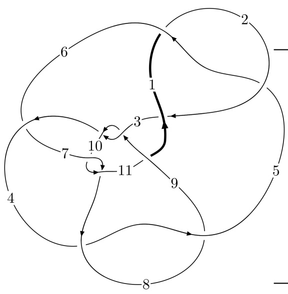
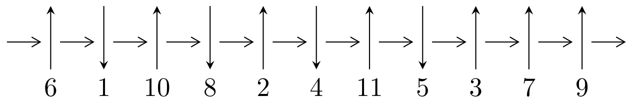
$11a_{157}$ ($K11a_{157}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

Ideals for irreducible components[2]of $X_{\mathbf{par}}$

$$I_1^u = \langle -116u^{51} - 310u^{50} + \cdots + 2304b + 7136,\ -3775u^{52} - 16066u^{51} + \cdots + 52992a + 229724,$$
$$u^{53} + 4u^{52} + \cdots - 92u - 46\rangle$$
$$I_2^u = \langle -a^2u + 2b + a - 2,\ a^3 + 2a^2u - au + 2a + 2,\ u^2 - u + 1\rangle$$
$$I_3^u = \langle b + 1,\ 6a + u + 4,\ u^2 + 2\rangle$$
$$I_4^u = \langle b^2au + b^3 - bu - au - b + u - 1,\ u^2 - u + 1\rangle$$

$$I_1^v = \langle a,\ b^3 - b - 1,\ v - 1\rangle$$
$$I_2^v = \langle a,\ b - 1,\ v - 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 65 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u = \langle -116u^{51} - 310u^{50} + \cdots + 2304b + 7136,\ -3775u^{52} - 16066u^{51} + \cdots + 52992a + 229724,\ u^{53} + 4u^{52} + \cdots - 92u - 46\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0712372u^{52} + 0.303178u^{51} + \cdots - 8.73049u - 4.33507 \\ 0.0503472u^{51} + 0.134549u^{50} + \cdots - 1.31510u - 3.09722 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.184518u^{52} + 0.705088u^{51} + \cdots - 14.9597u - 6.29167 \\ 0.0625000u^{52} + 0.159722u^{51} + \cdots - 1.55729u - 1.65972 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0712372u^{52} + 0.353525u^{51} + \cdots - 10.0456u - 7.43229 \\ 0.0503472u^{51} + 0.134549u^{50} + \cdots - 1.31510u - 3.09722 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.119226u^{52} + 0.443048u^{51} + \cdots - 9.10745u - 4.01302 \\ 0.00520833u^{52} - 0.0195313u^{51} + \cdots + 1.50521u + 0.684896 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0306839u^{52} - 0.0914855u^{51} + \cdots + 4.15433u + 4.34635 \\ 0.109375u^{52} + 0.342448u^{51} + \cdots - 4.84375u - 0.565104 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0805405u^{52} - 0.300460u^{51} + \cdots + 7.03842u + 4.68750 \\ -0.0625000u^{52} - 0.165799u^{51} + \cdots + 0.802083u + 1.18924 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0805405u^{52} - 0.300460u^{51} + \cdots + 7.03842u + 4.68750 \\ -0.0625000u^{52} - 0.165799u^{51} + \cdots + 0.802083u + 1.18924 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1153}{1728}u^{52} + \frac{1951}{864}u^{51} + \cdots - \frac{7271}{216}u + \frac{1}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{53} + 4u^{52} + \cdots - 92u - 46$
c_2	$u^{53} + 24u^{52} + \cdots + 3496u - 2116$
c_3, c_9	$9(9u^{53} - 18u^{52} + \cdots - 77u - 19)$
c_4, c_8	$9(9u^{53} + 18u^{52} + \cdots - 9u - 19)$
c_6	$16(16u^{53} - 16u^{52} + \cdots + 103779u - 3609)$
c_7, c_{10}	$u^{53} + 6u^{52} + \cdots - 5832u - 1706$
c_{11}	$16(16u^{53} + 32u^{52} + \cdots - 16641u - 6003)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{53} + 24y^{52} + \cdots + 3496y - 2116$
c_2	$y^{53} + 12y^{52} + \cdots + 393508288y - 4477456$
c_3, c_9	$81(81y^{53} - 3510y^{52} + \cdots + 3421y - 361)$
c_4, c_8	$81(81y^{53} - 2214y^{52} + \cdots + 7149y - 361)$
