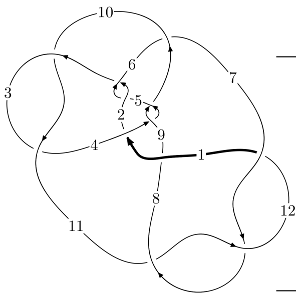
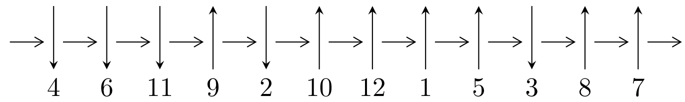
$12a_{0982}$ $(K12a_{0982})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 396741557u^{70} - 2705520519u^{69} + \cdots + 34398535568b + 8641755965218,\\
& 120849802046u^{70} - 453217535127u^{69} + \cdots + 16303759294464a - 3531490614456158,\\
& u^{71} - 8u^{70} + \cdots + 300422u - 28438\rangle\\
I_2^u = \langle & -a^2 + b - a,\ a^3 + 2a^2 + a + 1,\ u + 1\rangle\\
I_3^u = \langle & b^6a^3 + 3b^5a^2 + \cdots - a^2 + 1,\ u + 1\rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ b^9 - 3b^7 - b^6 + 3b^5 + 2b^4 - b^3 - b^2 + 1,\ v - 1\rangle\\
I_2^v &= \langle a,\ b + 1,\ v - 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 84 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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. $\boldsymbol{I_1^u = \langle 3.97 \times 10^8 u^{70} - 2.71 \times 10^9 u^{69} + \cdots + 3.44 \times 10^9 b + 8.64 \times 10^{12},\ 1.21 \times 10^{11} u^{70} - 4.53 \times 10^{11} u^{69} + \cdots + 1.63 \times 10^{13} a - 3.53 \times 10^{15},\ u^{71} - 8u^{70} + \cdots + 300422u - 28438\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.00741239u^{70} + 0.0277983u^{69} + \cdots - 1878.55u + 216.606 \\ -0.115337u^{70} + 0.786522u^{69} + \cdots + 24797.7u - 2512.25 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.122749u^{70} + 0.814320u^{69} + \cdots + 22919.2u - 2295.64 \\ -0.115337u^{70} + 0.786522u^{69} + \cdots + 24797.7u - 2512.25 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.000272721u^{70} - 0.00335184u^{69} + \cdots - 1221.87u + 147.123 \\ -0.00543439u^{70} + 0.0380903u^{69} + \cdots + 1475.66u - 154.612 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0189981u^{70} - 0.0965360u^{69} + \cdots + 527.401u - 91.8508 \\ 0.0592586u^{70} - 0.423571u^{69} + \cdots - 15810.2u + 1629.10 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.00520879u^{70} + 0.0363631u^{69} + \cdots + 1412.36u - 149.354 \\ -0.000436995u^{70} + 0.00302753u^{69} + \cdots + 98.9193u - 9.63599 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.00169434u^{70} + 0.0103657u^{69} + \cdots + 9.95932u + 5.55905 \\ 0.00278897u^{70} - 0.0175826u^{69} + \cdots - 319.666u + 29.2856 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.0850548u^{70} + 0.573329u^{69} + \cdots + 17746.1u - 1797.14 \\ 0.0303146u^{70} - 0.166206u^{69} + \cdots + 680.125u - 139.988 