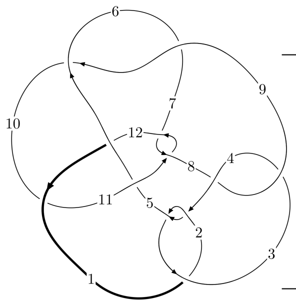
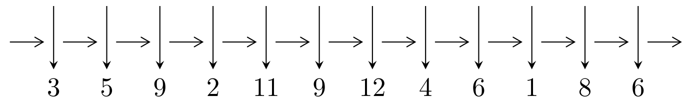
$12n_{0259}$ ($K12n_{0259}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 8.06424 \times 10^{33} u^{29} - 3.08706 \times 10^{34} u^{28} + \cdots + 2.02678 \times 10^{35} b + 8.88012 \times 10^{34}, \\
& - 1.10182 \times 10^{35} u^{29} + 5.35345 \times 10^{35} u^{28} + \cdots + 2.02678 \times 10^{36} a - 5.52972 \times 10^{36}, \\
& u^{30} - 5u^{29} + \cdots + 208u - 64 \rangle \\
I_2^u = \langle & -50322u^{16} + 60651u^{15} + \cdots + 148714b + 159141, \\
& - 2740465u^{16} + 777157u^{15} + \cdots + 297428a + 8444609, \\
& u^{17} + 3u^{15} - 2u^{14} + 5u^{13} - 9u^{12} + 2u^{11} - 20u^{10} - 2u^9 - 25u^8 + u^7 - 17u^6 + 6u^5 + 3u^3 + 2u^2 - 3u - 1 \rangle \\
I_3^u = \langle & -158244u^8a^3 - 40800u^8a^2 + \cdots + 813522a - 91963,\ 2u^8a^3 - u^8a^2 + \cdots + 94a + 520, \\
& u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ b + 2v + 2,\ 4v^2 + 6v + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 85 representations.

[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. $\boldsymbol{I_1^u = \langle 8.06 \times 10^{33}u^{29} - 3.09 \times 10^{34}u^{28} + \cdots + 2.03 \times 10^{35}b + 8.88 \times 10^{34},\ -1.10 \times 10^{35}u^{29} + 5.35 \times 10^{35}u^{28} + \cdots + 2.03 \times 10^{36}a - 5.53 \times 10^{36},\ u^{30} - 5u^{29} + \cdots + 208u - 64\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0543630u^{29} - 0.264136u^{28} + \cdots - 10.6974u + 2.72833 \\ -0.0397885u^{29} + 0.152314u^{28} + \cdots - 0.205764u - 0.438140 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.0394700u^{29} - 0.200918u^{28} + \cdots - 9.53676u + 4.27030 \\ -0.0378177u^{29} + 0.199367u^{28} + \cdots + 10.9483u - 5.71363 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0249093u^{29} - 0.112539u^{28} + \cdots - 1.85669u - 1.21498 \\ -0.0341130u^{29} + 0.167188u^{28} + \cdots + 6.77674u - 4.71681 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0984923u^{29} - 0.480645u^{28} + \cdots - 18.1702u + 6.77214 \\ 0.0129199u^{29} - 0.117465u^{28} + \cdots - 13.8793u + 11.1867 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0145745u^{29} - 0.111822u^{28} + \cdots - 10.9032u + 2.29019 \\ -0.0397885u^{29} + 0.152314u^{28} + \cdots - 0.205764u - 0.438140 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0265616u^{29} - 0.114090u^{28} + \cdots - 0.445179u - 3.65831 \\ -0.0719307u^{29} + 0.366555u^{28} + \cdots + 17.7250u - 10.4304 