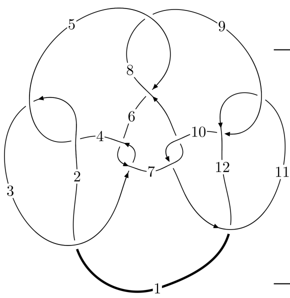
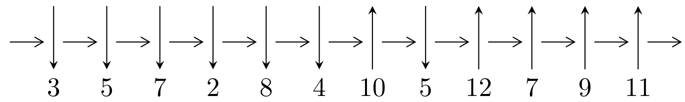
$12n_{0087}$ ($K12n_{0087}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.21397 \times 10^{102} u^{43} - 1.21296 \times 10^{103} u^{42} + \cdots + 5.90528 \times 10^{102} b - 1.68663 \times 10^{103},$$
$$2.74407 \times 10^{102} u^{43} - 1.57666 \times 10^{103} u^{42} + \cdots + 2.95264 \times 10^{102} a - 2.53471 \times 10^{103},\ u^{44} - 5u^{43} + \cdots + 16u$$
$$I_2^u = \langle u^8 - 2u^7 + 3u^6 - 3u^5 + 4u^4 - 4u^3 + 3u^2 + b - 2u + 1,$$
$$3u^8 - 4u^7 + 8u^6 - 7u^5 + 13u^4 - 9u^3 + 11u^2 + a - 6u + 6,\ u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1\rangle$$
$$I_3^u = \langle -3u^2a + 4au + u^2 + 5b + 3a + 7u + 4,\ -2u^2a + a^2 - au + 12u^2 - a + 5u + 22,\ u^3 + u^2 + 2u + 1\rangle$$
$$I_4^u = \langle b - u,\ a,\ u^3 + u^2 + 2u + 1\rangle$$

$$I_1^v = \langle a,\ 3b + v - 5,\ v^2 - 7v + 1\rangle$$

* 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. $I^u_1 = \langle 2.21\times10^{102}u^{43} - 1.21\times10^{103}u^{42} + \cdots + 5.91\times10^{102}b - 1.69\times10^{103},\ 2.74\times10^{102}u^{43} - 1.58\times10^{103}u^{42} + \cdots + 2.95\times10^{102}a - 2.53\times10^{103},\ u^{44} - 5u^{43} + \cdots + 16u - 4\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.929363u^{43} + 5.33983u^{42} + \cdots - 18.7982u + 8.58457\\-0.374913u^{43} + 2.05402u^{42} + \cdots - 21.5523u + 2.85613\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-1.07481u^{43} + 6.05592u^{42} + \cdots - 25.5449u + 8.66865\\-0.409892u^{43} + 2.21633u^{42} + \cdots - 21.9557u + 2.81153\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.145102u^{43} - 0.707901u^{42} + \cdots + 19.1582u + 1.02362\\0.147085u^{43} - 0.785533u^{42} + \cdots + 9.81828u - 1.73382\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.292188u^{43} - 1.49343u^{42} + \cdots + 28.9765u - 0.710207\\0.147085u^{43} - 0.785533u^{42} + \cdots + 9.81828u - 1.73382\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.115004u^{43} + 0.603443u^{42} + \cdots - 8.54799u + 1.54989\\-0.253152u^{43} + 1.35100u^{42} + \cdots - 24.4831u + 3.51231\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.143897u^{43} + 0.773429u^{42} + \cdots - 15.0203u + 1.84872\\-0.289178u^{43} + 1.53362u^{42} + \cdots - 25.0070u + 3.61440\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-1.09992u^{43} + 6.16075u^{42} + \cdots - 35.4851u + 8.06492\\-0.238125u^{43} + 1.32996u^{42} + \cdots - 6.84876u + 1.04083\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.138148u^{43} - 0.747554u^{42} + \cdots + 15.9351u - 1.96242\\0.280915u^{43} - 1.49627u^{42} + \cdots + 25.9447u - 3.73957\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 25.5545u^{43} - 140.944u^{42} + \cdots + 1055.90u - 191.724$