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.00146179u^{70} + 0.0124218u^{69} + \cdots + 2863.44u - 314.383 \\ 0.0395988u^{70} - 0.254642u^{69} + \cdots - 5850.13u + 567.179 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$$= -\frac{1064976745}{5159780352}u^{70} + \frac{767202109}{573308928}u^{69} + \cdots + \frac{3030931480757}{95551488}u - \frac{3956494938221}{1289945088}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$64(64u^{71} - 64u^{70} + \cdots + 8937u + 2889)$
c_2, c_5	$u^{71} - 8u^{70} + \cdots + 300422u - 28438$
c_3, c_{10}	$27(27u^{71} - 54u^{70} + \cdots - 3u + 1)$
c_4, c_9	$27(27u^{71} + 54u^{70} + \cdots + u + 1)$
c_6	$64(64u^{71} - 64u^{70} + \cdots - 1629153u + 409509)$
c_7, c_{11}, c_{12}	$u^{71} + 4u^{70} + \cdots - 370u - 46$
c_8	$u^{71} - 4u^{70} + \cdots + 559616u - 400384$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$4096(4096y^{71} - 61440y^{70} + \cdots - 1.34847 \times 10^9 y - 8346321)$
c_2, c_5	$y^{71} - 48y^{70} + \cdots + 17125572968y - 808719844$
c_3, c_{10}	$729(729y^{71} - 36450y^{70} + \cdots + 37y - 1)$
c_4, c_9	$729(729y^{71} - 30618y^{70} + \cdots + 21y - 1)$
c_6	4096 $\cdot (4096y^{71} + 45056y^{70} + \cdots - 296794641861y - 167697621081)$
c_7, c_{11}, c_{12}	$y^{71} + 60y^{70} + \cdots + 31744y - 2116$
c_8	$y^{71} - 20y^{70} + \cdots + 1087647252480y - 160307347456$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.819521 + 0.520466I$ $a = -1.58110 - 0.82078I$ $b = 1.007920 - 0.102626I$	$1.42180 - 0.53019I$	$7.50103 + 0.I$
$u = 0.819521 - 0.520466I$ $a = -1.58110 + 0.82078I$ $b = 1.007920 + 0.102626I$	$1.42180 + 0.53019I$	$7.50103 + 0.I$
$u = 0.307366 + 0.904911I$ $a = -1.51865 - 0.42035I$ $b = 1.289990 + 0.173842I$	$3.63707 - 1.17327I$	$6.61182 + 2.79470I$
$u = 0.307366 - 0.904911I$ $a = -1.51865 + 0.42035I$ $b = 1.289990 - 0.173842I$	$3.63707 + 1.17327I$	$6.61182 - 2.79470I$
$u = -1.023520 + 0.258526I$ $a = 0.981518 + 0.240605I$ $b = 0.499246 - 0.339591I$	$-5.41474 + 1.54205I$	0
$u = -1.023520 - 0.258526I$ $a = 0.981518 - 0.240605I$ $b = 0.499246 + 0.339591I$	$-5.41474 - 1.54205I$	0
$u = 0.238590 + 0.854323I$ $a = 1.48171 + 0.51225I$ $b = -1.307940 - 0.307987I$	$6.49722 + 2.98352I$	$9.50430 - 2.12816I$
$u = 0.238590 - 0.854323I$ $a = 1.48171 - 0.51225I$ $b = -1.307940 + 0.307987I$	$6.49722 - 2.98352I$	$9.50430 + 2.12816I$
$u = -0.855012$ $a = -0.981809$ $b = -0.440716$	-1.39100	-8.59610