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0766915u^{29} + 0.396957u^{28} + \cdots + 20.3635u - 7.97007 \\ -0.00269807u^{29} + 0.0505818u^{28} + \cdots + 12.2023u - 10.7644 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0441293u^{29} - 0.216509u^{28} + \cdots - 7.47278u + 5.04380 \\ 0.0527084u^{29} - 0.269779u^{28} + \cdots - 13.6736u + 11.6248 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.171902u^{29} + 0.740462u^{28} + \cdots + 32.2278u - 42.5665$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} + 17u^{29} + \cdots + 6768u + 256$
c_2, c_4	$u^{30} - 3u^{29} + \cdots - 44u - 16$
c_3, c_8	$u^{30} - 5u^{29} + \cdots + 208u - 64$
c_5, c_7, c_{11}	$u^{30} - u^{29} + \cdots + 2u^2 - 1$
c_6, c_9, c_{12}	$u^{30} - 30u^{28} + \cdots - u + 1$
c_{10}	$u^{30} - 19u^{29} + \cdots + 2048u - 512$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} - 5y^{29} + \cdots - 31895296y + 65536$
c_2, c_4	$y^{30} - 17y^{29} + \cdots - 6768y + 256$
c_3, c_8	$y^{30} + 9y^{29} + \cdots - 21248y + 4096$
c_5, c_7, c_{11}	$y^{30} + y^{29} + \cdots - 4y + 1$
c_6, c_9, c_{12}	$y^{30} - 60y^{29} + \cdots - 63y + 1$
c_{10}	$y^{30} - 23y^{29} + \cdots - 3145728y + 262144$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.920671 + 0.215050I$ $a = 0.474770 + 0.236439I$ $b = 0.185709 - 0.495074I$	$-0.678358 - 0.594987I$	$-11.14828 - 1.26949I$
$u = -0.920671 - 0.215050I$ $a = 0.474770 - 0.236439I$ $b = 0.185709 + 0.495074I$	$-0.678358 + 0.594987I$	$-11.14828 + 1.26949I$
$u = 0.997695 + 0.376702I$ $a = 0.437212 + 0.126971I$ $b = 0.612963 - 0.562757I$	$-1.30376 + 3.43482I$	$-13.9978 - 7.1058I$
$u = 0.997695 - 0.376702I$ $a = 0.437212 - 0.126971I$ $b = 0.612963 + 0.562757I$	$-1.30376 - 3.43482I$	$-13.9978 + 7.1058I$
$u = 0.316298 + 0.849109I$ $a = 0.425852 + 0.030660I$ $b = 0.918017 - 0.164528I$	$-2.07471 - 1.64401I$	$-10.99207 + 2.69705I$
$u = 0.316298 - 0.849109I$ $a = 0.425852 - 0.030660I$ $b = 0.918017 + 0.164528I$	$-2.07471 + 1.64401I$	$-10.99207 - 2.69705I$
$u = 0.250072 + 0.795467I$ $a = 0.08474 + 1.97666I$ $b = -0.528572 - 0.417784I$	$-2.30189 - 1.11843I$	$-12.20818 + 6.54898I$
$u = 0.250072 - 0.795467I$ $a = 0.08474 - 1.97666I$ $b = -0.528572 + 0.417784I$	$-2.30189 + 1.11843I$	$-12.20818 - 6.54898I$
$u = -0.439076 + 1.238770I$ $a = -0.341907 - 1.274950I$ $b = -0.664768 + 0.726793I$	$3.50589 + 3.81678I$	$-10.18184 - 5.51966I$
