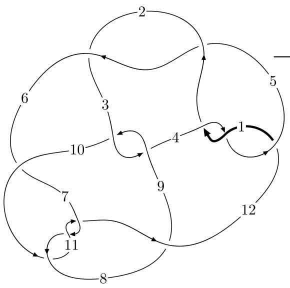
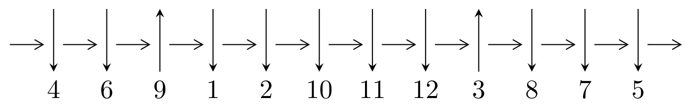
$12a_{0938}$ ($K12a_{0938}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle b-u,\ -u^{12}-u^{11}-5u^{10}-4u^9-9u^8-6u^7-5u^6-3u^5+3u^4+u^3+3u^2+a+u, \\
&\quad u^{15}+u^{14}+7u^{13}+6u^{12}+19u^{11}+14u^{10}+22u^9+14u^8+3u^7+2u^6-14u^5-6u^4-6u^3-4u^2+3u-1\rangle \\
I_2^u &= \langle u^{59}+2u^{58}+\cdots+2b-2,\ u^{59}+3u^{58}+\cdots+2a-4,\ u^{60}+3u^{59}+\cdots-8u-1\rangle \\
I_3^u &= \langle b+u,\ a-u+2,\ u^3-u^2+2u-1\rangle \\
I_4^u &= \langle -u^2a-u^2+b-a-1,\ u^2a+a^2+u^2+2a+2,\ u^3-u^2+2u-1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 84 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. $\boldsymbol{I^u_1 = \langle b - u,\ -u^{12} - u^{11} + \cdots + a + u,\ u^{15} + u^{14} + \cdots + 3u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{12} + u^{11} + 5u^{10} + 4u^9 + 9u^8 + 6u^7 + 5u^6 + 3u^5 - 3u^4 - u^3 - 3u^2 - u \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{13} - u^{12} + \cdots + u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{14} + u^{13} + \cdots - 3u^2 - 2u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{14} + u^{13} + \cdots - 3u^2 - 3u \\ u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^8 - 3u^6 - 3u^4 + 1 \\ -u^{10} - 4u^8 - 5u^6 + 3u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^9 - u^8 - 4u^7 - 3u^6 - 5u^5 - 3u^4 - u^2 + 3u \\ -u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{14} - 4u^{13} - 26u^{12} - 26u^{11} - 68u^{10} - 66u^9 - 78u^8 - 74u^7 - 16u^6 - 16u^5 + 38u^4 + 34u^3 + 16u^2 + 24u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}, c_{11}, c_{12}	$u^{15} - u^{14} + \cdots + 3u + 1$
c_2, c_5, c_6 c_8	$u^{15} + u^{14} + \cdots + u + 1$
c_3, c_9	$u^{15} - 7u^{14} + \cdots + 32u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}, c_{11}, c_{12}	$y^{15} + 13y^{14} + \cdots + y - 1$
c_2, c_5, c_6 c_8	$y^{15} - 15y^{14} + \cdots + y - 1$
c_3, c_9	$y^{15} + 7y^{14} + \cdots - 320y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.864712 + 0.110290I$ $a = -1.86907 - 0.45625I$ $b = -0.864712 + 0.110290I$	$-11.11480 + 6.35352I$	$-15.5001 - 4.2472I$
$u = -0.864712 - 0.110290I$ $a = -1.86907 + 0.45625I$ $b = -0.864712 - 0.110290I$	$-11.11480 - 6.35352I$	$-15.5001 + 4.2472I$
$u = 0.105102 + 1.139200I$ $a = -0.439069 + 0.083556I$ $b = 0.105102 + 1.139200I$	$4.69451 - 2.19799I$	$-5.25826 + 3.25670I$
$u = 0.105102 - 1.139200I$ $a = -0.439069 - 0.083556I$ $b = 0.105102 - 1.139200I$	$4.69451 + 2.19799I$	$-5.25826 - 3.25670I$
$u = 0.811305$ $a = 2.34658$ $b = 0.811305$	-6.37976	-14.9760
$u = -0.423940 + 1.181130I$ $a = -1.389210 + 0.220558I$ $b = -0.423940 + 1.181130I$	$-4.55475 + 2.89595I$	$-9.71000 - 3.23135I$
$u = -0.423940 - 1.181130I$ $a = -1.389210 - 0.220558I$ $b = -0.423940 - 1.181130I$	$-4.55475 - 2.89595I$	$-9.71000 + 3.23135I$
$u = 0.360108 + 1.291100I$ $a = 2.54683 + 0.20383I$ $b = 0.360108 + 1.291100I$	$1.68042 - 8.43141I$	$-6.38008 + 6.14293I$
