b^2-1,\ 2db-da+cb+2d-1,\ 2d^2+da-cb+2b^2-2d-1,$$
$$a^2d-cba+b^2a+a^2b-4dc-2da-c^2-ca+2b^2-3ba+2c+3b+a-3,$$
$$3a^2d+2b^2c-3cba+4a^2b-12dc-6da-4c^2+4cb-4ca+8b^2-12ba+8c+10b+3a-8,$$
$$-dca-18dc+\cdots+7a-14,\ 2c^2d-dca+\cdots-12a+21,\ -10c^2d-6dca+\cdots+12a-27,$$
$$-14c^2d-10dca+\cdots+24a-49,\ 2c^3d+4c^2da+\cdots-57a+115,\ c^6+3c^5a+\cdots+27a-11\rangle$$

There are 9 irreducible components with 41 representations.
There are 1 irreducible components of $dim_{\mathbb{C}}=1$ for $11n_{71}$

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

(i) Arc colorings

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

(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	$-9.18057 - 0.23194I$

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

(i) Arc colorings

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

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

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

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

IV. $I^u_4 = \langle -u^3 - 3u^2 + 8b + u - 5,\ -u^3 - 3u^2 + 8d + u - 5,\ -u^5 - 6u^4 + \cdots + 176a + 168,\ -u^5 - 6u^4 + \cdots + 176c + 168,\ u^6 + 6u^5 + \cdots + 30u - 11\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.00568182u^5 + 0.0340909u^4 + \cdots - 0.505682u - 0.954545 \\ \frac{1}{8}u^3 + \frac{3}{8}u^2 - \frac{1}{8}u + \frac{5}{8} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0198864u^5 - 0.150568u^4 + \cdots - 0.542614u - 0.127841 \\ -0.0312500u^5 - 0.156250u^4 + \cdots + 1.09375u + 0.218750 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.00568182u^5 + 0.0340909u^4 + \cdots - 0.505682u - 0.954545 \\ \frac{1}{8}u^3 + \frac{3}{8}u^2 - \frac{1}{8}u + \frac{5}{8} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.00568182u^5 + 0.0340909u^4 + \cdots - 0.505682u - 0.954545 \\ \frac{1}{16}u^5 + \frac{3}{8}u^4 + \cdots - \frac{3}{16}u + \frac{5}{8} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0568182u^5 - 0.340909u^4 + \cdots - 0.318182u - 1.57955 \\ \frac{1}{16}u^5 + \frac{3}{8}u^4 + \cdots - \frac{3}{16}u + \frac{5}{8} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0482955u^5 + 0.258523u^4 + \cdots - 0.860795u + 1.41761 \\ -0.0312500u^5 - 0.218750u^4 + \cdots - 0.906250u + 0.156250 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0198864u^5 - 0.150568u^4 + \cdots - 0.542614u - 0.127841 \\ -0.0312500u^5 - 0.156250u^4 + \cdots + 1.09375u + 0.218750 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.00568182u^5 + 0.0340909u^4 + \cdots - 0.505682u - 0.954545 \\ \frac{1}{16}u^5 + \frac{3}{8}u^4 + \cdots - \frac{3}{16}u + \frac{5}{8} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0142045u^5 + 0.0539773u^4 + \cdots - 1.45170u - 0.480114 \\ \frac{1}{8}u^3 + \frac{1}{8}u^2 - \frac{9}{8}u + \frac{7}{8} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0142045u^5 + 0.0539773u^4 + \cdots - 1.45170u - 0.480114 \\ \frac{1}{8}u^3 + \frac{1}{8}u^2 - \frac{9}{8}u + \frac{7}{8} \end{pmatrix}$$

(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
$u = -4.98061$ $a = -0.227714$ $b = -4.89390$ $c = -0.227714$ $d = -4.89390$	-1.11345	-9.01951
$u = -0.79253 - 2.21570I$ $a = 0.169365 - 0.603060I$ $b = 0.51544 + 2.43179I$ $c = 0.169365 - 0.603060I$ $d = 0.51544 + 2.43179I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.79253 + 2.21570I$ $a = 0.169365 + 0.603060I$ $b = 0.51544 - 2.43179I$ $c = 0.169365 + 0.603060I$ $d = 0.51544 - 2.43179I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = 0.117251 - 1.091142I$ $a = -0.710151 + 0.619768I$ $b = 0.116880 + 0.197202I$ $c = -0.710151 + 0.619768I$ $d = 0.116880 + 0.197202I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = 0.117251 + 1.091142I$ $a = -0.710151 - 0.619768I$ $b = 0.116880 - 0.197202I$ $c = -0.710151 - 0.619768I$ $d = 0.116880 - 0.197202I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = 0.331172$ $a = -1.14526$ $b = 0.629272$ $c = -1.14526$ $d = 0.629272$	-1.11345	-9.01951