$u = 0.198592 + 0.831468I$ $a = -1.42804 - 0.58646I$ $b = 1.306230 + 0.409174I$	$1.79097 + 6.98426I$	$4.65978 - 4.42101I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.198592 - 0.831468I$ $a = -1.42804 + 0.58646I$ $b = 1.306230 - 0.409174I$	$1.79097 - 6.98426I$	$4.65978 + 4.42101I$
$u = 1.043630 + 0.483780I$ $a = 1.17256 + 1.02006I$ $b = -1.101410 + 0.343596I$	$0.41067 - 3.97609I$	0
$u = 1.043630 - 0.483780I$ $a = 1.17256 - 1.02006I$ $b = -1.101410 - 0.343596I$	$0.41067 + 3.97609I$	0
$u = 0.806567 + 0.251561I$ $a = 2.38122 + 1.29998I$ $b = -0.812636 + 0.100931I$	$-3.76855 + 2.19613I$	$4.10036 + 1.67133I$
$u = 0.806567 - 0.251561I$ $a = 2.38122 - 1.29998I$ $b = -0.812636 - 0.100931I$	$-3.76855 - 2.19613I$	$4.10036 - 1.67133I$
$u = 0.003104 + 1.180770I$ $a = -1.63766 + 0.18150I$ $b = 1.269310 - 0.443202I$	$-1.89620 - 11.83840I$	0
$u = 0.003104 - 1.180770I$ $a = -1.63766 - 0.18150I$ $b = 1.269310 + 0.443202I$	$-1.89620 + 11.83840I$	0
$u = 1.121410 + 0.371453I$ $a = -0.809362 - 1.145630I$ $b = 0.863451 - 0.606425I$	$-5.56497 - 4.82283I$	0
$u = 1.121410 - 0.371453I$ $a = -0.809362 + 1.145630I$ $b = 0.863451 + 0.606425I$	$-5.56497 + 4.82283I$	0
$u = -0.427132 + 1.105310I$ $a = 1.151040 - 0.328481I$ $b = -0.633967 + 0.380733I$	$-8.07843 - 1.77357I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.427132 - 1.105310I$ $a = 1.151040 + 0.328481I$ $b = -0.633967 - 0.380733I$	$-8.07843 + 1.77357I$	0
$u = -0.203322 + 0.786463I$ $a = -0.533965 + 0.617042I$ $b = -0.037932 - 0.812366I$	$-5.83653 + 7.27865I$	$-2.90503 - 6.03696I$
$u = -0.203322 - 0.786463I$ $a = -0.533965 - 0.617042I$ $b = -0.037932 + 0.812366I$	$-5.83653 - 7.27865I$	$-2.90503 + 6.03696I$
$u = 0.038011 + 1.227680I$ $a = 1.58064 - 0.10527I$ $b = -1.243880 + 0.351826I$	$3.50101 - 7.48635I$	0
$u = 0.038011 - 1.227680I$ $a = 1.58064 + 0.10527I$ $b = -1.243880 - 0.351826I$	$3.50101 + 7.48635I$	0
$u = 1.136630 + 0.503317I$ $a = 1.051110 + 0.933094I$ $b = -1.319570 + 0.469175I$	$1.03634 - 3.89122I$	0
$u = 1.136630 - 0.503317I$ $a = 1.051110 - 0.933094I$ $b = -1.319570 - 0.469175I$	$1.03634 + 3.89122I$	0
$u = -0.222221 + 0.715337I$ $a = 0.443100 - 0.394812I$ $b = 0.142675 + 0.651594I$	$-0.58395 + 3.83218I$	$1.42180 - 6.56695I$
$u = -0.222221 - 0.715337I$ $a = 0.443100 + 0.394812I$ $b = 0.142675 - 0.651594I$	$-0.58395 - 3.83218I$	$1.42180 + 6.56695I$
$u = -0.469846 + 0.575519I$ $a = -0.827718 + 0.004464I$ $b = -0.069504 - 0.209872I$	$-1.67748 + 0.48526I$	$-3.97187 - 0.02534I$

