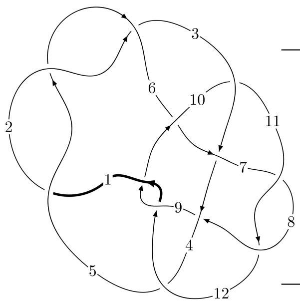
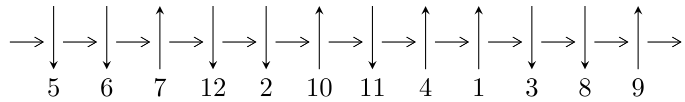
$12a_{1221}$ $(K12a_{1221})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & 6.28820 \times 10^{367} u^{121} - 1.15899 \times 10^{368} u^{120} + \cdots + 2.80418 \times 10^{367} b + 5.57387 \times 10^{368}, \\
& 6.96628 \times 10^{366} u^{121} - 2.09868 \times 10^{367} u^{120} + \cdots + 1.12167 \times 10^{367} a + 4.96920 \times 10^{368}, \\
& u^{122} - 2u^{121} + \cdots + 47u + 1 \rangle \\
I_2^u = \langle & -182u^{19} - 1044u^{18} + \cdots + 101b + 381,\ 2772u^{19} + 7347u^{18} + \cdots + 101a - 2400, \\
& u^{20} + 4u^{19} + \cdots - 5u - 1 \rangle \\
I_3^u = \langle & b,\ a + 1,\ u - 1 \rangle \\
I_4^u = \langle & b + a - 1,\ a^2 - 2a - 1,\ u - 1 \rangle \\
I_5^u = \langle & b + 2a + 2,\ 2a^2 + 4a + 1,\ u - 1 \rangle
\end{aligned}
$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 147 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. $I_1^u = \langle 6.29 \times 10^{367}u^{121} - 1.16 \times 10^{368}u^{120} + \cdots + 2.80 \times 10^{367}b + 5.57 \times 10^{368},\ 6.97 \times 10^{366}u^{121} - 2.10 \times 10^{367}u^{120} + \cdots + 1.12 \times 10^{367}a + 4.97 \times 10^{368},\ u^{122} - 2u^{121} + \cdots + 47u + 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.621063u^{121} + 1.87103u^{120} + \cdots - 319.578u - 44.3017 \\ -2.24244u^{121} + 4.13307u^{120} + \cdots - 767.054u - 19.8770 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2.86350u^{121} + 6.00410u^{120} + \cdots - 1086.63u - 64.1787 \\ -2.24244u^{121} + 4.13307u^{120} + \cdots - 767.054u - 19.8770 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -15.5463u^{121} + 33.3435u^{120} + \cdots - 5050.45u - 174.308 \\ 1.98458u^{121} - 4.93885u^{120} + \cdots + 87.1412u - 1.41589 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 4.21410u^{121} - 8.25746u^{120} + \cdots + 3320.96u + 137.229 \\ -1.32201u^{121} + 3.30816u^{120} + \cdots + 170.879u + 7.81217 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -17.4596u^{121} + 36.3324u^{120} + \cdots - 6283.25u - 247.315 \\ -2.24708u^{121} + 5.66160u^{120} + \cdots - 469.534u - 15.1655 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 14.2213u^{121} - 30.2530u^{120} + \cdots + 5516.59u + 223.332 \\ -1.91058u^{121} + 4.28655u^{120} + \cdots - 464.676u - 7.01531 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1.13844u^{121} + 3.06041u^{120} + \cdots - 402.877u - 46.3036 \\ -2.28437u^{121} + 4.20143u^{120} + \cdots - 762.095u - 19.6846 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -19.4694u^{121} + 41.3664u^{120} + \cdots - 2930.19u - 56.4322$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$u^{122} + 2u^{121} + \cdots - 47u + 1$
c_3	$u^{122} + 6u^{121} + \cdots + 56u - 226$
c_4	$u^{122} - u^{121} + \cdots - 4608u + 1408$
c_6	$u^{122} - 5u^{121} + \cdots + 33792u + 4096$
c_7, c_{11}	$u^{122} + u^{121} + \cdots - 266u - 7$
c_8	$2(2u^{122} - 15u^{120} + \cdots - 130u + 4)$
c_9, c_{12}	$u^{122} - 39u^{120} + \cdots + 24316u - 3428$
