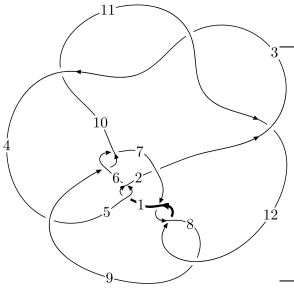
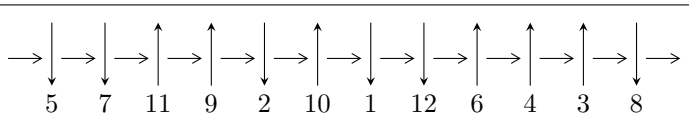
$12a_{1269}$ $(K12a_{1269})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$\underset{c_{10}}{4,10} \to \underset{c_3}{11} \to \underset{c_{11}}{3} \to \underset{c_2}{7,12} \to \underset{c_6}{2} \longrightarrow \underset{c_9}{6} \longrightarrow \underset{c_4}{9} \longrightarrow \underset{c_1}{5} \longrightarrow \underset{c_8}{1} \longrightarrow 8 \twoheadrightarrow c_5, c_7, c_{12}$$

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

$$\begin{aligned}
I_1^u &= \langle 5.85714 \times 10^{181} u^{95} + 9.69877 \times 10^{181} u^{94} + \cdots + 1.18195 \times 10^{183} b + 3.37065 \times 10^{183}, \\
&\quad 2.93871 \times 10^{183} u^{95} - 7.16174 \times 10^{183} u^{94} + \cdots + 5.42517 \times 10^{185} a + 2.14826 \times 10^{185}, \\
&\quad u^{96} + 2u^{95} + \cdots + 252u + 36 \rangle \\
I_2^u &= \langle b + 1,\ 3a^2 + 4au - 2a + 2u - 1,\ u^2 - u + 1 \rangle \\
I_3^u &= \langle au + 17b - 10a + 2u - 3,\ 6a^2 - 3au - 6a + 4u + 13,\ u^2 + 2 \rangle \\
I_4^u &= \langle b - 1,\ 3a + 2u + 1,\ u^2 + u + 1 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b + 3v - 2,\ 3v^2 - 3v + 1 \rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 108 representations.

[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. $\boldsymbol{I_1^u = \langle 5.86 \times 10^{181} u^{95} + 9.70 \times 10^{181} u^{94} + \cdots + 1.18 \times 10^{183} b + 3.37 \times 10^{183},\ 2.94 \times 10^{183} u^{95} - 7.16 \times 10^{183} u^{94} + \cdots + 5.43 \times 10^{185} a + 2.15 \times 10^{185},\ u^{96} + 2u^{95} + \cdots + 252u + 36 \rangle}$

