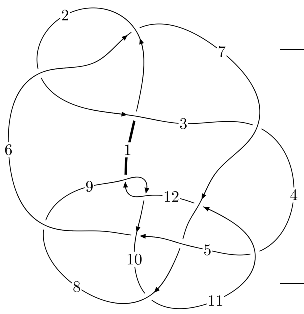
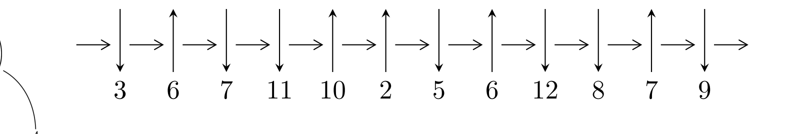
$12n_{0279}$ $(K12n_{0279})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle 27831408u^{16} + 38249416u^{15} + \cdots + 40002991b + 40510496, \\
&\quad - 24958754u^{16} - 42710149u^{15} + \cdots + 40002991a - 62762092,\ u^{17} + u^{16} + \cdots + u - 1 \rangle \\
I_2^u &= \langle b + u + 1,\ u^2 + a - 1,\ u^3 + u^2 + 1 \rangle \\
I_3^u &= \langle -u^3 + b - u,\ a + u + 1,\ u^4 - u^3 + 2u^2 - 2u + 1 \rangle \\
I_4^u &= \langle -u^3 + b - 2u - 1,\ a,\ u^4 - u^3 + 3u^2 - u + 1 \rangle \\
I_5^u &= \langle -au + 3b + a + 3u,\ a^2 + au - a - 3,\ u^2 + u + 1 \rangle \\
I_6^u &= \langle -2.19461 \times 10^{15}u^{13} - 2.90056 \times 10^{15}u^{12} + \cdots + 6.79307 \times 10^{17}b - 2.81232 \times 10^{17}, \\
&\quad - 3.53923 \times 10^{17}u^{13} - 5.35522 \times 10^{17}u^{12} + \cdots + 7.20066 \times 10^{19}a - 1.96602 \times 10^{20}, \\
&\quad u^{14} + u^{13} + \cdots - 98u + 53 \rangle \\
I_7^u &= \langle b - 1,\ a,\ u^2 + u + 1 \rangle \\
I_8^u &= \langle b - u,\ a,\ u^2 + u + 1 \rangle
\end{aligned}
$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 50 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.

