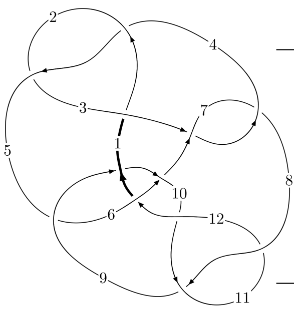
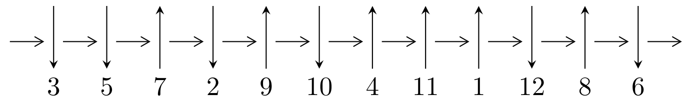
$12a_{0048}$ ($K12a_{0048}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 5.88695 \times 10^{226} u^{139} + 3.54230 \times 10^{227} u^{138} + \cdots + 2.19679 \times 10^{225} b - 1.39977 \times 10^{227},\\
&\quad - 1.53329 \times 10^{227} u^{139} - 1.75240 \times 10^{228} u^{138} + \cdots + 2.19679 \times 10^{225} a - 5.19955 \times 10^{227},\\
&\quad u^{140} + 11u^{139} + \cdots + 5u + 1\rangle\\
I_2^u &= \langle a^3 + a^2 + b,\ a^4 + a^2 - a + 1,\ u - 1\rangle\\
I_3^u &= \langle 3a^5 + a^4 + 5a^3 + 3a^2 + b + 2a + 4,\ a^6 + a^5 + 2a^4 + 2a^3 + 2a^2 + 2a + 1,\ u - 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 150 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. $\boldsymbol{I_1^u = \langle 5.89 \times 10^{226} u^{139} + 3.54 \times 10^{227} u^{138} + \cdots + 2.20 \times 10^{225} b - 1.40 \times 10^{227},\ -1.53 \times 10^{227} u^{139} - 1.75 \times 10^{228} u^{138} + \cdots + 2.20 \times 10^{225} a - 5.20 \times 10^{227},\ u^{140} + 11u^{139} + \cdots + 5u + 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 69.7967u^{139} + 797.709u^{138} + \cdots + 88.8689u + 236.689 \\ -26.7979u^{139} - 161.249u^{138} + \cdots + 136.086u + 63.7186 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 480.698u^{139} + 4767.03u^{138} + \cdots + 1232.37u + 469.393 \\ 728.821u^{139} + 7333.60u^{138} + \cdots + 2537.70u + 602.691 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 82.0957u^{139} + 1002.56u^{138} + \cdots + 303.107u + 313.689 \\ -74.9368u^{139} - 514.534u^{138} + \cdots + 292.890u + 117.321 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -14.2692u^{139} - 127.488u^{138} + \cdots + 14.2050u - 0.190764 \\ -29.4738u^{139} - 285.330u^{138} + \cdots - 71.1553u - 14.2692 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -201.075u^{139} - 2109.48u^{138} + \cdots - 821.483u - 254.837 \\ -216.675u^{139} - 2363.19u^{138} + \cdots - 1211.53u - 298.416 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 148.855u^{139} + 1559.41u^{138} + \cdots + 437.161u + 239.438 \\ 130.468u^{139} + 1417.38u^{138} + \cdots + 697.783u + 181.413 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -13.2474u^{139} - 129.302u^{138} + \cdots - 17.6313u - 9.59894 \\ -28.4520u^{139} - 287.145u^{138} + \cdots - 102.992u - 23.6774 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 25.0878u^{139} - 46.6962u^{138} + \cdots - 1004.65u - 85.3740$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{140} + 69u^{139} + \cdots + 221u + 1$
c_2, c_4	$u^{140} - 11u^{139} + \cdots - 5u + 1$
c_3, c_7	$u^{140} - u^{139} + \cdots - 8192u + 1024$
c_5	$u^{140} - 2u^{139} + \cdots - 24012u + 5887$
c_6	$u^{140} + 2u^{139} + \cdots - 10624u + 1216$