(i) Arc colorings

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

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

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

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

$$a_7 = \begin{pmatrix} -0.00541682u^{95} + 0.0132010u^{94} + \cdots + 0.00687780u - 0.395980 \\ -0.0495547u^{95} - 0.0820571u^{94} + \cdots - 14.3667u - 2.85176 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0992526u^{95} - 0.0551318u^{94} + \cdots - 32.0600u - 5.27325 \\ -0.0122200u^{95} + 0.0105278u^{94} + \cdots - 4.85256u - 1.05968 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0441379u^{95} + 0.0952581u^{94} + \cdots + 14.3735u + 2.45578 \\ -0.0495547u^{95} - 0.0820571u^{94} + \cdots - 14.3667u - 2.85176 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0234885u^{95} + 0.0658944u^{94} + \cdots + 3.68018u + 1.26869 \\ 0.0283007u^{95} + 0.0420807u^{94} + \cdots + 8.03772u + 0.727400 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.00746047u^{95} + 0.233084u^{94} + \cdots + 48.9621u + 6.70772 \\ -0.0189892u^{95} - 0.0718124u^{94} + \cdots - 16.8541u - 3.26791 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.000359993u^{95} + 0.0337391u^{94} + \cdots - 1.28875u + 0.181747 \\ -0.0229557u^{95} - 0.0459877u^{94} + \cdots - 15.6594u - 3.01831 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0411489u^{95} + 0.0905918u^{94} + \cdots + 9.90432u + 1.92132 \\ 0.0139742u^{95} + 0.0146067u^{94} + \cdots + 3.23336u - 0.117667 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.231161u^{95} + 0.357393u^{94} + \cdots + 149.917u + 38.0944$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{96} + 6u^{95} + \cdots + 1513u + 171$
c_2	$153(153u^{96} - 1122u^{95} + \cdots - 2319325u + 211775)$
c_3, c_{10}, c_{11}	$u^{96} - 2u^{95} + \cdots - 252u + 36$
c_4	$153(153u^{96} + 1122u^{95} + \cdots + 2319325u + 211775)$
c_6, c_9	$u^{96} - 6u^{95} + \cdots - 1513u + 171$
c_7, c_8, c_{12}	$u^{96} + 2u^{95} + \cdots + 252u + 36$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^{96} - 46y^{95} + \cdots + 91835y + 29241$
c_2, c_4	23409 $\cdot (23409y^{96} + 3597030y^{95} + \cdots - 1268367547525y + 44848650625)$
c_3, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{96} + 88y^{95} + \cdots - 11088y + 1296$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.898765+0.388007I$ $a=\ \ 0.739120+0.992025I$ $b=-1.235350+0.570498I$	$6.02898-12.74240I$	0
$u=-0.898765-0.388007I$ $a=\ \ 0.739120-0.992025I$ $b=-1.235350-0.570498I$	$6.02898+12.74240I$	0
$u=\ \ 0.995441+0.279700I$ $a=\ \ 0.714209-0.582579I$ $b=-1.124380-0.433724I$	$8.63109+5.94668I$	0
$u=\ \ 0.995441-0.279700I$ $a=\ \ 0.714209+0.582579I$ $b=-1.124380+0.433724I$	$8.63109-5.94668I$	0
$u=\ \ 0.633864+0.676593I$ $a=\ \ 0.239952+0.307233I$ $b=\ \ 1.052140-0.445178I$	$-0.86556-4.10831I$	0
$u=\ \ 0.633864-0.676593I$ $a=\ \ 0.239952-0.307233I$ $b=\ \ 1.052140+0.445178I$	$-0.86556+4.10831I$	0
$u=-0.803922+0.356543I$ $a=-0.710014-0.698458I$ $b=\ \ 1.083670-0.332758I$	$2.95364-3.29863I$	0
$u=-0.803922-0.356543I$ $a=-0.710014+0.698458I$ $b=\ \ 1.083670+0.332758I$	$2.95364+3.29863I$	0
