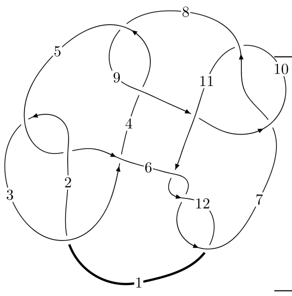
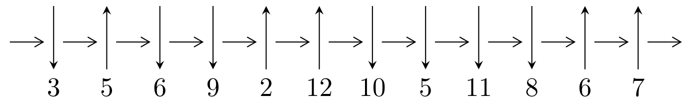
$12n_{0066}$ $(K12n_{0066})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -6.30753 \times 10^{64} u^{40} + 3.75257 \times 10^{65} u^{39} + \cdots + 5.94936 \times 10^{67} d + 2.30338 \times 10^{68}, \\
& -7.99939 \times 10^{65} u^{40} + 1.44181 \times 10^{64} u^{39} + \cdots + 2.37974 \times 10^{68} c - 1.93077 \times 10^{69}, \\
& 7.08052 \times 10^{74} u^{40} - 1.75227 \times 10^{75} u^{39} + \cdots + 1.49944 \times 10^{77} b - 5.67209 \times 10^{77}, \\
& 4.57210 \times 10^{73} u^{40} - 7.88614 \times 10^{75} u^{39} + \cdots + 1.19955 \times 10^{78} a - 7.69341 \times 10^{78}, \\
& u^{41} - 2u^{40} + \cdots + 512u^2 + 512 \rangle \\
I_2^u = \langle & c^2u^2 + d + 2c - 2,\ 4u^3c^2 + 2c^2u^2 - 6u^3c + c^3 + 10c^2u - 3u^2c + 2u^3 + 2c^2 - 15cu + u^2 - 3c + 5u + 1,\ b, \\
& a - 1,\ u^4 + u^3 + 3u^2 + 2u + 1 \rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ d,\ c - 1,\ b - 1,\ v^2 - v + 1 \rangle \\
I_2^v &= \langle a,\ d - 1,\ c + a,\ b + 1,\ v^2 + v + 1 \rangle \\
I_3^v &= \langle c,\ d - 1,\ b,\ a - 1,\ v - 1 \rangle \\
I_4^v &= \langle c,\ d - 1,\ v^2ba - v^2b - av + c + v,\ b^2v^2 - bv + 1 \rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 58 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

