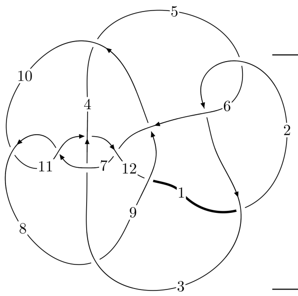
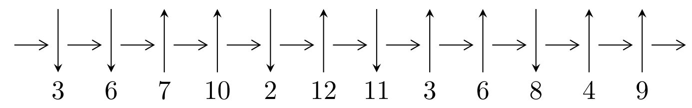
$12n_{0499}$ ($K12n_{0499}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & 253607u^{17} - 119815u^{16} + \cdots + 2792b + 534547, \\
& -1130011u^{17} + 534547u^{16} + \cdots + 2792a - 2385431, \\
& u^{18} - u^{16} + u^{15} + 9u^{14} + u^{13} - 6u^{12} + 3u^{11} + 21u^{10} + 4u^9 - 7u^8 + 5u^7 + 16u^6 - 9u^4 - 9u^3 - u^2 + 3u + 1\rangle \\
I_2^u = \langle & u^{11} + u^{10} - 3u^9 + 2u^8 + 7u^7 - 6u^5 + 6u^4 + 8u^3 - 8u^2 + 4b + u + 3, \\
& -9u^{11} + 3u^{10} - u^9 - 10u^8 - 39u^7 + 4u^6 - 22u^5 - 30u^4 - 36u^3 + 12u^2 + 4a - 17u - 7, \\
& u^{12} + u^9 + 5u^8 + u^7 + 2u^6 + 4u^5 + 6u^4 + u^2 + 2u + 1\rangle \\
I_3^u = \langle & 4.82591 \times 10^{21}u^{23} - 1.43753 \times 10^{22}u^{22} + \cdots + 2.64783 \times 10^{21}b + 1.78802 \times 10^{22}, \\
& 9.78596 \times 10^{19}u^{23} - 3.52311 \times 10^{20}u^{22} + \cdots + 1.93272 \times 10^{19}a + 1.09980 \times 10^{20},\ u^{24} - 3u^{23} + \cdots + 8u + 1 \\
I_4^u = \langle & 5u^7 - 18u^6 + 14u^5 - 17u^4 + 44u^3 - 53u^2 + 11b + 21, \\
& -7u^7 + 23u^6 - 24u^5 + 26u^4 - 66u^3 + 83u^2 + 11a - 22u - 14, \\
& u^8 - 2u^7 + u^6 - 2u^5 + 6u^4 - 4u^3 - 2u^2 + 2u + 1\rangle
\end{aligned}
$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 62 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. $\boldsymbol{I_1^u = \langle 253607u^{17} - 119815u^{16} + \cdots + 2792b + 534547,\ -1.13 \times 10^6 u^{17} + 5.35 \times 10^5 u^{16} + \cdots + 2792a - 2.39 \times 10^6,\ u^{18} - u^{16} + \cdots + 3u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} 404.732u^{17} - 191.457u^{16} + \cdots + 757.847u + 854.381 \\ -90.8335u^{17} + 42.9137u^{16} + \cdots - 168.638u - 191.457 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -123.317u^{17} + 57.5845u^{16} + \cdots - 226.145u - 262.067 \\ -63.4466u^{17} + 30.0842u^{16} + \cdots - 119.201u - 133.872 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -186.763u^{17} + 87.6687u^{16} + \cdots - 345.346u - 395.939 \\ -63.4466u^{17} + 30.0842u^{16} + \cdots - 119.201u - 133.872 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 404.732u^{17} - 191.457u^{16} + \cdots + 758.847u + 854.381 \\ -90.8335u^{17} + 42.9137u^{16} + \cdots - 168.638u - 191.457 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -304.984u^{17} + 143.412u^{16} + \cdots - 565.421u - 644.981 \\ -22.6307u^{17} + 10.9817u^{16} + \cdots - 43.3861u - 48.0448 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 94.9466u^{17} - 43.5842u^{16} + \cdots + 171.201u + 201.372 \\ 28.6734u^{17} - 13.9162u^{16} + \cdots + 55.9921u + 60.8231 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 123.620u^{17} - 