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.469846 - 0.575519I$ $a = -0.827718 - 0.004464I$ $b = -0.069504 + 0.209872I$	$-1.67748 - 0.48526I$	$-3.97187 + 0.02534I$
$u = 1.164080 + 0.480686I$ $a = -1.023570 - 0.923509I$ $b = 1.36556 - 0.62461I$	$3.63673 - 7.83371I$	0
$u = 1.164080 - 0.480686I$ $a = -1.023570 + 0.923509I$ $b = 1.36556 + 0.62461I$	$3.63673 + 7.83371I$	0
$u = 1.176630 + 0.469379I$ $a = 1.016250 + 0.906931I$ $b = -1.37700 + 0.72719I$	$-1.20902 - 11.72950I$	0
$u = 1.176630 - 0.469379I$ $a = 1.016250 - 0.906931I$ $b = -1.37700 - 0.72719I$	$-1.20902 + 11.72950I$	0
$u = -1.26923$ $a = 0.443176$ $b = 0.935561$	0.778487	0
$u = -1.264160 + 0.118796I$ $a = -0.472558 - 0.253843I$ $b = -0.948987 + 0.156256I$	$-3.27989 - 3.71425I$	0
$u = -1.264160 - 0.118796I$ $a = -0.472558 + 0.253843I$ $b = -0.948987 - 0.156256I$	$-3.27989 + 3.71425I$	0
$u = -1.030390 + 0.798282I$ $a = 1.203360 - 0.169041I$ $b = -0.490852 - 0.311467I$	$-7.90006 - 2.14329I$	0
$u = -1.030390 - 0.798282I$ $a = 1.203360 + 0.169041I$ $b = -0.490852 + 0.311467I$	$-7.90006 + 2.14329I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.313050 + 0.189953I$ $a = 0.508616 - 0.502988I$ $b = 0.018161 - 0.445336I$	$-6.06596 - 3.98545I$	0
$u = 1.313050 - 0.189953I$ $a = 0.508616 + 0.502988I$ $b = 0.018161 + 0.445336I$	$-6.06596 + 3.98545I$	0
$u = 1.303700 + 0.351874I$ $a = 0.242962 + 0.221817I$ $b = -0.001995 + 1.154370I$	$-5.18776 - 7.68710I$	0
$u = 1.303700 - 0.351874I$ $a = 0.242962 - 0.221817I$ $b = -0.001995 - 1.154370I$	$-5.18776 + 7.68710I$	0
$u = 1.306430 + 0.367652I$ $a = -0.312055 - 0.131512I$ $b = -0.043263 - 1.280420I$	$-10.4234 - 11.3766I$	0
$u = 1.306430 - 0.367652I$ $a = -0.312055 + 0.131512I$ $b = -0.043263 + 1.280420I$	$-10.4234 + 11.3766I$	0
$u = 1.323500 + 0.319759I$ $a = -0.021570 - 0.255546I$ $b = -0.083108 - 0.928074I$	$-6.84932 - 3.82914I$	0
$u = 1.323500 - 0.319759I$ $a = -0.021570 + 0.255546I$ $b = -0.083108 + 0.928074I$	$-6.84932 + 3.82914I$	0
$u = 0.078317 + 1.379350I$ $a = -1.43707 + 0.03992I$ $b = 1.146800 - 0.238951I$	$1.54772 - 2.46422I$	0
$u = 0.078317 - 1.379350I$ $a = -1.43707 - 0.03992I$ $b = 1.146800 + 0.238951I$	$1.54772 + 2.46422I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.40555$ $a = -0.778582$ $b = 0.168037$	-2.58753	0
$u = 1.367760 + 0.356897I$ $a = -0.0321262 - 0.0286481I$ $b = 0.403541 + 0.995637I$	$-13.64900 - 2.75115I$	0
$u = 1.367760 - 0.356897I$ $a = -0.0321262 + 0.0286481I$ $b = 0.403541 - 0.995637I$	$-13.64900 + 2.75115I$	0
$u = 0.002729 + 0.571241I$ $a = 0.495336 + 0.006107I$ $b = -0.646311 - 0.485330I$	$-2.52284 + 1.44806I$	$1.52827 - 4.25124I$
$u = 0.002729 - 0.571241I$ $a = 0.495336 - 0.006107I$ $b = -0.646311 + 0.485330I$	$-2.52284 - 1.44806I$	$1.52827 + 4.25124I$
$u = -1.37654 + 0.55969I$ $a = 1.22908 - 0.89967I$ $b = -1.38400 - 0.61260I$	$-6.2246 + 17.9070I$	0
$u = -1.37654 - 0.55969I$ $a = 1.22908 + 0.89967I$ $b = -1.38400 + 0.61260I$	$-6.2246 - 17.9070I$	0
$u = -1.35829 + 0.63407I$ $a = -1.27343 + 0.61873I$ $b = 1.110910 + 0.607448I$	$-11.4152 + 8.4414I$	0
$u = -1.35829 - 0.63407I$ $a = -1.27343 - 0.61873I$ $b = 1.110910 - 0.607448I$	$-11.4152 - 8.4414I$	0
$u = -1.38933 + 0.56452I$ $a = -1.17586 + 0.86482I$ $b = 1.35926 + 0.56133I$	$-0.95679 + 13.67690I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.38933-0.56452I$ $a=-1.17586-0.86482I$ $b=1.35926-0.56133I$	$-0.95679-13.67690I$	0
$u=-1.40775+0.58245I$ $a=1.126330-0.779757I$ $b=-1.292850-0.505115I$	$-3.06788+9.01142I$	0
$u=-1.40775-0.58245I$ $a=1.126330+0.779757I$ $b=-1.292850+0.505115I$	$-3.06788-9.01142I$	0
$u=-1.48483+0.70442I$ $a=1.039620-0.500059I$ $b=-1.084850-0.346532I$	$-3.19063+7.21023I$	0
$u=-1.48483-0.70442I$ $a=1.039620+0.500059I$ $b=-1.084850+0.346532I$	$-3.19063-7.21023I$	0
$u=1.69240+0.46527I$ $a=0.637845+0.204538I$ $b=-0.881903-0.302981I$	$-6.95097+5.16050I$	0
$u=1.69240-0.46527I$ $a=0.637845-0.204538I$ $b=-0.881903+0.302981I$	$-6.95097-5.16050I$	0
$u=0.211013$ $a=-3.68122$ $b=0.689101$	0.960500	11.1530
$u=-1.49547+1.02906I$ $a=-1.052720+0.285419I$ $b=0.918490+0.196861I$	$-1.46472+1.87001I$	0
$u=-1.49547-1.02906I$ $a=-1.052720-0.285419I$ $b=0.918490-0.196861I$	$-1.46472-1.87001I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.92924$ $a = -0.701661$ $b = 0.768833$	-2.33373	0