c_{10}	$2(2u^{122} - 6u^{121} + \cdots + 323446u - 14731)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y^{122} - 130y^{121} + \cdots - 679y + 1$
c_3	$y^{122} - 8y^{121} + \cdots + 969116y + 51076$
c_4	$y^{122} - 29y^{121} + \cdots - 133603328y + 1982464$
c_6	$y^{122} + 9y^{121} + \cdots + 167247872y + 16777216$
c_7, c_{11}	$y^{122} - 93y^{121} + \cdots - 12124y + 49$
c_8	$4(4y^{122} - 60y^{121} + \cdots - 9596y + 16)$
c_9, c_{12}	$y^{122} - 78y^{121} + \cdots - 551516768y + 11751184$
c_{10}	$4(4y^{122} - 192y^{121} + \cdots - 4.02466 \times 10^{10}y + 2.17002 \times 10^{8})$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.775615 + 0.632204I$ $a = -0.012407 - 0.325555I$ $b = 0.177801 + 0.559881I$	$-4.90234 - 0.58995I$	0
$u = 0.775615 - 0.632204I$ $a = -0.012407 + 0.325555I$ $b = 0.177801 - 0.559881I$	$-4.90234 + 0.58995I$	0
$u = 0.866013 + 0.476254I$ $a = 1.79771 + 0.27061I$ $b = -1.341600 + 0.061557I$	$-0.249126 + 0.781997I$	0
$u = 0.866013 - 0.476254I$ $a = 1.79771 - 0.27061I$ $b = -1.341600 - 0.061557I$	$-0.249126 - 0.781997I$	0
$u = 0.409705 + 0.898488I$ $a = -2.12084 - 0.15136I$ $b = 1.138670 - 0.362404I$	$-2.10139 - 4.17725I$	0
$u = 0.409705 - 0.898488I$ $a = -2.12084 + 0.15136I$ $b = 1.138670 + 0.362404I$	$-2.10139 + 4.17725I$	0
$u = 0.377143 + 0.909077I$ $a = 1.70164 + 0.27529I$ $b = -1.031380 + 0.284248I$	$0.99667 - 3.65957I$	0
$u = 0.377143 - 0.909077I$ $a = 1.70164 - 0.27529I$ $b = -1.031380 - 0.284248I$	$0.99667 + 3.65957I$	0
$u = -0.576185 + 0.775295I$ $a = 1.65486 - 0.51228I$ $b = -1.313900 - 0.454283I$	$4.67316 + 8.47858I$	0
$u = -0.576185 - 0.775295I$ $a = 1.65486 + 0.51228I$ $b = -1.313900 + 0.454283I$	$4.67316 - 8.47858I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.352255+0.979492I$ $a = -1.197070-0.034278I$ $b = 0.697958-0.393964I$	$-3.30086-4.68037I$	0
$u = 0.352255-0.979492I$ $a = -1.197070+0.034278I$ $b = 0.697958+0.393964I$	$-3.30086+4.68037I$	0
$u = -0.522215+0.801277I$ $a = 1.23040-0.76678I$ $b = -1.184080+0.229121I$	$4.85947-3.25008I$	0
$u = -0.522215-0.801277I$ $a = 1.23040+0.76678I$ $b = -1.184080-0.229121I$	$4.85947+3.25008I$	0
$u = 1.07777$ $a = -0.141435$ $b = 1.49397$	3.19101	0
$u = 1.10589$ $a = -2.28955$ $b = 1.39337$	2.70025	0
$u = -0.602865+0.935266I$ $a = -1.71285+0.28050I$ $b = 1.299420+0.481580I$	$-0.62473+13.83740I$	0
$u = -0.602865-0.935266I$ $a = -1.71285-0.28050I$ $b = 1.299420-0.481580I$	$-0.62473-13.83740I$	0
$u = -0.049719+0.875632I$ $a = -1.049620-0.568246I$ $b = 0.306080+0.195622I$	$-2.89309-4.76305I$	0
$u = -0.049719-0.875632I$ $a = -1.049620+0.568246I$ $b = 0.306080-0.195622I$	$-2.89309+4.76305I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.665390 + 0.551104I$ $a = -1.34148 - 0.59374I$ $b = 0.637287 + 0.501677I$	$-3.41460 - 0.81571I$	0
$u = 0.665390 - 0.551104I$ $a = -1.34148 + 0.59374I$ $b = 0.637287 - 0.501677I$	$-3.41460 + 0.81571I$	0
$u = 1.135200 + 0.110908I$ $a = -0.96099 - 1.84802I$ $b = 0.497193 - 0.253165I$	$-3.50391 - 0.18823I$	0