$u=-0.727281+0.856999I$ $a=-0.137909+0.040758I$ $b=-1.129590-0.494296I$	$4.65404+7.20641I$	0
$u=-0.727281-0.856999I$ $a=-0.137909-0.040758I$ $b=-1.129590+0.494296I$	$4.65404-7.20641I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.622703+0.939235I$ $a=-0.089094-0.350289I$ $b=\ \ 0.898679+0.116727I$	$1.38070-1.74472I$	0
$u=-0.622703-0.939235I$ $a=-0.089094+0.350289I$ $b=\ \ 0.898679-0.116727I$	$1.38070+1.74472I$	0
$u=\ \ 0.772268+0.400857I$ $a=-0.680381+0.997728I$ $b=\ \ 1.209110+0.583849I$	$8.87949I$	0
$u=\ \ 0.772268-0.400857I$ $a=-0.680381-0.997728I$ $b=\ \ 1.209110-0.583849I$	$-8.87949I$	0
$u=\ \ 0.771982+0.827937I$ $a=\ \ 0.499341-0.487132I$ $b=-0.685204-0.234958I$	$5.13290+2.78667I$	0
$u=\ \ 0.771982-0.827937I$ $a=\ \ 0.499341+0.487132I$ $b=-0.685204+0.234958I$	$5.13290-2.78667I$	0
$u=-0.599657+0.611070I$ $a=\ \ 1.007420+0.784394I$ $b=-0.226957+0.654074I$	$2.06768+2.77783I$	0
$u=-0.599657-0.611070I$ $a=\ \ 1.007420-0.784394I$ $b=-0.226957-0.654074I$	$2.06768-2.77783I$	0
$u=-0.115335+1.147880I$ $a=\ \ 0.70778-2.07964I$ $b=\ \ 1.075860-0.501278I$	$5.12486-0.13689I$	0
$u=-0.115335-1.147880I$ $a=\ \ 0.70778+2.07964I$ $b=\ \ 1.075860+0.501278I$	$5.12486+0.13689I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.731552+0.384410I$ $a=-0.166488-0.411126I$ $b=-0.189877-0.960843I$	$2.83495-7.24042I$	$0.+6.11797I$
$u=-0.731552-0.384410I$ $a=-0.166488+0.411126I$ $b=-0.189877+0.960843I$	$2.83495+7.24042I$	$0.-6.11797I$
$u=0.094206+1.189270I$ $a=-0.704909-0.522742I$ $b=-1.41025-0.11210I$	$-0.35798+2.04659I$	0
$u=0.094206-1.189270I$ $a=-0.704909+0.522742I$ $b=-1.41025+0.11210I$	$-0.35798-2.04659I$	0
$u=0.690098+0.374922I$ $a=0.409026+0.343398I$ $b=-0.032781+0.521090I$	$5.76012+2.17547I$	$3.26535-2.63718I$
$u=0.690098-0.374922I$ $a=0.409026-0.343398I$ $b=-0.032781-0.521090I$	$5.76012-2.17547I$	$3.26535+2.63718I$
$u=-0.745206+0.120913I$ $a=0.924044+0.512942I$ $b=-0.733266-0.498563I$	$0.35798+2.04659I$	$1.48192-2.96266I$
$u=-0.745206-0.120913I$ $a=0.924044-0.512942I$ $b=-0.733266+0.498563I$	$0.35798-2.04659I$	$1.48192+2.96266I$
$u=0.180320+1.232950I$ $a=0.446556-0.664547I$ $b=1.319160-0.321760I$	$4.76539+1.42946I$	0
$u=0.180320-1.232950I$ $a=0.446556+0.664547I$ $b=1.319160+0.321760I$	$4.76539-1.42946I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.230955 + 1.258120I$ $a = 0.72711 + 2.09836I$ $b = 0.859426 + 0.697175I$	$4.30438 + 4.69669I$	0
$u = 0.230955 - 1.258120I$ $a = 0.72711 - 2.09836I$ $b = 0.859426 - 0.697175I$	$4.30438 - 4.69669I$	0
$u = -0.021775 + 1.313750I$ $a = -0.37597 + 1.84316I$ $b = -0.361222 + 1.172990I$	$-5.13290 - 2.78667I$	0
$u = -0.021775 - 1.313750I$ $a = -0.37597 - 1.84316I$ $b = -0.361222 - 1.172990I$	$-5.13290 + 2.78667I$	0
$u = -0.611848 + 0.300748I$ $a = 0.569630 + 1.018580I$ $b = -1.163290 + 0.599792I$	$0.86556 - 4.10831I$	$1.82293 + 5.09276I$
$u = -0.611848 - 0.300748I$ $a = 0.569630 - 1.018580I$ $b = -1.163290 - 0.599792I$	$0.86556 + 4.10831I$	$1.82293 - 5.09276I$
$u = 0.702614 + 1.125330I$ $a = -0.0295038 - 0.1080650I$ $b = -0.973030 + 0.351499I$	$6.16313 - 0.02021I$	0
$u = 0.702614 - 1.125330I$ $a = -0.0295038 + 0.1080650I$ $b = -0.973030 - 0.351499I$	$6.16313 + 0.02021I$	0