(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_8	$u^{44} - 3u^{43} + \cdots + 4096u - 512$
c_7, c_{10}	$u^{44} + 5u^{43} + \cdots - 16u - 4$
c_9, c_{11}	$u^{44} + 7u^{43} + \cdots + 83u - 1$
c_{12}	$u^{44} - 33u^{43} + \cdots - 6317u + 1$

(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_8	$y^{44} + 49y^{43} + \cdots - 15859712y + 262144$
c_7, c_{10}	$y^{44} - 3y^{43} + \cdots - 1304y + 16$
c_9, c_{11}	$y^{44} - 33y^{43} + \cdots - 6317y + 1$
c_{12}	$y^{44} - 37y^{43} + \cdots - 39734481y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.048281 + 1.061060I$ $a = 0.370251 + 0.083303I$ $b = -0.623557 - 0.693283I$	$-2.03545 - 1.53423I$	$-2.00000 + 3.28440I$
$u = 0.048281 - 1.061060I$ $a = 0.370251 - 0.083303I$ $b = -0.623557 + 0.693283I$	$-2.03545 + 1.53423I$	$-2.00000 - 3.28440I$
$u = -0.444024 + 0.972451I$ $a = -0.213577 - 0.298798I$ $b = -0.151321 - 0.361837I$	$-0.22354 - 3.19884I$	$0. + 5.55216I$
$u = -0.444024 - 0.972451I$ $a = -0.213577 + 0.298798I$ $b = -0.151321 + 0.361837I$	$-0.22354 + 3.19884I$	$0. - 5.55216I$
$u = 0.874663 + 0.275257I$ $a = 1.04774 + 1.16816I$ $b = 0.236448 + 0.150247I$	$3.87014 - 2.97279I$	$3.60919 + 6.63471I$
$u = 0.874663 - 0.275257I$ $a = 1.04774 - 1.16816I$ $b = 0.236448 - 0.150247I$	$3.87014 + 2.97279I$	$3.60919 - 6.63471I$
$u = 0.310742 + 1.065360I$ $a = 0.269693 + 1.146740I$ $b = -0.465484 + 0.146095I$	$5.03100 + 0.55063I$	$1.92030 - 1.63801I$
$u = 0.310742 - 1.065360I$ $a = 0.269693 - 1.146740I$ $b = -0.465484 - 0.146095I$	$5.03100 - 0.55063I$	$1.92030 + 1.63801I$
$u = 0.627914 + 0.971697I$ $a = -0.330748 - 0.066410I$ $b = -0.034558 + 0.334761I$	$2.13500 + 7.76603I$	$0. - 12.26438I$
$u = 0.627914 - 0.971697I$ $a = -0.330748 + 0.066410I$ $b = -0.034558 - 0.334761I$	$2.13500 - 7.76603I$	$0. + 12.26438I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.088600 + 0.454876I$ $a = 0.415899 - 0.644451I$ $b = 0.653494 - 0.268396I$	$2.35471 - 1.62269I$	$0. + 2.86308I$
$u = -1.088600 - 0.454876I$ $a = 0.415899 + 0.644451I$ $b = 0.653494 + 0.268396I$	$2.35471 + 1.62269I$	$0. - 2.86308I$
$u = 1.171290 + 0.197003I$ $a = 0.058277 + 0.836682I$ $b = -1.49981 - 0.37516I$	$4.40564 + 2.10618I$	0
$u = 1.171290 - 0.197003I$ $a = 0.058277 - 0.836682I$ $b = -1.49981 + 0.37516I$	$4.40564 - 2.10618I$	0
$u = -0.625793 + 1.141240I$ $a = 0.475335 - 0.251871I$ $b = -1.43711 + 0.62601I$	$-0.60424 - 3.28908I$	0
$u = -0.625793 - 1.141240I$ $a = 0.475335 + 0.251871I$ $b = -1.43711 - 0.62601I$	$-0.60424 + 3.28908I$	0
$u = -0.231224 + 1.281260I$ $a = 2.55356 - 0.49814I$ $b = -3.85023 - 0.67062I$	$-4.23715 - 2.76938I$	$-48.8073 + 0.I$
$u = -0.231224 - 1.281260I$ $a = 2.55356 + 0.49814I$ $b = -3.85023 + 0.67062I$	$-4.23715 + 2.76938I$	$-48.8073 + 0.I$
