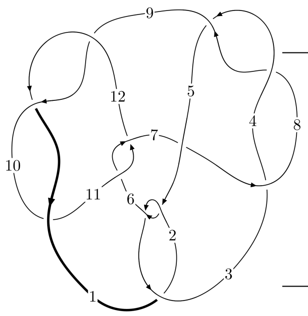
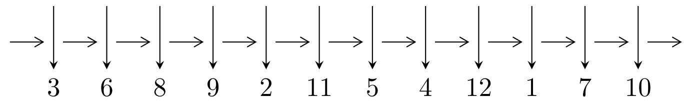
$12a_{0276}$ $(K12a_{0276})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3.34258 \times 10^{83} u^{91} - 8.81488 \times 10^{83} u^{90} + \cdots + 2.17711 \times 10^{84} b - 2.38406 \times 10^{84}, \\
& 6.19627 \times 10^{83} u^{91} - 1.41945 \times 10^{84} u^{90} + \cdots + 2.17711 \times 10^{84} a - 5.54877 \times 10^{83},\ u^{92} - 2u^{91} + \cdots + 12u +
\end{aligned}$$

$$\begin{aligned}
I_2^u = \langle & -u^7 + u^6 + 2u^5 - 3u^4 + 2u^2 + b - 2u + 2,\ u^7 + u^6 - 3u^5 - 2u^4 + 3u^3 + a + 2, \\
& u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1 \rangle
\end{aligned}$$

$$I_3^u = \langle au + b - 2a - u - 1,\ 2a^2 - au - 1,\ u^2 - 2 \rangle$$

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

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 106 representations.