$u = -0.655989 + 0.132783I$ $a = -0.948654 + 0.445473I$ $b = 1.340740 + 0.306672I$	$7.91688 - 2.81601I$	$6.90503 + 4.39381I$
$u = -0.655989 - 0.132783I$ $a = -0.948654 - 0.445473I$ $b = 1.340740 - 0.306672I$	$7.91688 + 2.81601I$	$6.90503 - 4.39381I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.256339+1.318950I$ $a=\ 0.665064-0.142114I$ $b=\ 1.47305+0.18637I$	$3.36976-6.13494I$	0
$u=-0.256339-1.318950I$ $a=\ 0.665064+0.142114I$ $b=\ 1.47305-0.18637I$	$3.36976+6.13494I$	0
$u=-0.359991+1.294920I$ $a=\ 0.573791+1.214200I$ $b=-0.986026+0.574325I$	$-3.36976-6.13494I$	0
$u=-0.359991-1.294920I$ $a=\ 0.573791-1.214200I$ $b=-0.986026-0.574325I$	$-3.36976+6.13494I$	0
$u=\ 0.637602+0.042374I$ $a=-0.47840+1.35636I$ $b=\ 1.078260+0.495005I$	$8.31265+1.52094I$	$7.32059-4.39774I$
$u=\ 0.637602-0.042374I$ $a=-0.47840-1.35636I$ $b=\ 1.078260-0.495005I$	$8.31265-1.52094I$	$7.32059+4.39774I$
$u=-0.130737+1.364780I$ $a=-0.95405-1.65292I$ $b=-0.763978-1.168780I$	$-6.16313-0.02021I$	0
$u=-0.130737-1.364780I$ $a=-0.95405+1.65292I$ $b=-0.763978+1.168780I$	$-6.16313+0.02021I$	0
$u=\ 0.508376+0.346831I$ $a=\ 0.128091-0.445554I$ $b=\ 0.255309-0.983307I$	$-2.95364+3.29863I$	$-2.80092-7.63925I$
$u=\ 0.508376-0.346831I$ $a=\ 0.128091+0.445554I$ $b=\ 0.255309+0.983307I$	$-2.95364-3.29863I$	$-2.80092+7.63925I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.177340 + 1.373420I$ $a = -0.42613 - 1.58338I$ $b = -1.158410 - 0.525755I$	$-2.06768 + 2.77783I$	0
$u = 0.177340 - 1.373420I$ $a = -0.42613 + 1.58338I$ $b = -1.158410 + 0.525755I$	$-2.06768 - 2.77783I$	0
$u = -0.033664 + 1.385440I$ $a = -5.74699 + 0.73017I$ $b = 1.080390 + 0.068609I$	$-0.114059I$	0
$u = -0.033664 - 1.385440I$ $a = -5.74699 - 0.73017I$ $b = 1.080390 - 0.068609I$	$0.114059I$	0
$u = 0.536972 + 0.238240I$ $a = -1.67659 + 0.43396I$ $b = 0.403646 + 0.441604I$	$-2.71476 - 0.30303I$	$-4.15215 - 2.67445I$
$u = 0.536972 - 0.238240I$ $a = -1.67659 - 0.43396I$ $b = 0.403646 - 0.441604I$	$-2.71476 + 0.30303I$	$-4.15215 + 2.67445I$
$u = -0.06941 + 1.42120I$ $a = -0.91484 + 1.81338I$ $b = -0.696526 + 0.120728I$	$-5.64754 - 0.25291I$	0
$u = -0.06941 - 1.42120I$ $a = -0.91484 - 1.81338I$ $b = -0.696526 - 0.120728I$	$-5.64754 + 0.25291I$	0
$u = 0.25699 + 1.40638I$ $a = -0.38879 + 1.36849I$ $b = 0.857469 + 0.535742I$	$-7.91688 + 2.81601I$	0
$u = 0.25699 - 1.40638I$ $a = -0.38879 - 1.36849I$ $b = 0.857469 - 0.535742I$	$-7.91688 - 2.81601I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.11330+1.42657I$ $a=\ \ 0.203225+1.240760I$ $b=\ \ 0.165447+0.846099I$	$-5.76012-2.17547I$	0
$u=-0.11330-1.42657I$ $a=\ \ 0.203225-1.240760I$ $b=\ \ 0.165447-0.846099I$	$-5.76012+2.17547I$	0
$u=-0.23382+1.41996I$ $a=-0.47373+1.88036I$ $b=-1.16760+0.81853I$	$-4.65404-7.20641I$	0
$u=-0.23382-1.41996I$ $a=-0.47373-1.88036I$ $b=-1.16760-0.81853I$	$-4.65404+7.20641I$	0
$u=\ \ 0.19947+1.42576I$ $a=\ \ 0.77078-1.51148I$ $b=\ \ 0.463426-1.194690I$	$-8.63109+5.94668I$	0
$u=\ \ 0.19947-1.42576I$ $a=\ \ 0.77078+1.51148I$ $b=\ \ 0.463426+1.194690I$	$-8.63109-5.94668I$	0
$u=-0.24407+1.41963I$ $a=-0.435799-0.272544I$ $b=-0.488637-0.633305I$	$-4.76539-1.42946I$	0
