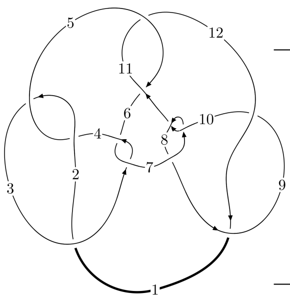
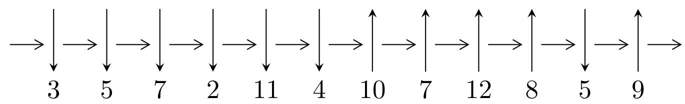
$12n_{0132}$ ($K12n_{0132}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-2.14796\times 10^{52}u^{43} + 9.58738\times 10^{52}u^{42} + \cdots + 1.56185\times 10^{54}b + 8.78201\times 10^{53},\\
&-4.29892\times 10^{54}u^{43} + 3.28755\times 10^{55}u^{42} + \cdots + 1.56185\times 10^{54}a + 7.83354\times 10^{55},\\
&u^{44} - 7u^{43} + \cdots - 83u - 1\rangle
\end{aligned}$$

$$I_2^u = \langle b,\ 3u^8 - 5u^7 - u^6 + 9u^5 - 6u^4 - 3u^3 + 10u^2 + a - 8u + 4,\ u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1\rangle$$