V. $\boldsymbol{I^u_5 = \langle u^{10} + 10u^8 + \cdots - 188u + 122,\ -273u^9 + 61u^8 + \cdots + 1.56 \times 10^4 a + 2.46 \times 10^4,\ 3u^9 + 3u^8 + \cdots + 128b + 154,\ 167u^9 + 61u^8 + \cdots + 1.56 \times 10^4 c + 4350,\ -3u^9 + 7u^8 + \cdots + 256d + 90\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0174821u^9 - 0.00390625u^8 + \cdots + 2.95351u - 1.57569 \\ -0.0234375u^9 - 0.0234375u^8 + \cdots + 0.0156250u - 1.20313 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.00832480u^9 + 0.00781250u^8 + \cdots + 3.13858u - 1.73694 \\ 0.00390625u^9 - 0.00390625u^8 + \cdots - 1.64844u + 0.539063 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0106942u^9 - 0.00390625u^8 + \cdots - 0.621286u - 0.278560 \\ 0.0117188u^9 - 0.0273438u^8 + \cdots - 0.00781250u - 0.351563 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0106942u^9 - 0.00390625u^8 + \cdots - 0.621286u - 0.278560 \\ -0.00781250u^9 + 0.00781250u^8 + \cdots - 0.578125u - 0.828125 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.00288166u^9 - 0.0117188u^8 + \cdots - 0.0431609u + 0.549565 \\ -0.00781250u^9 + 0.00781250u^8 + \cdots - 0.578125u - 0.828125 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.00582736u^9 + 0.00390625u^8 + \cdots - 0.890497u + 0.0685195 \\ 0.00781250u^9 - 0.0234375u^8 + \cdots + 0.640625u + 0.234375 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.000128074u^9 - 0.00781250u^8 + \cdots + 0.983863u - 0.164703 \\ 0.0156250u^8 + 0.109375u^6 + \cdots - 0.312500u + 0.968750 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0174821u^9 - 0.00390625u^8 + \cdots + 2.95351u - 1.57569 \\ -0.0117188u^9 - 0.0507813u^8 + \cdots + 2.88281u - 1.67969 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00192111u^9 + 0.00781250u^8 + \cdots - 2.50794u + 1.00179 \\ 0.0273438u^9 - 0.0429688u^8 + \cdots - 0.539063u + 0.242188 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00192111u^9 + 0.00781250u^8 + \cdots - 2.50794u + 1.00179 \\ 0.0273438u^9 - 0.0429688u^8 + \cdots - 0.539063u + 0.242188 \end{pmatrix}$$

(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
$u = -0.80416 - 1.99039I$ $a = -0.226170 - 0.467647I$ $b = -1.66008 + 0.82623I$ $c = -0.261376 + 0.646937I$ $d = -0.45558 - 2.15506I$	5.22495	-1.71424
$u = -0.80416 + 1.99039I$ $a = -0.226170 + 0.467647I$ $b = -1.66008 - 0.82623I$ $c = -0.261376 - 0.646937I$ $d = -0.45558 + 2.15506I$	5.22495	-1.71424
$u = -0.58512 - 1.64721I$ $a = 0.226955 + 0.770761I$ $b = 1.33238 - 1.82753I$ $c = 0.454928 - 0.797797I$ $d = 0.01574 + 1.66108I$	$10.17382 + 6.99719I$	$-0.86096 - 3.54683I$
$u = -0.58512 + 1.64721I$ $a = 0.226955 - 0.770761I$ $b = 1.33238 + 1.82753I$ $c = 0.454928 + 0.797797I$ $d = 0.01574 - 1.66108I$	$10.17382 - 6.99719I$	$-0.86096 + 3.54683I$
$u = -0.42487 - 2.28349I$ $a = 0.433800 + 0.274942I$ $b = 0.639086 - 0.104692I$ $c = 0.004860 - 0.691166I$ $d = 0.17983 + 2.66378I$	$10.17382 - 6.99719I$	$-0.86096 + 3.54683I$
$u = -0.42487 + 2.28349I$ $a = 0.433800 - 0.274942I$ $b = 0.639086 + 0.104692I$ $c = 0.004860 + 0.691166I$ $d = 0.17983 - 2.66378I$	$10.17382 + 6.99719I$	$-0.86096 - 3.54683I$