$u = 1.135200 - 0.110908I$ $a = -0.96099 + 1.84802I$ $b = 0.497193 + 0.253165I$	$-3.50391 + 0.18823I$	0
$u = 0.334410 + 0.753180I$ $a = 2.08267 + 1.27878I$ $b = -1.196830 + 0.062291I$	$1.36609 - 5.20020I$	0
$u = 0.334410 - 0.753180I$ $a = 2.08267 - 1.27878I$ $b = -1.196830 - 0.062291I$	$1.36609 + 5.20020I$	0
$u = 0.183399 + 0.801278I$ $a = 1.87377 - 0.08410I$ $b = -1.221180 + 0.531719I$	$1.65992 - 6.79751I$	0
$u = 0.183399 - 0.801278I$ $a = 1.87377 + 0.08410I$ $b = -1.221180 - 0.531719I$	$1.65992 + 6.79751I$	0
$u = -0.634786 + 0.519164I$ $a = -0.132228 + 0.412531I$ $b = -0.107726 - 0.905309I$	$-4.81458 + 8.89704I$	0
$u = -0.634786 - 0.519164I$ $a = -0.132228 - 0.412531I$ $b = -0.107726 + 0.905309I$	$-4.81458 - 8.89704I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.079680 + 0.559294I$ $a = 0.493519 + 0.622655I$ $b = -1.080810 - 0.323126I$	$-1.01077 + 2.01579I$	0
$u = 1.079680 - 0.559294I$ $a = 0.493519 - 0.622655I$ $b = -1.080810 + 0.323126I$	$-1.01077 - 2.01579I$	0
$u = 1.25560$ $a = 0.389875$ $b = -0.314608$	-2.51444	0
$u = 0.534654 + 0.485640I$ $a = -0.58809 - 1.87401I$ $b = 1.160220 + 0.055108I$	$3.66050 - 1.01718I$	0
$u = 0.534654 - 0.485640I$ $a = -0.58809 + 1.87401I$ $b = 1.160220 - 0.055108I$	$3.66050 + 1.01718I$	0
$u = -0.699457 + 0.030386I$ $a = -0.877174 + 0.157986I$ $b = -0.425792 + 0.749425I$	$-4.33581 + 2.94214I$	0
$u = -0.699457 - 0.030386I$ $a = -0.877174 - 0.157986I$ $b = -0.425792 - 0.749425I$	$-4.33581 - 2.94214I$	0
$u = -0.655881 + 1.132590I$ $a = -1.194310 + 0.596089I$ $b = 1.102520 - 0.298129I$	$-0.59184 - 7.27143I$	0
$u = -0.655881 - 1.132590I$ $a = -1.194310 - 0.596089I$ $b = 1.102520 + 0.298129I$	$-0.59184 + 7.27143I$	0
$u = -0.521410 + 0.441731I$ $a = -1.20152 + 1.00834I$ $b = 1.253230 + 0.487875I$	$2.28849 + 2.28510I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.521410 - 0.441731I$ $a = -1.20152 - 1.00834I$ $b = 1.253230 - 0.487875I$	$2.28849 - 2.28510I$	0
$u = -1.32238$ $a = -1.41897$ $b = 1.53116$	-0.257311	0
$u = -1.328250 + 0.060654I$ $a = 0.15467 + 1.49603I$ $b = -0.751033 + 0.084288I$	$-5.98529 + 7.30859I$	0
$u = -1.328250 - 0.060654I$ $a = 0.15467 - 1.49603I$ $b = -0.751033 - 0.084288I$	$-5.98529 - 7.30859I$	0
$u = 0.269414 + 0.602367I$ $a = -1.86530 - 0.09639I$ $b = 1.35185 - 0.42215I$	$4.65701 - 2.45116I$	0
$u = 0.269414 - 0.602367I$ $a = -1.86530 + 0.09639I$ $b = 1.35185 + 0.42215I$	$4.65701 + 2.45116I$	0
$u = -0.650483$ $a = -0.373699$ $b = 1.47963$	2.70145	0
$u = 0.529604 + 0.365891I$ $a = 0.563202 + 0.174393I$ $b = -0.223446 - 0.433691I$	$-1.112900 - 0.711100I$	0
$u = 0.529604 - 0.365891I$ $a = 0.563202 - 0.174393I$ $b = -0.223446 + 0.433691I$	$-1.112900 + 0.711100I$	0
$u = 1.360610 + 0.133846I$ $a = -0.153864 - 1.122460I$ $b = 0.979497 - 0.324439I$	$-2.12201 - 2.73849I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.360610 - 0.133846I$ $a = -0.153864 + 1.122460I$ $b = 0.979497 + 0.324439I$	$-2.12201 + 2.73849I$	0
$u = -1.385680 + 0.016899I$ $a = -0.85213 - 1.23871I$ $b = 0.916425 - 0.215658I$	$-3.09190 + 1.93869I$	0