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

$$I_4^u = \langle 2b + a - 2,\ a^2 - 2a - 4,\ u + 1\rangle$$

$$I_5^u = \langle u^2 + b,\ u^2 + a - 2u + 1,\ u^3 - u^2 + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 64 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. $\boldsymbol{I_1^u = \langle -2.15 \times 10^{52} u^{43} + 9.59 \times 10^{52} u^{42} + \cdots + 1.56 \times 10^{54} b + 8.78 \times 10^{53},\ -4.30 \times 10^{54} u^{43} + 3.29 \times 10^{55} u^{42} + \cdots + 1.56 \times 10^{54} a + 7.83 \times 10^{55},\ u^{44} - 7u^{43} + \cdots - 83u - 1 \rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} 2.75245u^{43} - 21.0490u^{42} + \cdots - 383.045u - 50.1555 \\ 0.0137527u^{43} - 0.0613847u^{42} + \cdots + 4.13777u - 0.562282 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2.76620u^{43} - 21.1104u^{42} + \cdots - 378.907u - 50.7178 \\ 0.0137527u^{43} - 0.0613847u^{42} + \cdots + 4.13777u - 0.562282 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0964349u^{43} - 0.375473u^{42} + \cdots - 71.2040u - 27.7159 \\ -0.0727656u^{43} + 0.491309u^{42} + \cdots - 2.80714u - 0.409016 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.102399u^{43} - 0.502049u^{42} + \cdots - 78.0105u - 27.7938 \\ -0.0451246u^{43} + 0.308080u^{42} + \cdots - 2.57914u - 0.402041 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.130388u^{43} + 0.959055u^{42} + \cdots + 40.6420u + 9.41950 \\ 0.122234u^{43} - 0.687069u^{42} + \cdots + 11.8008u + 0.252623 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.64549u^{43} - 20.3205u^{42} + \cdots - 328.997u - 32.6224 \\ -0.0451246u^{43} + 0.308080u^{42} + \cdots - 2.57914u - 0.402041 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.124319u^{43} - 0.935985u^{42} + \cdots - 42.8904u - 9.55951 \\ -0.174640u^{43} + 1.02487u^{42} + \cdots - 12.6464u - 0.262253 \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -49.8054u^{43} + 389.878u^{42} + \cdots + 5096.96u + 52.1441$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{44} + 6u^{43} + \cdots + 29830u + 1$
c_2, c_4	$u^{44} - 14u^{43} + \cdots - 166u - 1$
c_3, c_6	$u^{44} - 5u^{43} + \cdots + 3072u + 512$
c_5, c_{11}	$u^{44} - 3u^{43} + \cdots + 4096u - 512$
c_7, c_{10}	$u^{44} + 7u^{43} + \cdots + 83u - 1$
c_8	$u^{44} - 33u^{43} + \cdots - 6317u + 1$
c_9, c_{12}	$u^{44} + 5u^{43} + \cdots - 16u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{44} + 78y^{43} + \cdots - 889350874y + 1$
c_2, c_4	$y^{44} - 6y^{43} + \cdots - 29830y + 1$
c_3, c_6	$y^{44} + 63y^{43} + \cdots - 69206016y + 262144$
c_5, c_{11}	$y^{44} + 49y^{43} + \cdots - 15859712y + 262144$
c_7, c_{10}	$y^{44} - 33y^{43} + \cdots - 6317y + 1$
c_8	$y^{44} - 37y^{43} + \cdots - 39734481y + 1$
c_9, c_{12}	$y^{44} - 3y^{43} + \cdots - 1304y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.876497+0.429976I$ $a=-0.802254-0.743828I$ $b=\ \ 0.076755-1.159430I$	$3.87014-2.97279I$	$3.60919+6.63471I$
$u=-0.876497-0.429976I$ $a=-0.802254+0.743828I$ $b=\ \ 0.076755+1.159430I$	$3.87014+2.97279I$	$3.60919-6.63471I$
$u=-1.035690+0.011118I$ $a=\ \ 0.98809-3.01949I$ $b=-0.626019-0.060302I$	$0.651471+0.106624I$	$-43.8474-14.3936I$
$u=-1.035690-0.011118I$ $a=\ \ 0.98809+3.01949I$ $b=-0.626019+0.060302I$	$0.651471-0.106624I$	$-43.8474+14.3936I$
$u=\ \ 1.04545$ $a=-1.23357$ $b=\ \ 1.68917$	-7.14674	39.2060
$u=\ \ 0.638907+0.623619I$ $a=\ \ 0.054165-0.369885I$ $b=-0.199038+0.637626I$	$-2.03545+1.53423I$	$-2.10831-3.28440I$
$u=\ \ 0.638907-0.623619I$ $a=\ \ 0.054165+0.369885I$ $b=-0.199038-0.637626I$	$-2.03545-1.53423I$	$-2.10831+3.28440I$
$u=-0.354769+0.792242I$ $a=\ \ 1.153100+0.457040I$ $b=\ \ 0.884926+0.773845I$	$2.35471-1.62269I$	$0.78025+2.86308I$
$u=-0.354769-0.792242I$ $a=\ \ 1.153100-0.457040I$ $b=\ \ 0.884926-0.773845I$	$2.35471+1.62269I$	$0.78025-2.86308I$
