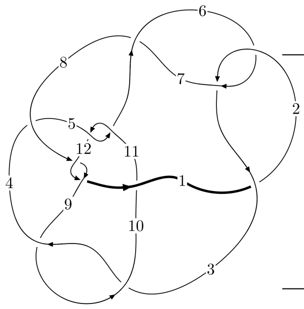
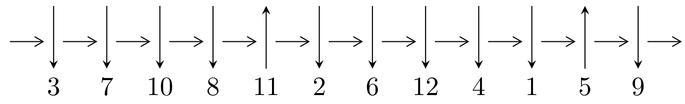
$12a_{0623}$ $(K12a_{0623})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-97455286u^{69} - 687147084u^{68} + \cdots + 1146617856b - 4289778370546,\\
&- 2616564386981u^{69} - 14513594810490u^{68} + \cdots + 83529964191744a - 11174734769596142,\\
&u^{70} + 8u^{69} + \cdots + 286521u + 48566\rangle\\
I_2^u = \langle &a^2 + b,\ a^3 + a + 1,\ u - 1\rangle\\
I_3^u = \langle &a^6b^3 + 3a^4b^3 + \cdots - 2a + 1,\ u - 1\rangle
\end{aligned}$$

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

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 82 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. $\boldsymbol{I_1^u = \langle -9.75\times 10^7 u^{69} - 6.87\times 10^8 u^{68} + \cdots + 1.15\times 10^9 b - 4.29\times 10^{12},\ -2.62\times 10^{12} u^{69} - 1.45\times 10^{13} u^{68} + \cdots + 8.35\times 10^{13} a - 1.12\times 10^{16},\ u^{70} + 8u^{69} + \cdots + 286521u + 48566\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.0313249u^{69} + 0.173753u^{68} + \cdots + 1396.40u + 133.781\\0.0849937u^{69} + 0.599282u^{68} + \cdots + 18949.7u + 3741.25\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.116319u^{69} + 0.773035u^{68} + \cdots + 20346.1u + 3875.03\\0.0849937u^{69} + 0.599282u^{68} + \cdots + 18949.7u + 3741.25\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.00502741u^{69} + 0.0354161u^{68} + \cdots + 1224.91u + 250.562\\0.00488338u^{69} + 0.0343100u^{68} + \cdots + 1186.75u + 242.634\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.195712u^{69} + 1.34410u^{68} + \cdots + 39810.9u + 7746.66\\0.0226364u^{69} + 0.194253u^{68} + \cdots + 9789.24u + 2087.61\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.000357427u^{69} - 0.00242242u^{68} + \cdots - 69.0145u - 13.3644\\0.00530723u^{69} + 0.0369747u^{68} + \cdots + 1240.78u + 252.067\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.178615u^{69} - 1.22581u^{68} + \cdots - 36017.6u - 6978.08\\0.0152291u^{69} + 0.0703555u^{68} + \cdots - 1191.09u - 359.181\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.0167391u^{69} + 0.103977u^{68} + \cdots + 1900.39u + 320.006\\0.0149456u^{69} + 0.106887u^{68} + \cdots + 3365.62u + 648.931\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.0165738u^{69} + 