$u = -0.439076 - 1.238770I$ $a = -0.341907 + 1.274950I$ $b = -0.664768 - 0.726793I$	$3.50589 - 3.81678I$	$-10.18184 + 5.51966I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.672305 + 0.131504I$ $a = 0.465097 - 0.014978I$ $b = -1.333120 + 0.111490I$	$-10.75090 - 0.00550I$	$-26.5001 + 2.7456I$
$u = 0.672305 - 0.131504I$ $a = 0.465097 + 0.014978I$ $b = -1.333120 - 0.111490I$	$-10.75090 + 0.00550I$	$-26.5001 - 2.7456I$
$u = 0.673336 + 1.153840I$ $a = -0.01039 - 1.60109I$ $b = 0.938705 + 0.985912I$	$-8.26944 - 5.68185I$	$-13.8804 + 4.5637I$
$u = 0.673336 - 1.153840I$ $a = -0.01039 + 1.60109I$ $b = 0.938705 - 0.985912I$	$-8.26944 + 5.68185I$	$-13.8804 - 4.5637I$
$u = -1.195980 + 0.596147I$ $a = 0.433700 + 0.140568I$ $b = -0.804031 - 0.882885I$	$-5.01474 - 3.34334I$	$-11.59669 + 2.94079I$
$u = -1.195980 - 0.596147I$ $a = 0.433700 - 0.140568I$ $b = -0.804031 + 0.882885I$	$-5.01474 + 3.34334I$	$-11.59669 - 2.94079I$
$u = 1.165670 + 0.733627I$ $a = 0.464934 - 0.150862I$ $b = -0.96952 + 1.09583I$	$-7.65940 + 8.88821I$	$-13.8511 - 5.5347I$
$u = 1.165670 - 0.733627I$ $a = 0.464934 + 0.150862I$ $b = -0.96952 - 1.09583I$	$-7.65940 - 8.88821I$	$-13.8511 + 5.5347I$
$u = 0.221400 + 1.363400I$ $a = 0.015740 - 1.022660I$ $b = -0.132717 + 0.871865I$	$4.53000 - 0.32057I$	$-7.71560 - 1.10595I$
$u = 0.221400 - 1.363400I$ $a = 0.015740 + 1.022660I$ $b = -0.132717 - 0.871865I$	$4.53000 + 0.32057I$	$-7.71560 + 1.10595I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.647790 + 1.222820I$ $a = -0.535702 + 1.224120I$ $b = -0.802016 - 0.702401I$	$1.35480 - 9.44263I$	$-13.2001 + 10.5014I$
$u = 0.647790 - 1.222820I$ $a = -0.535702 - 1.224120I$ $b = -0.802016 + 0.702401I$	$1.35480 + 9.44263I$	$-13.2001 - 10.5014I$
$u = 1.40325$ $a = 0.323081$ $b = -0.580884$	-10.9270	-40.4210
$u = -0.79217 + 1.21119I$ $a = 0.24417 + 1.46527I$ $b = 0.94680 - 1.23179I$	$-2.95388 + 10.39440I$	$-10.10326 - 5.62687I$
$u = -0.79217 - 1.21119I$ $a = 0.24417 - 1.46527I$ $b = 0.94680 + 1.23179I$	$-2.95388 - 10.39440I$	$-10.10326 + 5.62687I$
$u = 0.86453 + 1.17030I$ $a = 0.39716 - 1.50383I$ $b = 1.07853 + 1.31263I$	$-6.1786 - 16.1705I$	$-12.9056 + 8.4851I$
$u = 0.86453 - 1.17030I$ $a = 0.39716 + 1.50383I$ $b = 1.07853 - 1.31263I$	$-6.1786 + 16.1705I$	$-12.9056 - 8.4851I$
$u = -0.43744 + 1.41584I$ $a = -0.014032 + 1.010380I$ $b = 0.154110 - 0.976877I$	$3.27546 + 6.39941I$	$-8.60195 - 5.42628I$
$u = -0.43744 - 1.41584I$ $a = -0.014032 - 1.010380I$ $b = 0.154110 + 0.976877I$	$3.27546 - 6.39941I$	$-8.60195 + 5.42628I$
$u = -0.450762$ $a = 0.594234$ $b = 0.380692$	-0.635586	-15.5630

II.