$u=\ \ 0.883739+0.725281I$ $a=\ \ 2.46589+0.69772I$ $b=\ \ 0.500417-0.051284I$	$-4.23715+2.76938I$	$-48.8073+0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.883739 - 0.725281I$ $a = 2.46589 - 0.69772I$ $b = 0.500417 + 0.051284I$	$-4.23715 - 2.76938I$	$-48.8073 + 0.I$
$u = -0.833904$ $a = 0.838853$ $b = -0.0760954$	1.20368	8.97050
$u = -0.806388$ $a = 17.4240$ $b = 0.105321$	-0.460937	-368.890
$u = 1.112660 + 0.494049I$ $a = -0.401224 - 0.346268I$ $b = -0.297482 + 0.701848I$	$2.13500 + 7.76603I$	0
$u = 1.112660 - 0.494049I$ $a = -0.401224 + 0.346268I$ $b = -0.297482 - 0.701848I$	$2.13500 - 7.76603I$	0
$u = 0.309756 + 0.710019I$ $a = 0.447198 - 0.401576I$ $b = -0.053147 - 0.769930I$	$-0.22354 - 3.19884I$	$0.00447 + 5.55216I$
$u = 0.309756 - 0.710019I$ $a = 0.447198 + 0.401576I$ $b = -0.053147 + 0.769930I$	$-0.22354 + 3.19884I$	$0.00447 - 5.55216I$
$u = 0.073729 + 1.240780I$ $a = 0.379736 + 0.020924I$ $b = 0.63482 + 1.93161I$	$10.77560 - 8.87064I$	0
$u = 0.073729 - 1.240780I$ $a = 0.379736 - 0.020924I$ $b = 0.63482 - 1.93161I$	$10.77560 + 8.87064I$	0
$u = -0.132383 + 1.258200I$ $a = 0.0707679 - 0.1181420I$ $b = 0.10550 - 2.15662I$	$11.64120 - 0.54721I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.132383 - 1.258200I$ $a = 0.0707679 + 0.1181420I$ $b = 0.10550 + 2.15662I$	$11.64120 + 0.54721I$	0
$u = 1.118360 + 0.595860I$ $a = 0.909006 + 0.370619I$ $b = -0.644410 - 1.075560I$	$-0.60424 + 3.28908I$	0
$u = 1.118360 - 0.595860I$ $a = 0.909006 - 0.370619I$ $b = -0.644410 + 1.075560I$	$-0.60424 - 3.28908I$	0
$u = -1.353770 + 0.147916I$ $a = 0.380791 - 1.326250I$ $b = 0.573832 + 1.158340I$	$5.03100 + 0.55063I$	0
$u = -1.353770 - 0.147916I$ $a = 0.380791 + 1.326250I$ $b = 0.573832 - 1.158340I$	$5.03100 - 0.55063I$	0
$u = -0.608345 + 0.151373I$ $a = -0.48220 - 1.88435I$ $b = -0.158567 - 1.356840I$	$4.00876 - 2.95005I$	$-9.2752 + 14.0588I$
$u = -0.608345 - 0.151373I$ $a = -0.48220 + 1.88435I$ $b = -0.158567 + 1.356840I$	$4.00876 + 2.95005I$	$-9.2752 - 14.0588I$
$u = 1.405350 + 0.093871I$ $a = 0.454924 + 1.244670I$ $b = -1.19138 - 1.51744I$	$4.40564 + 2.10618I$	0
$u = 1.405350 - 0.093871I$ $a = 0.454924 - 1.244670I$ $b = -1.19138 + 1.51744I$	$4.40564 - 2.10618I$	0
$u = 1.45332 + 0.14450I$ $a = -0.11796 - 1.93576I$ $b = -0.46438 + 2.32992I$	$10.46410 + 4.58464I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.45332 - 0.14450I$ $a = -0.11796 + 1.93576I$ $b = -0.46438 - 2.32992I$	$10.46410 - 4.58464I$	0
$u = 1.46913 + 0.29367I$ $a = -0.488382 + 0.902569I$ $b = 1.91388 - 0.67361I$	$8.25016 + 5.56575I$	0
$u = 1.46913 - 0.29367I$ $a = -0.488382 - 0.902569I$ $b = 1.91388 + 0.67361I$	$8.25016 - 5.56575I$	0
$u = 1.40535 + 0.62626I$ $a = 1.00047 + 1.55409I$ $b = 0.88791 - 1.82835I$	$14.9516 + 15.4441I$	0
$u = 1.40535 - 0.62626I$ $a = 1.00047 - 1.55409I$ $b = 0.88791 + 1.82835I$	$14.9516 - 15.4441I$	0
$u = -1.41723 + 0.69052I$ $a = 1.12597 - 1.25429I$ $b = 0.53080 + 2.12848I$	$15.5975 - 6.3488I$	0
$u = -1.41723 - 0.69052I$ $a = 1.12597 + 1.25429I$ $b = 0.53080 - 2.12848I$	$15.5975 + 6.3488I$	0
$u = 1.51754 + 0.53920I$ $a = -0.84332 - 1.48882I$ $b = -0.35692 + 2.33329I$	$16.9016 + 6.9619I$	0
$u = 1.51754 - 0.53920I$ $a = -0.84332 + 1.48882I$ $b = -0.35692 - 2.33329I$	$16.9016 - 6.9619I$	0
$u = -0.270791 + 0.261743I$ $a = -4.22835 + 0.15470I$ $b = -0.526256 + 0.439239I$	$-0.967972 - 0.798268I$	$-5.17338 - 0.48170I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.270791-0.261743I$ $a=-4.22835-0.15470I$ $b=-0.526256-0.439239I$	$-0.967972+0.798268I$	$-5.17338+0.48170I$
$u=-1.53465+0.55119I$ $a=-0.87468+1.14741I$ $b=\ \ 0.35572-2.21568I$	$15.8788+2.3692I$	0
$u=-1.53465-0.55119I$ $a=-0.87468-1.14741I$ $b=\ \ 0.35572+2.21568I$	$15.8788-2.3692I$	0
$u=-0.0125953$ $a=-45.4128$ $b=-0.612334$	-1.00318	-10.1720