$u = -1.385680 - 0.016899I$ $a = -0.85213 + 1.23871I$ $b = 0.916425 + 0.215658I$	$-3.09190 - 1.93869I$	0
$u = -1.386900 + 0.048999I$ $a = -0.087279 + 0.288462I$ $b = -0.42959 + 1.44209I$	$-6.08375 + 3.17733I$	0
$u = -1.386900 - 0.048999I$ $a = -0.087279 - 0.288462I$ $b = -0.42959 - 1.44209I$	$-6.08375 - 3.17733I$	0
$u = 1.343800 + 0.388654I$ $a = 0.988292 + 0.628203I$ $b = -0.866388 + 0.201249I$	$-1.89008 - 1.68640I$	0
$u = 1.343800 - 0.388654I$ $a = 0.988292 - 0.628203I$ $b = -0.866388 - 0.201249I$	$-1.89008 + 1.68640I$	0
$u = -1.375060 + 0.269131I$ $a = 0.937772 - 0.941132I$ $b = -1.29515 - 0.75871I$	$-3.27421 + 10.58180I$	0
$u = -1.375060 - 0.269131I$ $a = 0.937772 + 0.941132I$ $b = -1.29515 + 0.75871I$	$-3.27421 - 10.58180I$	0
$u = -1.40216$ $a = 1.49034$ $b = -1.65967$	-1.47514	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.412420 + 0.042054I$ $a = -0.626521 - 1.114050I$ $b = 1.107850 - 0.660275I$	$-4.02464 - 2.49840I$	0
$u = 1.412420 - 0.042054I$ $a = -0.626521 + 1.114050I$ $b = 1.107850 + 0.660275I$	$-4.02464 + 2.49840I$	0
$u = -1.401620 + 0.179551I$ $a = -0.698855 + 0.729456I$ $b = 1.43467 + 0.80415I$	$-0.64481 + 5.22887I$	0
$u = -1.401620 - 0.179551I$ $a = -0.698855 - 0.729456I$ $b = 1.43467 - 0.80415I$	$-0.64481 - 5.22887I$	0
$u = -0.458320 + 0.348468I$ $a = -0.0949530 - 0.0671101I$ $b = 0.194439 + 1.006640I$	$0.13940 + 3.49220I$	$0. - 12.87430I$
$u = -0.458320 - 0.348468I$ $a = -0.0949530 + 0.0671101I$ $b = 0.194439 - 1.006640I$	$0.13940 - 3.49220I$	$0. + 12.87430I$
$u = 1.43205 + 0.03528I$ $a = 0.540368 - 0.440322I$ $b = -1.53811 - 1.07674I$	$-7.44291 - 3.45379I$	0
$u = 1.43205 - 0.03528I$ $a = 0.540368 + 0.440322I$ $b = -1.53811 + 1.07674I$	$-7.44291 + 3.45379I$	0
$u = 0.508714 + 0.239569I$ $a = 2.60573 + 0.33058I$ $b = -0.587170 + 0.278130I$	$-2.77552 - 0.58498I$	$-3.62976 + 3.41286I$
$u = 0.508714 - 0.239569I$ $a = 2.60573 - 0.33058I$ $b = -0.587170 - 0.278130I$	$-2.77552 + 0.58498I$	$-3.62976 - 3.41286I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.44779 + 0.09474I$ $a = 0.097142 + 0.363127I$ $b = -0.878917 + 0.104891I$	$-2.13759 - 0.15481I$	0
$u = 1.44779 - 0.09474I$ $a = 0.097142 - 0.363127I$ $b = -0.878917 - 0.104891I$	$-2.13759 + 0.15481I$	0
$u = 1.45575 + 0.06638I$ $a = 1.18891 + 1.05501I$ $b = -1.32791 + 0.51804I$	$-8.25026 - 8.04187I$	0
$u = 1.45575 - 0.06638I$ $a = 1.18891 - 1.05501I$ $b = -1.32791 - 0.51804I$	$-8.25026 + 8.04187I$	0
$u = -1.48757 + 0.06154I$ $a = 0.990274 - 0.488909I$ $b = -1.155060 - 0.489600I$	$-9.29579 + 1.61391I$	0
$u = -1.48757 - 0.06154I$ $a = 0.990274 + 0.488909I$ $b = -1.155060 + 0.489600I$	$-9.29579 - 1.61391I$	0
$u = -1.46612 + 0.26963I$ $a = 0.77863 - 1.33904I$ $b = -1.097240 - 0.245719I$	$-4.47333 + 8.88815I$	0
$u = -1.46612 - 0.26963I$ $a = 0.77863 + 1.33904I$ $b = -1.097240 + 0.245719I$	$-4.47333 - 8.88815I$	0
$u = -1.48611 + 0.16240I$ $a = 0.008959 + 0.241734I$ $b = -0.375407 + 0.897195I$	$-7.63722 + 2.84798I$	0