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[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. $I^u_1 =$ $\langle 3.34\times10^{83}u^{91}-8.81\times10^{83}u^{90}+\cdots+2.18\times10^{84}b-2.38\times10^{84},\ 6.20\times10^{83}u^{91}-1.42\times10^{84}u^{90}+\cdots+2.18\times10^{84}a-5.55\times10^{83},\ u^{92}-2u^{91}+\cdots+12u+4\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.284611u^{91}+0.651991u^{90}+\cdots-6.71279u+0.254869\\-0.153533u^{91}+0.404890u^{90}+\cdots-1.63656u+1.09506\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.850284u^{91}-1.32698u^{90}+\cdots-1.86531u+2.15950\\1.33947u^{91}-1.25204u^{90}+\cdots-11.3059u-1.45062\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.225091u^{91}-0.817064u^{90}+\cdots+8.33508u+3.68616\\-0.466743u^{91}-0.0372697u^{90}+\cdots+5.80110u+2.57471\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.615650u^{91}-1.09071u^{90}+\cdots+3.61981u+0.972754\\0.240176u^{91}-0.305085u^{90}+\cdots-3.12691u+0.0205266\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-u^3+2u\\-u^5+u^3+u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.489371u^{91}+0.911075u^{90}+\cdots-4.78614u+1.45037\\-0.651264u^{91}+0.696436u^{90}+\cdots+2.84926u+2.67873\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.375474u^{91}+0.785620u^{90}+\cdots-6.74672u-0.952228\\0.240176u^{91}-0.305085u^{90}+\cdots-3.12691u+0.0205266\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.63469u^{91}+5.95903u^{90}+\cdots+9.38857u-43.1013$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{92} + 48u^{91} + \cdots + 1755u + 81$
c_2, c_5	$u^{92} + 4u^{91} + \cdots - 69u - 9$
c_3, c_4, c_8	$u^{92} + 2u^{91} + \cdots - 12u + 4$
c_6, c_{11}	$u^{92} - 2u^{91} + \cdots - 1920u + 256$
c_7	$u^{92} - 6u^{91} + \cdots + 6260u + 380$
c_9, c_{10}, c_{12}	$u^{92} - 12u^{91} + \cdots + 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{92} + 72y^{90} + \cdots - 662499y + 6561$
c_2, c_5	$y^{92} - 48y^{91} + \cdots - 1755y + 81$
c_3, c_4, c_8	$y^{92} - 86y^{91} + \cdots - 240y + 16$
c_6, c_{11}	$y^{92} - 60y^{91} + \cdots - 5947392y + 65536$
c_7	$y^{92} - 14y^{91} + \cdots - 25869360y + 144400$
c_9, c_{10}, c_{12}	$y^{92} - 92y^{91} + \cdots + 74y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.969583 + 0.107648I$ $a = -0.003539 - 0.526904I$ $b = 0.459221 + 0.068074I$	$-0.513504 + 0.030259I$	0
$u = 0.969583 - 0.107648I$ $a = -0.003539 + 0.526904I$ $b = 0.459221 - 0.068074I$	$-0.513504 - 0.030259I$	0
$u = -1.03762$ $a = -1.39452$ $b = -0.0725617$	-11.4153	0
$u = -0.674626 + 0.619008I$ $a = -0.97265 - 1.31507I$ $b = -0.927957 + 0.305099I$	$-8.21616 - 7.69201I$	0
$u = -0.674626 - 0.619008I$ $a = -0.97265 + 1.31507I$ $b = -0.927957 - 0.305099I$	$-8.21616 + 7.69201I$	0
$u = 0.741480 + 0.527661I$ $a = 1.14534 - 1.08640I$ $b = 0.880522 + 0.160216I$	$-5.81043 + 2.35579I$	0