c_8, c_{11}	$u^{140} + 2u^{139} + \cdots + 14u + 1$
c_9	$u^{140} + 14u^{139} + \cdots + 2u + 1$
c_{10}	$u^{140} + 58u^{139} + \cdots + 14u + 1$
c_{12}	$u^{140} - 10u^{139} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{140} + 15y^{139} + \cdots - 2817y + 1$
c_2, c_4	$y^{140} - 69y^{139} + \cdots - 221y + 1$
c_3, c_7	$y^{140} - 63y^{139} + \cdots - 25690112y + 1048576$
c_5	$y^{140} + 142y^{139} + \cdots + 261556046y + 34656769$
c_6	$y^{140} + 150y^{139} + \cdots + 35716096y + 1478656$
c_8, c_{11}	$y^{140} + 58y^{139} + \cdots + 14y + 1$
c_9	$y^{140} + 10y^{139} + \cdots + 14y + 1$
c_{10}	$y^{140} + 50y^{139} + \cdots - 2010y + 1$
c_{12}	$y^{140} + 14y^{139} + \cdots + 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.342968 + 0.929621I$ $a = 1.35534 + 0.86261I$ $b = -0.303012 - 0.058151I$	$4.92055 - 8.62646I$	0
$u = -0.342968 - 0.929621I$ $a = 1.35534 - 0.86261I$ $b = -0.303012 + 0.058151I$	$4.92055 + 8.62646I$	0
$u = -0.940954 + 0.310093I$ $a = -1.00907 + 1.00614I$ $b = -0.62230 + 1.81875I$	$-1.78233 - 1.83282I$	0
$u = -0.940954 - 0.310093I$ $a = -1.00907 - 1.00614I$ $b = -0.62230 - 1.81875I$	$-1.78233 + 1.83282I$	0
$u = -0.982775 + 0.239312I$ $a = 0.92340 - 1.08802I$ $b = 0.85110 - 1.99683I$	$-4.37037 - 6.99484I$	0
$u = -0.982775 - 0.239312I$ $a = 0.92340 + 1.08802I$ $b = 0.85110 + 1.99683I$	$-4.37037 + 6.99484I$	0
$u = -0.313843 + 0.961586I$ $a = -1.51506 - 0.83479I$ $b = 0.480798 + 0.216981I$	$2.9856 - 14.5493I$	0
$u = -0.313843 - 0.961586I$ $a = -1.51506 + 0.83479I$ $b = 0.480798 - 0.216981I$	$2.9856 + 14.5493I$	0
$u = 0.895882 + 0.410358I$ $a = 0.737122 - 0.522383I$ $b = -1.16839 - 1.04334I$	$0.79500 - 3.33230I$	0
$u = 0.895882 - 0.410358I$ $a = 0.737122 + 0.522383I$ $b = -1.16839 + 1.04334I$	$0.79500 + 3.33230I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.928796 + 0.320294I$ $a = 0.41566 + 2.57834I$ $b = 2.39910 + 3.21755I$	$-1.66193 + 0.85450I$	0
$u = 0.928796 - 0.320294I$ $a = 0.41566 - 2.57834I$ $b = 2.39910 - 3.21755I$	$-1.66193 - 0.85450I$	0
$u = 0.938441 + 0.410293I$ $a = -0.278288 + 0.769078I$ $b = 0.432906 + 1.251360I$	$-1.82288 - 1.42035I$	0
$u = 0.938441 - 0.410293I$ $a = -0.278288 - 0.769078I$ $b = 0.432906 - 1.251360I$	$-1.82288 + 1.42035I$	0
$u = 1.038840 + 0.126611I$ $a = 1.02386 + 1.05217I$ $b = 6.21349 + 1.31481I$	$-2.14003 - 2.45951I$	0
$u = 1.038840 - 0.126611I$ $a = 1.02386 - 1.05217I$ $b = 6.21349 - 1.31481I$	$-2.14003 + 2.45951I$	0
$u = -0.980690 + 0.381123I$ $a = 0.357441 - 1.087270I$ $b = -0.26536 - 1.65226I$	$-2.17880 + 4.32767I$	0
$u = -0.980690 - 0.381123I$ $a = 0.357441 + 1.087270I$ $b = -0.26536 + 1.65226I$	$-2.17880 - 4.32767I$	0
$u = -0.426331 + 0.962752I$ $a = -0.868941 - 0.376457I$ $b = 0.138975 + 0.269813I$	$3.40573 - 1.43298I$	0