c_6	$256(256y^{53} + 6016y^{52} + \cdots + 9.94255 \times 10^9 y - 1.30249 \times 10^7)$
c_7, c_{10}	$y^{53} - 30y^{52} + \cdots - 5573800y - 2910436$
c_{11}	$256(256y^{53} - 6528y^{52} + \cdots - 3.68087 \times 10^8 y - 3.60360 \times 10^7)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.809668 + 0.591571I$ $a = -0.38862 + 1.53061I$ $b = -0.262654 - 1.151540I$	$9.44289 + 4.62072I$	$10.24286 - 2.08237I$
$u = -0.809668 - 0.591571I$ $a = -0.38862 - 1.53061I$ $b = -0.262654 + 1.151540I$	$9.44289 - 4.62072I$	$10.24286 + 2.08237I$
$u = 0.932904 + 0.475451I$ $a = 0.719049 + 0.844934I$ $b = -1.26960 - 0.64309I$	$6.27152 - 10.90750I$	$7.14898 + 5.53843I$
$u = 0.932904 - 0.475451I$ $a = 0.719049 - 0.844934I$ $b = -1.26960 + 0.64309I$	$6.27152 + 10.90750I$	$7.14898 - 5.53843I$
$u = 0.880838 + 0.326928I$ $a = -0.164167 + 0.799269I$ $b = -0.573186 - 0.653434I$	$7.95194 + 1.12051I$	$10.90095 + 0.04798I$
$u = 0.880838 - 0.326928I$ $a = -0.164167 - 0.799269I$ $b = -0.573186 + 0.653434I$	$7.95194 - 1.12051I$	$10.90095 - 0.04798I$
$u = -0.817792 + 0.679811I$ $a = 0.418946 - 0.981125I$ $b = 0.303446 + 0.604240I$	$4.38963 + 0.38285I$	$8.33080 + 0.50210I$
$u = -0.817792 - 0.679811I$ $a = 0.418946 + 0.981125I$ $b = 0.303446 - 0.604240I$	$4.38963 - 0.38285I$	$8.33080 - 0.50210I$
$u = 0.994126 + 0.446360I$ $a = -0.477878 - 0.579642I$ $b = 1.071810 + 0.473560I$	$2.22320 - 4.60694I$	$5.52820 + 4.35998I$
$u = 0.994126 - 0.446360I$ $a = -0.477878 + 0.579642I$ $b = 1.071810 - 0.473560I$	$2.22320 + 4.60694I$	$5.52820 - 4.35998I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.611609 + 0.908410I$ $a = -1.30709 + 0.63481I$ $b = 0.809891 + 0.174593I$	$0.872134 + 1.079720I$	$0. + 2.41019I$
$u = 0.611609 - 0.908410I$ $a = -1.30709 - 0.63481I$ $b = 0.809891 - 0.174593I$	$0.872134 - 1.079720I$	$0. - 2.41019I$
$u = 0.170302 + 1.087830I$ $a = 0.635126 + 0.069933I$ $b = 0.001690 + 0.649953I$	$3.08054 + 4.00121I$	$5.97068 - 4.06106I$
$u = 0.170302 - 1.087830I$ $a = 0.635126 - 0.069933I$ $b = 0.001690 - 0.649953I$	$3.08054 - 4.00121I$	$5.97068 + 4.06106I$
$u = 0.626566 + 0.643943I$ $a = 1.22653 - 0.71815I$ $b = -0.826327 + 0.364980I$	$1.59094 + 3.76796I$	$4.39825 - 7.64009I$
$u = 0.626566 - 0.643943I$ $a = 1.22653 + 0.71815I$ $b = -0.826327 - 0.364980I$	$1.59094 - 3.76796I$	$4.39825 + 7.64009I$
$u = -0.128610 + 1.112310I$ $a = 0.653956 - 0.300609I$ $b = 1.275160 - 0.403466I$	$-4.15345 + 3.73758I$	$-2.48655 - 3.09856I$
$u = -0.128610 - 1.112310I$ $a = 0.653956 + 0.300609I$ $b = 1.275160 + 0.403466I$	$-4.15345 - 3.73758I$	$-2.48655 + 3.09856I$
$u = -0.949759 + 0.608985I$ $a = 0.264387 + 0.875055I$ $b = -0.908688 - 0.564102I$	$6.99581 - 5.82913I$	$8.82739 + 6.38685I$
$u = -0.949759 - 0.608985I$ $a = 0.264387 - 0.875055I$ $b = -0.908688 + 0.564102I$	$6.99581 + 5.82913I$	$8.82739 - 6.38685I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.496009+1.017750I$ $a=\ \ 1.36846-1.83838I$ $b=\ \ 0.878140+0.204929I$	$0.67079-3.09135I$	$0.+5.67301I$