0.102484u^{68} + \cdots + 1975.39u + 350.122\\0.0170226u^{69} + 0.116505u^{68} + \cdots + 3345.21u + 649.216\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{836940515}{5159780352}u^{69} + \frac{588646361}{573308928}u^{68} + \cdots + \frac{107767045126535}{5159780352}u + \frac{9383241457921}{2579890176}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{70} + 20u^{69} + \cdots - 1331u + 3844$
c_2, c_6	$u^{70} + 4u^{69} + \cdots + 163u + 62$
c_3, c_9	$27(27u^{70} + 27u^{69} + \cdots - 6u + 1)$
c_4	$64(64u^{70} - 128u^{69} + \cdots - 118314u + 15039)$
c_5, c_{11}	$27(27u^{70} + 27u^{69} + \cdots + 8u + 1)$
c_8, c_{12}	$u^{70} - 8u^{69} + \cdots - 286521u + 48566$
c_{10}	$64(64u^{70} + 96u^{68} + \cdots + 356292u + 635013)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{70} + 60y^{69} + \cdots + 419446271y + 14776336$
c_2, c_6	$y^{70} - 20y^{69} + \cdots + 1331y + 3844$
c_3, c_9	$729(729y^{70} + 34263y^{69} + \cdots + 36y + 1)$
c_4	$4096(4096y^{70} + 28672y^{69} + \cdots + 4.67293 \times 10^9 y + 2.26172 \times 10^8)$
c_5, c_{11}	$729(729y^{70} + 31347y^{69} + \cdots + 36y + 1)$
c_8, c_{12}	$y^{70} - 48y^{69} + \cdots - 3572288981y + 2358656356$
c_{10}	4096 $\cdot (4096y^{70} + 12288y^{69} + \cdots + 402241554234y + 403241510169)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.893258 + 0.388589I$ $a = -0.552997 - 0.780965I$ $b = 0.717124 - 0.518987I$	$-0.32512 - 1.94198I$	$-8.00000 + 0.I$
$u = 0.893258 - 0.388589I$ $a = -0.552997 + 0.780965I$ $b = 0.717124 + 0.518987I$	$-0.32512 + 1.94198I$	$-8.00000 + 0.I$
$u = 0.885513 + 0.566554I$ $a = 0.648570 + 0.785318I$ $b = -0.921742 + 0.293488I$	$-1.00008 + 3.25130I$	0
$u = 0.885513 - 0.566554I$ $a = 0.648570 - 0.785318I$ $b = -0.921742 - 0.293488I$	$-1.00008 - 3.25130I$	0
$u = -0.976800 + 0.399121I$ $a = 0.294251 + 0.362673I$ $b = 1.260270 + 0.039825I$	$-1.84431 + 1.78184I$	0
$u = -0.976800 - 0.399121I$ $a = 0.294251 - 0.362673I$ $b = 1.260270 - 0.039825I$	$-1.84431 - 1.78184I$	0
$u = -0.215479 + 0.892593I$ $a = -0.085570 + 1.030780I$ $b = -0.163375 - 1.188040I$	$9.48735 - 0.61216I$	$-60.10 - 1.258234I$
$u = -0.215479 - 0.892593I$ $a = -0.085570 - 1.030780I$ $b = -0.163375 + 1.188040I$	$9.48735 + 0.61216I$	$-60.10 + 1.258234I$
$u = 1.095420 + 0.120474I$ $a = -0.219567 - 0.414390I$ $b = 0.221171 - 1.058020I$	$-2.53231 + 0.75873I$	0