$u = -0.426331 - 0.962752I$ $a = -0.868941 + 0.376457I$ $b = 0.138975 - 0.269813I$	$3.40573 + 1.43298I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.998116 + 0.346400I$ $a = -0.89627 - 3.02269I$ $b = -3.41213 - 4.72470I$	$-1.93443 - 3.19824I$	0
$u = 0.998116 - 0.346400I$ $a = -0.89627 + 3.02269I$ $b = -3.41213 + 4.72470I$	$-1.93443 + 3.19824I$	0
$u = -0.902938 + 0.241403I$ $a = -0.130518 + 1.318270I$ $b = 0.45541 + 1.86743I$	$-5.78935 + 0.68606I$	0
$u = -0.902938 - 0.241403I$ $a = -0.130518 - 1.318270I$ $b = 0.45541 - 1.86743I$	$-5.78935 - 0.68606I$	0
$u = 0.387215 + 0.848725I$ $a = 0.133458 + 0.695504I$ $b = 0.024953 - 0.212602I$	$-0.51232 - 5.68304I$	0
$u = 0.387215 - 0.848725I$ $a = 0.133458 - 0.695504I$ $b = 0.024953 + 0.212602I$	$-0.51232 + 5.68304I$	0
$u = 0.981412 + 0.431065I$ $a = -0.223258 + 0.548511I$ $b = -0.90942 + 2.53548I$	$-1.36351 - 5.67921I$	0
$u = 0.981412 - 0.431065I$ $a = -0.223258 - 0.548511I$ $b = -0.90942 - 2.53548I$	$-1.36351 + 5.67921I$	0
$u = -0.317603 + 1.029880I$ $a = 0.738089 + 0.182557I$ $b = -0.394609 - 0.139943I$	$2.52813 - 5.97540I$	0
$u = -0.317603 - 1.029880I$ $a = 0.738089 - 0.182557I$ $b = -0.394609 + 0.139943I$	$2.52813 + 5.97540I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.837908 + 0.678241I$ $a = 0.121692 + 0.727104I$ $b = 0.136863 + 0.671886I$	$-1.95759 - 0.96618I$	0
$u = 0.837908 - 0.678241I$ $a = 0.121692 - 0.727104I$ $b = 0.136863 - 0.671886I$	$-1.95759 + 0.96618I$	0
$u = -0.512310 + 0.756618I$ $a = 0.606670 + 0.399679I$ $b = -0.935028 - 0.211885I$	$5.51111 + 0.29685I$	0
$u = -0.512310 - 0.756618I$ $a = 0.606670 - 0.399679I$ $b = -0.935028 + 0.211885I$	$5.51111 - 0.29685I$	0
$u = 0.828584 + 0.381334I$ $a = 0.503067 - 0.205341I$ $b = 0.16421 - 2.09535I$	$1.043390 - 0.077155I$	0
$u = 0.828584 - 0.381334I$ $a = 0.503067 + 0.205341I$ $b = 0.16421 + 2.09535I$	$1.043390 + 0.077155I$	0
$u = 1.058120 + 0.256603I$ $a = -1.01557 - 2.26102I$ $b = -5.06775 - 4.40434I$	$-2.16722 + 1.22909I$	0
$u = 1.058120 - 0.256603I$ $a = -1.01557 + 2.26102I$ $b = -5.06775 + 4.40434I$	$-2.16722 - 1.22909I$	0
$u = -0.466250 + 0.776371I$ $a = 0.560277 + 0.937047I$ $b = 0.256482 + 0.978452I$	$5.25058 - 3.26329I$	0
$u = -0.466250 - 0.776371I$ $a = 0.560277 - 0.937047I$ $b = 0.256482 - 0.978452I$	$5.25058 + 3.26329I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.559973 + 0.701832I$ $a = -0.122269 - 1.190060I$ $b = -0.73943 - 1.42658I$	$3.91294 + 3.33139I$	0
$u = -0.559973 - 0.701832I$ $a = -0.122269 + 1.190060I$ $b = -0.73943 + 1.42658I$	$3.91294 - 3.33139I$	0
$u = -0.474478 + 0.750313I$ $a = -1.32644 - 0.77916I$ $b = -0.178485 + 0.171226I$	$2.53463 - 1.34948I$	0
$u = -0.474478 - 0.750313I$ $a = -1.32644 + 0.77916I$ $b = -0.178485 - 0.171226I$	$2.53463 + 1.34948I$	0