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -0.122561 + 0.744862I$ $b = -0.662359 + 0.562280I$	-1.64493	-6.00000
$u = -1.00000$ $a = -0.122561 - 0.744862I$ $b = -0.662359 - 0.562280I$	-1.64493	-6.00000
$u = -1.00000$ $a = -1.75488$ $b = 1.32472$	-1.64493	-6.00000

III. $I_3^u = \langle b^6a^3 + 3b^5a^2 + \cdots - a^2 + 1,\ u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4b^2a - 4b + 4a$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	-0.531480	$-3.50976 - 2.97944I$

IV. $\boldsymbol{I_1^v = \langle a,\ b^9 - 3b^7 - b^6 + 3b^5 + 2b^4 - b^3 - b^2 + 1,\ v - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4b^3 + 4b + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9+6u^8+15u^7+21u^6+19u^5+12u^4+7u^3+5u^2+2u+1$
c_2, c_5	u^9
c_3, c_4, c_6 c_9, c_{10}	$u^9-3u^7-u^6+3u^5+2u^4-u^3-u^2+1$
c_7, c_{11}, c_{12}	$(u^3-u^2+2u-1)^3$
c_8	$(u^3+u^2-1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9-6y^8+11y^7-y^6+11y^5-40y^4-37y^3-21y^2-6y-1$
c_2, c_5	y^9
c_3, c_4, c_6 c_9, c_{10}	$y^9-6y^8+15y^7-21y^6+19y^5-12y^4+7y^3-5y^2+2y-1$
c_7, c_{11}, c_{12}	$(y^3+3y^2+2y-1)^3$
c_8	$(y^3-y^2+2y-1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -0.947946 + 0.524157I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.947946 - 0.524157I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.376870 + 0.700062I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.376870 - 0.700062I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = 0.631920 + 0.444935I$	1.11345	$9.01951 + 0.I$
$v = 1.00000$ $a = 0$ $b = 0.631920 - 0.444935I$	1.11345	$9.01951 + 0.I$
$v = 1.00000$ $a = 0$ $b = -1.26384$	1.11345	9.01950
$v = 1.00000$ $a = 0$ $b = 1.324820 + 0.175904I$	$-3.02413 + 2.82812I$	$2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = 1.324820 - 0.175904I$	$-3.02413 - 2.82812I$	$2.49024 + 2.97945I$