$u = 1.095420 - 0.120474I$ $a = -0.219567 + 0.414390I$ $b = 0.221171 + 1.058020I$	$-2.53231 - 0.75873I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.199757 + 0.871147I$ $a = -0.003629 - 1.084200I$ $b = 0.234615 + 1.216000I$	$8.94654 - 6.79753I$	$-1.43725 + 3.99331I$
$u = -0.199757 - 0.871147I$ $a = -0.003629 + 1.084200I$ $b = 0.234615 - 1.216000I$	$8.94654 + 6.79753I$	$-1.43725 - 3.99331I$
$u = -0.047582 + 1.166560I$ $a = 1.014120 - 0.495065I$ $b = -0.731641 + 0.839705I$	$5.86206 + 12.07860I$	0
$u = -0.047582 - 1.166560I$ $a = 1.014120 + 0.495065I$ $b = -0.731641 - 0.839705I$	$5.86206 - 12.07860I$	0
$u = 0.351855 + 0.750985I$ $a = 1.106910 + 0.809645I$ $b = -0.921640 - 0.132570I$	$-4.19660 - 2.54473I$	$-15.7326 + 4.0183I$
$u = 0.351855 - 0.750985I$ $a = 1.106910 - 0.809645I$ $b = -0.921640 + 0.132570I$	$-4.19660 + 2.54473I$	$-15.7326 - 4.0183I$
$u = -0.082928 + 1.177070I$ $a = -0.924676 + 0.521308I$ $b = 0.643758 - 0.842940I$	$6.91710 + 5.79367I$	0
$u = -0.082928 - 1.177070I$ $a = -0.924676 - 0.521308I$ $b = 0.643758 + 0.842940I$	$6.91710 - 5.79367I$	0
$u = -1.086210 + 0.503549I$ $a = -0.574505 - 0.269617I$ $b = -0.770399 + 0.355339I$	$1.74908 + 3.93961I$	0
$u = -1.086210 - 0.503549I$ $a = -0.574505 + 0.269617I$ $b = -0.770399 - 0.355339I$	$1.74908 - 3.93961I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.134340 + 0.450358I$ $a = 0.649347 + 0.472023I$ $b = 0.936842 - 0.641523I$	$-0.87100 + 7.24185I$	0
$u = -1.134340 - 0.450358I$ $a = 0.649347 - 0.472023I$ $b = 0.936842 + 0.641523I$	$-0.87100 - 7.24185I$	0
$u = 0.163320 + 0.751919I$ $a = 1.28394 + 0.96111I$ $b = -1.070540 - 0.431024I$	$1.13016 - 7.73289I$	$-7.91932 + 7.41023I$
$u = 0.163320 - 0.751919I$ $a = 1.28394 - 0.96111I$ $b = -1.070540 + 0.431024I$	$1.13016 + 7.73289I$	$-7.91932 - 7.41023I$
$u = -0.312077 + 0.680537I$ $a = -0.354528 - 0.535888I$ $b = 0.398075 + 0.893488I$	$1.65608 - 2.83282I$	$-3.61063 + 4.56409I$
$u = -0.312077 - 0.680537I$ $a = -0.354528 + 0.535888I$ $b = 0.398075 - 0.893488I$	$1.65608 + 2.83282I$	$-3.61063 - 4.56409I$
$u = -1.267440 + 0.034085I$ $a = 0.013948 + 0.738018I$ $b = 0.27952 - 2.11838I$	$0.08596 + 3.02639I$	0
$u = -1.267440 - 0.034085I$ $a = 0.013948 - 0.738018I$ $b = 0.27952 + 2.11838I$	$0.08596 - 3.02639I$	0