$u = -1.044460 + 0.385729I$ $a = 0.825952 - 0.850078I$ $b = 0.20319 - 2.10517I$	$-6.83212 + 1.55059I$	0
$u = -1.044460 - 0.385729I$ $a = 0.825952 + 0.850078I$ $b = 0.20319 + 2.10517I$	$-6.83212 - 1.55059I$	0
$u = -0.990638 + 0.518559I$ $a = -0.081721 - 0.174597I$ $b = 0.46452 - 1.69676I$	$-0.811795 - 0.033701I$	0
$u = -0.990638 - 0.518559I$ $a = -0.081721 + 0.174597I$ $b = 0.46452 + 1.69676I$	$-0.811795 + 0.033701I$	0
$u = -0.398632 + 0.786333I$ $a = -0.901507 - 0.177655I$ $b = 1.060920 + 0.745264I$	$2.99181 - 5.97516I$	0
$u = -0.398632 - 0.786333I$ $a = -0.901507 + 0.177655I$ $b = 1.060920 - 0.745264I$	$2.99181 + 5.97516I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.290527 + 0.822481I$ $a = -1.144460 - 0.470450I$ $b = 0.581196 - 0.418688I$	$-1.88588 - 6.17613I$	0
$u = -0.290527 - 0.822481I$ $a = -1.144460 + 0.470450I$ $b = 0.581196 + 0.418688I$	$-1.88588 + 6.17613I$	0
$u = 0.472564 + 0.729432I$ $a = -1.57022 + 0.41222I$ $b = -0.055546 + 0.288364I$	$-0.05649 + 8.46319I$	0
$u = 0.472564 - 0.729432I$ $a = -1.57022 - 0.41222I$ $b = -0.055546 - 0.288364I$	$-0.05649 - 8.46319I$	0
$u = -1.088280 + 0.308082I$ $a = -0.043277 + 0.880827I$ $b = 0.71897 + 1.35135I$	$-4.97493 + 8.44093I$	0
$u = -1.088280 - 0.308082I$ $a = -0.043277 - 0.880827I$ $b = 0.71897 - 1.35135I$	$-4.97493 - 8.44093I$	0
$u = -0.769403 + 0.835099I$ $a = 0.431762 + 1.005890I$ $b = 0.332293 + 0.402278I$	$7.67778 + 4.50262I$	0
$u = -0.769403 - 0.835099I$ $a = 0.431762 - 1.005890I$ $b = 0.332293 - 0.402278I$	$7.67778 - 4.50262I$	0
$u = -0.652157 + 0.565911I$ $a = -0.031239 - 0.512620I$ $b = 0.979124 - 0.815610I$	$0.24476 + 4.35802I$	0
$u = -0.652157 - 0.565911I$ $a = -0.031239 + 0.512620I$ $b = 0.979124 + 0.815610I$	$0.24476 - 4.35802I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.148040 + 0.030873I$ $a = -0.584553 - 0.223460I$ $b = -0.377488 + 1.193400I$	$-0.21515 + 1.52425I$	0
$u = 1.148040 - 0.030873I$ $a = -0.584553 + 0.223460I$ $b = -0.377488 - 1.193400I$	$-0.21515 - 1.52425I$	0
$u = -0.481013 + 0.698806I$ $a = -2.93028 + 2.18315I$ $b = 0.63041 + 1.54512I$	$2.38264 + 1.08657I$	0
$u = -0.481013 - 0.698806I$ $a = -2.93028 - 2.18315I$ $b = 0.63041 - 1.54512I$	$2.38264 - 1.08657I$	0
$u = 1.149730 + 0.158483I$ $a = 0.446799 + 0.141095I$ $b = 1.58806 + 2.71640I$	$-2.03338 + 3.54410I$	0
$u = 1.149730 - 0.158483I$ $a = 0.446799 - 0.141095I$ $b = 1.58806 - 2.71640I$	$-2.03338 - 3.54410I$	0
$u = 1.146180 + 0.207310I$ $a = 0.274420 + 0.481064I$ $b = 0.747757 + 0.781664I$	$-2.43454 - 0.65211I$	0
$u = 1.146180 - 0.207310I$ $a = 0.274420 - 0.481064I$ $b = 0.747757 - 0.781664I$	$-2.43454 + 0.65211I$	0
$u = -0.413101 + 0.717335I$ $a = 3.55572 - 2.20425I$ $b = -0.86064 - 1.38623I$	$2.07851 - 3.32587I$	0