$u = 0.741480 - 0.527661I$ $a = 1.14534 + 1.08640I$ $b = 0.880522 - 0.160216I$	$-5.81043 - 2.35579I$	0
$u = -0.390955 + 0.781852I$ $a = -1.10343 - 1.35509I$ $b = -1.50467 + 0.09620I$	$-7.2837 + 12.4485I$	$-16.5634 - 8.5018I$
$u = -0.390955 - 0.781852I$ $a = -1.10343 + 1.35509I$ $b = -1.50467 - 0.09620I$	$-7.2837 - 12.4485I$	$-16.5634 + 8.5018I$
$u = 0.063829 + 0.858332I$ $a = 0.17179 - 1.48729I$ $b = 0.216749 - 0.221340I$	$-0.63733 - 3.04639I$	$-16.3980 + 3.8542I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.063829 - 0.858332I$ $a = 0.17179 + 1.48729I$ $b = 0.216749 + 0.221340I$	$-0.63733 + 3.04639I$	$-16.3980 - 3.8542I$
$u = 0.330243 + 0.776749I$ $a = 0.97602 - 1.44162I$ $b = 1.296880 - 0.073620I$	$-4.46168 - 6.88858I$	$-13.9256 + 5.1752I$
$u = 0.330243 - 0.776749I$ $a = 0.97602 + 1.44162I$ $b = 1.296880 + 0.073620I$	$-4.46168 + 6.88858I$	$-13.9256 - 5.1752I$
$u = -1.180620 + 0.049140I$ $a = 0.905051 + 0.405129I$ $b = 1.71434 - 0.47461I$	$-4.02322 + 0.72103I$	0
$u = -1.180620 - 0.049140I$ $a = 0.905051 - 0.405129I$ $b = 1.71434 + 0.47461I$	$-4.02322 - 0.72103I$	0
$u = -0.341347 + 0.720746I$ $a = 1.198680 - 0.029660I$ $b = 0.788988 - 0.152649I$	$-1.23377 + 8.07113I$	$-13.5538 - 8.5121I$
$u = -0.341347 - 0.720746I$ $a = 1.198680 + 0.029660I$ $b = 0.788988 + 0.152649I$	$-1.23377 - 8.07113I$	$-13.5538 + 8.5121I$
$u = -1.184720 + 0.249629I$ $a = 0.146188 - 0.546688I$ $b = 0.0273490 + 0.0956059I$	$-0.85249 + 4.72720I$	0
$u = -1.184720 - 0.249629I$ $a = 0.146188 + 0.546688I$ $b = 0.0273490 - 0.0956059I$	$-0.85249 - 4.72720I$	0
$u = -0.616721 + 0.490885I$ $a = -0.221693 + 1.040660I$ $b = -0.229638 + 0.292595I$	$-2.26213 - 3.90874I$	$-15.3859 + 3.7108I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.616721 - 0.490885I$ $a = -0.221693 - 1.040660I$ $b = -0.229638 - 0.292595I$	$-2.26213 + 3.90874I$	$-15.3859 - 3.7108I$
$u = 1.210350 + 0.144980I$ $a = -1.027120 - 0.175344I$ $b = -2.53696 + 0.78808I$	$-4.28970 - 3.40044I$	0
$u = 1.210350 - 0.144980I$ $a = -1.027120 + 0.175344I$ $b = -2.53696 - 0.78808I$	$-4.28970 + 3.40044I$	0
$u = 1.146230 + 0.420367I$ $a = 1.010760 - 0.337976I$ $b = 1.263380 - 0.483375I$	$-3.97193 - 1.52452I$	0
$u = 1.146230 - 0.420367I$ $a = 1.010760 + 0.337976I$ $b = 1.263380 + 0.483375I$	$-3.97193 + 1.52452I$	0
$u = 0.341585 + 0.668395I$ $a = -1.05640 + 1.61061I$ $b = -1.30954 - 0.55648I$	$-3.99403 - 5.59592I$	$-15.4677 + 6.2129I$
$u = 0.341585 - 0.668395I$ $a = -1.05640 - 1.61061I$ $b = -1.30954 + 0.55648I$	$-3.99403 + 5.59592I$	$-15.4677 - 6.2129I$
$u = 0.188441 + 0.708555I$ $a = 0.638248 - 0.300259I$ $b = 0.471116 + 0.361008I$	$1.75825 - 3.49258I$	$-7.18786 + 5.15359I$
$u = 0.188441 - 0.708555I$ $a = 0.638248 + 0.300259I$ $b = 0.471116 - 0.361008I$	$1.75825 + 3.49258I$	$-7.18786 - 5.15359I$
$u = -0.279771 + 0.668738I$ $a = -1.02400 - 1.79888I$ $b = -1.37269 - 0.62207I$	$-9.80694 + 2.97546I$	$-17.9875 - 3.6008I$