$\boldsymbol{I_2^u = \langle -5.03\times 10^4 u^{16} + 6.07\times 10^4 u^{15} + \cdots + 1.49\times 10^5 b + 1.59\times 10^5,\ -2.74\times 10^6 u^{16} + 7.77\times 10^5 u^{15} + \cdots + 2.97\times 10^5 a + 8.44\times 10^6,\ u^{17} + 3u^{15} + \cdots - 3u - 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} 9.21388u^{16} - 2.61292u^{15} + \cdots + 9.55963u - 28.3921 \\ 0.338381u^{16} - 0.407837u^{15} + \cdots + 0.429865u - 1.07011 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 8.05673u^{16} - 2.39322u^{15} + \cdots + 5.18074u - 23.8643 \\ 0.240774u^{16} + 0.356863u^{15} + \cdots + 0.945237u - 0.542810 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 7.15244u^{16} - 2.00192u^{15} + \cdots + 5.24891u - 22.0139 \\ 0.161686u^{16} + 0.219011u^{15} + \cdots + 1.21485u - 0.151512 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.06597u^{16} - 0.172287u^{15} + \cdots + 1.14668u - 3.00192 \\ -0.00475409u^{16} - 0.200035u^{15} + \cdots + 0.818719u + 0.219011 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 9.55226u^{16} - 3.02076u^{15} + \cdots + 9.98950u - 29.4622 \\ 0.338381u^{16} - 0.407837u^{15} + \cdots + 0.429865u - 1.07011 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.14506u^{16} + 0.0344352u^{15} + \cdots - 0.877073u + 3.39322 \\ -0.0790880u^{16} - 0.137852u^{15} + \cdots + 0.269611u + 0.391298 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.11352u^{16} - 0.409703u^{15} + \cdots + 2.18844u - 3.03636 \\ 0.179102u^{16} - 0.186802u^{15} + \cdots + 1.19578u - 0.0528397 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 8.14791u^{16} - 2.44064u^{15} + \cdots + 8.41295u - 24.3902 \\ 0.343135u^{16} - 0.207802u^{15} + \cdots - 0.388854u - 1.28913 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{6794471}{297428}u^{16} - \frac{1681861}{297428}u^{15} + \cdots + \frac{571348}{74357}u - \frac{25623465}{297428}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} - 10u^{16} + \cdots + 17u - 1$
c_2	$u^{17} + 4u^{16} + \cdots - u + 1$
c_3	$u^{17} + 3u^{15} + \cdots - 3u + 1$
c_4	$u^{17} - 4u^{16} + \cdots - u - 1$
c_5, c_{11}	$u^{17} + 6u^{15} + \cdots - 3u - 1$
c_6, c_{12}	$u^{17} - 3u^{16} + \cdots + 6u^2 + 1$
c_7	$u^{17} + 6u^{15} + \cdots - 3u + 1$
c_8	$u^{17} + 3u^{15} + \cdots - 3u - 1$
c_9	$u^{17} + 3u^{16} + \cdots - 6u^2 - 1$
c_{10}	$u^{17} - 5u^{16} + \cdots + 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 2y^{16} + \cdots + 157y - 1$
c_2, c_4	$y^{17} - 10y^{16} + \cdots + 17y - 1$
c_3, c_8	$y^{17} + 6y^{16} + \cdots + 13y - 1$
c_5, c_7, c_{11}	$y^{17} + 12y^{16} + \cdots + 5y - 1$
c_6, c_9, c_{12}	$y^{17} - 5y^{16} + \cdots - 12y - 1$
c_{10}	$y^{17} - 17y^{16} + \cdots + 11y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.222868 + 0.957169I$ $a = 0.937935 - 0.366003I$ $b = 0.975905 + 0.087227I$	$-3.24280 + 2.04185I$	$-17.4447 - 3.6628I$