$\boldsymbol{I_1^u = \langle 2.78 \times 10^7 u^{16} + 3.82 \times 10^7 u^{15} + \cdots + 4.00 \times 10^7 b + 4.05 \times 10^7,\ -2.50 \times 10^7 u^{16} - 4.27 \times 10^7 u^{15} + \cdots + 4.00 \times 10^7 a - 6.28 \times 10^7,\ u^{17} + u^{16} + \cdots + u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.623922u^{16} + 1.06767u^{15} + \cdots - 4.19761u + 1.56893 \\ -0.695733u^{16} - 0.956164u^{15} + \cdots + 4.01744u - 1.01269 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0718110u^{16} + 0.111510u^{15} + \cdots - 0.180171u + 0.556248 \\ -0.695733u^{16} - 0.956164u^{15} + \cdots + 4.01744u - 1.01269 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.463872u^{16} + 0.672655u^{15} + \cdots + 0.262187u - 0.138788 \\ -0.152299u^{16} - 0.109999u^{15} + \cdots + 0.667583u - 0.892029 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.683246u^{16} + 1.06132u^{15} + \cdots - 4.69765u + 1.76057 \\ -0.917110u^{16} - 0.866468u^{15} + \cdots + 2.11890u - 0.443964 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.664842u^{16} + 0.607334u^{15} + \cdots + 0.648473u + 2.52008 \\ -0.0486712u^{16} + 0.175319u^{15} + \cdots + 0.946131u - 1.76684 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1.82038u^{16} - 2.59604u^{15} + \cdots + 4.42105u + 1.28803 \\ 0.390419u^{16} + 0.580544u^{15} + \cdots + 0.744719u + 0.433797 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.842480u^{16} + 0.955949u^{15} + \cdots + 0.0116457u + 2.65839 \\ -0.369554u^{16} + 0.163720u^{15} + \cdots - 0.697278u - 1.38144 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.295603u^{16} - 0.654268u^{15} + \cdots + 1.33796u + 0.594847 \\ 0.323305u^{16} + 0.418596u^{15} + \cdots - 2.19115u + 0.801058 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.456059u^{16} + 0.624327u^{15} + \cdots + 1.25113u + 2.05621 \\ -0.0909712u^{16} + 0.0800344u^{15} + \cdots + 1.68586u - 1.61454 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{217036647}{40002991}u^{16} - \frac{332499894}{40002991}u^{15} + \cdots + \frac{1336970457}{40002991}u + \frac{36116891}{40002991}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 8u^{16} + \cdots - 2u - 1$
c_2, c_5, c_6	$u^{17} + 4u^{15} + \cdots + 2u + 1$
c_3	$u^{17} + 3u^{16} + \cdots + 96u + 29$
c_4, c_9, c_{12}	$u^{17} - u^{16} + \cdots + u + 1$
c_7	$u^{17} - 2u^{16} + \cdots + 4u - 1$
c_8	$u^{17} + 4u^{16} + \cdots + 358u - 23$
c_{10}	$u^{17} - 2u^{16} + \cdots - 8u + 4$
c_{11}	$u^{17} - u^{16} + \cdots + 192u + 79$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} + 36y^{16} + \cdots + 70y - 1$
c_2, c_5, c_6	$y^{17} + 8y^{16} + \cdots - 2y - 1$
c_3	$y^{17} + 31y^{16} + \cdots - 13636y - 841$
c_4, c_9, c_{12}	$y^{17} + 21y^{16} + \cdots - 21y - 1$