II.

$\boldsymbol{I_2^u = \langle b,\ 3u^8 - 5u^7 + \cdots + a + 4,\ u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 42u^8 - 82u^7 - 19u^6 + 153u^5 - 83u^4 - 70u^3 + 143u^2 - 120u + 48$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_6	u^9
c_4	$(u+1)^9$
c_5	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_7	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_8	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$
c_9	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_{10}	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_{11}	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_{12}	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_6	y^9
c_5, c_{11}	$y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1$
c_7, c_{10}	$y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1$
c_8	$y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1$
c_9, c_{12}	$y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.772920 + 0.510351I$ $a = -0.920144 - 0.598375I$ $b = 0$	$-3.42837 + 2.09337I$	$-7.68972 - 3.82038I$
$u = 0.772920 - 0.510351I$ $a = -0.920144 + 0.598375I$ $b = 0$	$-3.42837 - 2.09337I$	$-7.68972 + 3.82038I$
$u = -0.825933$ $a = -14.5113$ $b = 0$	-0.446489	211.240
$u = -1.173910 + 0.391555I$ $a = 0.719281 + 0.119276I$ $b = 0$	$2.72642 - 1.33617I$	$1.56769 + 0.26615I$
$u = -1.173910 - 0.391555I$ $a = 0.719281 - 0.119276I$ $b = 0$	$2.72642 + 1.33617I$	$1.56769 - 0.26615I$
$u = 0.141484 + 0.739668I$ $a = 0.590648 + 0.449402I$ $b = 0$	$-1.02799 - 2.45442I$	$-5.04100 + 1.69416I$
$u = 0.141484 - 0.739668I$ $a = 0.590648 - 0.449402I$ $b = 0$	$-1.02799 + 2.45442I$	$-5.04100 - 1.69416I$
$u = 1.172470 + 0.500383I$ $a = 0.365868 - 0.247975I$ $b = 0$	$1.95319 + 7.08493I$	$-0.45449 - 1.34000I$
$u = 1.172470 - 0.500383I$ $a = 0.365868 + 0.247975I$ $b = 0$	$1.95319 - 7.08493I$	$-0.45449 + 1.34000I$

III. $\boldsymbol{I^u_3 = \langle -u^2a - 2u^2 + b + 1,\ a^2 + au + 2u^2 + 2a - 2u + 3,\ u^3 - u^2 + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

$$a_6 = \begin{pmatrix} u^2a + 3u^2 - 2u + 1 \\ au + u^2 + a + u + 2 \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} u^2a + au + 4u^2 + a - u + 1 \\ au + u^2 + a + u + 2 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 16u^2a - 11au + 16u^2 - 11a - 30u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = -0.930160 - 0.424452I$ $b = -0.215080 + 1.307140I$	$5.65624I$	$-1.47396 - 5.95889I$
$u = 0.877439 + 0.744862I$ $a = -1.94728 - 0.32041I$ $b = -0.569840$	$-4.13758 + 2.82812I$	$14.7077 - 20.6881I$
$u = 0.877439 - 0.744862I$ $a = -0.930160 + 0.424452I$ $b = -0.215080 - 1.307140I$	$-5.65624I$	$-1.47396 + 5.95889I$
$u = 0.877439 - 0.744862I$ $a = -1.94728 + 0.32041I$ $b = -0.569840$	$-4.13758 - 2.82812I$	$14.7077 + 20.6881I$
$u = -0.754878$ $a = -0.62256 + 2.29387I$ $b = -0.215080 + 1.307140I$	$4.13758 + 2.82812I$	$27.7662 + 14.7292I$
$u = -0.754878$ $a = -0.62256 - 2.29387I$ $b = -0.215080 - 1.307140I$	$4.13758 - 2.82812I$	$27.7662 - 14.7292I$