$u = 0.360108 - 1.291100I$ $a = 2.54683 - 0.20383I$ $b = 0.360108 - 1.291100I$	$1.68042 + 8.43141I$	$-6.38008 - 6.14293I$
$u = 0.035636 + 1.359960I$ $a = -0.27580 - 2.64222I$ $b = 0.035636 + 1.359960I$	$9.79675 - 2.45365I$	$1.09794 + 3.27080I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.035636 - 1.359960I$ $a = -0.27580 + 2.64222I$ $b = 0.035636 - 1.359960I$	$9.79675 + 2.45365I$	$1.09794 - 3.27080I$
$u = -0.378630 + 1.355350I$ $a = -2.48655 - 0.69111I$ $b = -0.378630 + 1.355350I$	$-1.8779 + 15.2909I$	$-7.04558 - 8.68185I$
$u = -0.378630 - 1.355350I$ $a = -2.48655 + 0.69111I$ $b = -0.378630 - 1.355350I$	$-1.8779 - 15.2909I$	$-7.04558 + 8.68185I$
$u = 0.260784 + 0.226947I$ $a = -0.260409 - 0.646690I$ $b = 0.260784 + 0.226947I$	$-0.369166 - 0.786960I$	$-8.71574 + 8.77230I$
$u = 0.260784 - 0.226947I$ $a = -0.260409 + 0.646690I$ $b = 0.260784 - 0.226947I$	$-0.369166 + 0.786960I$	$-8.71574 - 8.77230I$

II.
$$\boldsymbol{I^u_2 = \langle u^{59}+2u^{58}+\cdots+2b-2,\ u^{59}+3u^{58}+\cdots+2a-4,\ u^{60}+3u^{59}+\cdots-8u-1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_1 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^5-2u^3-u\\-u^7-3u^5-2u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-\frac{1}{2}u^{59}-\frac{3}{2}u^{58}+\cdots+\frac{1}{2}u+2\\-\frac{1}{2}u^{59}-u^{58}+\cdots+6u+1\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}4u^{59}+\frac{21}{2}u^{58}+\cdots-\frac{67}{2}u-\frac{9}{2}\\-u^{59}-u^{58}+\cdots-13u-\frac{5}{2}\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-\frac{5}{2}u^{59}-8u^{58}+\cdots+57u+14\\-\frac{3}{2}u^{59}-4u^{58}+\cdots+20u+\frac{9}{2}\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^{59}-4u^{58}+\cdots+37u+\frac{19}{2}\\-\frac{3}{2}u^{59}-4u^{58}+\cdots+20u+\frac{9}{2}\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^8-3u^6-3u^4+1\\-u^{10}-4u^8-5u^6+3u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}6u^{59}+14u^{58}+\cdots-66u-\frac{29}{2}\\\frac{7}{2}u^{59}+9u^{58}+\cdots-33u-\frac{13}{2}\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{21}{2}u^{59}-17u^{58}+\cdots-3u-\frac{19}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_7 c_{10}, c_{11}, c_{12}	$u^{60} - 3u^{59} + \cdots + 8u - 1$
c_2, c_5, c_6 c_8	$u^{60} + 3u^{59} + \cdots + 520u - 137$
c_3, c_9	$(u^{30} + 3u^{29} + \cdots - 12u - 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}, c_{11}, c_{12}	$y^{60} + 49y^{59} + \cdots - 28y + 1$
c_2, c_5, c_6 c_8	$y^{60} - 43y^{59} + \cdots - 297252y + 18769$
c_3, c_9	$(y^{30} + 21y^{29} + \cdots - 208y + 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.866352 + 0.087987I$ $a = -0.71052 - 1.48467I$ $b = -0.427481 - 1.154580I$	$-7.91257 + 1.72426I$	$-12.74360 - 0.42116I$
$u = -0.866352 - 0.087987I$ $a = -0.71052 + 1.48467I$ $b = -0.427481 + 1.154580I$	$-7.91257 - 1.72426I$	$-12.74360 + 0.42116I$