c_7	$y^{17} + 18y^{15} + \cdots - 10y - 1$
c_8	$y^{17} - 36y^{16} + \cdots + 196750y - 529$
c_{10}	$y^{17} + 8y^{16} + \cdots + 96y - 16$
c_{11}	$y^{17} - 33y^{16} + \cdots - 62044y - 6241$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.057958 + 1.037160I$ $a = -1.281730 - 0.156187I$ $b = -0.146308 - 0.285619I$	$0.90500 - 3.77030I$	$1.82474 + 3.48475I$
$u = -0.057958 - 1.037160I$ $a = -1.281730 + 0.156187I$ $b = -0.146308 + 0.285619I$	$0.90500 + 3.77030I$	$1.82474 - 3.48475I$
$u = 0.245125 + 1.028970I$ $a = -1.09741 + 0.90076I$ $b = 0.457121 + 1.056880I$	$4.13880 - 5.40035I$	$4.91651 + 8.34008I$
$u = 0.245125 - 1.028970I$ $a = -1.09741 - 0.90076I$ $b = 0.457121 - 1.056880I$	$4.13880 + 5.40035I$	$4.91651 - 8.34008I$
$u = -0.397934 + 0.813970I$ $a = -0.976997 - 0.362526I$ $b = 1.21505 - 1.10098I$	$-0.17756 + 4.89986I$	$-2.88050 - 11.83276I$
$u = -0.397934 - 0.813970I$ $a = -0.976997 + 0.362526I$ $b = 1.21505 + 1.10098I$	$-0.17756 - 4.89986I$	$-2.88050 + 11.83276I$
$u = 0.355960 + 0.790874I$ $a = -0.144449 + 0.440961I$ $b = 0.821906 + 0.423349I$	$-0.33729 - 2.00763I$	$-4.27790 + 4.10487I$
$u = 0.355960 - 0.790874I$ $a = -0.144449 - 0.440961I$ $b = 0.821906 - 0.423349I$	$-0.33729 + 2.00763I$	$-4.27790 - 4.10487I$
$u = 1.21780$ $a = 1.23271$ $b = -0.577819$	-2.39027	-14.2090
$u = 0.299458 + 0.466008I$ $a = 2.32811 + 0.28399I$ $b = -1.079530 - 0.618458I$	$-3.08489 - 6.04547I$	$-8.76917 + 6.36123I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.299458 - 0.466008I$ $a = 2.32811 - 0.28399I$ $b = -1.079530 + 0.618458I$	$-3.08489 + 6.04547I$	$-8.76917 - 6.36123I$
$u = -0.108066 + 0.363788I$ $a = 0.949976 - 0.957388I$ $b = 0.119264 + 0.837933I$	$0.52238 - 1.49726I$	$2.87825 + 5.01467I$
$u = -0.108066 - 0.363788I$ $a = 0.949976 + 0.957388I$ $b = 0.119264 - 0.837933I$	$0.52238 + 1.49726I$	$2.87825 - 5.01467I$
$u = -0.71553 + 2.03646I$ $a = 0.617685 + 0.005897I$ $b = -1.02465 - 1.09864I$	$17.8274 + 5.4627I$	$-0.12519 - 2.24848I$
$u = -0.71553 - 2.03646I$ $a = 0.617685 - 0.005897I$ $b = -1.02465 + 1.09864I$	$17.8274 - 5.4627I$	$-0.12519 + 2.24848I$
$u = -0.72995 + 2.19477I$ $a = 0.988459 + 0.323341I$ $b = -1.07394 + 1.02493I$	$17.5899 + 13.2299I$	$-0.46218 - 5.67701I$
$u = -0.72995 - 2.19477I$ $a = 0.988459 - 0.323341I$ $b = -1.07394 - 1.02493I$	$17.5899 - 13.2299I$	$-0.46218 + 5.67701I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^2+7u+3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.232786 + 0.792552I$ $a = 1.57395 - 0.36899I$ $b = -1.23279 - 0.79255I$	$-2.26573 - 6.33267I$	$0.03790 + 8.49978I$
$u = 0.232786 - 0.792552I$ $a = 1.57395 + 0.36899I$ $b = -1.23279 + 0.79255I$	$-2.26573 + 6.33267I$	$0.03790 - 8.49978I$
$u = -1.46557$ $a = -1.14790$ $b = 0.465571$	-2.04827	9.92420