$u=-0.24407-1.41963I$ $a=-0.435799+0.272544I$ $b=-0.488637+0.633305I$	$-4.76539+1.42946I$	0
$u=\ \ 0.26655+1.43615I$ $a=-0.310306+1.108040I$ $b=-0.179542+0.892827I$	$5.67688I$	0
$u=\ \ 0.26655-1.43615I$ $a=-0.310306-1.108040I$ $b=-0.179542-0.892827I$	$-5.67688I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.524036 + 0.118018I$ $a = 1.187280 - 0.725665I$ $b = -1.214580 - 0.185845I$	$2.71476 + 0.30303I$	$4.15215 + 2.67445I$
$u = 0.524036 - 0.118018I$ $a = 1.187280 + 0.725665I$ $b = -1.214580 + 0.185845I$	$2.71476 - 0.30303I$	$4.15215 - 2.67445I$
$u = -0.29633 + 1.45000I$ $a = 0.19603 - 1.49186I$ $b = 1.175980 - 0.547847I$	$-2.83495 - 7.24042I$	0
$u = -0.29633 - 1.45000I$ $a = 0.19603 + 1.49186I$ $b = 1.175980 + 0.547847I$	$-2.83495 + 7.24042I$	0
$u = -0.297510 + 0.424068I$ $a = -1.76121 + 1.51699I$ $b = -0.975998 - 0.255863I$	$0.990478I$	$0. + 7.11271I$
$u = -0.297510 - 0.424068I$ $a = -1.76121 - 1.51699I$ $b = -0.975998 + 0.255863I$	$- 0.990478I$	$0. - 7.11271I$
$u = -0.27765 + 1.45892I$ $a = -0.70912 - 1.33877I$ $b = -0.298273 - 1.124210I$	$-3.08590 - 10.91640I$	0
$u = -0.27765 - 1.45892I$ $a = -0.70912 + 1.33877I$ $b = -0.298273 + 1.124210I$	$-3.08590 + 10.91640I$	0
$u = 0.29051 + 1.47268I$ $a = 0.29548 + 1.81215I$ $b = 1.25358 + 0.72493I$	$-6.02898 + 12.74240I$	0
$u = 0.29051 - 1.47268I$ $a = 0.29548 - 1.81215I$ $b = 1.25358 - 0.72493I$	$-6.02898 - 12.74240I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.39714 + 1.45835I$ $a = -0.03856 - 1.48788I$ $b = -1.209130 - 0.553068I$	$3.08590 + 10.91640I$	0
$u = 0.39714 - 1.45835I$ $a = -0.03856 + 1.48788I$ $b = -1.209130 + 0.553068I$	$3.08590 - 10.91640I$	0
$u = -0.34566 + 1.48991I$ $a = -0.14552 + 1.81713I$ $b = -1.27576 + 0.65676I$	$-17.2440I$	0
$u = -0.34566 - 1.48991I$ $a = -0.14552 - 1.81713I$ $b = -1.27576 - 0.65676I$	$17.2440I$	0
$u = -0.036347 + 0.467928I$ $a = 2.38863 - 4.44522I$ $b = 1.049490 - 0.176177I$	$5.64754 + 0.25291I$	$-1.00897 + 2.63613I$
$u = -0.036347 - 0.467928I$ $a = 2.38863 + 4.44522I$ $b = 1.049490 + 0.176177I$	$5.64754 - 0.25291I$	$-1.00897 - 2.63613I$
$u = 0.13518 + 1.53492I$ $a = 0.708724 - 0.527451I$ $b = 0.723646 - 0.536849I$	$-8.31265 - 1.52094I$	0
$u = 0.13518 - 1.53492I$ $a = 0.708724 + 0.527451I$ $b = 0.723646 + 0.536849I$	$-8.31265 + 1.52094I$	0
$u = -0.13446 + 1.53766I$ $a = 0.039219 + 1.258400I$ $b = -0.592833 + 0.577440I$	$-5.12486 + 0.13689I$	0
$u = -0.13446 - 1.53766I$ $a = 0.039219 - 1.258400I$ $b = -0.592833 - 0.577440I$	$-5.12486 - 0.13689I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.250207+0.339089I$ $a=-0.402030+0.539333I$ $b=-0.103366+0.303393I$	$-0.799053I$	$0.+8.48530I$
$u=-0.250207-0.339089I$ $a=-0.402030-0.539333I$ $b=-0.103366-0.303393I$	$0.799053I$	$0.-8.48530I$
$u=-0.05000+1.60773I$ $a=-0.614107-0.858616I$ $b=-0.894979-0.572244I$	$-4.30438+4.69669I$	0
$u=-0.05000-1.60773I$ $a=-0.614107+0.858616I$ $b=-0.894979+0.572244I$	$-4.30438-4.69669I$	0
$u=-0.338391+0.110245I$ $a=-0.043652-0.574113I$ $b=-0.547622-1.025950I$	$-1.38070+1.74472I$	$9.50332+6.81540I$
$u=-0.338391-0.110245I$ $a=-0.043652+0.574113I$ $b=-0.547622+1.025950I$	$-1.38070-1.74472I$	$9.50332-6.81540I$