$u = -1.48611 - 0.16240I$ $a = 0.008959 - 0.241734I$ $b = -0.375407 - 0.897195I$	$-7.63722 - 2.84798I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.242556 + 0.442406I$ $a = -1.39110 + 1.68318I$ $b = 1.202340 + 0.010553I$	$2.86252 + 0.62133I$	$2.53772 - 1.69943I$
$u = -0.242556 - 0.442406I$ $a = -1.39110 - 1.68318I$ $b = 1.202340 - 0.010553I$	$2.86252 - 0.62133I$	$2.53772 + 1.69943I$
$u = 1.50016 + 0.10847I$ $a = -0.073519 - 0.381663I$ $b = -0.03023 - 1.54240I$	$-6.34057 - 5.14980I$	0
$u = 1.50016 - 0.10847I$ $a = -0.073519 + 0.381663I$ $b = -0.03023 + 1.54240I$	$-6.34057 + 5.14980I$	0
$u = 0.149489 + 0.450882I$ $a = 0.946444 + 0.664273I$ $b = -0.219829 - 0.827303I$	$-1.41915 - 1.70581I$	$1.34069 + 2.55747I$
$u = 0.149489 - 0.450882I$ $a = 0.946444 - 0.664273I$ $b = -0.219829 + 0.827303I$	$-1.41915 + 1.70581I$	$1.34069 - 2.55747I$
$u = -1.49245 + 0.31895I$ $a = 1.027280 - 0.866259I$ $b = -1.170060 - 0.515570I$	$-5.07312 + 8.01986I$	0
$u = -1.49245 - 0.31895I$ $a = 1.027280 + 0.866259I$ $b = -1.170060 + 0.515570I$	$-5.07312 - 8.01986I$	0
$u = -1.53367 + 0.19129I$ $a = -0.251954 - 0.057929I$ $b = 0.662809 - 0.966914I$	$-10.52910 + 3.59379I$	0
$u = -1.53367 - 0.19129I$ $a = -0.251954 + 0.057929I$ $b = 0.662809 + 0.966914I$	$-10.52910 - 3.59379I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.53459 + 0.18622I$ $a = -0.063801 + 1.117370I$ $b = 0.927619 + 0.156942I$	$-3.19399 + 3.58427I$	0
$u = -1.53459 - 0.18622I$ $a = -0.063801 - 1.117370I$ $b = 0.927619 - 0.156942I$	$-3.19399 - 3.58427I$	0
$u = 1.54134 + 0.18413I$ $a = 0.163454 + 0.200612I$ $b = 0.019026 + 1.351040I$	$-11.9581 - 11.5640I$	0
$u = 1.54134 - 0.18413I$ $a = 0.163454 - 0.200612I$ $b = 0.019026 - 1.351040I$	$-11.9581 + 11.5640I$	0
$u = -1.52432 + 0.32166I$ $a = -1.27934 + 0.80575I$ $b = 1.36327 + 0.48853I$	$-8.42967 + 8.60750I$	0
$u = -1.52432 - 0.32166I$ $a = -1.27934 - 0.80575I$ $b = 1.36327 - 0.48853I$	$-8.42967 - 8.60750I$	0
$u = 1.55237 + 0.13662I$ $a = -0.296046 - 0.732873I$ $b = 1.17403 - 0.94577I$	$-4.71749 - 4.37303I$	0
$u = 1.55237 - 0.13662I$ $a = -0.296046 + 0.732873I$ $b = 1.17403 + 0.94577I$	$-4.71749 + 4.37303I$	0
$u = -1.52938 + 0.36250I$ $a = -0.942365 + 0.603510I$ $b = 0.972834 + 0.682403I$	$-9.48023 + 9.55179I$	0
$u = -1.52938 - 0.36250I$ $a = -0.942365 - 0.603510I$ $b = 0.972834 - 0.682403I$	$-9.48023 - 9.55179I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.57755$ $a = 0.760465$ $b = -1.83742$	-8.76670	0
$u = 1.55696 + 0.27023I$ $a = 0.827914 + 0.851708I$ $b = -1.36991 + 0.67143I$	$-2.31387 - 12.34110I$	0
$u = 1.55696 - 0.27023I$ $a = 0.827914 - 0.851708I$ $b = -1.36991 - 0.67143I$	$-2.31387 + 12.34110I$	0
$u = 1.58518 + 0.04671I$ $a = -0.326598 + 0.280580I$ $b = -0.085106 + 0.955657I$	$-12.14960 + 2.68694I$	0
$u = 1.58518 - 0.04671I$ $a = -0.326598 - 0.280580I$ $b = -0.085106 - 0.955657I$	$-12.14960 - 2.68694I$	0
$u = -1.58417 + 0.15384I$ $a = 0.199413 - 0.162583I$ $b = -0.043572 - 0.968118I$	$-12.81520 + 3.35893I$	0
$u = -1.58417 - 0.15384I$ $a = 0.199413 + 0.162583I$ $b = -0.043572 + 0.968118I$	$-12.81520 - 3.35893I$	0