III. $\boldsymbol{I_3^u = \langle -u^3 + b - u,\ a + u + 1,\ u^4 - u^3 + 2u^2 - 2u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u - 1 \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3 - 1 \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3u^2 - 4u + 3 \\ -u + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2u^3 + 3u^2 - u + 1 \\ -u^3 + u^2 - 2u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 + 2u^2 + u \\ -u^3 + u^2 - 2u + 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^2 - 2u \\ 2u^3 - u^2 + 3u - 2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -3u^3 + 7u^2 - 8u + 5 \\ -2u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 + 5u^2 - 4u + 2 \\ -u^3 + u^2 - 3u + 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^3 + 5u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^4 + 4y^3 + 6y^2 - 5y + 1$
c_2, c_5, c_6	$y^4 + 2y^2 + 3y + 1$
c_3	$y^4 + 17y^3 + 81y^2 + 17y + 1$
c_4, c_9, c_{12}	$y^4 + 3y^3 + 2y^2 + 1$
c_7	$(y^2 + y + 1)^2$
c_8	$y^4 + 7y^3 + 6y^2 - 32y + 49$
c_{10}	$y^4 - 4y^3 + 18y^2 - y + 49$
c_{11}	$y^4 - 18y^3 + 95y^2 - 114y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = -1.62174 - 0.44060I$ $b = 0.500000 + 0.866025I$	$3.28987 - 4.05977I$	$1.50000 + 4.33013I$
$u = 0.621744 - 0.440597I$ $a = -1.62174 + 0.44060I$ $b = 0.500000 - 0.866025I$	$3.28987 + 4.05977I$	$1.50000 - 4.33013I$
$u = -0.121744 + 1.306620I$ $a = -0.87826 - 1.30662I$ $b = 0.500000 - 0.866025I$	$3.28987 + 4.05977I$	$1.50000 - 4.33013I$
$u = -0.121744 - 1.306620I$ $a = -0.87826 + 1.30662I$ $b = 0.500000 + 0.866025I$	$3.28987 - 4.05977I$	$1.50000 + 4.33013I$