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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. $\boldsymbol{I_1^u = \langle -6.31\times 10^{64}u^{40} + 3.75\times 10^{65}u^{39} + \cdots + 5.95\times 10^{67}d + 2.30\times 10^{68},\ -8.00\times 10^{65}u^{40} + 1.44\times 10^{64}u^{39} + \cdots + 2.38\times 10^{68}c - 1.93\times 10^{69},\ 7.08\times 10^{74}u^{40} - 1.75\times 10^{75}u^{39} + \cdots + 1.50\times 10^{77}b - 5.67\times 10^{77},\ 4.57\times 10^{73}u^{40} - 7.89\times 10^{75}u^{39} + \cdots + 1.20\times 10^{78}a - 7.69\times 10^{78},\ u^{41} - 2u^{40} + \cdots + 512u^2 + 512\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} -0.0000381150u^{40} + 0.00657423u^{39} + \cdots + 3.10866u + 6.41356 \\ -0.00472210u^{40} + 0.0116861u^{39} + \cdots - 6.53018u + 3.78280 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 0.00336145u^{40} - 0.0000605866u^{39} + \cdots + 6.98697u + 8.11334 \\ 0.00106020u^{40} - 0.00630753u^{39} + \cdots - 0.350233u - 3.87164 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00416329u^{40} - 0.00348782u^{39} + \cdots + 8.59128u + 4.01677 \\ 0.00344951u^{40} - 0.0105481u^{39} + \cdots + 5.34083u - 6.53585 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00367234u^{40} - 0.00715345u^{39} + \cdots + 6.07641u - 1.87083 \\ 0.00428778u^{40} - 0.00271115u^{39} + \cdots + 7.55176u + 6.78311 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.00367234u^{40} - 0.00715345u^{39} + \cdots + 6.07641u - 1.87083 \\ 0.00169580u^{40} + 0.00233968u^{39} + \cdots + 5.67152u + 6.68520 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00488842u^{40} + 0.00771683u^{39} + \cdots - 9.65835u + 0.696220 \\ -0.00492654u^{40} + 0.0142911u^{39} + \cdots - 6.54969u + 7.10978 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00442165u^{40} - 0.00636811u^{39} + \cdots + 6.63674u + 4.24170 \\ 0.00106020u^{40} - 0.00630753u^{39} + \cdots - 0.350233u - 3.87164 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00158049u^{40} + 0.00495719u^{39} + \cdots + 5.61614u + 8.57387 \\ -0.00178096u^{40} + 0.00501777u^{39} + \cdots - 1.37083u + 0.460536 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.00750642u^{40} + 0.0137245u^{39} + \cdots + 0.520985u - 10.6626$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} + 12u^{40} + \cdots + 344u - 16$
c_2, c_5	$u^{41} + 2u^{40} + \cdots + 16u + 4$
c_3	$u^{41} - 2u^{40} + \cdots + 428280u + 66564$
c_4, c_8	$u^{41} - 2u^{40} + \cdots + 512u^2 + 512$
c_6, c_{11}, c_{12}	$u^{41} + 8u^{40} + \cdots - 8u + 16$
c_7, c_{10}	$u^{41} - 8u^{40} + \cdots - 8u + 16$
c_9	$u^{41} + 10u^{40} + \cdots + 2080u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} + 36y^{40} + \cdots + 135968y - 256$
c_2, c_5	$y^{41} + 12y^{40} + \cdots + 344y - 16$
c_3	$y^{41} + 60y^{40} + \cdots + 44022633912y - 4430766096$
c_4, c_8	$y^{41} + 30y^{40} + \cdots - 524288y - 262144$
c_6, c_{11}, c_{12}	$y^{41} - 50y^{40} + \cdots + 8224y - 256$
c_7, c_{10}	$y^{41} - 10y^{40} + \cdots + 2080y - 256$
c_9	$y^{41} + 50y^{40} + \cdots - 663040y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.280189 + 0.954581I$ $a = -0.857033 + 0.817841I$ $b = -0.265899 - 0.882324I$ $c = 0.46537 + 1.92640I$ $d = -0.881512 - 0.490480I$	$-1.60252 - 4.55290I$	$-4.51064 + 8.08001I$
$u = 0.280189 - 0.954581I$ $a = -0.857033 - 0.817841I$ $b = -0.265899 + 0.882324I$ $c = 0.46537 - 1.92640I$ $d = -0.881512 + 0.490480I$	$-1.60252 + 4.55290I$	$-4.51064 - 8.08001I$