Solutions to I^u_1	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.279771 - 0.668738I$ $a = -1.02400 + 1.79888I$ $b = -1.37269 + 0.62207I$	$-9.80694 - 2.97546I$	$-17.9875 + 3.6008I$
$u = 0.252374 + 0.668121I$ $a = -1.118440 + 0.021493I$ $b = -0.759308 + 0.065796I$	$1.14826 - 3.17312I$	$-9.30715 + 5.02148I$
$u = 0.252374 - 0.668121I$ $a = -1.118440 - 0.021493I$ $b = -0.759308 - 0.065796I$	$1.14826 + 3.17312I$	$-9.30715 - 5.02148I$
$u = 1.273630 + 0.242181I$ $a = 0.285414 + 0.261261I$ $b = 1.316700 + 0.008357I$	$-1.34793 - 2.04566I$	0
$u = 1.273630 - 0.242181I$ $a = 0.285414 - 0.261261I$ $b = 1.316700 - 0.008357I$	$-1.34793 + 2.04566I$	0
$u = 0.508498 + 0.473897I$ $a = -1.32056 + 1.41639I$ $b = -1.73251 - 0.27223I$	$-4.75530 + 1.78277I$	$-17.3380 + 0.3544I$
$u = 0.508498 - 0.473897I$ $a = -1.32056 - 1.41639I$ $b = -1.73251 + 0.27223I$	$-4.75530 - 1.78277I$	$-17.3380 - 0.3544I$
$u = -0.300885 + 0.616253I$ $a = -0.35830 + 1.49912I$ $b = -0.158598 - 0.016331I$	$-2.55198 + 2.76644I$	$-15.5409 - 4.4573I$
$u = -0.300885 - 0.616253I$ $a = -0.35830 - 1.49912I$ $b = -0.158598 + 0.016331I$	$-2.55198 - 2.76644I$	$-15.5409 + 4.4573I$
$u = -0.030654 + 0.683608I$ $a = -0.780875 - 0.127083I$ $b = -0.481566 + 0.327235I$	$2.66095 - 1.28667I$	$-5.71389 + 2.78365I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.030654 - 0.683608I$ $a = -0.780875 + 0.127083I$ $b = -0.481566 - 0.327235I$	$2.66095 + 1.28667I$	$-5.71389 - 2.78365I$
$u = 0.666845 + 0.068325I$ $a = -0.075581 + 0.622950I$ $b = 0.422885 + 0.072774I$	$-0.523648 - 0.094088I$	$-11.87057 + 0.12396I$
$u = 0.666845 - 0.068325I$ $a = -0.075581 - 0.622950I$ $b = 0.422885 - 0.072774I$	$-0.523648 + 0.094088I$	$-11.87057 - 0.12396I$
$u = -1.270790 + 0.395450I$ $a = -0.962888 - 0.190034I$ $b = -1.70094 - 0.74003I$	$-4.78582 + 7.53244I$	0
$u = -1.270790 - 0.395450I$ $a = -0.962888 + 0.190034I$ $b = -1.70094 + 0.74003I$	$-4.78582 - 7.53244I$	0
$u = -1.33936$ $a = -1.25475$ $b = -3.76057$	-14.2652	0
$u = -1.354420 + 0.050875I$ $a = -0.0211295 + 0.0997711I$ $b = -1.50291 - 0.41520I$	$-6.43271 + 0.08678I$	0
$u = -1.354420 - 0.050875I$ $a = -0.0211295 - 0.0997711I$ $b = -1.50291 + 0.41520I$	$-6.43271 - 0.08678I$	0
$u = -1.375350 + 0.176357I$ $a = 0.525875 + 0.521338I$ $b = 0.890304 + 0.387213I$	$-5.48308 + 1.43317I$	0
$u = -1.375350 - 0.176357I$ $a = 0.525875 - 0.521338I$ $b = 0.890304 - 0.387213I$	$-5.48308 - 1.43317I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.363580+0.289426I$ $a=-0.378679+0.156042I$ $b=-1.58342+0.01614I$	$-3.14548+7.11465I$	0
$u=-1.363580-0.289426I$ $a=-0.378679-0.156042I$ $b=-1.58342-0.01614I$	$-3.14548-7.11465I$	0
$u=-0.252729+0.545556I$ $a=\ \ 1.12490+1.80734I$ $b=\ \ 1.195530-0.220149I$	$-1.55180+1.30485I$	$-10.68807-2.05814I$
$u=-0.252729-0.545556I$ $a=\ \ 1.12490-1.80734I$ $b=\ \ 1.195530+0.220149I$	$-1.55180-1.30485I$	$-10.68807+2.05814I$
$u=\ \ 1.40328$ $a=-0.707097$ $b=\ \ 17.9866$	-8.20346	0
$u=\ \ 1.40268+0.21970I$ $a=-1.000470+0.047291I$ $b=-4.06076+1.13846I$	$-6.86940-4.15900I$	0
$u=\ \ 1.40268-0.21970I$ $a=-1.000470-0.047291I$ $b=-4.06076-1.13846I$	$-6.86940+4.15900I$	0
$u=-1.40166+0.25943I$ $a=\ \ 0.369957-0.538443I$ $b=\ \ 1.406840-0.025933I$	$-4.13348+6.54909I$	0
$u=-1.40166-0.25943I$ $a=\ \ 0.369957+0.538443I$ $b=\ \ 1.406840+0.025933I$	$-4.13348-6.54909I$	0
$u=\ \ 1.41699+0.18942I$ $a=-0.397552-0.451392I$ $b=-1.82800+0.67940I$	$-8.80343-2.85042I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41699 - 0.18942I$ $a = -0.397552 + 0.451392I$ $b = -1.82800 - 0.67940I$	$-8.80343 + 2.85042I$	0