Solution to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.390335 - 0.601190I$ $a = -0.78431 - 1.46141I$ $b = -0.424715 + 1.136223I$ $c = -0.200209 + 0.681246I$ $d = -0.491733 + 0.238896I$	$-2.91669 + 1.13882I$	$-7.28192 - 6.05450I$
$u = 0.390335 + 0.601190I$ $a = -0.78431 + 1.46141I$ $b = -0.424715 - 1.136223I$ $c = -0.200209 - 0.681246I$ $d = -0.491733 - 0.238896I$	$-2.91669 - 1.13882I$	$-7.28192 + 6.05450I$
$u = 1.42381 - 1.04807I$ $a = 0.292349 + 0.417022I$ $b = 1.61333 - 0.94778I$ $c = 0.280485 - 0.064832I$ $d = 1.25175 - 0.99625I$	$-2.91669 - 1.13882I$	$-7.28192 + 6.05450I$
$u = 1.42381 + 1.04807I$ $a = 0.292349 - 0.417022I$ $b = 1.61333 + 0.94778I$ $c = 0.280485 + 0.064832I$ $d = 1.25175 + 0.99625I$	$-2.91669 + 1.13882I$	$-7.28192 - 6.05450I$

VI. $I_6^u = \langle u^{13} + 3u^{12} + \cdots + 79u - 11,\ 397u^{12} + 1268u^{11} + \cdots + 5632a + 2.56 \times 10^4,\ u^{12} + u^{11} + \cdots + 128b - 36,\ 47u^{12} + 174u^{11} + \cdots + 1408c + 4791,\ -3u^{12} - 4u^{11} + \cdots + 512d - 265\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} -0.0704901u^{12} - 0.225142u^{11} + \cdots - 5.47940u - 4.54528 \\ -0.00781250u^{12} - 0.00781250u^{11} + \cdots + 3.42969u + 0.281250 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0316051u^{12} - 0.0909091u^{11} + \cdots - 2.59943u - 3.07493 \\ 0.00585938u^{12} + 0.0156250u^{11} + \cdots + 1.75000u + 0.369141 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0333807u^{12} - 0.123580u^{11} + \cdots - 5.73722u - 3.40270 \\ 0.00585938u^{12} + 0.00781250u^{11} + \cdots + 0.460938u + 0.517578 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0333807u^{12} - 0.123580u^{11} + \cdots - 5.73722u - 3.40270 \\ 0.0136719u^{12} + 0.0234375u^{11} + \cdots - 1.02344u + 0.775391 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -0.0470526u^{12} - 0.147017u^{11} + \cdots - 4.71378u - 4.17809 \\ 0.0136719u^{12} + 0.0234375u^{11} + \cdots - 1.02344u + 0.775391 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0150923u^{12} + 0.0355114u^{11} + \cdots + 2.49148u + 2.77042 \\ -0.0273438u^{12} - 0.0859375u^{11} + \cdots + 0.476563u - 0.402344 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0276989u^{12} - 0.0830966u^{11} + \cdots - 2.71662u - 1.72727 \\ -0.00390625u^{12} - 0.0156250u^{11} + \cdots + 0.578125u + 0.347656 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0704901u^{12} - 0.225142u^{11} + \cdots - 5.47940u - 4.54528 \\ -0.0253906u^{12} - 0.0781250u^{11} + \cdots + 3.12500u + 0.431641 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0365767u^{12} - 0.137074u^{11} + \cdots - 4.92116u - 2.41300 \\ -0.00585938u^{12} - 0.0390625u^{11} + \cdots - 0.179688u + 0.466797 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0365767u^{12} - 0.137074u^{11} + \cdots - 4.92116u - 2.41300 \\ -0.00585938u^{12} - 0.0390625u^{11} + \cdots - 0.179688u + 0.466797 \end{pmatrix}$$

(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
$u = -0.62719 - 2.30924I$ $a = \ \ 0.415187 - 0.318981I$ $b = \ \ 2.19716 + 0.25380I$ $c = -0.089361 + 0.625967I$ $d = -0.37484 - 2.59192I$	$4.46546 - 5.94244I$	$-3.19547 + 4.81410I$
$u = -0.62719 + 2.30924I$ $a = \ \ 0.415187 + 0.318981I$ $b = \ \ 2.19716 - 0.25380I$ $c = -0.089361 - 0.625967I$ $d = -0.37484 + 2.59192I$	$4.46546 + 5.94244I$	$-3.19547 - 4.81410I$
$u = -0.60300 - 1.80443I$ $a = -0.641818 + 0.144610I$ $b = -0.481693 + 0.542167I$ $c = \ \ 0.339649 - 0.789509I$ $d = \ \ 0.08775 + 1.95176I$	$11.70801 + 0.17366I$	$0.445368 + 1.147630I$
$u = -0.60300 + 1.80443I$ $a = -0.641818 - 0.144610I$ $b = -0.481693 - 0.542167I$ $c = \ \ 0.339649 + 0.789509I$ $d = \ \ 0.08775 - 1.95176I$	$11.70801 - 0.17366I$	$0.445368 - 1.147630I$
$u = -0.550790 - 0.607220I$ $a = \ \ 0.161605 + 0.505870I$ $b = -0.323915 - 0.475651I$ $c = -0.983962 + 0.634772I$ $d = -0.578466 - 0.322896I$	$1.70980 + 0.77307I$	$3.13297 - 1.88722I$
$u = -0.550790 + 0.607220I$ $a = \ \ 0.161605 - 0.505870I$ $b = -0.323915 + 0.475651I$ $c = -0.983962 - 0.634772I$ $d = -0.578466 + 0.322896I$	$1.70980 - 0.77307I$	$3.13297 + 1.88722I$