$u=-0.496009-1.017750I$ $a=\ \ 1.36846+1.83838I$ $b=\ \ 0.878140-0.204929I$	$0.67079+3.09135I$	$0.-5.67301I$
$u=-0.724250+0.436534I$ $a=\ \ 1.15534-0.92210I$ $b=-1.151270+0.693551I$	$0.72806+5.75739I$	$4.99130-5.10418I$
$u=-0.724250-0.436534I$ $a=\ \ 1.15534+0.92210I$ $b=-1.151270-0.693551I$	$0.72806-5.75739I$	$4.99130+5.10418I$
$u=-0.434366+0.666743I$ $a=\ \ 0.33515-2.08440I$ $b=-0.607875+0.260312I$	$1.88416-0.85038I$	$6.25673-3.20224I$
$u=-0.434366-0.666743I$ $a=\ \ 0.33515+2.08440I$ $b=-0.607875-0.260312I$	$1.88416+0.85038I$	$6.25673+3.20224I$
$u=-0.212305+1.189430I$ $a=-0.778145+0.361047I$ $b=-1.237090+0.111866I$	$-6.51253-1.42478I$	0
$u=-0.212305-1.189430I$ $a=-0.778145-0.361047I$ $b=-1.237090-0.111866I$	$-6.51253+1.42478I$	0
$u=-0.686889+1.004730I$ $a=\ \ 0.343976-0.826525I$ $b=-0.085142+0.784336I$	$3.37147-6.01200I$	0
$u=-0.686889-1.004730I$ $a=\ \ 0.343976+0.826525I$ $b=-0.085142-0.784336I$	$3.37147+6.01200I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.572191 + 1.085580I$ $a = -0.52093 + 1.70529I$ $b = -1.240970 - 0.438253I$	$-4.09769 - 6.18849I$	0
$u = -0.572191 - 1.085580I$ $a = -0.52093 - 1.70529I$ $b = -1.240970 + 0.438253I$	$-4.09769 + 6.18849I$	0
$u = -0.601851 + 1.072670I$ $a = 0.51488 - 1.93050I$ $b = 1.31349 + 0.76096I$	$-1.10548 - 10.82140I$	0
$u = -0.601851 - 1.072670I$ $a = 0.51488 + 1.93050I$ $b = 1.31349 - 0.76096I$	$-1.10548 + 10.82140I$	0
$u = 0.055611 + 0.764069I$ $a = -0.284386 + 0.734524I$ $b = 0.575442 - 0.355913I$	$-1.00556 + 1.44727I$	$-1.64819 - 5.47738I$
$u = 0.055611 - 0.764069I$ $a = -0.284386 - 0.734524I$ $b = 0.575442 + 0.355913I$	$-1.00556 - 1.44727I$	$-1.64819 + 5.47738I$
$u = -0.673460 + 1.041740I$ $a = -0.955719 + 0.894786I$ $b = 0.132760 - 1.273430I$	$8.08301 - 10.18320I$	0
$u = -0.673460 - 1.041740I$ $a = -0.955719 - 0.894786I$ $b = 0.132760 + 1.273430I$	$8.08301 + 10.18320I$	0
$u = -0.681987 + 0.321709I$ $a = -0.724827 + 0.615572I$ $b = 1.078220 - 0.328843I$	$-1.99983 + 1.37832I$	$-0.467710 - 0.890691I$
$u = -0.681987 - 0.321709I$ $a = -0.724827 - 0.615572I$ $b = 1.078220 + 0.328843I$	$-1.99983 - 1.37832I$	$-0.467710 + 0.890691I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.780684 + 1.053130I$ $a = -0.293135 - 0.040674I$ $b = 0.683599 - 0.489569I$	$5.65031 - 0.44478I$	0
$u = -0.780684 - 1.053130I$ $a = -0.293135 + 0.040674I$ $b = 0.683599 + 0.489569I$	$5.65031 + 0.44478I$	0
$u = 0.013214 + 1.311610I$ $a = 0.807998 - 0.074133I$ $b = 1.204730 + 0.451072I$	$-0.35444 - 8.20749I$	0
$u = 0.013214 - 1.311610I$ $a = 0.807998 + 0.074133I$ $b = 1.204730 - 0.451072I$	$-0.35444 + 8.20749I$	0
$u = 0.680239 + 1.136940I$ $a = 0.55415 + 1.83786I$ $b = 1.35544 - 0.64421I$	$4.2476 + 16.8128I$	0
$u = 0.680239 - 1.136940I$ $a = 0.55415 - 1.83786I$ $b = 1.35544 + 0.64421I$	$4.2476 - 16.8128I$	0
$u = 0.695044 + 1.161580I$ $a = -0.43161 - 1.48086I$ $b = -1.215140 + 0.489831I$	$0.03277 + 10.71240I$	0
$u = 0.695044 - 1.161580I$ $a = -0.43161 + 1.48086I$ $b = -1.215140 - 0.489831I$	$0.03277 - 10.71240I$	0
$u = 0.621820 + 1.215440I$ $a = 0.821143 + 0.925875I$ $b = 0.823061 - 0.470093I$	$5.26202 + 4.45797I$	0