$u = 1.42092 + 0.16882I$ $a = 1.142530 - 0.249164I$ $b = 3.80818 - 0.16162I$	$-16.6231 - 2.4062I$	0
$u = 1.42092 - 0.16882I$ $a = 1.142530 + 0.249164I$ $b = 3.80818 + 0.16162I$	$-16.6231 + 2.4062I$	0
$u = 1.41759 + 0.24025I$ $a = -0.462209 + 0.634966I$ $b = -1.046820 + 0.817846I$	$-8.05484 - 5.91545I$	0
$u = 1.41759 - 0.24025I$ $a = -0.462209 - 0.634966I$ $b = -1.046820 - 0.817846I$	$-8.05484 + 5.91545I$	0
$u = 1.41612 + 0.26230I$ $a = 1.057140 - 0.017947I$ $b = 3.10624 - 2.03685I$	$-15.2379 - 6.3798I$	0
$u = 1.41612 - 0.26230I$ $a = 1.057140 + 0.017947I$ $b = 3.10624 + 2.03685I$	$-15.2379 + 6.3798I$	0
$u = -0.352318 + 0.432951I$ $a = 1.375020 + 0.227128I$ $b = 1.314630 + 0.274086I$	$-3.18353 + 0.42138I$	$-17.5159 - 5.9857I$
$u = -0.352318 - 0.432951I$ $a = 1.375020 - 0.227128I$ $b = 1.314630 - 0.274086I$	$-3.18353 - 0.42138I$	$-17.5159 + 5.9857I$
$u = -1.45707$ $a = 0.181182$ $b = -0.725800$	-6.80909	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.43616 + 0.25685I$ $a = 1.031140 + 0.086193I$ $b = 4.33596 + 0.85538I$	$-9.69388 + 8.97902I$	0
$u = -1.43616 - 0.25685I$ $a = 1.031140 - 0.086193I$ $b = 4.33596 - 0.85538I$	$-9.69388 - 8.97902I$	0
$u = -1.45252 + 0.16856I$ $a = 0.936630 + 0.094115I$ $b = 4.57825 + 1.58709I$	$-10.98590 + 0.55352I$	0
$u = -1.45252 - 0.16856I$ $a = 0.936630 - 0.094115I$ $b = 4.57825 - 1.58709I$	$-10.98590 - 0.55352I$	0
$u = 1.44182 + 0.27820I$ $a = -0.413431 - 0.565984I$ $b = -1.66846 - 0.35397I$	$-6.95051 - 11.70980I$	0
$u = 1.44182 - 0.27820I$ $a = -0.413431 + 0.565984I$ $b = -1.66846 + 0.35397I$	$-6.95051 + 11.70980I$	0
$u = -1.44321 + 0.30242I$ $a = -1.030120 + 0.007492I$ $b = -3.35638 - 1.37897I$	$-10.1396 + 10.8027I$	0
$u = -1.44321 - 0.30242I$ $a = -1.030120 - 0.007492I$ $b = -3.35638 + 1.37897I$	$-10.1396 - 10.8027I$	0
$u = 0.050008 + 0.517890I$ $a = 0.52093 + 1.97586I$ $b = 0.517556 - 0.009269I$	$-0.827089 + 0.874579I$	$-11.22500 - 0.78875I$
$u = 0.050008 - 0.517890I$ $a = 0.52093 - 1.97586I$ $b = 0.517556 + 0.009269I$	$-0.827089 - 0.874579I$	$-11.22500 + 0.78875I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.47977 + 0.13837I$ $a = -0.310364 + 0.480653I$ $b = -0.254435 + 0.836932I$	$-9.00130 + 1.76478I$	0
$u = 1.47977 - 0.13837I$ $a = -0.310364 - 0.480653I$ $b = -0.254435 - 0.836932I$	$-9.00130 - 1.76478I$	0
$u = -0.370766 + 0.343538I$ $a = -2.20808 - 2.27788I$ $b = -0.417615 + 0.286970I$	$-10.92680 + 0.27845I$	$-21.2584 - 7.9964I$
$u = -0.370766 - 0.343538I$ $a = -2.20808 + 2.27788I$ $b = -0.417615 - 0.286970I$	$-10.92680 - 0.27845I$	$-21.2584 + 7.9964I$
$u = 1.47215 + 0.29827I$ $a = 1.040950 + 0.028454I$ $b = 3.74721 - 1.28908I$	$-13.2764 - 16.3796I$	0
$u = 1.47215 - 0.29827I$ $a = 1.040950 - 0.028454I$ $b = 3.74721 + 1.28908I$	$-13.2764 + 16.3796I$	0
$u = -1.51807 + 0.07871I$ $a = -0.987795 - 0.122501I$ $b = -3.57890 - 0.15397I$	$-13.33100 - 0.52768I$	0
$u = -1.51807 - 0.07871I$ $a = -0.987795 + 0.122501I$ $b = -3.57890 + 0.15397I$	$-13.33100 + 0.52768I$	0
$u = 1.54513 + 0.15028I$ $a = 0.951588 - 0.239832I$ $b = 3.61495 - 0.33639I$	$-15.6075 + 5.0247I$	0
$u = 1.54513 - 0.15028I$ $a = 0.951588 + 0.239832I$ $b = 3.61495 + 0.33639I$	$-15.6075 - 5.0247I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.386082$ $a = -0.548617$ $b = 0.295418$	-0.651274	-14.9140
$u = -0.284058$ $a = 3.08613$ $b = 2.55351$	-2.87845	-51.1960