$u = -0.413101 - 0.717335I$ $a = 3.55572 + 2.20425I$ $b = -0.86064 + 1.38623I$	$2.07851 + 3.32587I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.050790 + 0.525532I$ $a = -0.48189 + 1.94948I$ $b = -0.45554 + 4.01684I$	$-0.66742 + 3.20117I$	0
$u = -1.050790 - 0.525532I$ $a = -0.48189 - 1.94948I$ $b = -0.45554 - 4.01684I$	$-0.66742 - 3.20117I$	0
$u = -1.017740 + 0.590697I$ $a = -1.006030 - 0.052324I$ $b = -0.046679 + 0.477681I$	$2.54912 + 1.64137I$	0
$u = -1.017740 - 0.590697I$ $a = -1.006030 + 0.052324I$ $b = -0.046679 - 0.477681I$	$2.54912 - 1.64137I$	0
$u = 0.517253 + 0.639308I$ $a = 1.42468 - 0.33366I$ $b = 0.130747 - 0.590468I$	$1.66936 + 3.03245I$	0
$u = 0.517253 - 0.639308I$ $a = 1.42468 + 0.33366I$ $b = 0.130747 + 0.590468I$	$1.66936 - 3.03245I$	0
$u = 1.080400 + 0.473386I$ $a = -0.192927 + 0.923828I$ $b = 0.74352 + 2.70690I$	$-6.19030 - 5.36695I$	0
$u = 1.080400 - 0.473386I$ $a = -0.192927 - 0.923828I$ $b = 0.74352 - 2.70690I$	$-6.19030 + 5.36695I$	0
$u = 1.039580 + 0.567389I$ $a = 0.443316 - 1.163190I$ $b = 0.07752 - 2.31663I$	$0.11630 - 7.78284I$	0
$u = 1.039580 - 0.567389I$ $a = 0.443316 + 1.163190I$ $b = 0.07752 + 2.31663I$	$0.11630 + 7.78284I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.839393 + 0.852131I$ $a = -0.375365 - 1.126760I$ $b = -0.682131 - 0.637643I$	$6.51257 + 10.16590I$	0
$u = -0.839393 - 0.852131I$ $a = -0.375365 + 1.126760I$ $b = -0.682131 + 0.637643I$	$6.51257 - 10.16590I$	0
$u = -0.895793 + 0.800884I$ $a = 0.736249 + 0.470315I$ $b = 0.969097 + 0.407488I$	$7.30949 + 1.49107I$	0
$u = -0.895793 - 0.800884I$ $a = 0.736249 - 0.470315I$ $b = 0.969097 - 0.407488I$	$7.30949 - 1.49107I$	0
$u = -1.055370 + 0.584723I$ $a = 1.50865 - 1.86417I$ $b = 1.19876 - 4.01989I$	$0.69005 + 3.86115I$	0
$u = -1.055370 - 0.584723I$ $a = 1.50865 + 1.86417I$ $b = 1.19876 + 4.01989I$	$0.69005 - 3.86115I$	0
$u = -0.843190 + 0.867539I$ $a = -0.878343 - 0.479849I$ $b = -0.940281 + 0.010823I$	$6.51509 - 3.93547I$	0
$u = -0.843190 - 0.867539I$ $a = -0.878343 + 0.479849I$ $b = -0.940281 - 0.010823I$	$6.51509 + 3.93547I$	0
$u = -1.050840 + 0.613372I$ $a = 0.145511 + 0.459291I$ $b = 0.68200 + 2.06810I$	$3.90851 + 4.89501I$	0
$u = -1.050840 - 0.613372I$ $a = 0.145511 - 0.459291I$ $b = 0.68200 - 2.06810I$	$3.90851 - 4.89501I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.063410 + 0.603280I$ $a = -0.44157 - 1.36334I$ $b = -1.07733 - 2.39099I$	$0.79510 + 6.48971I$	0
$u = -1.063410 - 0.603280I$ $a = -0.44157 + 1.36334I$ $b = -1.07733 + 2.39099I$	$0.79510 - 6.48971I$	0
$u = 0.739784 + 0.235911I$ $a = -1.228770 - 0.046617I$ $b = 1.327670 - 0.162696I$	$-0.28743 + 2.46726I$	0
$u = 0.739784 - 0.235911I$ $a = -1.228770 + 0.046617I$ $b = 1.327670 + 0.162696I$	$-0.28743 - 2.46726I$	0
$u = 1.074460 + 0.591244I$ $a = -0.369587 + 1.282630I$ $b = -0.32208 + 2.62276I$	$-1.85183 - 13.51530I$	0