$u = 0.942111 + 0.024266I$ $a = -0.224229 + 1.244680I$ $b = -0.026109 + 0.791073I$ $c = 0.548118 + 0.166539I$ $d = 0.670232 - 0.507481I$	$0.87865 + 4.07350I$	$-1.48942 - 7.36111I$
$u = 0.942111 - 0.024266I$ $a = -0.224229 - 1.244680I$ $b = -0.026109 - 0.791073I$ $c = 0.548118 - 0.166539I$ $d = 0.670232 + 0.507481I$	$0.87865 - 4.07350I$	$-1.48942 + 7.36111I$
$u = 0.100000 + 0.892301I$ $a = -0.052177 - 0.358577I$ $b = 0.118920 + 0.748261I$ $c = 1.00227 - 1.09254I$ $d = -0.544049 + 0.497019I$	$1.46086 + 1.42227I$	$3.88823 - 3.83998I$
$u = 0.100000 - 0.892301I$ $a = -0.052177 + 0.358577I$ $b = 0.118920 - 0.748261I$ $c = 1.00227 + 1.09254I$ $d = -0.544049 - 0.497019I$	$1.46086 - 1.42227I$	$3.88823 + 3.83998I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.687957 + 0.421229I$ $a = 0.333750 + 0.336915I$ $b = 1.03088 + 1.01360I$ $c = 0.722058 - 0.307646I$ $d = 0.172146 + 0.499414I$	$2.43397 + 0.55461I$	$3.61478 + 1.21885I$
$u = 0.687957 - 0.421229I$ $a = 0.333750 - 0.336915I$ $b = 1.03088 - 1.01360I$ $c = 0.722058 + 0.307646I$ $d = 0.172146 - 0.499414I$	$2.43397 - 0.55461I$	$3.61478 - 1.21885I$
$u = 0.586118 + 0.499909I$ $a = -0.491451 + 0.661896I$ $b = -0.737846 + 0.812570I$ $c = 0.479205 + 0.060279I$ $d = 1.054290 - 0.258408I$	$-3.14860 + 0.97270I$	$-10.27133 - 0.16493I$
$u = 0.586118 - 0.499909I$ $a = -0.491451 - 0.661896I$ $b = -0.737846 - 0.812570I$ $c = 0.479205 - 0.060279I$ $d = 1.054290 + 0.258408I$	$-3.14860 - 0.97270I$	$-10.27133 + 0.16493I$
$u = -0.757570 + 0.057431I$ $a = 0.31675 + 1.45050I$ $b = 0.104479 + 0.545464I$ $c = 0.620109 + 0.138172I$ $d = 0.536344 - 0.342326I$	$0.834104 - 1.057860I$	$-1.84303 - 1.72199I$
$u = -0.757570 - 0.057431I$ $a = 0.31675 - 1.45050I$ $b = 0.104479 - 0.545464I$ $c = 0.620109 - 0.138172I$ $d = 0.536344 + 0.342326I$	$0.834104 + 1.057860I$	$-1.84303 + 1.72199I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.748122+0.099272I$ $a=\ 0.93330+1.08938I$ $b=\ 2.35626+2.25935I$ $c=\ 0.561796-0.100209I$ $d=\ 0.725119+0.307713I$	$0.52179-2.81355I$	$-3.88749+5.15717I$
$u=-0.748122-0.099272I$ $a=\ 0.93330-1.08938I$ $b=\ 2.35626-2.25935I$ $c=\ 0.561796+0.100209I$ $d=\ 0.725119-0.307713I$	$0.52179+2.81355I$	$-3.88749-5.15717I$
$u=\ 0.004283+0.652626I$ $a=-1.55282+0.50485I$ $b=-2.68614+0.95227I$ $c=\ 0.461220+0.000384I$ $d=\ 1.168160-0.001807I$	$-0.70242-2.36927I$	$0.82941+4.59716I$
$u=\ 0.004283-0.652626I$ $a=-1.55282-0.50485I$ $b=-2.68614-0.95227I$ $c=\ 0.461220-0.000384I$ $d=\ 1.168160+0.001807I$	$-0.70242+2.36927I$	$0.82941-4.59716I$
$u=\ 0.076846+0.625583I$ $a=\ 1.20268+1.29382I$ $b=-0.275587-0.299772I$ $c=\ 2.86920+1.70110I$ $d=-0.742119-0.152894I$	$-0.85500+1.57570I$	$-0.179374+0.776646I$
$u=\ 0.076846-0.625583I$ $a=\ 1.20268-1.29382I$ $b=-0.275587+0.299772I$ $c=\ 2.86920-1.70110I$ $d=-0.742119+0.152894I$	$-0.85500-1.57570I$	$-0.179374-0.776646I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.01326 + 1.47518I$ $a = -0.655430 + 0.903143I$ $b = 0.71376 - 1.96932I$ $c = 0.270068 - 1.042210I$ $d = -0.767011 + 0.899123I$	$5.83509 - 1.34899I$	$0.977007 + 0.716014I$
$u = 0.01326 - 1.47518I$ $a = -0.655430 - 0.903143I$ $b = 0.71376 + 1.96932I$ $c = 0.270068 + 1.042210I$ $d = -0.767011 - 0.899123I$	$5.83509 + 1.34899I$	$0.977007 - 0.716014I$