II. $\boldsymbol{I_2^u = \langle -u^7 + u^6 + 2u^5 - 3u^4 + 2u^2 + b - 2u + 2,\ u^7 + u^6 - 3u^5 - 2u^4 + 3u^3 + a + 2,\ u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^7 - u^6 + 3u^5 + 2u^4 - 3u^3 - 2 \\ u^7 - u^6 - 2u^5 + 3u^4 - 2u^2 + 2u - 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^7 - u^6 + 3u^5 + 2u^4 - 3u^3 - 2 \\ u^7 - u^6 - 2u^5 + 3u^4 - 2u^2 + 3u - 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^5 - u^3 - u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 + 2u \\ -u^5 + u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^7 - u^6 + 3u^5 + 2u^4 - 3u^3 - 2 \\ u^7 - u^6 - 2u^5 + 3u^4 - 2u^2 + 2u - 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^3 + 2u \\ -u^5 + u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^7 + u^6 + 10u^5 - 3u^4 - 6u^3 + 2u^2 - 4u - 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^8 - 3u^7 + 7u^6 - 10u^5 + 11u^4 - 10u^3 + 6u^2 - 4u + 1$
c_2	$u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1$
c_3, c_4	$u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1$
c_5	$u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1$
c_6, c_{11}	u^8
c_7	$u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1$
c_8	$u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1$
c_9, c_{10}	$(u-1)^8$
c_{12}	$(u+1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_2, c_5	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
c_3, c_4, c_8	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_6, c_{11}	y^8
c_9, c_{10}, c_{12}	$(y-1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = -0.805639 + 0.183365I$ $b = -1.217260 + 0.361920I$	$-2.68559 - 1.13123I$	$-13.44913 - 0.23763I$
$u = 1.180120 - 0.268597I$ $a = -0.805639 - 0.183365I$ $b = -1.217260 - 0.361920I$	$-2.68559 + 1.13123I$	$-13.44913 + 0.23763I$
$u = 0.108090 + 0.747508I$ $a = -0.189481 + 1.310380I$ $b = -0.190969 + 0.055172I$	$0.51448 - 2.57849I$	$-10.29693 + 2.50491I$
$u = 0.108090 - 0.747508I$ $a = -0.189481 - 1.310380I$ $b = -0.190969 - 0.055172I$	$0.51448 + 2.57849I$	$-10.29693 - 2.50491I$
$u = -1.37100$ $a = 0.729394$ $b = -3.96004$	-8.14766	-2.27260
$u = -1.334530 + 0.318930I$ $a = 0.708845 + 0.169402I$ $b = 1.59435 + 0.51399I$	$-4.02461 + 6.44354I$	$-17.1399 - 2.7122I$
$u = -1.334530 - 0.318930I$ $a = 0.708845 - 0.169402I$ $b = 1.59435 - 0.51399I$	$-4.02461 - 6.44354I$	$-17.1399 + 2.7122I$
$u = 0.463640$ $a = -2.15684$ $b = -1.41219$	-2.48997	-12.9560