$u = -0.859274 + 0.126720I$ $a = -2.20772 + 0.88605I$ $b = -0.384752 + 1.346570I$	$-6.53967 + 10.84120I$	$-11.31201 - 6.59674I$
$u = -0.859274 - 0.126720I$ $a = -2.20772 - 0.88605I$ $b = -0.384752 - 1.346570I$	$-6.53967 - 10.84120I$	$-11.31201 + 6.59674I$
$u = 0.811961 + 0.030859I$ $a = 1.90730 + 1.95853I$ $b = 0.359515 + 1.269110I$	$-2.44025 - 4.21285I$	$-10.79867 + 3.36820I$
$u = 0.811961 - 0.030859I$ $a = 1.90730 - 1.95853I$ $b = 0.359515 - 1.269110I$	$-2.44025 + 4.21285I$	$-10.79867 - 3.36820I$
$u = -0.812151 + 0.025025I$ $a = 1.154180 - 0.235909I$ $b = 0.546996 - 0.494154I$	$-5.29824 + 1.96304I$	$-14.0240 - 3.7195I$
$u = -0.812151 - 0.025025I$ $a = 1.154180 + 0.235909I$ $b = 0.546996 + 0.494154I$	$-5.29824 - 1.96304I$	$-14.0240 + 3.7195I$
$u = -0.426044 + 1.131210I$ $a = -0.727875 - 0.277369I$ $b = -0.389512 - 1.332390I$	$-3.46235 - 6.23114I$	0
$u = -0.426044 - 1.131210I$ $a = -0.727875 + 0.277369I$ $b = -0.389512 + 1.332390I$	$-3.46235 + 6.23114I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.770784 + 0.061460I$ $a = 1.079330 - 0.274511I$ $b = 0.14357 - 1.41247I$	$0.79615 + 4.22762I$	$-10.05667 - 4.58015I$
$u = -0.770784 - 0.061460I$ $a = 1.079330 + 0.274511I$ $b = 0.14357 + 1.41247I$	$0.79615 - 4.22762I$	$-10.05667 + 4.58015I$
$u = -0.427481 + 1.154580I$ $a = -1.142560 - 0.223262I$ $b = -0.866352 - 0.087987I$	$-7.91257 - 1.72426I$	0
$u = -0.427481 - 1.154580I$ $a = -1.142560 + 0.223262I$ $b = -0.866352 + 0.087987I$	$-7.91257 + 1.72426I$	0
$u = -0.027147 + 1.235000I$ $a = 0.583477 + 0.915228I$ $b = 0.668715 - 0.159496I$	$2.08860 + 0.78309I$	0
$u = -0.027147 - 1.235000I$ $a = 0.583477 - 0.915228I$ $b = 0.668715 + 0.159496I$	$2.08860 - 0.78309I$	0
$u = 0.522307 + 0.542494I$ $a = -1.97898 + 0.17315I$ $b = -0.361715 - 1.287380I$	$-1.20998 - 6.18837I$	$-9.36869 + 6.76347I$
$u = 0.522307 - 0.542494I$ $a = -1.97898 - 0.17315I$ $b = -0.361715 + 1.287380I$	$-1.20998 + 6.18837I$	$-9.36869 - 6.76347I$
$u = 0.546996 + 0.494154I$ $a = -1.138140 + 0.625120I$ $b = -0.812151 - 0.025025I$	$-5.29824 - 1.96304I$	$-14.0240 + 3.7195I$
$u = 0.546996 - 0.494154I$ $a = -1.138140 - 0.625120I$ $b = -0.812151 + 0.025025I$	$-5.29824 + 1.96304I$	$-14.0240 - 3.7195I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.579343 + 0.445290I$ $a = -0.104195 + 0.571803I$ $b = -0.357093 + 1.248530I$	$-1.51678 + 2.24498I$	$-10.41829 + 0.03554I$
$u = 0.579343 - 0.445290I$ $a = -0.104195 - 0.571803I$ $b = -0.357093 - 1.248530I$	$-1.51678 - 2.24498I$	$-10.41829 - 0.03554I$
$u = -0.312553 + 1.230880I$ $a = -0.243366 - 1.021580I$ $b = 0.17696 + 1.40609I$	$4.37363 - 0.32326I$	0
$u = -0.312553 - 1.230880I$ $a = -0.243366 + 1.021580I$ $b = 0.17696 - 1.40609I$	$4.37363 + 0.32326I$	0
$u = -0.058694 + 1.275980I$ $a = 2.05305 + 1.65274I$ $b = 0.273445 - 1.345740I$	$6.82843 + 4.21576I$	0
$u = -0.058694 - 1.275980I$ $a = 2.05305 - 1.65274I$ $b = 0.273445 + 1.345740I$	$6.82843 - 4.21576I$	0
$u = 0.358239 + 1.242060I$ $a = 0.325203 - 1.127520I$ $b = 0.358239 - 1.242060I$	1.29928	0