$u = -0.069562 + 0.389670I$ $a = 1.41944 + 1.41076I$ $b = 0.179256 - 0.179773I$	$1.06508 - 1.32482I$	$2.58609 + 0.57560I$
$u = -0.069562 - 0.389670I$ $a = 1.41944 - 1.41076I$ $b = 0.179256 + 0.179773I$	$1.06508 + 1.32482I$	$2.58609 - 0.57560I$
$u = 1.57333 + 0.32686I$ $a = -1.032990 - 0.803924I$ $b = 1.40890 - 0.65412I$	$-7.6645 - 18.4585I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.57333 - 0.32686I$ $a = -1.032990 + 0.803924I$ $b = 1.40890 + 0.65412I$	$-7.6645 + 18.4585I$	0
$u = -0.234695 + 0.126837I$ $a = 5.66815 - 3.74098I$ $b = -1.054280 - 0.404093I$	$-2.50341 + 7.21265I$	$-7.10321 - 8.54408I$
$u = -0.234695 - 0.126837I$ $a = 5.66815 + 3.74098I$ $b = -1.054280 + 0.404093I$	$-2.50341 - 7.21265I$	$-7.10321 + 8.54408I$
$u = 1.69602 + 0.44408I$ $a = -0.966528 - 0.261300I$ $b = 1.100790 - 0.373094I$	$-8.18869 - 1.41740I$	0
$u = 1.69602 - 0.44408I$ $a = -0.966528 + 0.261300I$ $b = 1.100790 + 0.373094I$	$-8.18869 + 1.41740I$	0
$u = -1.79240$ $a = 0.0608172$ $b = -0.784497$	-12.2055	0
$u = -0.154129 + 0.096177I$ $a = -3.76477 + 6.22858I$ $b = 0.875629 + 0.355879I$	$1.19514 + 1.85495I$	$-7.32549 - 0.78497I$
$u = -0.154129 - 0.096177I$ $a = -3.76477 - 6.22858I$ $b = 0.875629 - 0.355879I$	$1.19514 - 1.85495I$	$-7.32549 + 0.78497I$
$u = -0.134705 + 0.105396I$ $a = 1.65107 + 2.11347I$ $b = -1.09663 + 0.96393I$	$-2.11552 + 2.94240I$	$-23.5910 - 10.1802I$
$u = -0.134705 - 0.105396I$ $a = 1.65107 - 2.11347I$ $b = -1.09663 - 0.96393I$	$-2.11552 - 2.94240I$	$-23.5910 + 10.1802I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.0403703$ $a=-31.7055$ $b=-1.40556$	3.28668	1.98650
$u=\ \ 2.23388$ $a=-0.642739$ $b=\ \ 0.817082$	-10.3119	0

II. $I_2^u = \langle -182u^{19} - 1044u^{18} + \cdots + 101b + 381,\ 2772u^{19} + 7347u^{18} + \cdots + 101a - 2400,\ u^{20} + 4u^{19} + \cdots - 5u - 1\rangle$

(i) Arc colorings

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

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

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

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -27.4455u^{19} - 72.7426u^{18} + \cdots + 81.4851u + 23.7624 \\ 1.80198u^{19} + 10.3366u^{18} + \cdots - 19.6733u - 3.77228 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -25.6436u^{19} - 62.4059u^{18} + \cdots + 61.8119u + 19.9901 \\ 1.80198u^{19} + 10.3366u^{18} + \cdots - 19.6733u - 3.77228 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 38.9208u^{19} + 103.535u^{18} + \cdots - 113.069u - 35.1089 \\ -10.3564u^{19} - 26.5941u^{18} + \cdots + 34.1881u + 6.00990 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -17.9010u^{19} - 51.1683u^{18} + \cdots + 53.3366u + 20.3861 \\ 108.644u^{19} + 280.406u^{18} + \cdots - 327.812u - 74.9901 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -43.7921u^{19} - 111.653u^{18} + \cdots + 146.307u + 22.9109 \\ 21.4356u^{19} + 61.0594u^{18} + \cdots - 71.1188u - 19.9010 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 20.3762u^{19} + 53.9604u^{18} + \cdots - 52.9208u - 19.7327 \\ -27.7525u^{19} - 66.9208u^{18} + \cdots + 73.8416u + 15.4653 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -23.8020u^{19} - 63.3366u^{18} + \cdots + 70.6733u + 21.7723 \\ 35.0891u^{19} + 97.1485u^{18} + \cdots - 122.297u - 27.7525 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{25554}{101}u^{19} + \frac{65517}{101}u^{18} + \cdots - \frac{76191}{101}u - \frac{16954}{101}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$u^{20} + 4u^{19} + \cdots - 5u - 1$
c_3	$u^{20} - 4u^{19} + \cdots - 3u + 1$
c_4	$u^{20} + u^{19} + \cdots + 7u^2 - 1$
c_5	$u^{20} - 4u^{19} + \cdots + 5u - 1$
c_6	$u^{20} + u^{18} + \cdots + 4u - 1$
c_7	$u^{20} - u^{19} + \cdots + 10u - 1$
c_8	$u^{20} + u^{19} + \cdots + 2u + 1$
c_9	$u^{20} - u^{19} + \cdots + 9u + 1$
c_{10}	$u^{20} + 2u^{19} + \cdots + 3u^2 - 1$
c_{11}	$u^{20} + u^{19} + \cdots - 10u - 1$
c_{12}	$u^{20} + u^{19} + \cdots - 9u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y^{20} - 28y^{19} + \cdots - 17y + 1$
c_3	$y^{20} - 4y^{19} + \cdots - 11y + 1$
c_4	$y^{20} - 5y^{19} + \cdots - 14y + 1$
c_6	$y^{20} + 2y^{19} + \cdots - 22y + 1$
c_7, c_{11}	$y^{20} - 15y^{19} + \cdots - 30y + 1$
c_8	$y^{20} - 13y^{19} + \cdots - 2y + 1$
c_9, c_{12}	$y^{20} - 13y^{19} + \cdots - 57y + 1$
c_{10}	$y^{20} - 14y^{19} + \cdots - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.896297$ $a = -2.38704$ $b = 0.165507$	-3.18441	-30.3070
$u = -0.190451 + 0.848378I$ $a = 2.16621 - 0.76037I$ $b = -1.017100 + 0.282444I$	$-1.46247 - 6.35124I$	$-3.54688 + 4.99562I$
$u = -0.190451 - 0.848378I$ $a = 2.16621 + 0.76037I$ $b = -1.017100 - 0.282444I$	$-1.46247 + 6.35124I$	$-3.54688 - 4.99562I$
$u = -1.35816$ $a = -1.59280$ $b = 1.54937$	0.628858	0.350580
$u = 0.351813 + 0.459000I$ $a = -1.81640 - 1.53750I$ $b = 0.986114 - 0.373835I$	$1.55707 - 2.40859I$	$-1.25084 + 8.89495I$
$u = 0.351813 - 0.459000I$ $a = -1.81640 + 1.53750I$ $b = 0.986114 + 0.373835I$	$1.55707 + 2.40859I$	$-1.25084 - 8.89495I$
$u = -1.39976 + 0.26294I$ $a = 1.19692 - 1.28439I$ $b = -1.143190 - 0.481390I$	$-5.79449 + 9.99089I$	$-6.38131 - 9.42743I$
$u = -1.39976 - 0.26294I$ $a = 1.19692 + 1.28439I$ $b = -1.143190 + 0.481390I$	$-5.79449 - 9.99089I$	$-6.38131 + 9.42743I$
$u = -1.43667 + 0.10502I$ $a = 0.037991 + 0.377660I$ $b = -0.77311 + 1.27562I$	$-7.02941 + 4.40536I$	$-8.94199 - 7.44609I$
$u = -1.43667 - 0.10502I$ $a = 0.037991 - 0.377660I$ $b = -0.77311 - 1.27562I$	$-7.02941 - 4.40536I$	$-8.94199 + 7.44609I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.42294 + 0.24818I$ $a = -0.572321 - 0.786150I$ $b = 0.842644 - 0.154159I$	$-2.05407 - 1.07507I$	$-5.19450 - 0.08506I$
$u = 1.42294 - 0.24818I$ $a = -0.572321 + 0.786150I$ $b = 0.842644 + 0.154159I$	$-2.05407 + 1.07507I$	$-5.19450 + 0.08506I$
$u = -1.53592 + 0.13806I$ $a = -0.236351 + 0.848470I$ $b = 0.988247 + 0.846937I$	$-5.00654 + 4.48393I$	$-13.2802 - 9.2519I$
$u = -1.53592 - 0.13806I$ $a = -0.236351 - 0.848470I$ $b = 0.988247 - 0.846937I$	$-5.00654 - 4.48393I$	$-13.2802 + 9.2519I$