$u = 1.074460 - 0.591244I$ $a = -0.369587 - 1.282630I$ $b = -0.32208 - 2.62276I$	$-1.85183 + 13.51530I$	0
$u = -1.092390 + 0.576031I$ $a = -1.48479 + 2.32830I$ $b = -1.24202 + 5.21578I$	$0.07853 + 8.28625I$	0
$u = -1.092390 - 0.576031I$ $a = -1.48479 - 2.32830I$ $b = -1.24202 - 5.21578I$	$0.07853 - 8.28625I$	0
$u = -1.079320 + 0.611948I$ $a = 0.754645 + 0.504304I$ $b = 0.154231 + 0.870419I$	$3.42764 + 8.49889I$	0
$u = -1.079320 - 0.611948I$ $a = 0.754645 - 0.504304I$ $b = 0.154231 - 0.870419I$	$3.42764 - 8.49889I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.079741 + 0.736165I$ $a = -0.314998 - 0.249428I$ $b = -0.229924 + 0.332018I$	$0.47320 - 1.54565I$	0
$u = 0.079741 - 0.736165I$ $a = -0.314998 + 0.249428I$ $b = -0.229924 - 0.332018I$	$0.47320 + 1.54565I$	0
$u = -1.111260 + 0.599006I$ $a = 0.029722 - 0.613388I$ $b = -1.08300 - 2.40282I$	$0.88219 + 11.18370I$	0
$u = -1.111260 - 0.599006I$ $a = 0.029722 + 0.613388I$ $b = -1.08300 + 2.40282I$	$0.88219 - 11.18370I$	0
$u = 1.235710 + 0.264493I$ $a = 0.605549 + 0.644009I$ $b = 0.36825 + 1.96922I$	$-6.69476 + 2.77249I$	0
$u = 1.235710 - 0.264493I$ $a = 0.605549 - 0.644009I$ $b = 0.36825 - 1.96922I$	$-6.69476 - 2.77249I$	0
$u = 1.058680 + 0.692380I$ $a = -0.192799 - 0.514818I$ $b = -0.221356 - 1.004340I$	$-2.63922 - 4.76673I$	0
$u = 1.058680 - 0.692380I$ $a = -0.192799 + 0.514818I$ $b = -0.221356 + 1.004340I$	$-2.63922 + 4.76673I$	0
$u = -1.178700 + 0.524608I$ $a = 0.300674 + 0.162765I$ $b = 0.160493 + 0.623031I$	$-2.64106 + 6.15310I$	0
$u = -1.178700 - 0.524608I$ $a = 0.300674 - 0.162765I$ $b = 0.160493 - 0.623031I$	$-2.64106 - 6.15310I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.157590 + 0.580104I$ $a = -0.268942 - 0.899681I$ $b = -0.11495 - 2.60569I$	$-4.44426 + 11.38070I$	0
$u = -1.157590 - 0.580104I$ $a = -0.268942 + 0.899681I$ $b = -0.11495 + 2.60569I$	$-4.44426 - 11.38070I$	0
$u = -0.437680 + 0.519280I$ $a = 2.00279 - 1.41685I$ $b = -0.447731 - 0.431733I$	$1.10254 + 1.14634I$	0
$u = -0.437680 - 0.519280I$ $a = 2.00279 + 1.41685I$ $b = -0.447731 + 0.431733I$	$1.10254 - 1.14634I$	0
$u = -1.157090 + 0.652916I$ $a = -0.167899 - 0.878258I$ $b = -0.62249 - 1.88643I$	$1.14688 + 7.28909I$	0
$u = -1.157090 - 0.652916I$ $a = -0.167899 + 0.878258I$ $b = -0.62249 + 1.88643I$	$1.14688 - 7.28909I$	0
$u = 1.317060 + 0.189115I$ $a = -0.850340 - 0.566815I$ $b = -1.63473 - 1.55722I$	$-0.77366 + 5.05718I$	0
$u = 1.317060 - 0.189115I$ $a = -0.850340 + 0.566815I$ $b = -1.63473 + 1.55722I$	$-0.77366 - 5.05718I$	0
$u = -1.180870 + 0.628015I$ $a = 0.465890 + 1.183290I$ $b = 1.05045 + 2.73329I$	$2.3775 + 14.3079I$	0
$u = -1.180870 - 0.628015I$ $a = 0.465890 - 1.183290I$ $b = 1.05045 - 2.73329I$	$2.3775 - 14.3079I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.203170+0.626779I$ $a=-0.382671-1.300470I$ $b=-1.13716-3.14050I$	$0.2730+20.3086I$	0