Solution to I_6^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.30470 - 2.39480I$ $a = -0.365209 + 0.469173I$ $b = -2.00636 - 1.88555I$ $c = -0.077826 - 0.645545I$ $d = 0.14634 + 2.79708I$	$7.6949 - 13.5931I$	$-3.46569 + 7.45820I$
$u = -0.30470 + 2.39480I$ $a = -0.365209 - 0.469173I$ $b = -2.00636 + 1.88555I$ $c = -0.077826 + 0.645545I$ $d = 0.14634 - 2.79708I$	$7.6949 + 13.5931I$	$-3.46569 - 7.45820I$
$u = 0.118527$ $a = -5.43568$ $b = 0.768845$ $c = -4.28367$ $d = 0.584095$	-1.13096	-8.32650
$u = 0.257371 - 1.182512I$ $a = 0.763415 + 0.750288I$ $b = 1.57519 - 1.27790I$ $c = -0.714631 + 0.489015I$ $d = 0.165909 + 0.493218I$	$1.53986 + 8.66555I$	$-5.43123 - 7.16460I$
$u = 0.257371 + 1.182512I$ $a = 0.763415 - 0.750288I$ $b = 1.57519 + 1.27790I$ $c = -0.714631 - 0.489015I$ $d = 0.165909 - 0.493218I$	$1.53986 - 8.66555I$	$-5.43123 + 7.16460I$
$u = 0.269046 - 0.841548I$ $a = -0.797160 - 0.773649I$ $b = -1.344806 - 0.047817I$ $c = 0.486147 - 0.651855I$ $d = 0.261255 - 0.268383I$	$-1.87851 + 3.16005I$	$-8.32269 - 6.37622I$

Solution to I_6^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.269046 + 0.841548I$ $a = -0.797160 + 0.773649I$ $b = -1.344806 + 0.047817I$ $c = 0.486147 + 0.651855I$ $d = 0.261255 + 0.268383I$	$-1.87851 - 3.16005I$	$-8.32269 + 6.37622I$

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

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

VIII. $\boldsymbol{I_2^v = \langle a,\ v-1,\ d-b,\ c-a,\ b^3+b^2-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -0.877439 - 0.744862I$ $c = 0$ $d = -0.877439 - 0.744862I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.877439 + 0.744862I$ $c = 0$ $d = -0.877439 + 0.744862I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = 0.754878$ $c = 0$ $d = 0.754878$	-1.11345	-9.01951

IX. $\boldsymbol{I_3^v = \langle a,\ v-1,\ b^3+b^2-1,\ 2bd-ad+\cdots+bc-1,\ 2d^2+ad+\cdots+2b^2-1,\ -4cd+a^2d+\cdots+a-3,\ -12cd+3a^2d+\cdots+3a-8,\ -acd-18cd+\cdots+7a-14,\ 2c^2d-acd+\cdots-12a+21,\ -10c^2d-6acd+\cdots+12a-27,\ -14c^2d-10acd+\cdots+24a-49,\ 2c^3d+4ac^2d+\cdots-57a+115,\ c^6+3ac^5+\cdots+27a-11\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = 0.754878$ $c = 6.59790$ $d = -1.13416$	-1.11345	-9.01951
$v = 1.00000$ $a = 0$ $b = -0.877439 - 0.744862I$ $c = 0.691189 + 0.656800I$ $d = -0.592989 + 0.847544I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.877439 + 0.744862I$ $c = 0.691189 - 0.656800I$ $d = -0.592989 - 0.847544I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.877439 - 0.744862I$ $c = -1.77078 - 1.02196I$ $d = 1.47043 - 0.10268I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.877439 + 0.744862I$ $c = -1.77078 + 1.02196I$ $d = 1.47043 + 0.10268I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = 0.754878$ $c = -0.438709$ $d = 0.379278$	-1.11345	-9.01951

X. u-Polynomials

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

XI. Riley Polynomials

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