IV. $\boldsymbol{I_4^u = \langle -u^3 + b - 2u - 1,\ a,\ u^4 - u^3 + 3u^2 - u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^3 - u^2 + 5u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.148403 + 0.632502I$		
$a =$	0	$-4.05977I$	$0.24584 + 1.91854I$
$b =$	$1.12196 + 1.05376I$		
$u =$	$0.148403 - 0.632502I$		
$a =$	0	$4.05977I$	$0.24584 - 1.91854I$
$b =$	$1.12196 - 1.05376I$		
$u =$	$0.35160 + 1.49853I$		
$a =$	0	$4.05977I$	$-7.74584 - 7.60774I$
$b =$	$-0.621964 + 0.187730I$		
$u =$	$0.35160 - 1.49853I$		
$a =$	0	$-4.05977I$	$-7.74584 + 7.60774I$
$b =$	$-0.621964 - 0.187730I$		

V. $I_5^u = \langle -au + 3b + a + 3u,\ a^2 + au - a - 3,\ u^2 + u + 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ \frac{1}{3}au - \frac{1}{3}a - u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{3}au + \frac{2}{3}a - u \\ \frac{1}{3}au - \frac{1}{3}a - u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{5}{3}au + \frac{1}{3}a \\ -\frac{1}{3}au - \frac{2}{3}a + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{2}{3}au + \frac{4}{3}a + u + 3 \\ -\frac{1}{3}au - \frac{2}{3}a + u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2au + a + 3u \\ -u - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} au - a - 2 \\ -u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{5}{3}au - \frac{4}{3}a - 2u \\ u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{4}{3}au - \frac{14}{3}a - 3u - 5 \\ -\frac{1}{3}au + \frac{1}{3}a + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{7}{3}au - \frac{1}{3}a + 2u - 3 \\ -2u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2au - 3a - 5u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^4 - 7y^3 + 33y^2 - 7y + 1$
c_2, c_6, c_9 c_{12}	$y^4 + 5y^3 + 9y^2 + 5y + 1$
c_3	$y^4 - 4y^3 + 30y^2 + 11y + 1$
c_4, c_5	$(y^2 + y + 1)^2$
c_7	$y^4 - y^3 + 6y^2 - 4y + 1$
c_8	$y^4 - 4y^3 - 6y^2 + 35y + 49$
c_{10}	$y^4 + 12y^3 + 54y^2 + 27y + 81$
c_{11}	$y^4 + 5y^3 + 9y^2 - 7y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-1.095530-0.257041I$ $b=\ \ 1.12196-1.05376I$	$4.05977I$	$0.24584-1.91854I$
$u=-0.500000+0.866025I$ $a=\ \ 2.59553-0.60898I$ $b=-0.621964+0.187730I$	$4.05977I$	$-7.74584-7.60774I$
$u=-0.500000-0.866025I$ $a=-1.095530+0.257041I$ $b=\ \ 1.12196+1.05376I$	$-4.05977I$	$0.24584+1.91854I$
$u=-0.500000-0.866025I$ $a=\ \ 2.59553+0.60898I$ $b=-0.621964-0.187730I$	$-4.05977I$	$-7.74584+7.60774I$