$u = 0.621820 - 1.215440I$ $a = 0.821143 - 0.925875I$ $b = 0.823061 + 0.470093I$	$5.26202 - 4.45797I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.12822 + 1.49963I$ $a = -0.590311 - 0.032839I$ $b = -0.946332 - 0.195707I$	$-4.67412 - 0.82373I$	0
$u = 0.12822 - 1.49963I$ $a = -0.590311 + 0.032839I$ $b = -0.946332 + 0.195707I$	$-4.67412 + 0.82373I$	0
$u = 0.318662$ $a = 2.19545$ $b = -0.365228$	1.00464	11.4100

II. $I_2^u = \langle -a^2u + 2b + a - 2,\ a^3 + 2a^2u - au + 2a + 2,\ u^2 - u + 1 \rangle$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} a \\ \frac{1}{2}a^2u - \frac{1}{2}a + 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} \frac{1}{2}a^2u + \frac{1}{2}a + 1 \\ \frac{1}{2}a^2u - \frac{1}{2}a + 1 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -\frac{1}{2}a^2u - \frac{1}{2}a - 1 \\ -\frac{1}{2}a^2u + \frac{1}{2}a - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{2}a^2u + \frac{1}{2}a + 1 \\ \frac{1}{2}a^2u - \frac{1}{2}a + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{2}a^2u + \frac{1}{2}a + 1 \\ \frac{1}{2}a^2u - \frac{1}{2}a + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^2 - u + 1)^3$
c_2	$(u^2 + u + 1)^3$
c_3, c_4, c_6 c_8, c_9	$u^6 - 2u^4 - u^3 + u^2 + u + 1$
c_7, c_{10}	u^6
c_{11}	$u^6 - 4u^5 + 6u^4 - 3u^3 - u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y^2+y+1)^3$
c_3, c_4, c_6 c_8, c_9	$y^6-4y^5+6y^4-3y^3-y^2+y+1$
c_7, c_{10}	y^6
c_{11}	$y^6-4y^5+10y^4-11y^3+19y^2-3y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.412728 + 1.011420I$ $b = 0.218964 - 0.666188I$	$2.02988I$	$0. - 3.46410I$
$u = 0.500000 + 0.866025I$ $a = -0.562490 - 0.528127I$ $b = 1.033350 + 0.428825I$	$2.02988I$	$0. - 3.46410I$
$u = 0.500000 + 0.866025I$ $a = -0.85024 - 2.21534I$ $b = -1.252310 + 0.237364I$	$2.02988I$	$0. - 3.46410I$
$u = 0.500000 - 0.866025I$ $a = 0.412728 - 1.011420I$ $b = 0.218964 + 0.666188I$	$-2.02988I$	$0. + 3.46410I$
$u = 0.500000 - 0.866025I$ $a = -0.562490 + 0.528127I$ $b = 1.033350 - 0.428825I$	$-2.02988I$	$0. + 3.46410I$
$u = 0.500000 - 0.866025I$ $a = -0.85024 + 2.21534I$ $b = -1.252310 - 0.237364I$	$-2.02988I$	$0. + 3.46410I$

III. $I_3^u = \langle b+1,\ 6a+u+4,\ u^2+2\rangle$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 2u \\ 3u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{6}u - \frac{2}{3} \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{13}{6}u - \frac{2}{3} \\ -3u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{1}{6}u - \frac{5}{3} \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{6}u - \frac{2}{3} \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{23}{18}u - \frac{1}{9} \\ -\frac{4}{3}u - \frac{1}{3} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{5}{18}u + \frac{8}{9} \\ -\frac{1}{3}u + \frac{5}{3} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{5}{18}u + \frac{8}{9} \\ -\frac{1}{3}u + \frac{5}{3} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_7 c_{10}	$u^2 + 2$
c_2	$(u+2)^2$
c_3, c_4	$(u+1)^2$
c_6, c_{11}	$3(3u^2 - 2u + 1)$