$u = -0.222868 - 0.957169I$ $a = 0.937935 + 0.366003I$ $b = 0.975905 - 0.087227I$	$-3.24280 - 2.04185I$	$-17.4447 + 3.6628I$
$u = -0.143073 + 1.125680I$ $a = -0.06490 + 1.65937I$ $b = -0.240226 - 1.383230I$	$6.60440 - 0.23148I$	$-4.66739 - 0.18271I$
$u = -0.143073 - 1.125680I$ $a = -0.06490 - 1.65937I$ $b = -0.240226 + 1.383230I$	$6.60440 + 0.23148I$	$-4.66739 + 0.18271I$
$u = -0.934717 + 0.786177I$ $a = -0.460802 - 0.068107I$ $b = 0.102794 + 0.830593I$	$0.49138 - 1.47201I$	$-4.39198 + 2.32537I$
$u = -0.934717 - 0.786177I$ $a = -0.460802 + 0.068107I$ $b = 0.102794 - 0.830593I$	$0.49138 + 1.47201I$	$-4.39198 - 2.32537I$
$u = 0.463922 + 1.145870I$ $a = 0.43983 - 1.42671I$ $b = -0.17875 + 1.49824I$	$5.30175 - 4.82160I$	$-8.88387 + 5.04151I$
$u = 0.463922 - 1.145870I$ $a = 0.43983 + 1.42671I$ $b = -0.17875 - 1.49824I$	$5.30175 + 4.82160I$	$-8.88387 - 5.04151I$
$u = 0.622575 + 1.114960I$ $a = -0.632046 + 0.809570I$ $b = -0.340268 - 0.934275I$	$4.76952 - 2.66666I$	$-3.51429 + 3.01636I$
$u = 0.622575 - 1.114960I$ $a = -0.632046 - 0.809570I$ $b = -0.340268 + 0.934275I$	$4.76952 + 2.66666I$	$-3.51429 - 3.01636I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621513 + 0.226133I$ $a = 3.17814 + 0.77491I$ $b = 0.068320 + 1.335540I$	$2.59448 + 0.58189I$	$-16.1225 - 5.9646I$
$u = 0.621513 - 0.226133I$ $a = 3.17814 - 0.77491I$ $b = 0.068320 - 1.335540I$	$2.59448 - 0.58189I$	$-16.1225 + 5.9646I$
$u = -0.76282 + 1.20700I$ $a = -0.450462 - 0.871861I$ $b = -0.529361 + 0.773457I$	$1.99341 + 8.23287I$	$-9.38259 - 6.87786I$
$u = -0.76282 - 1.20700I$ $a = -0.450462 + 0.871861I$ $b = -0.529361 - 0.773457I$	$1.99341 - 8.23287I$	$-9.38259 + 6.87786I$
$u = -0.509710$ $a = -3.08687$ $b = 0.727999$	-4.29378	-7.87230
$u = 1.53136$ $a = -0.327837$ $b = 0.362879$	-10.7956	20.7800
$u = -0.310720$ $a = -25.4807$ $b = -0.807701$	-5.48556	-72.0930

III. $I_3^u = \langle -1.58\times 10^5 a^3u^8 - 4.08\times 10^4 a^2u^8 + \cdots + 8.14\times 10^5 a - 9.20\times 10^4,\ 2u^8a^3 - u^8a^2 + \cdots + 94a + 520,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1\rangle$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} a \\ 0.250587a^3u^8 + 0.0646088a^2u^8 + \cdots - 1.28825a + 0.145628 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0695431a^3u^8 - 0.0718551a^2u^8 + \cdots - 0.741380a + 2.26000 \\ -0.0275854a^3u^8 + 0.352029a^2u^8 + \cdots + 1.67727a + 0.105629 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0695431a^3u^8 + 0.0718551a^2u^8 + \cdots + 0.741380a + 1.74000 \\ -0.250587a^3u^8 - 0.0646088a^2u^8 + \cdots + 1.28825a + 0.854372 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 0.250587a^3u^8 + 0.0646088a^2u^8 + \cdots - 0.288252a + 0.145628 \\ 0.250587a^3u^8 + 0.0646088a^2u^8 + \cdots - 1.28825a + 0.145628 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^4 - u^2 - 1 \\ -u^4 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^6 + u^4 + 2u^2 + 1 \\ u^8 + 2u^6 + 2u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.324754a^3u^8 + 0.342471a^2u^8 + \cdots - 0.326854a + 0.340849 \\ 0.0741671a^3u^8 + 0.277862a^2u^8 + \cdots - 0.0386022a + 0.195221 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 - 4u^6 - 4u^5 - 4u^4 - 8u^3 - 4u^2 - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^4$