$u = 0.358239 - 1.242060I$ $a = 0.325203 + 1.127520I$ $b = 0.358239 + 1.242060I$	1.29928	0
$u = 0.088419 + 1.291380I$ $a = -0.283489 - 0.576292I$ $b = 0.071835 + 0.504277I$	$4.18867 - 2.01435I$	0
$u = 0.088419 - 1.291380I$ $a = -0.283489 + 0.576292I$ $b = 0.071835 - 0.504277I$	$4.18867 + 2.01435I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.357093 + 1.248530I$ $a = 0.277613 + 0.172882I$ $b = 0.579343 + 0.445290I$	$-1.51678 + 2.24498I$	0
$u = -0.357093 - 1.248530I$ $a = 0.277613 - 0.172882I$ $b = 0.579343 - 0.445290I$	$-1.51678 - 2.24498I$	0
$u = 0.243342 + 1.288680I$ $a = -0.821950 + 0.307839I$ $b = -0.276488 - 0.137898I$	$2.60325 - 3.14855I$	0
$u = 0.243342 - 1.288680I$ $a = -0.821950 - 0.307839I$ $b = -0.276488 + 0.137898I$	$2.60325 + 3.14855I$	0
$u = 0.668715 + 0.159496I$ $a = -1.85649 - 0.59763I$ $b = -0.027147 - 1.235000I$	$2.08860 - 0.78309I$	$-8.05433 + 0.68374I$
$u = 0.668715 - 0.159496I$ $a = -1.85649 + 0.59763I$ $b = -0.027147 + 1.235000I$	$2.08860 + 0.78309I$	$-8.05433 - 0.68374I$
$u = 0.359515 + 1.269110I$ $a = 1.51041 - 0.74478I$ $b = 0.811961 + 0.030859I$	$-2.44025 - 4.21285I$	0
$u = 0.359515 - 1.269110I$ $a = 1.51041 + 0.74478I$ $b = 0.811961 - 0.030859I$	$-2.44025 + 4.21285I$	0
$u = -0.361715 + 1.287380I$ $a = 0.935893 + 0.612906I$ $b = 0.522307 - 0.542494I$	$-1.20998 + 6.18837I$	0
$u = -0.361715 - 1.287380I$ $a = 0.935893 - 0.612906I$ $b = 0.522307 + 0.542494I$	$-1.20998 - 6.18837I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.336582 + 1.312290I$ $a = 1.70878 + 1.42762I$ $b = 0.12149 - 1.42413I$	$5.10162 + 8.23172I$	0
$u = -0.336582 - 1.312290I$ $a = 1.70878 - 1.42762I$ $b = 0.12149 + 1.42413I$	$5.10162 - 8.23172I$	0
$u = 0.628824$ $a = -1.09503$ $b = -0.227844$	-1.43510	-5.45290
$u = 0.273445 + 1.345740I$ $a = -2.12347 + 1.22513I$ $b = -0.058694 - 1.275980I$	$6.82843 - 4.21576I$	0
$u = 0.273445 - 1.345740I$ $a = -2.12347 - 1.22513I$ $b = -0.058694 + 1.275980I$	$6.82843 + 4.21576I$	0
$u = -0.389512 + 1.332390I$ $a = 0.361503 - 0.573917I$ $b = -0.426044 - 1.131210I$	$-3.46235 + 6.23114I$	0
$u = -0.389512 - 1.332390I$ $a = 0.361503 + 0.573917I$ $b = -0.426044 + 1.131210I$	$-3.46235 - 6.23114I$	0
$u = -0.384752 + 1.346570I$ $a = -1.06494 - 1.02113I$ $b = -0.859274 + 0.126720I$	$-6.53967 + 10.84120I$	0
$u = -0.384752 - 1.346570I$ $a = -1.06494 + 1.02113I$ $b = -0.859274 - 0.126720I$	$-6.53967 - 10.84120I$	0
$u = 0.17696 + 1.40609I$ $a = 0.131316 - 0.931855I$ $b = -0.312553 + 1.230880I$	$4.37363 - 0.32326I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.17696 - 1.40609I$ $a = 0.131316 + 0.931855I$ $b = -0.312553 - 1.230880I$	$4.37363 + 0.32326I$	0
$u = 0.14357 + 1.41247I$ $a = -0.252805 + 0.551347I$ $b = -0.770784 - 0.061460I$	$0.79615 - 4.22762I$	0
$u = 0.14357 - 1.41247I$ $a = -0.252805 - 0.551347I$ $b = -0.770784 + 0.061460I$	$0.79615 + 4.22762I$	0