$u=-1.203170-0.626779I$ $a=-0.382671+1.300470I$ $b=-1.13716+3.14050I$	$0.2730-20.3086I$	0
$u=\ 1.258840+0.506364I$ $a=-0.1205850-0.0723225I$ $b=-0.598161-0.453292I$	$-3.36270+0.14216I$	0
$u=\ 1.258840-0.506364I$ $a=-0.1205850+0.0723225I$ $b=-0.598161+0.453292I$	$-3.36270-0.14216I$	0
$u=\ 1.350980+0.219119I$ $a=\ 0.903858+0.665369I$ $b=\ 1.85937+2.10264I$	$-2.70777+10.63070I$	0
$u=\ 1.350980-0.219119I$ $a=\ 0.903858-0.665369I$ $b=\ 1.85937-2.10264I$	$-2.70777-10.63070I$	0
$u=-1.219100+0.647810I$ $a=-0.025791+0.736917I$ $b=\ 0.21000+1.97168I$	$-0.24586+11.98110I$	0
$u=-1.219100-0.647810I$ $a=-0.025791-0.736917I$ $b=\ 0.21000-1.97168I$	$-0.24586-11.98110I$	0
$u=\ 0.204706+0.546889I$ $a=-1.82421+0.16348I$ $b=\ 0.476881+0.682865I$	$-3.82479+1.32683I$	$-4.12935-0.71634I$
$u=\ 0.204706-0.546889I$ $a=-1.82421-0.16348I$ $b=\ 0.476881-0.682865I$	$-3.82479-1.32683I$	$-4.12935+0.71634I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.038251 + 0.576915I$ $a = -0.814470 + 0.069028I$ $b = -0.233169 + 0.400339I$	$0.44265 - 1.56279I$	$1.64251 + 4.87377I$
$u = -0.038251 - 0.576915I$ $a = -0.814470 - 0.069028I$ $b = -0.233169 - 0.400339I$	$0.44265 + 1.56279I$	$1.64251 - 4.87377I$
$u = 1.37875 + 0.36014I$ $a = 0.120667 - 0.242214I$ $b = 0.756897 - 0.437187I$	$-3.69249 - 3.37191I$	0
$u = 1.37875 - 0.36014I$ $a = 0.120667 + 0.242214I$ $b = 0.756897 + 0.437187I$	$-3.69249 + 3.37191I$	0
$u = 1.43268 + 0.10472I$ $a = 0.033190 - 0.483172I$ $b = 0.26298 - 1.42989I$	$-3.90155 + 1.70271I$	0
$u = 1.43268 - 0.10472I$ $a = 0.033190 + 0.483172I$ $b = 0.26298 + 1.42989I$	$-3.90155 - 1.70271I$	0
$u = -0.154820 + 0.004285I$ $a = -3.23465 + 5.03526I$ $b = -0.497459 + 0.500059I$	$0.82272 - 1.37291I$	$5.33346 + 4.38312I$
$u = -0.154820 - 0.004285I$ $a = -3.23465 - 5.03526I$ $b = -0.497459 - 0.500059I$	$0.82272 + 1.37291I$	$5.33346 - 4.38312I$
$u = 0.0976486 + 0.0416017I$ $a = -8.65657 + 1.71514I$ $b = 0.586173 + 0.410305I$	$-0.15035 - 2.79872I$	$1.55621 + 1.54033I$
$u = 0.0976486 - 0.0416017I$ $a = -8.65657 - 1.71514I$ $b = 0.586173 - 0.410305I$	$-0.15035 + 2.79872I$	$1.55621 - 1.54033I$

II. $I_2^u = \langle a^3 + a^2 + b,\ a^4 + a^2 - a + 1,\ u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= a^3 - 6a^2 + 2a - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.547424 + 0.585652I$ $b = 0.442547 - 0.966840I$	$-0.66484 + 1.39709I$	$-6.04449 - 2.35025I$
$u = 1.00000$ $a = 0.547424 - 0.585652I$ $b = 0.442547 + 0.966840I$	$-0.66484 - 1.39709I$	$-6.04449 + 2.35025I$
$u = 1.00000$ $a = -0.547424 + 1.120870I$ $b = -0.94255 + 1.62772I$	$-4.26996 - 7.64338I$	$-0.45551 + 9.20433I$
$u = 1.00000$ $a = -0.547424 - 1.120870I$ $b = -0.94255 - 1.62772I$	$-4.26996 + 7.64338I$	$-0.45551 - 9.20433I$

III.