II. $I_2^u = \langle b+1,\ 3a^2+4au-2a+2u-1,\ u^2-u+1\rangle$

(i) Arc colorings

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

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

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

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

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

$$a_{12} = \begin{pmatrix} u \\ -u+2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{3}au + \frac{2}{3}a - \frac{2}{3}u + \frac{1}{3} \\ -au + a + 2u - 1 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} -\frac{2}{3}au + \frac{4}{3}a - \frac{1}{3}u + \frac{2}{3} \\ -au + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} au \\ -au + 2a + 2u - 2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} au + u - 1 \\ -3au + 3a + u + 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}, c_{11}	$(u^2-u+1)^2$
c_2	$3(3u^4+4u^2+4u+1)$
c_3, c_5	$(u^2+u+1)^2$
c_4	$3(3u^4-6u^3+u^2+2u+1)$
c_6	$(u-1)^4$
c_7, c_8, c_{12}	$(u^2+2)^2$
c_9	$(u+1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_{10}, c_{11}	$(y^2+y+1)^2$
c_2	$9(9y^4+24y^3+22y^2-8y+1)$
c_4	$9(9y^4-30y^3+31y^2-2y+1)$
c_6, c_9	$(y-1)^4$
c_7, c_8, c_{12}	$(y+2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.408248 - 1.284460I$ $b = -1.00000$	$6.57974 + 2.02988I$	$6.00000 - 3.46410I$
$u = 0.500000 + 0.866025I$ $a = -0.408248 + 0.129757I$ $b = -1.00000$	$6.57974 + 2.02988I$	$6.00000 - 3.46410I$
$u = 0.500000 - 0.866025I$ $a = 0.408248 + 1.284460I$ $b = -1.00000$	$6.57974 - 2.02988I$	$6.00000 + 3.46410I$
$u = 0.500000 - 0.866025I$ $a = -0.408248 - 0.129757I$ $b = -1.00000$	$6.57974 - 2.02988I$	$6.00000 + 3.46410I$