IV. $\boldsymbol{I_4^u = \langle 2b + a - 2,\ a^2 - 2a - 4,\ u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -49$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.23607$ $b = 1.61803$	-7.23771	-49.0000
$u = -1.00000$ $a = 3.23607$ $b = -0.618034$	0.657974	-49.0000

V. $\boldsymbol{I_5^u = \langle u^2 + b,\ u^2 + a - 2u + 1,\ u^3 - u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = 0.539798 + 0.182582I$ $b = -0.215080 - 1.307140I$	0	0
$u = 0.877439 - 0.744862I$ $a = 0.539798 - 0.182582I$ $b = -0.215080 + 1.307140I$	0	0
$u = -0.754878$ $a = -3.07960$ $b = -0.569840$	0	0

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^9(u^2-3u+1)(u^3-u^2+2u-1)^3$ $\cdot(u^{44}+6u^{43}+\cdots+29830u+1)$
c_2	$((u-1)^9)(u^2+u-1)(u^3+u^2-1)^3(u^{44}-14u^{43}+\cdots-166u-1)$
c_3	$u^9(u^2+u-1)(u^3-u^2+2u-1)^3(u^{44}-5u^{43}+\cdots+3072u+512)$
c_4	$((u+1)^9)(u^2-u-1)(u^3-u^2+1)^3(u^{44}-14u^{43}+\cdots-166u-1)$
c_5	$u^9(u^2+3u+1)$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{44}-3u^{43}+\cdots+4096u-512)$
c_6	$u^9(u^2-u-1)(u^3+u^2+2u+1)^3(u^{44}-5u^{43}+\cdots+3072u+512)$
c_7	$(u+1)^2(u^3-u^2+1)^3(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{44}+7u^{43}+\cdots+83u-1)$
c_8	$(u-1)^2(u^3-u^2+2u-1)^3$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{44}-33u^{43}+\cdots-6317u+1)$
c_9	$u^2(u^3+u^2+2u+1)^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{44}+5u^{43}+\cdots-16u-4)$
c_{10}	$(u-1)^2(u^3+u^2-1)^3(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{44}+7u^{43}+\cdots+83u-1)$
c_{11}	$u^9(u^2-3u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{44}-3u^{43}+\cdots+4096u-512)$
c_{12}	$u^2(u^3-u^2+2u-1)^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{44}+5u^{43}+\cdots-16u-4)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^9(y^2-7y+1)(y^3+3y^2+2y-1)^3$ $\cdot(y^{44}+78y^{43}+\cdots-889350874y+1)$
c_2, c_4	$(y-1)^9(y^2-3y+1)(y^3-y^2+2y-1)^3$ $\cdot(y^{44}-6y^{43}+\cdots-29830y+1)$
c_3, c_6	$y^9(y^2-3y+1)(y^3+3y^2+2y-1)^3$ $\cdot(y^{44}+63y^{43}+\cdots-69206016y+262144)$
c_5, c_{11}	$y^9(y^2-7y+1)(y^9+7y^8+\cdots+13y-1)$ $\cdot(y^{44}+49y^{43}+\cdots-15859712y+262144)$
c_7, c_{10}	$(y-1)^2(y^3-y^2+2y-1)^3$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{44}-33y^{43}+\cdots-6317y+1)$
c_8	$(y-1)^2(y^3+3y^2+2y-1)^3$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{44}-37y^{43}+\cdots-39734481y+1)$
c_9, c_{12}	$y^2(y^3+3y^2+2y-1)^3$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{44}-3y^{43}+\cdots-1304y+16)$