c_2, c_4	$(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^4$
c_3, c_8	$(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^4$
c_5, c_7, c_{11}	$u^{36}+3u^{35}+\cdots-136u-31$
c_6, c_9, c_{12}	$u^{36}-3u^{35}+\cdots+18264u-3559$
c_{10}	$(u^2+u-1)^{18}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^4$
c_2, c_4	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^4$
c_3, c_8	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^4$
c_5, c_7, c_{11}	$y^{36} + 11y^{35} + \cdots + 16224y + 961$
c_6, c_9, c_{12}	$y^{36} - 25y^{35} + \cdots + 545224y + 12666481$
c_{10}	$(y^2 - 3y + 1)^{18}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$ $a = -0.61869 + 1.39310I$ $b = -0.42993 - 1.44275I$	$5.73128 - 2.09337I$	$-7.48501 + 4.16283I$
$u = 0.140343 + 0.966856I$ $a = 1.38851 + 0.80504I$ $b = 0.128913 - 0.359883I$	$-2.16441 - 2.09337I$	$-7.48501 + 4.16283I$
$u = 0.140343 + 0.966856I$ $a = 0.243842 + 0.158886I$ $b = 1.351770 - 0.079224I$	$-2.16441 - 2.09337I$	$-7.48501 + 4.16283I$
$u = 0.140343 + 0.966856I$ $a = -0.00482 - 1.76129I$ $b = -0.13564 + 1.61047I$	$5.73128 - 2.09337I$	$-7.48501 + 4.16283I$
$u = 0.140343 - 0.966856I$ $a = -0.61869 - 1.39310I$ $b = -0.42993 + 1.44275I$	$5.73128 + 2.09337I$	$-7.48501 - 4.16283I$
$u = 0.140343 - 0.966856I$ $a = 1.38851 - 0.80504I$ $b = 0.128913 + 0.359883I$	$-2.16441 + 2.09337I$	$-7.48501 - 4.16283I$
$u = 0.140343 - 0.966856I$ $a = 0.243842 - 0.158886I$ $b = 1.351770 + 0.079224I$	$-2.16441 + 2.09337I$	$-7.48501 - 4.16283I$
$u = 0.140343 - 0.966856I$ $a = -0.00482 + 1.76129I$ $b = -0.13564 - 1.61047I$	$5.73128 + 2.09337I$	$-7.48501 - 4.16283I$
$u = 0.628449 + 0.875112I$ $a = -0.525443 + 0.462550I$ $b = 1.30414 - 0.74950I$	$-4.56478 - 2.45442I$	$-10.32792 + 2.91298I$
$u = 0.628449 + 0.875112I$ $a = 0.763452 - 1.086660I$ $b = 0.294073 + 1.242760I$	$3.33090 - 2.45442I$	$-10.32792 + 2.91298I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.628449 + 0.875112I$ $a = -0.485650 + 0.077610I$ $b = -0.523285 - 0.562963I$	$3.33090 - 2.45442I$	$-10.32792 + 2.91298I$
$u = 0.628449 + 0.875112I$ $a = -0.20185 + 2.17919I$ $b = -0.704050 - 1.030220I$	$-4.56478 - 2.45442I$	$-10.32792 + 2.91298I$
$u = 0.628449 - 0.875112I$ $a = -0.525443 - 0.462550I$ $b = 1.30414 + 0.74950I$	$-4.56478 + 2.45442I$	$-10.32792 - 2.91298I$
$u = 0.628449 - 0.875112I$ $a = 0.763452 + 1.086660I$ $b = 0.294073 - 1.242760I$	$3.33090 + 2.45442I$	$-10.32792 - 2.91298I$