III. $I_3^u = \langle au + 17b - 10a + 2u - 3,\ 6a^2 - 3au - 6a + 4u + 13,\ u^2 + 2\rangle$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -u \\ -u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} a \\ -0.0588235au + 0.588235a - 0.117647u + 0.176471 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.176471au + 0.764706a - 0.186275u - 0.803922 \\ -0.235294au + 0.352941a - 0.470588u - 0.294118 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0588235au + 0.411765a + 0.117647u - 0.176471 \\ -0.0588235au + 0.588235a - 0.117647u + 0.176471 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.176471au + 0.235294a - 0.147059u + 0.470588 \\ -0.0588235au + 0.588235a - 0.117647u - 0.823529 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.235294au - 0.352941a + 0.303922u + 0.627451 \\ 0.176471au + 0.235294a + 0.352941u + 0.470588 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0588235au + 0.411765a + 0.117647u - 0.176471 \\ -0.0588235au + 0.588235a - 0.117647u + 0.176471 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.117647au + 0.823529a - 0.264706u - 0.352941 \\ -0.0588235au + 0.588235a - 0.117647u - 0.823529 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{4}{17}au - \frac{40}{17}a + \frac{8}{17}u - \frac{80}{17}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u+1)^4$
c_2	$3(3u^4+6u^3+u^2-2u+1)$
c_3, c_{10}, c_{11}	$(u^2+2)^2$
c_4	$3(3u^4+4u^2-4u+1)$
c_5	$(u-1)^4$
c_6, c_7, c_8	$(u^2+u+1)^2$
c_9, c_{12}	$(u^2-u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y-1)^4$
c_2	$9(9y^4 - 30y^3 + 31y^2 - 2y + 1)$
c_3, c_{10}, c_{11}	$(y+2)^4$
c_4	$9(9y^4 + 24y^3 + 22y^2 - 8y + 1)$
c_6, c_7, c_8 c_9, c_{12}	$(y^2 + y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.414210I$		
$a=$	$0.704124-1.089820I$	$-6.57974-2.02988I$	$-6.00000+3.46410I$
$b=$	$0.500000-0.866025I$		
$u=$	$1.414210I$		
$a=$	$0.29588+1.79693I$	$-6.57974+2.02988I$	$-6.00000-3.46410I$
$b=$	$0.500000+0.866025I$		
$u=$	$-1.414210I$		
$a=$	$0.704124+1.089820I$	$-6.57974+2.02988I$	$-6.00000-3.46410I$
$b=$	$0.500000+0.866025I$		
$u=$	$-1.414210I$		
$a=$	$0.29588-1.79693I$	$-6.57974-2.02988I$	$-6.00000+3.46410I$
$b=$	$0.500000-0.866025I$		

IV. $I_4^u = \langle b-1,\ 3a+2u+1,\ u^2+u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{28}{3}u + 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^2 - u + 1$
c_2	$3(3u^2 + 1)$
c_4	$3(3u^2 + 3u + 1)$
c_5, c_{10}, c_{11}	$u^2 + u + 1$
c_6	$(u + 1)^2$
c_7, c_8, c_{12}	u^2
c_9	$(u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_{10}, c_{11}	$y^2 + y + 1$
c_2	$9(3y+1)^2$
c_4	$9(9y^2 - 3y + 1)$
c_6, c_9	$(y-1)^2$
c_7, c_8, c_{12}	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = \quad -0.577350I$ $b = \quad 1.00000$	$1.64493 - 2.02988I$	$5.33333 + 8.08290I$
$u = -0.500000 - 0.866025I$ $a = \quad 0.577350I$ $b = \quad 1.00000$	$1.64493 + 2.02988I$	$5.33333 - 8.08290I$