$u = -1.271420 + 0.302065I$ $a = -0.143630 + 1.274350I$ $b = 0.295378 - 0.275889I$	$10.46410 - 4.58464I$	0
$u = -1.271420 - 0.302065I$ $a = -0.143630 - 1.274350I$ $b = 0.295378 + 0.275889I$	$10.46410 + 4.58464I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.652018 + 0.010138I$ $a = 0.75783 + 3.15503I$ $b = 0.1218200 - 0.0058498I$	$4.00876 - 2.95005I$	$-9.2752 + 14.0588I$
$u = 0.652018 - 0.010138I$ $a = 0.75783 - 3.15503I$ $b = 0.1218200 + 0.0058498I$	$4.00876 + 2.95005I$	$-9.2752 - 14.0588I$
$u = -0.585308 + 0.189725I$ $a = -1.96529 - 0.47582I$ $b = -1.23447 + 0.72984I$	$-0.967972 - 0.798268I$	$-5.17338 - 0.48170I$
$u = -0.585308 - 0.189725I$ $a = -1.96529 + 0.47582I$ $b = -1.23447 - 0.72984I$	$-0.967972 + 0.798268I$	$-5.17338 + 0.48170I$
$u = 1.30067 + 0.60834I$ $a = -0.056153 + 0.571188I$ $b = 0.935749 - 0.007550I$	$8.25016 + 5.56575I$	0
$u = 1.30067 - 0.60834I$ $a = -0.056153 - 0.571188I$ $b = 0.935749 + 0.007550I$	$8.25016 - 5.56575I$	0
$u = -0.531060$ $a = 16.7494$ $b = 4.82907$	-0.460937	-368.890
$u = -0.503995$ $a = 1.38825$ $b = 0.276534$	1.20368	8.97050
$u = -0.311757$ $a = -0.443655$ $b = 1.64605$	-7.14674	39.2060
$u = 1.13348 + 1.25222I$ $a = 0.883536 + 1.035620I$ $b = -2.30222 + 0.38639I$	$14.9516 + 15.4441I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.13348 - 1.25222I$ $a = 0.883536 - 1.035620I$ $b = -2.30222 - 0.38639I$	$14.9516 - 15.4441I$	0
$u = -0.044479 + 0.277185I$ $a = -13.9186 + 9.4770I$ $b = 0.649522 - 0.305876I$	$0.651471 - 0.106624I$	$-43.8474 + 14.3936I$
$u = -0.044479 - 0.277185I$ $a = -13.9186 - 9.4770I$ $b = 0.649522 + 0.305876I$	$0.651471 + 0.106624I$	$-43.8474 - 14.3936I$
$u = 1.36977 + 1.10574I$ $a = -0.621322 - 0.964621I$ $b = 2.15902 - 0.17933I$	$16.9016 + 6.9619I$	0
$u = 1.36977 - 1.10574I$ $a = -0.621322 + 0.964621I$ $b = 2.15902 + 0.17933I$	$16.9016 - 6.9619I$	0
$u = -1.17136 + 1.33639I$ $a = 0.817996 - 0.874491I$ $b = -2.44154 - 0.26744I$	$10.77560 - 8.87064I$	0
$u = -1.17136 - 1.33639I$ $a = 0.817996 + 0.874491I$ $b = -2.44154 + 0.26744I$	$10.77560 + 8.87064I$	0
$u = 1.37757 + 1.14007I$ $a = -0.503126 - 0.688009I$ $b = 2.39105 + 0.13674I$	$15.5975 - 6.3488I$	0
$u = 1.37757 - 1.14007I$ $a = -0.503126 + 0.688009I$ $b = 2.39105 - 0.13674I$	$15.5975 + 6.3488I$	0
$u = 1.13292 + 1.40159I$ $a = 0.854370 + 0.676020I$ $b = -2.37293 + 0.03727I$	$15.8788 + 2.3692I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.13292 - 1.40159I$ $a = 0.854370 - 0.676020I$ $b = -2.37293 - 0.03727I$	$15.8788 - 2.3692I$	0
$u = -1.41982 + 1.12122I$ $a = -0.510761 + 0.835178I$ $b = 2.37704 + 0.10328I$	$11.64120 - 0.54721I$	0
$u = -1.41982 - 1.12122I$ $a = -0.510761 - 0.835178I$ $b = 2.37704 - 0.10328I$	$11.64120 + 0.54721I$	0
$u = 0.112220$ $a = 3.82348$ $b = -0.564184$	-1.00318	-10.1720