c_8, c_9	$(u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{10}	$(y+2)^2$
c_2	$(y-4)^2$
c_3, c_4, c_8 c_9	$(y-1)^2$
c_6, c_{11}	$9(9y^2+2y+1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.414210I$ $a = -0.666667 - 0.235702I$ $b = -1.00000$	-4.93480	0
$u = -1.414210I$ $a = -0.666667 + 0.235702I$ $b = -1.00000$	-4.93480	0

IV. $I^u_4 = \langle b^2au + b^3 - bu - au - b + u - 1,\ u^2 - u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u + 8$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	$1.64493 - 2.02988I$	$6.00000 - 3.46410I$

V. $I_1^v = \langle a,\ b^3 - b - 1,\ v - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	u^3
c_3, c_4, c_8 c_9, c_{11}	$u^3 - u + 1$
c_6	$u^3 + 2u^2 + u + 1$
c_7, c_{10}	$(u-1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	y^3
c_3, c_4, c_8 c_9, c_{11}	$y^3 - 2y^2 + y - 1$
c_6	$y^3 - 2y^2 - 3y - 1$
c_7, c_{10}	$(y-1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -0.662359 + 0.562280I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = -0.662359 - 0.562280I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = 1.32472$	1.64493	6.00000

VI. $I_2^v = \langle a,\ b-1,\ v-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5 c_7, c_{10}	u
c_3, c_4, c_{11}	$u - 1$
c_6, c_8, c_9	$u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_7, c_{10}	y
c_3, c_4, c_6 c_8, c_9, c_{11}	$y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	1.00000		
$a =$	0	0	0
$b =$	1.00000		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^4(u^2+2)(u^2-u+1)^3(u^{53}+4u^{52}+\cdots-92u-46)$
c_2	$u^4(u+2)^2(u^2+u+1)^3(u^{53}+24u^{52}+\cdots+3496u-2116)$
c_3	$9(u-1)(u+1)^2(u^3-u+1)(u^6-2u^4-u^3+u^2+u+1)$ $\cdot(9u^{53}-18u^{52}+\cdots-77u-19)$
c_4	$9(u-1)(u+1)^2(u^3-u+1)(u^6-2u^4-u^3+u^2+u+1)$ $\cdot(9u^{53}+18u^{52}+\cdots-9u-19)$
c_6	$48(u+1)(3u^2-2u+1)(u^3+2u^2+u+1)(u^6-2u^4+\cdots+u+1)$ $\cdot(16u^{53}-16u^{52}+\cdots+103779u-3609)$
c_7, c_{10}	$u^7(u-1)^3(u^2+2)(u^{53}+6u^{52}+\cdots-5832u-1706)$
c_8	$9(u-1)^2(u+1)(u^3-u+1)(u^6-2u^4-u^3+u^2+u+1)$ $\cdot(9u^{53}+18u^{52}+\cdots-9u-19)$
c_9	$9(u-1)^2(u+1)(u^3-u+1)(u^6-2u^4-u^3+u^2+u+1)$ $\cdot(9u^{53}-18u^{52}+\cdots-77u-19)$
c_{11}	$48(u-1)(3u^2-2u+1)(u^3-u+1)(u^6-4u^5+\cdots+u+1)$ $\cdot(16u^{53}+32u^{52}+\cdots-16641u-6003)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^4(y+2)^2(y^2+y+1)^3(y^{53}+24y^{52}+\cdots+3496y-2116)$
c_2	$y^4(y-4)^2(y^2+y+1)^3$ $\cdot(y^{53}+12y^{52}+\cdots+393508288y-4477456)$
c_3, c_9	$81(y-1)^3(y^3-2y^2+y-1)(y^6-4y^5+6y^4-3y^3-y^2+y+1)$ $\cdot(81y^{53}-3510y^{52}+\cdots+3421y-361)$
c_4, c_8	$81(y-1)^3(y^3-2y^2+y-1)(y^6-4y^5+6y^4-3y^3-y^2+y+1)$ $\cdot(81y^{53}-2214y^{52}+\cdots+7149y-361)$
c_6	$2304(y-1)(9y^2+2y+1)(y^3-2y^2-3y-1)$ $\cdot(y^6-4y^5+6y^4-3y^3-y^2+y+1)$ $\cdot(256y^{53}+6016y^{52}+\cdots+9942551577y-13024881)$
c_7, c_{10}	$y^7(y-1)^3(y+2)^2(y^{53}-30y^{52}+\cdots-5573800y-2910436)$
c_{11}	$2304(y-1)(9y^2+2y+1)(y^3-2y^2+y-1)$ $\cdot(y^6-4y^5+10y^4-11y^3+19y^2-3y+1)$ $\cdot(256y^{53}-6528y^{52}+\cdots-368087463y-36036009)$