57.5004u^{16} + \cdots + 227.193u + 262.195 \\ 28.6734u^{17} - 13.9162u^{16} + \cdots + 55.9921u + 60.8231 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -335.524u^{17} + 158.659u^{16} + \cdots - 631.124u - 712.169 \\ 2.32450u^{17} - 0.887536u^{16} + \cdots + 5.26934u + 6.20702 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -406.592u^{17} + 193.199u^{16} + \cdots - 766.342u - 859.336 \\ 27.5838u^{17} - 13.1547u^{16} + \cdots + 53.8030u + 59.3266 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{2045515}{2792}u^{17} - \frac{964335}{2792}u^{16} + \cdots + \frac{1913265}{1396}u + \frac{4343639}{2792}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18} + 38u^{17} + \cdots + 21004u + 2704$
c_2, c_5	$u^{18} + 12u^{17} + \cdots - 42u + 52$
c_3, c_{11}	$u^{18} - u^{16} + \cdots + 3u + 1$
c_4, c_8	$u^{18} - u^{17} + \cdots - 6u^2 + 1$
c_6	$u^{18} - 13u^{17} + \cdots - 184u + 32$
c_7, c_{10}	$u^{18} - 11u^{17} + \cdots - 34u + 4$
c_9, c_{12}	$u^{18} + u^{17} + \cdots + 27u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} - 146y^{17} + \cdots - 126806384y + 7311616$
c_2, c_5	$y^{18} - 38y^{17} + \cdots - 21004y + 2704$
c_3, c_{11}	$y^{18} - 2y^{17} + \cdots - 11y + 1$
c_4, c_8	$y^{18} + 29y^{17} + \cdots - 12y + 1$
c_6	$y^{18} + 3y^{17} + \cdots + 8896y + 1024$
c_7, c_{10}	$y^{18} + 7y^{17} + \cdots + 212y + 16$
c_9, c_{12}	$y^{18} + 41y^{17} + \cdots - 53y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.891966 + 0.505299I$ $a = -0.23675 - 1.79433I$ $b = 0.85339 + 1.26132I$	$-12.21600 - 5.30943I$	$1.96728 + 5.12021I$
$u = -0.891966 - 0.505299I$ $a = -0.23675 + 1.79433I$ $b = 0.85339 - 1.26132I$	$-12.21600 + 5.30943I$	$1.96728 - 5.12021I$
$u = 0.578165 + 0.938615I$ $a = 1.09411 - 1.04806I$ $b = 0.038828 - 0.821875I$	$-18.0039 + 5.4690I$	$-2.64879 - 4.54026I$
$u = 0.578165 - 0.938615I$ $a = 1.09411 + 1.04806I$ $b = 0.038828 + 0.821875I$	$-18.0039 - 5.4690I$	$-2.64879 + 4.54026I$
$u = -0.854287 + 0.898221I$ $a = 0.539073 - 0.616267I$ $b = 0.13299 + 1.67807I$	$-0.401628 - 0.023944I$	$0.798667 - 0.224914I$
$u = -0.854287 - 0.898221I$ $a = 0.539073 + 0.616267I$ $b = 0.13299 - 1.67807I$	$-0.401628 + 0.023944I$	$0.798667 + 0.224914I$
$u = -0.241248 + 0.688870I$ $a = -0.525924 + 0.059772I$ $b = -0.480079 + 0.538950I$	$-1.87297 + 1.40233I$	$-2.30233 - 2.52603I$
$u = -0.241248 - 0.688870I$ $a = -0.525924 - 0.059772I$ $b = -0.480079 - 0.538950I$	$-1.87297 - 1.40233I$	$-2.30233 + 2.52603I$
$u = 1.069570 + 0.765142I$ $a = -0.272123 - 0.684036I$ $b = 0.10197 + 1.59259I$	$2.96611 + 2.61050I$	$7.54398 - 1.84581I$