$u = 0.12149 + 1.42413I$ $a = -1.37385 + 1.60217I$ $b = -0.336582 - 1.312290I$	$5.10162 - 8.23172I$	0
$u = 0.12149 - 1.42413I$ $a = -1.37385 - 1.60217I$ $b = -0.336582 + 1.312290I$	$5.10162 + 8.23172I$	0
$u = 0.071835 + 0.504277I$ $a = -0.61146 - 1.51320I$ $b = 0.088419 + 1.291380I$	$4.18867 - 2.01435I$	$-2.24660 + 4.20023I$
$u = 0.071835 - 0.504277I$ $a = -0.61146 + 1.51320I$ $b = 0.088419 - 1.291380I$	$4.18867 + 2.01435I$	$-2.24660 - 4.20023I$
$u = -0.276488 + 0.137898I$ $a = 3.15020 - 1.98893I$ $b = 0.243342 - 1.288680I$	$2.60325 + 3.14855I$	$-0.03228 - 4.59727I$
$u = -0.276488 - 0.137898I$ $a = 3.15020 + 1.98893I$ $b = 0.243342 + 1.288680I$	$2.60325 - 3.14855I$	$-0.03228 + 4.59727I$
$u = -0.227844$ $a = 3.02215$ $b = 0.628824$	-1.43510	-5.45290

III. $I_3^u = \langle b + u,\ a - u + 2,\ u^3 - u^2 + 2u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^2 + 8u - 20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.215080 + 1.307140I$ $a = -1.78492 + 1.30714I$ $b = -0.215080 - 1.307140I$	$6.04826 - 5.65624I$	$-4.98049 + 5.95889I$
$u = \ \ 0.215080 - 1.307140I$ $a = -1.78492 - 1.30714I$ $b = -0.215080 + 1.307140I$	$6.04826 + 5.65624I$	$-4.98049 - 5.95889I$
$u = \ \ 0.569840$ $a = -1.43016$ $b = -0.569840$	-2.22691	-18.0390

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^2a + 5au - 3u^2 - 3a + 3u - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.162359 - 0.986732I$ $b = -0.215080 + 1.307140I$	6.04826	$-6 - 1.085931 + 0.10I$
$u = 0.215080 + 1.307140I$ $a = -0.500000 + 0.424452I$ $b = -0.569840$	$1.91067 - 2.82812I$	$-9.95703 + 1.11003I$
$u = 0.215080 - 1.307140I$ $a = 0.162359 + 0.986732I$ $b = -0.215080 - 1.307140I$	6.04826	$-6 - 1.085931 + 0.10I$
$u = 0.215080 - 1.307140I$ $a = -0.500000 - 0.424452I$ $b = -0.569840$	$1.91067 + 2.82812I$	$-9.95703 - 1.11003I$
$u = 0.569840$ $a = -1.16236 + 0.98673I$ $b = -0.215080 + 1.307140I$	$1.91067 + 2.82812I$	$-9.95703 - 1.11003I$
$u = 0.569840$ $a = -1.16236 - 0.98673I$ $b = -0.215080 - 1.307140I$	$1.91067 - 2.82812I$	$-9.95703 + 1.11003I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7, c_{12}	$((u^3 - u^2 + 2u - 1)^3)(u^{15} - u^{14} + \cdots + 3u + 1)(u^{60} - 3u^{59} + \cdots + 8u - 1)$
c_2, c_6, c_8	$((u^3 + u^2 - 1)^3)(u^{15} + u^{14} + \cdots + u + 1)(u^{60} + 3u^{59} + \cdots + 520u - 137)$
c_3, c_9	$u^9(u^{15} - 7u^{14} + \cdots + 32u - 8)(u^{30} + 3u^{29} + \cdots - 12u - 8)^2$
c_4, c_{10}, c_{11}	$((u^3 + u^2 + 2u + 1)^3)(u^{15} - u^{14} + \cdots + 3u + 1)(u^{60} - 3u^{59} + \cdots + 8u - 1)$
c_5	$((u^3 - u^2 + 1)^3)(u^{15} + u^{14} + \cdots + u + 1)(u^{60} + 3u^{59} + \cdots + 520u - 137)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_7 c_{10}, c_{11}, c_{12}	$((y^3+3y^2+2y-1)^3)(y^{15}+13y^{14}+\cdots+y-1)$ $\cdot\,(y^{60}+49y^{59}+\cdots-28y+1)$
c_2, c_5, c_6 c_8	$((y^3-y^2+2y-1)^3)(y^{15}-15y^{14}+\cdots+y-1)$ $\cdot\,(y^{60}-43y^{59}+\cdots-297252y+18769)$
c_3, c_9	$y^9(y^{15}+7y^{14}+\cdots-320y-64)(y^{30}+21y^{29}+\cdots-208y+64)^2$