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 45u^8 - 71u^7 + 127u^6 - 112u^5 + 192u^4 - 149u^3 + 165u^2 - 83u + 85$

(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	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_8	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_9	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_{10}	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_{11}	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_{12}	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$

(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_8	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_7, c_{10}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_9, c_{11}	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_{12}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.140343 + 0.966856I$ $a = -0.920144 + 0.598375I$ $b = 1.004430 - 0.297869I$	$-3.42837 - 2.09337I$	$-7.68972 + 3.82038I$
$u = -0.140343 - 0.966856I$ $a = -0.920144 - 0.598375I$ $b = 1.004430 + 0.297869I$	$-3.42837 + 2.09337I$	$-7.68972 - 3.82038I$
$u = -0.628449 + 0.875112I$ $a = 0.590648 + 0.449402I$ $b = 0.275254 - 0.816341I$	$-1.02799 - 2.45442I$	$-5.04100 + 1.69416I$
$u = -0.628449 - 0.875112I$ $a = 0.590648 - 0.449402I$ $b = 0.275254 + 0.816341I$	$-1.02799 + 2.45442I$	$-5.04100 - 1.69416I$
$u = 0.796005 + 0.733148I$ $a = 0.719281 + 0.119276I$ $b = -0.070080 + 0.850995I$	$2.72642 - 1.33617I$	$1.56769 + 0.26615I$
$u = 0.796005 - 0.733148I$ $a = 0.719281 - 0.119276I$ $b = -0.070080 - 0.850995I$	$2.72642 + 1.33617I$	$1.56769 - 0.26615I$
$u = 0.728966 + 0.986295I$ $a = 0.365868 - 0.247975I$ $b = 0.195086 + 0.635552I$	$1.95319 + 7.08493I$	$-0.45449 - 1.34000I$
$u = 0.728966 - 0.986295I$ $a = 0.365868 + 0.247975I$ $b = 0.195086 - 0.635552I$	$1.95319 - 7.08493I$	$-0.45449 + 1.34000I$
$u = -0.512358$ $a = -14.5113$ $b = -3.80937$	-0.446489	211.240

III. $\boldsymbol{I_3^u = \langle -3u^2a + 4au + u^2 + 5b + 3a + 7u + 4,\ -2u^2a + a^2 - au + 12u^2 - a + 5u + 22,\ u^3 + u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ \frac{3}{5}u^2a - \frac{1}{5}u^2 + \cdots - \frac{3}{5}a - \frac{4}{5} \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -\frac{2}{5}u^2a - \frac{1}{5}u^2 + \cdots + \frac{2}{5}a - \frac{4}{5} \\ \frac{6}{5}u^2a + \frac{3}{5}u^2 + \cdots - \frac{1}{5}a + \frac{2}{5} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{5}u^2a - \frac{18}{5}u^2 + \cdots + \frac{1}{5}a - \frac{27}{5} \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{5}u^2a - \frac{18}{5}u^2 + \cdots + \frac{1}{5}a - \frac{27}{5} \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -u^2a - au - 4u^2 - 3u - 6 \\ \frac{6}{5}u^2a + \frac{3}{5}u^2 + \cdots - \frac{1}{5}a + \frac{2}{5} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{12}{5}u^2a - \frac{31}{5}au + \frac{101}{5}u^2 - \frac{37}{5}a + \frac{52}{5}u + \frac{144}{5}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=-0.477322+0.078540I$ $b=\ \ 0.622561-1.169310I$	$-\,5.65624I$	$-1.47396+5.95889I$
$u=-0.215080+1.307140I$ $a=-2.06248+0.10404I$ $b=\ \ 2.91724+0.98673I$	$-4.13758-2.82812I$	$14.7077+20.6881I$
$u=-0.215080-1.307140I$ $a=-0.477322-0.078540I$ $b=\ \ 0.622561+1.169310I$	$5.65624I$	$-1.47396-5.95889I$
$u=-0.215080-1.307140I$ $a=-2.06248-0.10404I$ $b=\ \ 2.91724-0.98673I$	$-4.13758+2.82812I$	$14.7077-20.6881I$
$u=-0.569840$ $a=\ \ 0.53980+4.77033I$ $b=-0.039798+0.241870I$	$4.13758-2.82812I$	$27.7662-14.7292I$
$u=-0.569840$ $a=\ \ 0.53980-4.77033I$ $b=-0.039798-0.241870I$	$4.13758+2.82812I$	$27.7662+14.7292I$