$\boldsymbol{I^u_3 = \langle 3a^5+a^4+5a^3+3a^2+b+2a+4,\ a^6+a^5+2a^4+2a^3+2a^2+2a+1,\ u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3a^5+a^4+4a^2-3a+1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.498832 + 1.001300I$ $b = 0.69405 + 1.33333I$	$-1.91067 + 2.82812I$	$-0.06063 - 4.05868I$
$u = 1.00000$ $a = 0.498832 - 1.001300I$ $b = 0.69405 - 1.33333I$	$-1.91067 - 2.82812I$	$-0.06063 + 4.05868I$
$u = 1.00000$ $a = -0.284920 + 1.115140I$ $b = -0.33764 + 1.86817I$	-6.04826	$-7.59911 - 2.50363I$
$u = 1.00000$ $a = -0.284920 - 1.115140I$ $b = -0.33764 - 1.86817I$	-6.04826	$-7.59911 + 2.50363I$
$u = 1.00000$ $a = -0.713912 + 0.305839I$ $b = -3.35641 - 1.89561I$	$-1.91067 + 2.82812I$	$5.15973 - 2.26538I$
$u = 1.00000$ $a = -0.713912 - 0.305839I$ $b = -3.35641 + 1.89561I$	$-1.91067 - 2.82812I$	$5.15973 + 2.26538I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^{140}+69u^{139}+\cdots+221u+1)$
c_2	$((u-1)^{10})(u^{140}-11u^{139}+\cdots-5u+1)$
c_3, c_7	$u^{10}(u^{140}-u^{139}+\cdots-8192u+1024)$
c_4	$((u+1)^{10})(u^{140}-11u^{139}+\cdots-5u+1)$
c_5	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{140}-2u^{139}+\cdots-24012u+5887)$
c_6	$(u^3-u^2+1)^2(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{140}+2u^{139}+\cdots-10624u+1216)$
c_8	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{140}+2u^{139}+\cdots+14u+1)$
c_9	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{140}+14u^{139}+\cdots+2u+1)$
c_{10}	$(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^{140}+58u^{139}+\cdots+14u+1)$
c_{11}	$(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{140}+2u^{139}+\cdots+14u+1)$
c_{12}	$(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{140}-10u^{139}+\cdots-2u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{10})(y^{140}+15y^{139}+\cdots-2817y+1)$
c_2, c_4	$((y-1)^{10})(y^{140}-69y^{139}+\cdots-221y+1)$
c_3, c_7	$y^{10}(y^{140}-63y^{139}+\cdots-2.56901\times 10^7 y+1048576)$
c_5	$(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{140}+142y^{139}+\cdots+261556046y+34656769)$
c_6	$(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot(y^{140}+150y^{139}+\cdots+35716096y+1478656)$
c_8, c_{11}	$(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{140}+58y^{139}+\cdots+14y+1)$
c_9	$(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{140}+10y^{139}+\cdots+14y+1)$
c_{10}	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{140}+50y^{139}+\cdots-2010y+1)$
c_{12}	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{140}+14y^{139}+\cdots+10y+1)$