$u = 0.145804 + 0.711603I$ $a = -1.23500 - 0.98762I$ $b = 0.980444 + 0.490899I$	$1.85042 - 2.01318I$	$-6.24038 + 2.74940I$
$u = 0.145804 - 0.711603I$ $a = -1.23500 + 0.98762I$ $b = 0.980444 - 0.490899I$	$1.85042 + 2.01318I$	$-6.24038 - 2.74940I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.175260 + 0.493835I$ $a = -0.883929 - 0.354754I$ $b = -0.629453 + 0.782986I$	$6.52426 + 5.60100I$	0
$u = -1.175260 - 0.493835I$ $a = -0.883929 + 0.354754I$ $b = -0.629453 - 0.782986I$	$6.52426 - 5.60100I$	0
$u = -1.179980 + 0.484001I$ $a = 0.901317 + 0.412933I$ $b = 0.676364 - 0.838798I$	$5.92952 + 11.69500I$	0
$u = -1.179980 - 0.484001I$ $a = 0.901317 - 0.412933I$ $b = 0.676364 + 0.838798I$	$5.92952 - 11.69500I$	0
$u = -0.638279 + 1.121600I$ $a = -0.342951 + 0.347949I$ $b = 0.012985 - 0.537783I$	$3.62133 + 1.34127I$	0
$u = -0.638279 - 1.121600I$ $a = -0.342951 - 0.347949I$ $b = 0.012985 + 0.537783I$	$3.62133 - 1.34127I$	0
$u = -1.285690 + 0.354856I$ $a = 0.220687 + 1.116770I$ $b = 1.27101 - 0.92407I$	$-2.48686 + 5.88009I$	0
$u = -1.285690 - 0.354856I$ $a = 0.220687 - 1.116770I$ $b = 1.27101 + 0.92407I$	$-2.48686 - 5.88009I$	0
$u = -0.651619 + 0.094400I$ $a = -0.051734 + 0.517565I$ $b = 0.39702 + 1.63749I$	$2.36312 - 2.67944I$	$0.83747 + 1.99355I$
$u = -0.651619 - 0.094400I$ $a = -0.051734 - 0.517565I$ $b = 0.39702 - 1.63749I$	$2.36312 + 2.67944I$	$0.83747 - 1.99355I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.293020 + 0.364510I$ $a = -0.199843 - 1.172110I$ $b = -1.29020 + 0.89246I$	$-3.28892 + 11.74160I$	0
$u = -1.293020 - 0.364510I$ $a = -0.199843 + 1.172110I$ $b = -1.29020 - 0.89246I$	$-3.28892 - 11.74160I$	0
$u = -1.327690 + 0.292888I$ $a = 0.061634 + 0.954982I$ $b = 1.05038 - 0.97956I$	$-5.50505 + 3.76007I$	0
$u = -1.327690 - 0.292888I$ $a = 0.061634 - 0.954982I$ $b = 1.05038 + 0.97956I$	$-5.50505 - 3.76007I$	0
$u = -0.959797 + 0.964946I$ $a = -0.363592 + 0.229548I$ $b = -0.107376 - 0.290881I$	$3.60962 + 1.37846I$	0
$u = -0.959797 - 0.964946I$ $a = -0.363592 - 0.229548I$ $b = -0.107376 + 0.290881I$	$3.60962 - 1.37846I$	0
$u = -1.329050 + 0.345273I$ $a = -0.045275 - 1.092050I$ $b = -1.15508 + 0.82929I$	$-9.22838 + 6.41936I$	0
$u = -1.329050 - 0.345273I$ $a = -0.045275 + 1.092050I$ $b = -1.15508 - 0.82929I$	$-9.22838 - 6.41936I$	0
$u = 1.384970 + 0.062679I$ $a = -0.0888781 + 0.0984540I$ $b = 0.004223 - 1.355380I$	$3.40691 + 3.12614I$	0