$u = 0.628449 - 0.875112I$ $a = -0.485650 - 0.077610I$ $b = -0.523285 + 0.562963I$	$3.33090 + 2.45442I$	$-10.32792 - 2.91298I$
$u = 0.628449 - 0.875112I$ $a = -0.20185 - 2.17919I$ $b = -0.704050 + 1.030220I$	$-4.56478 + 2.45442I$	$-10.32792 - 2.91298I$
$u = -0.796005 + 0.733148I$ $a = -0.880986 - 0.487136I$ $b = 0.964779 + 0.981447I$	$-8.31919 - 1.33617I$	$-15.2841 + 0.7017I$
$u = -0.796005 + 0.733148I$ $a = 0.892032 + 0.347149I$ $b = -0.127108 - 1.007800I$	$-0.423507 - 1.336170I$	$-15.2841 + 0.7017I$
$u = -0.796005 + 0.733148I$ $a = -0.187374 + 0.704738I$ $b = 0.186512 + 0.286438I$	$-0.423507 - 1.336170I$	$-15.2841 + 0.7017I$
$u = -0.796005 + 0.733148I$ $a = -0.96383 - 2.26674I$ $b = -1.12030 + 0.90709I$	$-8.31919 - 1.33617I$	$-15.2841 + 0.7017I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.796005 - 0.733148I$ $a = -0.880986 + 0.487136I$ $b = 0.964779 - 0.981447I$	$-8.31919 + 1.33617I$	$-15.2841 - 0.7017I$
$u = -0.796005 - 0.733148I$ $a = 0.892032 - 0.347149I$ $b = -0.127108 + 1.007800I$	$-0.423507 + 1.336170I$	$-15.2841 - 0.7017I$
$u = -0.796005 - 0.733148I$ $a = -0.187374 - 0.704738I$ $b = 0.186512 - 0.286438I$	$-0.423507 + 1.336170I$	$-15.2841 - 0.7017I$
$u = -0.796005 - 0.733148I$ $a = -0.96383 + 2.26674I$ $b = -1.12030 - 0.90709I$	$-8.31919 + 1.33617I$	$-15.2841 - 0.7017I$
$u = -0.728966 + 0.986295I$ $a = 0.501545 + 1.033540I$ $b = 0.646764 - 1.177390I$	$0.34972 + 7.08493I$	$-13.5768 - 5.9133I$
$u = -0.728966 + 0.986295I$ $a = -0.593832 - 0.265649I$ $b = 1.49815 + 0.97115I$	$-7.54597 + 7.08493I$	$-13.5768 - 5.9133I$
$u = -0.728966 + 0.986295I$ $a = -0.124651 - 0.247951I$ $b = -0.919556 + 0.288684I$	$0.34972 + 7.08493I$	$-13.5768 - 5.9133I$
$u = -0.728966 + 0.986295I$ $a = -0.39289 - 1.79104I$ $b = -0.78397 + 1.35550I$	$-7.54597 + 7.08493I$	$-13.5768 - 5.9133I$
$u = -0.728966 - 0.986295I$ $a = 0.501545 - 1.033540I$ $b = 0.646764 + 1.177390I$	$0.34972 - 7.08493I$	$-13.5768 + 5.9133I$
$u = -0.728966 - 0.986295I$ $a = -0.593832 + 0.265649I$ $b = 1.49815 - 0.97115I$	$-7.54597 - 7.08493I$	$-13.5768 + 5.9133I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.728966 - 0.986295I$ $a = -0.124651 + 0.247951I$ $b = -0.919556 - 0.288684I$	$0.34972 - 7.08493I$	$-13.5768 + 5.9133I$
$u = -0.728966 - 0.986295I$ $a = -0.39289 + 1.79104I$ $b = -0.78397 - 1.35550I$	$-7.54597 - 7.08493I$	$-13.5768 + 5.9133I$
$u = 0.512358$ $a = -4.03622$ $b = 0.558485$	-5.14629	-16.6520
$u = 0.512358$ $a = 2.66334 + 4.93805I$ $b = 0.081120 + 1.296290I$	2.74940	-16.6520
$u = 0.512358$ $a = 2.66334 - 4.93805I$ $b = 0.081120 - 1.296290I$	2.74940	-16.6520
$u = 0.512358$ $a = -9.90920$ $b = -0.983236$	-5.14629	-16.6520