$u = 1.069570 - 0.765142I$ $a = -0.272123 + 0.684036I$ $b = 0.10197 - 1.59259I$	$2.96611 - 2.61050I$	$7.54398 + 1.84581I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.678153 + 0.019544I$ $a = 0.966784 + 0.264491I$ $b = 0.240917 - 0.127619I$	$1.208600 + 0.022955I$	$9.69868 + 0.48984I$
$u = 0.678153 - 0.019544I$ $a = 0.966784 - 0.264491I$ $b = 0.240917 + 0.127619I$	$1.208600 - 0.022955I$	$9.69868 - 0.48984I$
$u = -1.043070 + 0.939013I$ $a = -0.010456 - 0.755078I$ $b = 0.438217 + 1.074260I$	$-0.86599 - 7.63655I$	$0.42339 + 4.89613I$
$u = -1.043070 - 0.939013I$ $a = -0.010456 + 0.755078I$ $b = 0.438217 - 1.074260I$	$-0.86599 + 7.63655I$	$0.42339 - 4.89613I$
$u = -0.473262 + 0.000907I$ $a = -0.32200 + 3.04257I$ $b = -0.403752 - 0.680833I$	$1.20753 - 2.46681I$	$11.74185 + 5.49254I$
$u = -0.473262 - 0.000907I$ $a = -0.32200 - 3.04257I$ $b = -0.403752 + 0.680833I$	$1.20753 + 2.46681I$	$11.74185 - 5.49254I$
$u = 1.17795 + 1.15587I$ $a = -0.232707 - 0.959348I$ $b = -1.42248 + 1.83898I$	$-14.7900 + 13.6947I$	$-0.22273 - 6.15238I$
$u = 1.17795 - 1.15587I$ $a = -0.232707 + 0.959348I$ $b = -1.42248 - 1.83898I$	$-14.7900 - 13.6947I$	$-0.22273 + 6.15238I$

II.

$\boldsymbol{I_2^u = \langle u^{11}+u^{10}+\cdots+4b+3,\ -9u^{11}+3u^{10}+\cdots+4a-7,\ u^{12}+u^9+\cdots+2u+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{9}{4}u^{11}-\frac{3}{4}u^{10}+\cdots+\frac{17}{4}u+\frac{7}{4}\\-\frac{1}{4}u^{11}-\frac{1}{4}u^{10}+\cdots-\frac{1}{4}u-\frac{3}{4}\end{pmatrix}$$
$$a_8 = \begin{pmatrix}\frac{1}{2}u^{11}-u^{10}+\cdots+\frac{5}{2}u-4\\-\frac{5}{4}u^{11}+\frac{5}{4}u^{10}+\cdots-\frac{5}{4}u-\frac{1}{4}\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{3}{4}u^{11}+\frac{1}{4}u^{10}+\cdots+\frac{5}{4}u-\frac{17}{4}\\-\frac{5}{4}u^{11}+\frac{5}{4}u^{10}+\cdots-\frac{5}{4}u-\frac{1}{4}\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{9}{4}u^{11}-\frac{3}{4}u^{10}+\cdots+\frac{13}{4}u+\frac{7}{4}\\-\frac{1}{4}u^{11}-\frac{1}{4}u^{10}+\cdots-\frac{1}{4}u-\frac{3}{4}\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u^{11}-\frac{1}{2}u^{10}+\cdots+u-\frac{5}{2}\\\frac{1}{4}u^{11}+\frac{3}{4}u^{10}+\cdots+\frac{1}{4}u+\frac{1}{4}\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-\frac{3}{4}u^{11}+\frac{7}{4}u^{10}+\cdots-\frac{15}{4}u-\frac{7}{4}\\\frac{1}{4}u^{11}+\frac{5}{4}u^{10}+\cdots+\frac{9}{4}u+\frac{7}{4}\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-\frac{1}{2}u^{11}+3u^{10}+\cdots+5u^2-\frac{3}{2}u\\\frac{1}{4}u^{11}+\frac{5}{4}u^{10}+\cdots+\frac{9}{4}u+\frac{7}{4}\end{pmatrix}$$