$u = 0.043620 + 0.360386I$ $a = 0.521847 + 0.623343I$ $b = -0.892025 - 0.829594I$	$-1.85170 - 2.88685I$	$6.13700 + 3.63777I$
$u = 0.043620 - 0.360386I$ $a = 0.521847 - 0.623343I$ $b = -0.892025 + 0.829594I$	$-1.85170 + 2.88685I$	$6.13700 - 3.63777I$
$u = 1.69381$ $a = 0.798770$ $b = -1.48154$	-8.21233	-2.67880
$u = -1.73582$ $a = -0.482281$ $b = 0.295154$	-12.9390	-14.7530
$u = -0.184416$ $a = 5.50818$ $b = 1.33928$	4.77357	8.94880
$u = 2.17715$ $a = 0.559399$ $b = -0.850939$	-10.1606	17.3570

III. $\boldsymbol{I_3^u = \langle b,\ a+1,\ u-1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_7 c_8, c_{10}, c_{11}	$y - 1$
c_6, c_9, c_{12}	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -1.00000$ $b = \qquad\qquad 0$	-3.28987	-12.0000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.414214$ $b = 1.41421$	1.64493	-4.00000
$u = 1.00000$ $a = 2.41421$ $b = -1.41421$	1.64493	-4.00000

V. $I_5^u = \langle b + 2a + 2,\ 2a^2 + 4a + 1,\ u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -0.292893$ $b = -1.41421$	1.64493	-4.00000
$u = \quad 1.00000$ $a = -1.70711$ $b = \quad 1.41421$	1.64493	-4.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^5)(u^{20}+4u^{19}+\cdots-5u-1)(u^{122}+2u^{121}+\cdots-47u+1)$
c_3	$(u-1)(u^2-2)(u^2-2u-1)(u^{20}-4u^{19}+\cdots-3u+1)$ $\cdot\,(u^{122}+6u^{121}+\cdots+56u-226)$
c_4	$(u+1)(u^2-2)(u^2-2u-1)(u^{20}+u^{19}+\cdots+7u^2-1)$ $\cdot\,(u^{122}-u^{121}+\cdots-4608u+1408)$
c_5	$((u+1)^5)(u^{20}-4u^{19}+\cdots+5u-1)(u^{122}+2u^{121}+\cdots-47u+1)$
c_6	$u(u^2-2)^2(u^{20}+u^{18}+\cdots+4u-1)$ $\cdot\,(u^{122}-5u^{121}+\cdots+33792u+4096)$
c_7	$(u-1)(u+1)^4(u^{20}-u^{19}+\cdots+10u-1)(u^{122}+u^{121}+\cdots-266u-7)$
c_8	$4(u+1)^3(2u^2-4u+1)(u^{20}+u^{19}+\cdots+2u+1)$ $\cdot\,(2u^{122}-15u^{120}+\cdots-130u+4)$
c_9	$u(u^2-2)^2(u^{20}-u^{19}+\cdots+9u+1)$ $\cdot\,(u^{122}-39u^{120}+\cdots+24316u-3428)$
c_{10}	$4(u-1)^2(u+1)(2u^2+4u+1)(u^{20}+2u^{19}+\cdots+3u^2-1)$ $\cdot\,(2u^{122}-6u^{121}+\cdots+323446u-14731)$
c_{11}	$((u-1)^4)(u+1)(u^{20}+u^{19}+\cdots-10u-1)(u^{122}+u^{121}+\cdots-266u-7)$
c_{12}	$u(u^2-2)^2(u^{20}+u^{19}+\cdots-9u+1)$ $\cdot\,(u^{122}-39u^{120}+\cdots+24316u-3428)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$((y-1)^5)(y^{20}-28y^{19}+\cdots-17y+1)(y^{122}-130y^{121}+\cdots-679y+1)$
c_3	$((y-2)^2)(y-1)(y^2-6y+1)(y^{20}-4y^{19}+\cdots-11y+1)$ $\cdot(y^{122}-8y^{121}+\cdots+969116y+51076)$
c_4	$((y-2)^2)(y-1)(y^2-6y+1)(y^{20}-5y^{19}+\cdots-14y+1)$ $\cdot(y^{122}-29y^{121}+\cdots-133603328y+1982464)$
c_6	$y(y-2)^4(y^{20}+2y^{19}+\cdots-22y+1)$ $\cdot(y^{122}+9y^{121}+\cdots+167247872y+16777216)$
c_7, c_{11}	$((y-1)^5)(y^{20}-15y^{19}+\cdots-30y+1)$ $\cdot(y^{122}-93y^{121}+\cdots-12124y+49)$
c_8	$16(y-1)^3(4y^2-12y+1)(y^{20}-13y^{19}+\cdots-2y+1)$ $\cdot(4y^{122}-60y^{121}+\cdots-9596y+16)$
c_9, c_{12}	$y(y-2)^4(y^{20}-13y^{19}+\cdots-57y+1)$ $\cdot(y^{122}-78y^{121}+\cdots-551516768y+11751184)$
c_{10}	$16(y-1)^3(4y^2-12y+1)(y^{20}-14y^{19}+\cdots-6y+1)$ $\cdot(4y^{122}-192y^{121}+\cdots-40246645514y+217002361)$