V. $I_1^v = \langle a,\ b + 3v - 2,\ 3v^2 - 3v + 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -3v + 2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} v \\ 2v - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 3v - 2 \\ -3v + 2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 3v \\ -3v + 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 4v - 2 \\ -v + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -3v + 2 \\ 3v - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -3v + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 28v - \frac{58}{3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^2$
c_2	$3(3u^2-3u+1)$
c_3, c_{10}, c_{11}	u^2
c_4	$3(3u^2+1)$
c_5	$(u+1)^2$
c_6, c_{12}	u^2+u+1
c_7, c_8, c_9	u^2-u+1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y-1)^2$
c_2	$9(9y^2-3y+1)$
c_3, c_{10}, c_{11}	y^2
c_4	$9(3y+1)^2$
c_6, c_7, c_8 c_9, c_{12}	y^2+y+1

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=$	$0.500000+0.288675I$		
$a=$	0	$-1.64493-2.02988I$	$-5.33333+8.08290I$
$b=$	$0.500000-0.866025I$		
$v=$	$0.500000-0.288675I$		
$a=$	0	$-1.64493+2.02988I$	$-5.33333-8.08290I$
$b=$	$0.500000+0.866025I$		

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u+1)^4(u^2-u+1)^3(u^{96}+6u^{95}+\cdots+1513u+171)$
c_2	$12393(3u^2+1)(3u^2-3u+1)(3u^4+4u^2+4u+1)$ $\cdot(3u^4+6u^3+u^2-2u+1)$ $\cdot(153u^{96}-1122u^{95}+\cdots-2319325u+211775)$
c_3	$u^2(u^2+2)^2(u^2-u+1)(u^2+u+1)^2(u^{96}-2u^{95}+\cdots-252u+36)$
c_4	$12393(3u^2+1)(3u^2+3u+1)(3u^4+4u^2-4u+1)$ $\cdot(3u^4-6u^3+u^2+2u+1)$ $\cdot(153u^{96}+1122u^{95}+\cdots+2319325u+211775)$
c_5	$((u-1)^4)(u+1)^2(u^2+u+1)^3(u^{96}+6u^{95}+\cdots+1513u+171)$
c_6	$((u-1)^4)(u+1)^2(u^2+u+1)^3(u^{96}-6u^{95}+\cdots-1513u+171)$
c_7, c_8	$u^2(u^2+2)^2(u^2-u+1)(u^2+u+1)^2(u^{96}+2u^{95}+\cdots+252u+36)$
c_9	$((u-1)^2)(u+1)^4(u^2-u+1)^3(u^{96}-6u^{95}+\cdots-1513u+171)$
c_{10}, c_{11}	$u^2(u^2+2)^2(u^2-u+1)^2(u^2+u+1)(u^{96}-2u^{95}+\cdots-252u+36)$
c_{12}	$u^2(u^2+2)^2(u^2-u+1)^2(u^2+u+1)(u^{96}+2u^{95}+\cdots+252u+36)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$((y-1)^6)(y^2+y+1)^3(y^{96}-46y^{95}+\cdots+91835y+29241)$
c_2, c_4	$153586449(3y+1)^2(9y^2-3y+1)(9y^4-30y^3+31y^2-2y+1)$ $\cdot(9y^4+24y^3+22y^2-8y+1)$ $\cdot(23409y^{96}+3597030y^{95}+\cdots-1268367547525y+44848650625)$
c_3, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^2(y+2)^4(y^2+y+1)^3(y^{96}+88y^{95}+\cdots-11088y+1296)$