$$a_5 = \begin{pmatrix}\frac{3}{4}u^{11}-\frac{7}{4}u^{10}+\cdots+\frac{3}{4}u-\frac{13}{4}\\\frac{1}{2}u^{11}-2u^{10}+\cdots-\frac{5}{2}u-2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-\frac{5}{2}u^{11}+\frac{3}{2}u^{10}+\cdots-\frac{9}{2}u-\frac{17}{2}\\\frac{3}{4}u^{11}+\frac{1}{4}u^{10}+\cdots+\frac{7}{4}u+\frac{7}{4}\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{43}{4}u^{11}-\frac{23}{4}u^{10}-\frac{5}{4}u^9+13u^8+\frac{183}{4}u^7-17u^6+\frac{25}{2}u^5+\frac{69}{2}u^4+36u^3-30u^2+\frac{35}{4}u+\frac{63}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} - 11u^{11} + \cdots + 38u + 9$
c_2	$u^{12} + 7u^{11} + \cdots + 8u + 3$
c_3, c_{11}	$u^{12} + u^9 + 5u^8 + u^7 + 2u^6 + 4u^5 + 6u^4 + u^2 + 2u + 1$
c_4, c_8	$u^{12} + u^{11} + \cdots + 3u + 1$
c_5	$u^{12} - 7u^{11} + \cdots - 8u + 3$
c_6	$u^{12} - 6u^{11} + \cdots - 2u + 1$
c_7	$u^{12} - 6u^{11} + \cdots - 26u + 7$
c_9, c_{12}	$u^{12} - u^{11} + \cdots - 3u + 1$
c_{10}	$u^{12} + 6u^{11} + \cdots + 26u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 31y^{11} + \cdots - 814y + 81$
c_2, c_5	$y^{12} - 11y^{11} + \cdots + 38y + 9$
c_3, c_{11}	$y^{12} + 10y^{10} + \cdots - 2y + 1$
c_4, c_8	$y^{12} + 15y^{11} + \cdots + 9y + 1$
c_6	$y^{12} + 2y^{11} + \cdots + 8y + 1$
c_7, c_{10}	$y^{12} + 6y^{11} + \cdots + 94y + 49$
c_9, c_{12}	$y^{12} + 15y^{11} + \cdots - y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.524174 + 0.935405I$ $a = 0.211373 + 0.651851I$ $b = 0.241922 - 0.751427I$	$-2.32559 + 0.11843I$	$-3.60485 - 1.52557I$
$u = 0.524174 - 0.935405I$ $a = 0.211373 - 0.651851I$ $b = 0.241922 + 0.751427I$	$-2.32559 - 0.11843I$	$-3.60485 + 1.52557I$
$u = -0.832813 + 0.793470I$ $a = -0.792558 + 0.118594I$ $b = 0.72679 - 1.84852I$	$-14.9054 + 3.0198I$	$-0.549763 - 0.305805I$
$u = -0.832813 - 0.793470I$ $a = -0.792558 - 0.118594I$ $b = 0.72679 + 1.84852I$	$-14.9054 - 3.0198I$	$-0.549763 + 0.305805I$
$u = 0.541589 + 0.596557I$ $a = -1.48280 + 0.71503I$ $b = -0.172321 + 0.406331I$	$-2.07362 + 3.61491I$	$-0.01596 - 8.87319I$
$u = 0.541589 - 0.596557I$ $a = -1.48280 - 0.71503I$ $b = -0.172321 - 0.406331I$	$-2.07362 - 3.61491I$	$-0.01596 + 8.87319I$
$u = -0.909125 + 0.811540I$ $a = -0.238321 + 1.090800I$ $b = -0.66042 - 1.34636I$	$1.42905 - 4.46443I$	$1.98459 + 3.93924I$
$u = -0.909125 - 0.811540I$ $a = -0.238321 - 1.090800I$ $b = -0.66042 + 1.34636I$	$1.42905 + 4.46443I$	$1.98459 - 3.93924I$
$u = -0.461441 + 0.292331I$ $a = -0.46843 + 2.98345I$ $b = -0.283743 - 0.799009I$	$0.90472 - 3.05984I$	$8.0892 + 13.7973I$
$u = -0.461441 - 0.292331I$ $a = -0.46843 - 2.98345I$ $b = -0.283743 + 0.799009I$	$0.90472 + 3.05984I$	$8.0892 - 13.7973I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.13762 + 0.99536I$		
$a =$	$0.270741 + 0.824638I$	$0.52151 + 9.30484I$	$3.09676 - 8.25985I$
$b =$	$0.64778 - 1.85872I$		
$u =$	$1.13762 - 0.99536I$		
$a =$	$0.270741 - 0.824638I$	$0.52151 - 9.30484I$	$3.09676 + 8.25985I$
$b =$	$0.64778 + 1.85872I$		

III.