VI. $\boldsymbol{I^u_6 = \langle -2.19\times 10^{15}u^{13} - 2.90\times 10^{15}u^{12} + \cdots + 6.79\times 10^{17}b - 2.81\times 10^{17},\ -3.54\times 10^{17}u^{13} - 5.36\times 10^{17}u^{12} + \cdots + 7.20\times 10^{19}a - 1.97\times 10^{20},\ u^{14} + u^{13} + \cdots - 98u + 53\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00491515u^{13} + 0.00743713u^{12} + \cdots - 1.48607u + 2.73033 \\ 0.00323066u^{13} + 0.00426988u^{12} + \cdots + 2.16045u + 0.413997 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00814581u^{13} + 0.0117070u^{12} + \cdots + 0.674379u + 3.14433 \\ 0.00323066u^{13} + 0.00426988u^{12} + \cdots + 2.16045u + 0.413997 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0123724u^{13} + 0.00795343u^{12} + \cdots + 13.9704u - 1.71865 \\ 0.00300637u^{13} + 0.00251071u^{12} + \cdots + 3.63641u - 0.788348 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0104555u^{13} - 0.0107429u^{12} + \cdots - 7.46839u + 0.477030 \\ -0.00265698u^{13} - 0.00317978u^{12} + \cdots - 2.34330u + 0.220186 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00740443u^{13} + 0.00396765u^{12} + \cdots + 8.94568u - 0.309042 \\ 0.00196165u^{13} + 0.00147507u^{12} + \cdots + 3.38830u - 0.621258 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.00576580u^{13} + 0.00758083u^{12} + \cdots + 0.830146u + 2.59522 \\ 0.00344632u^{13} + 0.00301915u^{12} + \cdots + 2.30371u + 0.222657 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00273723u^{13} - 0.000789063u^{12} + \cdots - 3.15318u + 1.21964 \\ -0.00164957u^{13} - 0.00328941u^{12} + \cdots - 0.583214u + 0.127768 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00210562u^{13} - 0.00837365u^{12} + \cdots - 4.25378u + 1.54174 \\ 0.00386701u^{13} + 0.00234040u^{12} + \cdots - 0.635377u + 0.240016 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.00720203u^{13} + 0.00980153u^{12} + \cdots + 2.73758u + 2.32633 \\ 0.00313757u^{13} + 0.000888876u^{12} + \cdots + 3.09172u + 0.122919 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{408565117719213 27}{1358614961701335812}u^{13} + \frac{59994346491964077}{1358614961701335812}u^{12} + \cdots + \frac{13415037849513161527}{679307480850667906}u - \frac{6319351487276365787}{1358614961701335812}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 8u^{13} + \cdots - 25u + 1$
c_2, c_5, c_6	$u^{14} - 4u^{12} + \cdots + 9u + 1$
c_3	$u^{14} + 42u^{12} + \cdots + 78137u + 7937$
c_4, c_9, c_{12}	$u^{14} - u^{13} + \cdots + 98u + 53$
c_7	$(u^7 + u^6 - u^4 + 2u^3 + 2u^2 - 1)^2$
c_8	$u^{14} - 16u^{12} + \cdots - 13u - 1$
c_{10}	$u^{14} - 2u^{13} + \cdots - 160u + 64$
c_{11}	$u^{14} - 19u^{12} + \cdots - 10u + 173$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} + 32y^{13} + \cdots - 313y + 1$
c_2, c_5, c_6	$y^{14} - 8y^{13} + \cdots - 25y + 1$
c_3	$y^{14} + 84y^{13} + \cdots - 978977713y + 62995969$
c_4, c_9, c_{12}	$y^{14} + 31y^{13} + \cdots + 83040y + 2809$
c_7	$(y^7 - y^6 + 6y^5 - 5y^4 + 10y^3 - 6y^2 + 4y - 1)^2$
c_8	$y^{14} - 32y^{13} + \cdots - 235y + 1$
c_{10}	$y^{14} + 24y^{13} + \cdots + 21504y + 4096$
c_{11}	$y^{14} - 38y^{13} + \cdots + 34846y + 29929$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.502626 + 0.663141I$ $a = -0.514604 + 0.044435I$ $b = 0.676751 + 0.491075I$	$-0.37711 - 1.83261I$	$-2.26809 + 4.51372I$
$u = 0.502626 - 0.663141I$ $a = -0.514604 - 0.044435I$ $b = 0.676751 - 0.491075I$	$-0.37711 + 1.83261I$	$-2.26809 - 4.51372I$
$u = 1.19118$ $a = 1.38337$ $b = -0.577619$	-2.39017	-14.4470
$u = 1.26649$ $a = 1.09551$ $b = -0.577619$	-2.39017	-14.4470
$u = -0.008952 + 0.262276I$ $a = 2.85503 - 0.49795I$ $b = 0.676751 + 0.491075I$	$-0.37711 - 1.83261I$	$-2.26809 + 4.51372I$
$u = -0.008952 - 0.262276I$ $a = 2.85503 + 0.49795I$ $b = 0.676751 - 0.491075I$	$-0.37711 + 1.83261I$	$-2.26809 - 4.51372I$
$u = -0.74076 + 1.86468I$ $a = 1.085270 - 0.357270I$ $b = -0.850452 - 0.793787I$	$6.35486 - 2.92126I$	$1.82532 + 2.85511I$
$u = -0.74076 - 1.86468I$ $a = 1.085270 + 0.357270I$ $b = -0.850452 + 0.793787I$	$6.35486 + 2.92126I$	$1.82532 - 2.85511I$
$u = -1.28802 + 1.77121I$ $a = 0.796866 + 0.008028I$ $b = -0.850452 + 0.793787I$	$6.35486 + 2.92126I$	$1.82532 - 2.85511I$
$u = -1.28802 - 1.77121I$ $a = 0.796866 - 0.008028I$ $b = -0.850452 - 0.793787I$	$6.35486 - 2.92126I$	$1.82532 + 2.85511I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.16280 + 2.37083I$ $a = -1.063400 + 0.533787I$ $b = 0.962510 + 0.950397I$	$18.2464 - 3.4867I$	$0.16603 + 2.41435I$
$u = -0.16280 - 2.37083I$ $a = -1.063400 - 0.533787I$ $b = 0.962510 - 0.950397I$	$18.2464 + 3.4867I$	$0.16603 - 2.41435I$
$u = -0.03091 + 2.59918I$ $a = -0.549536 + 0.031095I$ $b = 0.962510 - 0.950397I$	$18.2464 + 3.4867I$	$0.16603 - 2.41435I$
$u = -0.03091 - 2.59918I$ $a = -0.549536 - 0.031095I$ $b = 0.962510 + 0.950397I$	$18.2464 - 3.4867I$	$0.16603 + 2.41435I$