V. $I_2^v = \langle a,\ b+1,\ v-1 \rangle$

(i) Arc colorings

$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

$a_{10} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$

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

$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

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

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

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

$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -1.00000$	0	0

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$64(u-1)(u^3-u-1)$ $\cdot(u^9+6u^8+15u^7+21u^6+19u^5+12u^4+7u^3+5u^2+2u+1)$ $\cdot(64u^{71}-64u^{70}+\cdots+8937u+2889)$
c_2, c_5	$u^{10}(u+1)^3(u^{71}-8u^{70}+\cdots+300422u-28438)$
c_3	$27(u+1)(u^3-u-1)(u^9-3u^7-u^6+3u^5+2u^4-u^3-u^2+1)$ $\cdot(27u^{71}-54u^{70}+\cdots-3u+1)$
c_4	$27(u+1)(u^3-u-1)(u^9-3u^7-u^6+3u^5+2u^4-u^3-u^2+1)$ $\cdot(27u^{71}+54u^{70}+\cdots+u+1)$
c_6	$64(u+1)(u^3-2u^2+u-1)(u^9-3u^7+\cdots-u^2+1)$ $\cdot(64u^{71}-64u^{70}+\cdots-1629153u+409509)$
c_7, c_{11}, c_{12}	$u^4(u^3-u^2+2u-1)^3(u^{71}+4u^{70}+\cdots-370u-46)$
c_8	$u^4(u^3+u^2-1)^3(u^{71}-4u^{70}+\cdots+559616u-400384)$
c_9	$27(u-1)(u^3-u-1)(u^9-3u^7-u^6+3u^5+2u^4-u^3-u^2+1)$ $\cdot(27u^{71}+54u^{70}+\cdots+u+1)$
c_{10}	$27(u-1)(u^3-u-1)(u^9-3u^7-u^6+3u^5+2u^4-u^3-u^2+1)$ $\cdot(27u^{71}-54u^{70}+\cdots-3u+1)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$4096(y-1)(y^3-2y^2+y-1)$ $\cdot(y^9-6y^8+11y^7-y^6+11y^5-40y^4-37y^3-21y^2-6y-1)$ $\cdot(4096y^{71}-61440y^{70}+\cdots-1348468965y-8346321)$
c_2, c_5	$y^{10}(y-1)^3(y^{71}-48y^{70}+\cdots+1.71256\times10^{10}y-8.08720\times10^8)$
c_3, c_{10}	$729(y-1)(y^3-2y^2+y-1)$ $\cdot(y^9-6y^8+15y^7-21y^6+19y^5-12y^4+7y^3-5y^2+2y-1)$ $\cdot(729y^{71}-36450y^{70}+\cdots+37y-1)$
c_4, c_9	$729(y-1)(y^3-2y^2+y-1)$ $\cdot(y^9-6y^8+15y^7-21y^6+19y^5-12y^4+7y^3-5y^2+2y-1)$ $\cdot(729y^{71}-30618y^{70}+\cdots+21y-1)$
c_6	$4096(y-1)(y^3-2y^2-3y-1)$ $\cdot(y^9-6y^8+15y^7-21y^6+19y^5-12y^4+7y^3-5y^2+2y-1)$ $\cdot(4096y^{71}+45056y^{70}+\cdots-296794641861y-167697621081)$
c_7, c_{11}, c_{12}	$y^4(y^3+3y^2+2y-1)^3(y^{71}+60y^{70}+\cdots+31744y-2116)$
c_8	$y^4(y^3-y^2+2y-1)^3$ $\cdot(y^{71}-20y^{70}+\cdots+1087647252480y-160307347456)$