$\boldsymbol{I_3^u = \langle 4.83\times 10^{21}u^{23} - 1.44\times 10^{22}u^{22} + \cdots + 2.65\times 10^{21}b + 1.79\times 10^{22},\ 9.79\times 10^{19}u^{23} - 3.52\times 10^{20}u^{22} + \cdots + 1.93\times 10^{19}a + 1.10\times 10^{20},\ u^{24} - 3u^{23} + \cdots + 8u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} -5.06331u^{23} + 18.2287u^{22} + \cdots - 48.2690u - 5.69044 \\ -1.82259u^{23} + 5.42911u^{22} + \cdots - 40.5303u - 6.75278 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -10.1391u^{23} + 35.9200u^{22} + \cdots - 106.991u - 14.7972 \\ 2.64920u^{23} - 9.10533u^{22} + \cdots + 27.2338u + 2.94973 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -7.48988u^{23} + 26.8147u^{22} + \cdots - 79.7574u - 11.8475 \\ 2.64920u^{23} - 9.10533u^{22} + \cdots + 27.2338u + 2.94973 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -8.40607u^{23} + 28.7312u^{22} + \cdots - 108.046u - 15.4820 \\ -2.07131u^{23} + 6.35594u^{22} + \cdots - 40.0796u - 6.27861 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -9.40607u^{23} + 31.7312u^{22} + \cdots - 138.046u - 23.4820 \\ 1.75146u^{23} - 7.12240u^{22} + \cdots - 3.70802u - 2.61876 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -9.79160u^{23} + 32.7176u^{22} + \cdots - 131.227u - 18.5553 \\ -3.85941u^{23} + 13.5659u^{22} + \cdots - 36.8737u - 5.64255 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -13.6510u^{23} + 46.2835u^{22} + \cdots - 168.100u - 24.1978 \\ -3.85941u^{23} + 13.5659u^{22} + \cdots - 36.8737u - 5.64255 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -8.19967u^{23} + 25.0149u^{22} + \cdots - 158.975u - 28.9010 \\ -0.108090u^{23} + 1.78381u^{22} + \cdots + 33.1497u + 6.11529 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -7.41410u^{23} + 26.8547u^{22} + \cdots - 78.1869u - 10.1474 \\ -1.90049u^{23} + 4.94162u^{22} + \cdots - 48.4935u - 8.37022 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{2567456913179937840001 8}{26478271559914428288 23}u^{23} - \frac{93630207416059654480934}{26478271559914428288 23}u^{22} + \cdots + \frac{25344541787390487060580 6}{26478271559914428288 23}u + \frac{33919201463985866967416}{26478271559914428288 23}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + 9u^5 + 22u^4 + 7u^3 + 4u^2 - 4u + 1)^4$
c_2, c_5	$(u^6 - 3u^5 + 3u^3 + 2u^2 + 1)^4$
c_3, c_{11}	$u^{24} - 3u^{23} + \cdots + 8u + 1$
c_4, c_8	$u^{24} + u^{23} + \cdots - 350u + 139$
c_6	$(u^2 + u + 1)^{12}$
c_7, c_{10}	$(u^6 + u^5 + 2u^4 + u^3 + 2u^2 + 2u + 1)^4$
c_9, c_{12}	$u^{24} - u^{23} + \cdots + 3722u + 2473$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - 37y^5 + 366y^4 + 201y^3 + 116y^2 - 8y + 1)^4$
c_2, c_5	$(y^6 - 9y^5 + 22y^4 - 7y^3 + 4y^2 + 4y + 1)^4$
c_3, c_{11}	$y^{24} + y^{23} + \cdots - 4y + 1$
c_4, c_8	$y^{24} + 49y^{23} + \cdots + 13164y + 19321$
c_6	$(y^2 + y + 1)^{12}$
c_7, c_{10}	$(y^6 + 3y^5 + 6y^4 + 5y^3 + 4y^2 + 1)^4$