VII. $I_7^u = \langle b-1,\ a,\ u^2+u+1 \rangle$

(i) Arc colorings

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

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

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

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

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

$$a_{12} = \begin{pmatrix} u \\ 2u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u+1 \\ 2u+1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0$ $b = 1.00000$	0	-3.00000
$u = -0.500000 - 0.866025I$ $a = 0$ $b = 1.00000$	0	-3.00000

VIII. $I_8^u = \langle b - u,\ a,\ u^2 + u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$	0	0
$u = -0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$	0	0

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^4(u^3-2u^2+u+1)(u^4+2u^2-3u+1)$ $\cdot(u^4-5u^3+9u^2-5u+1)(u^{14}-8u^{13}+\cdots-25u+1)$ $\cdot(u^{17}+8u^{16}+\cdots-2u-1)$
c_2, c_5	$((u^2+u+1)^4)(u^3+u+1)(u^4-2u^3+\cdots-u+1)(u^4-u^3+\cdots-u+1)$ $\cdot(u^{14}-4u^{12}+\cdots+9u+1)(u^{17}+4u^{15}+\cdots+2u+1)$
c_3	$((u+1)^3)(u^2-u+1)^4(u^4-u^3+\cdots-u+1)(u^4+4u^3+\cdots+u+1)$ $\cdot(u^{14}+42u^{12}+\cdots+78137u+7937)(u^{17}+3u^{16}+\cdots+96u+29)$
c_4, c_{12}	$((u^2+u+1)^4)(u^3+u^2+1)(u^4-u^3+\cdots-2u+1)(u^4-u^3+\cdots-u+1)$ $\cdot(u^{14}-u^{13}+\cdots+98u+53)(u^{17}-u^{16}+\cdots+u+1)$
c_6	$((u^2-u+1)^4)(u^3+u-1)(u^4+u^3+\cdots+u+1)(u^4+2u^3+\cdots+u+1)$ $\cdot(u^{14}-4u^{12}+\cdots+9u+1)(u^{17}+4u^{15}+\cdots+2u+1)$
c_7	$((u+1)^2)(u^2-u+1)(u^2+u+1)^2(u^3-2u^2+u+1)(u^4+u^3-2u+1)^2$ $\cdot((u^7+u^6-u^4+2u^3+2u^2-1)^2)(u^{17}-2u^{16}+\cdots+4u-1)$
c_8	$(u+1)^2(u^2-u+1)(u^3+u-1)(u^4-3u^3+8u^2-12u+7)$ $\cdot(u^4+u^3-2u+1)(u^4+4u^3+\cdots+7u+7)(u^{14}-16u^{12}+\cdots-13u-1)$ $\cdot(u^{17}+4u^{16}+\cdots+358u-23)$
c_9	$((u^2-u+1)^4)(u^3-u^2-1)(u^4+u^3+\cdots+2u+1)(u^4+u^3+\cdots+u+1)$ $\cdot(u^{14}-u^{13}+\cdots+98u+53)(u^{17}-u^{16}+\cdots+u+1)$
c_{10}	$u^8(u^3+3u^2+4u+3)(u^4+6u^2+9u+9)(u^4+2u^3-u+7)$ $\cdot(u^{14}-2u^{13}+\cdots-160u+64)(u^{17}-2u^{16}+\cdots-8u+4)$
c_{11}	$((u+1)^3)(u^2-u+1)^4(u^4+u^3+\cdots+7u+7)(u^4+4u^3+\cdots-10u+7)$ $\cdot(u^{14}-19u^{12}+\cdots-10u+173)(u^{17}-u^{16}+\cdots+192u+79)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^4(y^3-2y^2+5y-1)(y^4-7y^3+33y^2-7y+1)$ $\cdot(y^4+4y^3+6y^2-5y+1)(y^{14}+32y^{13}+\cdots-313y+1)$ $\cdot(y^{17}+36y^{16}+\cdots+70y-1)$
c_2, c_5, c_6	$(y^2+y+1)^4(y^3+2y^2+y-1)(y^4+2y^2+3y+1)$ $\cdot(y^4+5y^3+9y^2+5y+1)(y^{14}-8y^{13}+\cdots-25y+1)$ $\cdot(y^{17}+8y^{16}+\cdots-2y-1)$
c_3	$(y-1)^3(y^2+y+1)^4(y^4-4y^3+30y^2+11y+1)$ $\cdot(y^4+17y^3+81y^2+17y+1)$ $\cdot(y^{14}+84y^{13}+\cdots-978977713y+62995969)$ $\cdot(y^{17}+31y^{16}+\cdots-13636y-841)$
c_4, c_9, c_{12}	$(y^2+y+1)^4(y^3-y^2-2y-1)(y^4+3y^3+2y^2+1)$ $\cdot(y^4+5y^3+9y^2+5y+1)(y^{14}+31y^{13}+\cdots+83040y+2809)$ $\cdot(y^{17}+21y^{16}+\cdots-21y-1)$
c_7	$(y-1)^2(y^2+y+1)^3(y^3-2y^2+5y-1)(y^4-y^3+6y^2-4y+1)^2$ $\cdot(y^7-y^6+6y^5-5y^4+10y^3-6y^2+4y-1)^2$ $\cdot(y^{17}+18y^{15}+\cdots-10y-1)$
c_8	$((y-1)^2)(y^2+y+1)(y^3+2y^2+y-1)(y^4-4y^3+\cdots+35y+49)$ $\cdot(y^4-y^3+6y^2-4y+1)(y^4+7y^3+6y^2-32y+49)$ $\cdot(y^{14}-32y^{13}+\cdots-235y+1)(y^{17}-36y^{16}+\cdots+196750y-529)$
c_{10}	$y^8(y^3-y^2-2y-9)(y^4-4y^3+18y^2-y+49)$ $\cdot(y^4+12y^3+54y^2+27y+81)(y^{14}+24y^{13}+\cdots+21504y+4096)$ $\cdot(y^{17}+8y^{16}+\cdots+96y-16)$
c_{11}	$(y-1)^3(y^2+y+1)^4(y^4-18y^3+95y^2-114y+49)$ $\cdot(y^4+5y^3+9y^2-7y+49)(y^{14}-38y^{13}+\cdots+34846y+29929)$ $\cdot(y^{17}-33y^{16}+\cdots-62044y-6241)$