III. $\boldsymbol{I_3^u = \langle au + b - 2a - u - 1,\ 2a^2 - au - 1,\ u^2 - 2\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} a \\ -au + 2a + u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -a - \frac{1}{2}u \\ -4a + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -a - \frac{1}{2}u \\ -2a - u + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

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

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

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

$$a_6 = \begin{pmatrix} -a - \frac{1}{2}u \\ -2a - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -24$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41421$ $a = 1.14412$ $b = 3.08443$	-15.4624	-24.0000
$u = 1.41421$ $a = -0.437016$ $b = 2.15822$	-7.56670	-24.0000
$u = -1.41421$ $a = -1.14412$ $b = -4.32049$	-15.4624	-24.0000
$u = -1.41421$ $a = 0.437016$ $b = 1.07785$	-7.56670	-24.0000

IV. $\boldsymbol{I_1^v = \langle a,\ b + v + 2,\ v^2 + 3v + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.381966$ $a = 0$ $b = -1.61803$	-2.63189	-6.00000
$v = -2.61803$ $a = 0$ $b = 0.618034$	-10.5276	-6.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^6(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{92}+48u^{91}+\cdots+1755u+81)$
c_2	$(u-1)^2(u+1)^4(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{92}+4u^{91}+\cdots-69u-9)$
c_3, c_4	$u^2(u^2-2)^2(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{92}+2u^{91}+\cdots-12u+4)$
c_5	$(u-1)^4(u+1)^2(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)$ $\cdot(u^{92}+4u^{91}+\cdots-69u-9)$
c_6	$u^8(u^2-u-1)^2(u^2+u-1)(u^{92}-2u^{91}+\cdots-1920u+256)$
c_7	$u^2(u^2-2)^2(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{92}-6u^{91}+\cdots+6260u+380)$
c_8	$u^2(u^2-2)^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)$ $\cdot(u^{92}+2u^{91}+\cdots-12u+4)$
c_9, c_{10}	$((u-1)^8)(u^2+u-1)^3(u^{92}-12u^{91}+\cdots+6u+1)$
c_{11}	$u^8(u^2-u-1)(u^2+u-1)^2(u^{92}-2u^{91}+\cdots-1920u+256)$
c_{12}	$((u+1)^8)(u^2-u-1)^3(u^{92}-12u^{91}+\cdots+6u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^6(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{92}+72y^{90}+\cdots-662499y+6561)$
c_2, c_5	$(y-1)^6(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{92}-48y^{91}+\cdots-1755y+81)$
c_3, c_4, c_8	$y^2(y-2)^4(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{92}-86y^{91}+\cdots-240y+16)$
c_6, c_{11}	$y^8(y^2-3y+1)^3(y^{92}-60y^{91}+\cdots-5947392y+65536)$
c_7	$y^2(y-2)^4(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{92}-14y^{91}+\cdots-25869360y+144400)$
c_9, c_{10}, c_{12}	$((y-1)^8)(y^2-3y+1)^3(y^{92}-92y^{91}+\cdots+74y+1)$