c_9, c_{12}	$y^{24} + 51y^{23} + \cdots + 67849690y + 6115729$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.373872 + 0.942544I$ $a = 0.158900 + 0.657788I$ $b = -0.552066 - 0.133903I$	$-2.03447 + 2.26308I$	$-3.01274 - 4.61865I$
$u = 0.373872 - 0.942544I$ $a = 0.158900 - 0.657788I$ $b = -0.552066 + 0.133903I$	$-2.03447 - 2.26308I$	$-3.01274 + 4.61865I$
$u = 0.382758 + 1.064110I$ $a = -0.497044 + 0.348026I$ $b = -0.579720 + 0.556799I$	$-2.03447 + 1.79668I$	$-3.01274 - 2.30956I$
$u = 0.382758 - 1.064110I$ $a = -0.497044 - 0.348026I$ $b = -0.579720 - 0.556799I$	$-2.03447 - 1.79668I$	$-3.01274 + 2.30956I$
$u = -0.769320 + 0.956480I$ $a = -0.492536 + 0.961676I$ $b = -0.27677 - 1.50069I$	$0.61992 - 6.50680I$	$0.39807 + 6.46471I$
$u = -0.769320 - 0.956480I$ $a = -0.492536 - 0.961676I$ $b = -0.27677 + 1.50069I$	$0.61992 + 6.50680I$	$0.39807 - 6.46471I$
$u = -1.134620 + 0.514340I$ $a = 0.278708 + 0.475094I$ $b = -0.465702 - 1.103180I$	$-2.03447 - 2.26308I$	$-3.01274 + 4.61865I$
$u = -1.134620 - 0.514340I$ $a = 0.278708 - 0.475094I$ $b = -0.465702 + 1.103180I$	$-2.03447 + 2.26308I$	$-3.01274 - 4.61865I$
$u = -0.335084 + 1.275540I$ $a = -0.790298 - 0.263948I$ $b = 0.550295 - 0.611586I$	$-15.0348 + 0.3480I$	$-1.38532 + 0.49466I$
$u = -0.335084 - 1.275540I$ $a = -0.790298 + 0.263948I$ $b = 0.550295 + 0.611586I$	$-15.0348 - 0.3480I$	$-1.38532 - 0.49466I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.151187 + 0.595299I$ $a = 1.69413 + 1.33889I$ $b = 0.274756 - 0.063861I$	$0.61992 + 2.44703I$	$0.398066 + 0.463490I$
$u = 0.151187 - 0.595299I$ $a = 1.69413 - 1.33889I$ $b = 0.274756 + 0.063861I$	$0.61992 - 2.44703I$	$0.398066 - 0.463490I$
$u = -0.527891 + 0.202784I$ $a = 0.12502 + 2.34194I$ $b = -0.379910 - 1.124860I$	$0.61992 - 2.44703I$	$0.398066 - 0.463490I$
$u = -0.527891 - 0.202784I$ $a = 0.12502 - 2.34194I$ $b = -0.379910 + 1.124860I$	$0.61992 + 2.44703I$	$0.398066 + 0.463490I$
$u = -0.385179 + 0.402316I$ $a = 0.44579 - 1.92187I$ $b = 1.89981 + 1.60725I$	$-15.0348 - 4.4077I$	$-1.38532 + 6.43354I$
$u = -0.385179 - 0.402316I$ $a = 0.44579 + 1.92187I$ $b = 1.89981 - 1.60725I$	$-15.0348 + 4.4077I$	$-1.38532 - 6.43354I$
$u = -0.373222 + 0.191183I$ $a = 1.62002 - 0.23037I$ $b = 0.249186 - 0.809251I$	$-2.03447 - 1.79668I$	$-3.01274 + 2.30956I$
$u = -0.373222 - 0.191183I$ $a = 1.62002 + 0.23037I$ $b = 0.249186 + 0.809251I$	$-2.03447 + 1.79668I$	$-3.01274 - 2.30956I$
$u = 1.52174 + 0.46379I$ $a = 0.193145 - 0.663179I$ $b = -1.67691 + 2.39599I$	$-15.0348 + 0.3480I$	$-1.38532 + 0.49466I$
$u = 1.52174 - 0.46379I$ $a = 0.193145 + 0.663179I$ $b = -1.67691 - 2.39599I$	$-15.0348 - 0.3480I$	$-1.38532 - 0.49466I$

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.29760 + 1.08646I$		
$a =$	$0.214287 + 0.753794I$	$0.61992 + 6.50680I$	$0.39807 - 6.46471I$
$b =$	$1.24819 - 1.94012I$		
$u =$	$1.29760 - 1.08646I$		
$a =$	$0.214287 - 0.753794I$	$0.61992 - 6.50680I$	$0.39807 + 6.46471I$