$u = -0.45410 + 1.44756I$ $a = 0.692132 + 0.807395I$ $b = 0.54174 - 2.28917I$ $c = -0.073099 - 1.252150I$ $d = -1.046470 + 0.795914I$	$4.95290 + 7.65933I$	$-2.00000 - 5.62562I$
$u = -0.45410 - 1.44756I$ $a = 0.692132 - 0.807395I$ $b = 0.54174 + 2.28917I$ $c = -0.073099 + 1.252150I$ $d = -1.046470 - 0.795914I$	$4.95290 - 7.65933I$	$-2.00000 + 5.62562I$
$u = -0.466919$ $a = -0.0931478$ $b = -0.579529$ $c = 0.536246$ $d = 0.864817$	-1.25610	-8.53770
$u = -0.35061 + 1.53639I$ $a = -0.902103 + 0.091854I$ $b = -0.136075 + 1.212460I$ $c = 0.001487 - 1.157830I$ $d = -0.998891 + 0.863682I$	$6.34261 + 3.42138I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.35061 - 1.53639I$ $a = -0.902103 - 0.091854I$ $b = -0.136075 - 1.212460I$ $c = 0.001487 + 1.157830I$ $d = -0.998891 - 0.863682I$	$6.34261 - 3.42138I$	0
$u = 0.51610 + 1.49655I$ $a = -1.048210 - 0.118410I$ $b = -0.199107 - 1.232920I$ $c = -0.132300 + 1.210890I$ $d = -1.089170 - 0.816098I$	$5.66064 - 9.73522I$	$0. + 7.05049I$
$u = 0.51610 - 1.49655I$ $a = -1.048210 + 0.118410I$ $b = -0.199107 + 1.232920I$ $c = -0.132300 - 1.210890I$ $d = -1.089170 + 0.816098I$	$5.66064 + 9.73522I$	$0. - 7.05049I$
$u = 1.62020 + 0.13077I$ $a = -0.040113 - 0.941340I$ $b = 0.59368 - 2.03806I$ $c = 0.422272 + 0.213562I$ $d = 0.885797 - 0.953734I$	$8.89854 + 0.19005I$	0
$u = 1.62020 - 0.13077I$ $a = -0.040113 + 0.941340I$ $b = 0.59368 + 2.03806I$ $c = 0.422272 - 0.213562I$ $d = 0.885797 + 0.953734I$	$8.89854 - 0.19005I$	0
$u = -1.59450 + 0.33027I$ $a = -0.066671 + 1.013570I$ $b = 0.54013 + 2.15152I$ $c = 0.416106 - 0.187734I$ $d = 0.996781 + 0.900887I$	$8.54414 - 6.61454I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.59450 - 0.33027I$ $a = -0.066671 - 1.013570I$ $b = 0.54013 - 2.15152I$ $c = 0.416106 + 0.187734I$ $d = 0.996781 - 0.900887I$	$8.54414 + 6.61454I$	0
$u = 0.23388 + 1.65276I$ $a = -0.028955 - 0.573985I$ $b = 0.54769 + 2.08324I$ $c = 0.052963 + 1.047860I$ $d = -0.951888 - 0.951893I$	$9.70458 - 3.47853I$	0
$u = 0.23388 - 1.65276I$ $a = -0.028955 + 0.573985I$ $b = 0.54769 - 2.08324I$ $c = 0.052963 - 1.047860I$ $d = -0.951888 + 0.951893I$	$9.70458 + 3.47853I$	0
$u = -0.86658 + 1.51028I$ $a = 1.022730 - 0.213320I$ $b = 0.25996 - 2.32316I$ $c = -0.410043 - 1.126980I$ $d = -1.28510 + 0.78359I$	$12.2320 + 15.1490I$	0
$u = -0.86658 - 1.51028I$ $a = 1.022730 + 0.213320I$ $b = 0.25996 + 2.32316I$ $c = -0.410043 + 1.126980I$ $d = -1.28510 - 0.78359I$	$12.2320 - 15.1490I$	0
$u = 0.78943 + 1.61251I$ $a = 0.798911 + 0.089727I$ $b = 0.30028 + 2.26529I$ $c = -0.326045 + 1.083060I$ $d = -1.25486 - 0.84659I$	$13.5026 - 8.6555I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.78943 - 1.61251I$ $a = 0.798911 - 0.089727I$ $b = 0.30028 - 2.26529I$ $c = -0.326045 - 1.083060I$ $d = -1.25486 + 0.84659I$	$13.5026 + 8.6555I$	0
$u = 0.64330 + 1.72758I$ $a = -0.985622 - 0.148269I$ $b = 0.50633 - 1.68069I$ $c = 0.289772 - 0.691736I$ $d = -0.484819 + 1.229830I$	$14.7932 - 7.9945I$	0
$u = 0.64330 - 1.72758I$ $a = -0.985622 + 0.148269I$ $b = 0.50633 + 1.68069I$ $c = 0.289772 + 0.691736I$ $d = -0.484819 - 1.229830I$	$14.7932 + 7.9945I$	0
$u = -0.48873 + 1.82349I$ $a = -0.848856 + 0.042762I$ $b = 0.50243 + 1.74679I$ $c = 0.241355 + 0.733667I$ $d = -0.595396 - 1.229910I$	$15.6167 + 1.2657I$	0
$u = -0.48873 - 1.82349I$ $a = -0.848856 - 0.042762I$ $b = 0.50243 - 1.74679I$ $c = 0.241355 - 0.733667I$ $d = -0.595396 + 1.229910I$	$15.6167 - 1.2657I$	0