$u = 1.384970 - 0.062679I$ $a = -0.0888781 - 0.0984540I$ $b = 0.004223 + 1.355380I$	$3.40691 - 3.12614I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.01228 + 1.43319I$ $a = 0.765224 - 0.164117I$ $b = -0.600894 + 0.466851I$	$-1.44075 + 5.42106I$	0
$u = 0.01228 - 1.43319I$ $a = 0.765224 + 0.164117I$ $b = -0.600894 - 0.466851I$	$-1.44075 - 5.42106I$	0
$u = -1.40114 + 0.30543I$ $a = 0.071097 - 0.933368I$ $b = -0.855621 + 0.811549I$	$-8.14596 + 0.05000I$	0
$u = -1.40114 - 0.30543I$ $a = 0.071097 + 0.933368I$ $b = -0.855621 - 0.811549I$	$-8.14596 - 0.05000I$	0
$u = 1.38518 + 0.55050I$ $a = -0.015502 + 1.021740I$ $b = -1.48665 - 1.26538I$	$1.3953 - 18.0795I$	0
$u = 1.38518 - 0.55050I$ $a = -0.015502 - 1.021740I$ $b = -1.48665 + 1.26538I$	$1.3953 + 18.0795I$	0
$u = 1.39507 + 0.55017I$ $a = 0.027764 - 0.989036I$ $b = 1.41776 + 1.26916I$	$2.33215 - 11.82430I$	0
$u = 1.39507 - 0.55017I$ $a = 0.027764 + 0.989036I$ $b = 1.41776 - 1.26916I$	$2.33215 + 11.82430I$	0
$u = 1.39216 + 0.59468I$ $a = 0.093686 + 0.940274I$ $b = -1.39504 - 1.00978I$	$-5.80113 - 12.08780I$	0
$u = 1.39216 - 0.59468I$ $a = 0.093686 - 0.940274I$ $b = -1.39504 + 1.00978I$	$-5.80113 + 12.08780I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.273311 + 0.365651I$ $a = -1.17605 - 1.31593I$ $b = 0.455887 + 0.275732I$	$-0.556921 - 1.030040I$	$-7.85697 + 6.36655I$
$u = 0.273311 - 0.365651I$ $a = -1.17605 + 1.31593I$ $b = 0.455887 - 0.275732I$	$-0.556921 + 1.030040I$	$-7.85697 - 6.36655I$
$u = 1.44491 + 0.60643I$ $a = -0.064046 - 0.828480I$ $b = 1.16426 + 1.00461I$	$-1.97882 - 8.19603I$	0
$u = 1.44491 - 0.60643I$ $a = -0.064046 + 0.828480I$ $b = 1.16426 - 1.00461I$	$-1.97882 + 8.19603I$	0
$u = 1.42868 + 0.71532I$ $a = 0.208526 + 0.758552I$ $b = -1.108370 - 0.691160I$	$-6.08462 - 4.27997I$	0
$u = 1.42868 - 0.71532I$ $a = 0.208526 - 0.758552I$ $b = -1.108370 + 0.691160I$	$-6.08462 + 4.27997I$	0
$u = -1.61721 + 0.94908I$ $a = 0.353318 - 0.398464I$ $b = -0.174161 + 0.196426I$	$1.64897 - 5.03310I$	0
$u = -1.61721 - 0.94908I$ $a = 0.353318 + 0.398464I$ $b = -0.174161 - 0.196426I$	$1.64897 + 5.03310I$	0
$u = 1.92964 + 0.33599I$ $a = -0.004191 - 0.434882I$ $b = 0.260469 + 0.905894I$	$3.22024 - 3.60088I$	0
$u = 1.92964 - 0.33599I$ $a = -0.004191 + 0.434882I$ $b = 0.260469 - 0.905894I$	$3.22024 + 3.60088I$	0