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

(i) Arc colorings

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

(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_{10} c_{12}	$u^3 - u^2 + 2u - 1$
c_2, c_{11}	$u^3 + u^2 - 1$
c_4, c_9	$u^3 - u^2 + 1$
c_5, c_8	u^3
c_6, c_7	$u^3 + u^2 + 2u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = 0$ $b = -0.215080 + 1.307140I$	0	0
$u = -0.215080 - 1.307140I$ $a = 0$ $b = -0.215080 - 1.307140I$	0	0
$u = -0.569840$ $a = 0$ $b = -0.569840$	0	0

V. $I_1^v = \langle a,\ 3b + v - 5,\ v^2 - 7v + 1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} 0 \\ -\frac{1}{3}v + \frac{5}{3} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{1}{3}v + \frac{5}{3} \\ -\frac{1}{3}v + \frac{5}{3} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ \frac{1}{3}v - \frac{8}{3} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{3}v - \frac{5}{3} \\ \frac{1}{3}v - \frac{8}{3} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{2}{3}v + \frac{16}{3} \\ -v + 7 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{5}{3}v - \frac{16}{3} \\ v - 7 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1 \\ \frac{1}{3}v - \frac{8}{3} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{2}{3}v - \frac{16}{3} \\ v - 7 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -49$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.145898$ $a = 0$ $b = 1.61803$	-7.23771	-49.0000
$v = 6.85410$ $a = 0$ $b = -0.618034$	0.657974	-49.0000

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	$u^2(u^3+u^2+2u+1)^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{44}+5u^{43}+\cdots-16u-4)$
c_8	$u^9(u^2+3u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{44}-3u^{43}+\cdots+4096u-512)$
c_9	$(u+1)^2(u^3-u^2+1)^3(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{44}+7u^{43}+\cdots+83u-1)$
c_{10}	$u^2(u^3-u^2+2u-1)^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{44}+5u^{43}+\cdots-16u-4)$
c_{11}	$(u-1)^2(u^3+u^2-1)^3(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{44}+7u^{43}+\cdots+83u-1)$
c_{12}	$(u-1)^2(u^3-u^2+2u-1)^3$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{44}-33u^{43}+\cdots-6317u+1)$

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_8	$y^9(y^2-7y+1)(y^9+7y^8+\cdots+13y-1)$ $\cdot\,(y^{44}+49y^{43}+\cdots-15859712y+262144)$
c_7, c_{10}	$y^2(y^3+3y^2+2y-1)^3$ $\cdot\,(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot\,(y^{44}-3y^{43}+\cdots-1304y+16)$
c_9, c_{11}	$(y-1)^2(y^3-y^2+2y-1)^3$ $\cdot\,(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot\,(y^{44}-33y^{43}+\cdots-6317y+1)$
c_{12}	$(y-1)^2(y^3+3y^2+2y-1)^3$ $\cdot\,(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot\,(y^{44}-37y^{43}+\cdots-39734481y+1)$