II.

$$I^u_2 = \langle c^2u^2+d+2c-2,\ 4u^3c^2-6u^3c+\cdots-3c+1,\ b,\ a-1,\ u^4+u^3+3u^2+2u+1\rangle$$

(i) Arc colorings

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

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

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

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

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

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

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^3 + 2u \\ u^3 + u^2 + 2u + 1 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -c^2u^2 - c + 2 \\ -c^2u^2 - 2c + 2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} c^2u^2 + u^2c + 3c - 2 \\ c^2u^2 + u^2c + 2c - 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 - 4u^2 - 12u - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_8	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^3$
c_2, c_5	$(y^4 + y^3 + 3y^2 + 2y + 1)^3$
c_3	$(y^4 + 9y^3 + 31y^2 + 19y + 4)^3$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{12} - 8y^{11} + \cdots + 10y + 1$
c_9	$y^{12} - 8y^{11} + \cdots - 78y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.395123 + 0.506844I$ $a = 1.00000$ $b = 0$ $c = 0.937473 + 0.363729I$ $d = -0.072869 - 0.359716I$	$-0.21101 + 1.41510I$	$-1.82674 - 4.90874I$
$u = -0.395123 + 0.506844I$ $a = 1.00000$ $b = 0$ $c = 0.477428 - 0.036931I$ $d = 1.082100 + 0.161058I$	$-0.21101 + 1.41510I$	$-1.82674 - 4.90874I$
$u = -0.395123 + 0.506844I$ $a = 1.00000$ $b = 0$ $c = -0.23342 - 5.02292I$ $d = -1.009230 + 0.198659I$	$-0.21101 + 1.41510I$	$-1.82674 - 4.90874I$
$u = -0.395123 - 0.506844I$ $a = 1.00000$ $b = 0$ $c = 0.937473 - 0.363729I$ $d = -0.072869 + 0.359716I$	$-0.21101 - 1.41510I$	$-1.82674 + 4.90874I$
$u = -0.395123 - 0.506844I$ $a = 1.00000$ $b = 0$ $c = 0.477428 + 0.036931I$ $d = 1.082100 - 0.161058I$	$-0.21101 - 1.41510I$	$-1.82674 + 4.90874I$
$u = -0.395123 - 0.506844I$ $a = 1.00000$ $b = 0$ $c = -0.23342 + 5.02292I$ $d = -1.009230 - 0.198659I$	$-0.21101 - 1.41510I$	$-1.82674 + 4.90874I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.10488 + 1.55249I$ $a = 1.00000$ $b = 0$ $c = 0.266059 + 0.958153I$ $d = -0.730940 - 0.968963I$	$6.79074 + 3.16396I$	$1.82674 - 2.56480I$
$u = -0.10488 + 1.55249I$ $a = 1.00000$ $b = 0$ $c = 0.166080 - 1.061830I$ $d = -0.856215 + 0.919282I$	$6.79074 + 3.16396I$	$1.82674 - 2.56480I$
$u = -0.10488 + 1.55249I$ $a = 1.00000$ $b = 0$ $c = 0.386383 - 0.007420I$ $d = 1.58715 + 0.04968I$	$6.79074 + 3.16396I$	$1.82674 - 2.56480I$
$u = -0.10488 - 1.55249I$ $a = 1.00000$ $b = 0$ $c = 0.266059 - 0.958153I$ $d = -0.730940 + 0.968963I$	$6.79074 - 3.16396I$	$1.82674 + 2.56480I$
$u = -0.10488 - 1.55249I$ $a = 1.00000$ $b = 0$ $c = 0.166080 + 1.061830I$ $d = -0.856215 - 0.919282I$	$6.79074 - 3.16396I$	$1.82674 + 2.56480I$
$u = -0.10488 - 1.55249I$ $a = 1.00000$ $b = 0$ $c = 0.386383 + 0.007420I$ $d = 1.58715 - 0.04968I$	$6.79074 - 3.16396I$	$1.82674 + 2.56480I$

III. $I_1^v = \langle a,\ d,\ c-1,\ b-1,\ v^2 - v + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v + 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	$0.500000 + 0.866025I$		
$a =$	0		
$b =$	1.00000	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$
$c =$	1.00000		
$d =$	0		
$v =$	$0.500000 - 0.866025I$		
$a =$	0		
$b =$	1.00000	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$c =$	1.00000		
$d =$	0		