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

(i) Arc colorings

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

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

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

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

$$a_5 = \begin{pmatrix} a \\ -a^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -a^2 - a \\ -a \end{pmatrix}$$

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.341164 + 1.161540I$ $b = 1.23279 - 0.79255I$	-1.64493	-6.00000
$u = 1.00000$ $a = 0.341164 - 1.161540I$ $b = 1.23279 + 0.79255I$	-1.64493	-6.00000
$u = 1.00000$ $a = -0.682328$ $b = -0.465571$	-1.64493	-6.00000

III. $I^u_3 = \langle a^6b^3 + 3a^4b^3 + \cdots - 2a + 1,\ u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a^4b^2 - 8b^2a^2 + 8a^3b - 4a^2b - 4b^2 + 8ba - 4a^2 - 4b + 4a - 16$

(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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	$1.37919 + 2.82812I$	$-8.49025 - 2.97943I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4b^6 - 8b^4 + 4b^3 - 4b^2 + 4b - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^3 + u^2 + 2u + 1)^3$
c_2, c_6	$(u^3 - u^2 + 1)^3$
c_3, c_4, c_5 c_9, c_{11}	$u^9 + 3u^7 + u^6 + 3u^5 + 2u^4 + 3u^3 + u^2 + 2u + 1$
c_8, c_{12}	u^9
c_{10}	$u^9 + 6u^8 + 15u^7 + 23u^6 + 27u^5 + 24u^4 + 15u^3 + 7u^2 + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^3+3y^2+2y-1)^3$
c_2, c_6	$(y^3-y^2+2y-1)^3$
c_3, c_4, c_5 c_9, c_{11}	$y^9+6y^8+15y^7+23y^6+27y^5+24y^4+15y^3+7y^2+2y-1$
c_8, c_{12}	y^9
c_{10}	$y^9-6y^8+3y^7+23y^6-5y^5-16y^4+43y^3+59y^2+18y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -0.656619 + 0.765660I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.656619 - 0.765660I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = 0.701160 + 0.628458I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = 0.701160 - 0.628458I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.233800 + 1.078880I$	-1.11345	$-9.01951 + 0.I$
$v = 1.00000$ $a = 0$ $b = -0.233800 - 1.078880I$	-1.11345	$-9.01951 + 0.I$
$v = 1.00000$ $a = 0$ $b = -0.044542 + 1.394120I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$v = 1.00000$ $a = 0$ $b = -0.044542 - 1.394120I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$v = 1.00000$ $a = 0$ $b = 0.467600$	-1.11345	-9.01950

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^3(u^3+u^2+2u+1)^3(u^{70}+20u^{69}+\cdots-1331u+3844)$
c_2, c_6	$u^3(u^3-u^2+1)^3(u^{70}+4u^{69}+\cdots+163u+62)$
c_3, c_9	$27(u^3+u+1)(u^9+3u^7+u^6+3u^5+2u^4+3u^3+u^2+2u+1)$ $\cdot(27u^{70}+27u^{69}+\cdots-6u+1)$
c_4	$64(u^3+2u^2+u-1)(u^9+3u^7+\cdots+2u+1)$ $\cdot(64u^{70}-128u^{69}+\cdots-118314u+15039)$
c_5, c_{11}	$27(u^3+u+1)(u^9+3u^7+u^6+3u^5+2u^4+3u^3+u^2+2u+1)$ $\cdot(27u^{70}+27u^{69}+\cdots+8u+1)$
c_8, c_{12}	$u^9(u+1)^3(u^{70}-8u^{69}+\cdots-286521u+48566)$
c_{10}	$64(u^3+u+1)$ $\cdot(u^9+6u^8+15u^7+23u^6+27u^5+24u^4+15u^3+7u^2+2u-1)$ $\cdot(64u^{70}+96u^{68}+\cdots+356292u+635013)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^3(y^3+3y^2+2y-1)^3$ $\cdot\,(y^{70}+60y^{69}+\cdots+419446271y+14776336)$
c_2, c_6	$y^3(y^3-y^2+2y-1)^3(y^{70}-20y^{69}+\cdots+1331y+3844)$
c_3, c_9	$729(y^3+2y^2+y-1)$ $\cdot\,(y^9+6y^8+15y^7+23y^6+27y^5+24y^4+15y^3+7y^2+2y-1)$ $\cdot\,(729y^{70}+34263y^{69}+\cdots+36y+1)$
c_4	$4096(y^3-2y^2+5y-1)$ $\cdot\,(y^9+6y^8+15y^7+23y^6+27y^5+24y^4+15y^3+7y^2+2y-1)$ $\cdot\,(4096y^{70}+28672y^{69}+\cdots+4672926450y+226171521)$
c_5, c_{11}	$729(y^3+2y^2+y-1)$ $\cdot\,(y^9+6y^8+15y^7+23y^6+27y^5+24y^4+15y^3+7y^2+2y-1)$ $\cdot\,(729y^{70}+31347y^{69}+\cdots+36y+1)$
c_8, c_{12}	$y^9(y-1)^3(y^{70}-48y^{69}+\cdots-3.57229\times10^9y+2.35866\times10^9)$
c_{10}	$4096(y^3+2y^2+y-1)$ $\cdot\,(y^9-6y^8+3y^7+23y^6-5y^5-16y^4+43y^3+59y^2+18y-1)$ $\cdot\,(4096y^{70}+12288y^{69}+\cdots+402241554234y+403241510169)$