IV. $I_1^v = \langle a,\ b + 2v + 2,\ 4v^2 + 6v + 1\rangle$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} 0 \\ -2v - 2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -2v - 3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2v - 2 \\ -2v - 3 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 4v + 5 \\ 4v + 6 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -4v - 5 \\ -4v - 6 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 5v + 5 \\ 4v + 6 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 4v + 6 \\ 6v + 8 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{45}{2}v + \frac{55}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.30902$ $a = 0$ $b = 0.618034$	-2.63189	-15.7030
$v = -0.190983$ $a = 0$ $b = -1.61803$	-10.5276	9.45290

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^2(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^4$ $\cdot(u^{17}-10u^{16}+\cdots+17u-1)(u^{30}+17u^{29}+\cdots+6768u+256)$
c_2	$(u-1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^4$ $\cdot(u^{17}+4u^{16}+\cdots-u+1)(u^{30}-3u^{29}+\cdots-44u-16)$
c_3	$u^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^4$ $\cdot(u^{17}+3u^{15}+\cdots-3u+1)(u^{30}-5u^{29}+\cdots+208u-64)$
c_4	$(u+1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^4$ $\cdot(u^{17}-4u^{16}+\cdots-u-1)(u^{30}-3u^{29}+\cdots-44u-16)$
c_5	$(u^2+u-1)(u^{17}+6u^{15}+\cdots-3u-1)(u^{30}-u^{29}+\cdots+2u^2-1)$ $\cdot(u^{36}+3u^{35}+\cdots-136u-31)$
c_6	$(u^2-3u+1)(u^{17}-3u^{16}+\cdots+6u^2+1)(u^{30}-30u^{28}+\cdots-u+1)$ $\cdot(u^{36}-3u^{35}+\cdots+18264u-3559)$
c_7	$(u^2+u-1)(u^{17}+6u^{15}+\cdots-3u+1)(u^{30}-u^{29}+\cdots+2u^2-1)$ $\cdot(u^{36}+3u^{35}+\cdots-136u-31)$
c_8	$u^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^4$ $\cdot(u^{17}+3u^{15}+\cdots-3u-1)(u^{30}-5u^{29}+\cdots+208u-64)$
c_9	$(u^2+3u+1)(u^{17}+3u^{16}+\cdots-6u^2-1)(u^{30}-30u^{28}+\cdots-u+1)$ $\cdot(u^{36}-3u^{35}+\cdots+18264u-3559)$
c_{10}	$((u^2+u-1)^{19})(u^{17}-5u^{16}+\cdots+5u-1)$ $\cdot(u^{30}-19u^{29}+\cdots+2048u-512)$
c_{11}	$(u^2-u-1)(u^{17}+6u^{15}+\cdots-3u-1)(u^{30}-u^{29}+\cdots+2u^2-1)$ $\cdot(u^{36}+3u^{35}+\cdots-136u-31)$
c_{12}	$(u^2+3u+1)(u^{17}-3u^{16}+\cdots+6u^2+1)(u^{30}-30u^{28}+\cdots-u+1)$ $\cdot(u^{36}-3u^{35}+\cdots+18264u-3559)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^2(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^4$ $\cdot(y^{17}-2y^{16}+\cdots+157y-1)(y^{30}-5y^{29}+\cdots-31895296y+65536)$
c_2, c_4	$(y-1)^2(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^4$ $\cdot(y^{17}-10y^{16}+\cdots+17y-1)(y^{30}-17y^{29}+\cdots-6768y+256)$
c_3, c_8	$y^2(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^4$ $\cdot(y^{17}+6y^{16}+\cdots+13y-1)(y^{30}+9y^{29}+\cdots-21248y+4096)$
c_5, c_7, c_{11}	$(y^2-3y+1)(y^{17}+12y^{16}+\cdots+5y-1)(y^{30}+y^{29}+\cdots-4y+1)$ $\cdot(y^{36}+11y^{35}+\cdots+16224y+961)$
c_6, c_9, c_{12}	$(y^2-7y+1)(y^{17}-5y^{16}+\cdots-12y-1)(y^{30}-60y^{29}+\cdots-63y+1)$ $\cdot(y^{36}-25y^{35}+\cdots+545224y+12666481)$
c_{10}	$((y^2-3y+1)^{19})(y^{17}-17y^{16}+\cdots+11y-1)$ $\cdot(y^{30}-23y^{29}+\cdots-3145728y+262144)$