IV. $\boldsymbol{I_2^v = \langle a,\ d-1,\ c+a,\ b+1,\ v^2+v+1\rangle}$

(i) Arc colorings

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

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

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

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

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

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

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} v \\ -v \end{pmatrix}$$

$$a_2 = \begin{pmatrix} v+1 \\ -v \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v - 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.500000+0.866025I$ $a=\quad 0$ $b=-1.00000$ $c=\quad 0$ $d=\quad 1.00000$	$-1.64493+2.02988I$	$-9.00000-3.46410I$
$v=-0.500000-0.866025I$ $a=\quad 0$ $b=-1.00000$ $c=\quad 0$ $d=\quad 1.00000$	$-1.64493-2.02988I$	$-9.00000+3.46410I$

V. $I_3^v = \langle c,\ d-1,\ b,\ a-1,\ v-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=$	1.00000		
$a=$	1.00000		
$b=$	0	0	0
$c=$	0		
$d=$	1.00000		

VI. $I_4^v = \langle c,\ d-1,\ v^2ba - v^2b - av + c + v,\ b^2v^2 - bv + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -b^3v + 4bv + v^2 - 4$

(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_4^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	$-\ 2.02988I$	$-0.70149 + 4.98668I$
$c = \cdots$		
$d = \cdots$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^2-u+1)^2(u^4+u^3+3u^2+2u+1)^3$ $\cdot(u^{41}+12u^{40}+\cdots+344u-16)$
c_2	$u(u^2+u+1)^2(u^4+u^3+u^2+1)^3(u^{41}+2u^{40}+\cdots+16u+4)$
c_3	$u(u^2-u+1)^2(u^4-u^3+5u^2+u+2)^3$ $\cdot(u^{41}-2u^{40}+\cdots+428280u+66564)$
c_4, c_8	$u^5(u^4+u^3+3u^2+2u+1)^3(u^{41}-2u^{40}+\cdots+512u^2+512)$
c_5	$u(u^2-u+1)^2(u^4+u^3+u^2+1)^3(u^{41}+2u^{40}+\cdots+16u+4)$
c_6	$u^2(u-1)(u+1)^2(u^{12}-4u^{10}+\cdots-2u+1)(u^{41}+8u^{40}+\cdots-8u+16)$
c_7	$u^2(u-1)^3(u^{12}-4u^{10}+\cdots-2u+1)(u^{41}-8u^{40}+\cdots-8u+16)$
c_9	$u^2(u-1)^3(u^{12}+8u^{11}+\cdots-10u+1)$ $\cdot(u^{41}+10u^{40}+\cdots+2080u+256)$
c_{10}	$u^2(u+1)^3(u^{12}-4u^{10}+\cdots-2u+1)(u^{41}-8u^{40}+\cdots-8u+16)$
c_{11}, c_{12}	$u^2(u-1)^2(u+1)(u^{12}-4u^{10}+\cdots-2u+1)(u^{41}+8u^{40}+\cdots-8u+16)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2+y+1)^2(y^4+5y^3+7y^2+2y+1)^3$ $\cdot\,(y^{41}+36y^{40}+\cdots+135968y-256)$
c_2, c_5	$y(y^2+y+1)^2(y^4+y^3+3y^2+2y+1)^3$ $\cdot\,(y^{41}+12y^{40}+\cdots+344y-16)$
c_3	$y(y^2+y+1)^2(y^4+9y^3+31y^2+19y+4)^3$ $\cdot\,(y^{41}+60y^{40}+\cdots+44022633912y-4430766096)$
c_4, c_8	$y^5(y^4+5y^3+\cdots+2y+1)^3(y^{41}+30y^{40}+\cdots-524288y-262144)$
c_6, c_{11}, c_{12}	$y^2(y-1)^3(y^{12}-8y^{11}+\cdots+10y+1)$ $\cdot\,(y^{41}-50y^{40}+\cdots+8224y-256)$
c_7, c_{10}	$y^2(y-1)^3(y^{12}-8y^{11}+\cdots+10y+1)$ $\cdot\,(y^{41}-10y^{40}+\cdots+2080y-256)$
c_9	$y^2(y-1)^3(y^{12}-8y^{11}+\cdots-78y+1)$ $\cdot\,(y^{41}+50y^{40}+\cdots-663040y-65536)$