$b =$	$1.24819 + 1.94012I$		
$u =$	$1.29815 + 1.49503I$		
$a =$	$0.549874 + 0.075134I$	$-15.0348 - 4.4077I$	$0. + 6.43354I$
$b =$	$0.20884 - 1.69072I$		
$u =$	$1.29815 - 1.49503I$		
$a =$	$0.549874 - 0.075134I$	$-15.0348 + 4.4077I$	$0. - 6.43354I$
$b =$	$0.20884 + 1.69072I$		

IV. $I_4^u =$
$\langle 5u^7-18u^6+\cdots+11b+21,\ -7u^7+23u^6+\cdots+11a-14,\ u^8-2u^7+\cdots+2u+1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{7}{11}u^7-\frac{23}{11}u^6+\cdots+2u+\frac{14}{11}\\-0.454545u^7+1.63636u^6+\cdots+4.81818u^2-1.90909\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^7+2u^6-u^5+2u^4-6u^3+4u^2+2u-2\\\frac{2}{11}u^7+\frac{6}{11}u^6+\cdots-2u-\frac{7}{11}\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.818182u^7+2.54545u^6+\cdots+7.27273u^2-2.63636\\\frac{2}{11}u^7+\frac{6}{11}u^6+\cdots-2u-\frac{7}{11}\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{1}{11}u^7-\frac{8}{11}u^6+\cdots+3u+\frac{2}{11}\\-0.818182u^7+1.54545u^6+\cdots+4.27273u^2-1.63636\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1.09091u^7+2.72727u^6+\cdots-u-2.18182\\1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}\frac{12}{11}u^7-\frac{30}{11}u^6+\cdots+u+\frac{35}{11}\\-1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}\frac{12}{11}u^7-\frac{30}{11}u^6+\cdots+u+\frac{24}{11}\\-1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\\frac{1}{11}u^7+\frac{3}{11}u^6+\cdots-u-\frac{9}{11}\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{24}{11}u^7-\frac{60}{11}u^6+\frac{32}{11}u^5-\frac{64}{11}u^4+16u^3-\frac{140}{11}u^2+\frac{48}{11}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^8$
c_3, c_{11}	$y^8 - 2y^7 + 5y^6 - 12y^5 + 26y^4 - 30y^3 + 32y^2 - 8y + 1$
c_4, c_8	$y^8 + 2y^7 + 5y^6 + 12y^5 + 26y^4 + 30y^3 + 32y^2 + 8y + 1$
c_6	$(y^2 + y + 1)^4$
c_7, c_{10}	$(y+1)^8$
c_9, c_{12}	$(y^2 - y + 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.916440 + 0.695963I$ $a = -0.525562 - 0.692057I$ $b = -0.279522 + 0.746378I$	$-2.02988I$	$2.00000 + 3.46410I$
$u = 0.916440 - 0.695963I$ $a = -0.525562 + 0.692057I$ $b = -0.279522 - 0.746378I$	$2.02988I$	$2.00000 - 3.46410I$
$u = 1.266520 + 0.378347I$ $a = -0.216544 - 0.724880I$ $b = 0.38817 + 2.51089I$	$2.02988I$	$2.00000 - 3.46410I$
$u = 1.266520 - 0.378347I$ $a = -0.216544 + 0.724880I$ $b = 0.38817 - 2.51089I$	$-2.02988I$	$2.00000 + 3.46410I$
$u = -0.76652 + 1.24437I$ $a = 0.582569 - 0.358854I$ $b = -0.022144 + 1.144860I$	$-2.02988I$	$2.00000 + 3.46410I$
$u = -0.76652 - 1.24437I$ $a = 0.582569 + 0.358854I$ $b = -0.022144 - 1.144860I$	$2.02988I$	$2.00000 - 3.46410I$
$u = -0.416440 + 0.170063I$ $a = -0.84046 + 2.05808I$ $b = -1.08650 - 1.11240I$	$-2.02988I$	$2.00000 + 3.46410I$
$u = -0.416440 - 0.170063I$ $a = -0.84046 - 2.05808I$ $b = -1.08650 + 1.11240I$	$2.02988I$	$2.00000 - 3.46410I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^8(u^6+9u^5+22u^4+7u^3+4u^2-4u+1)^4$ $\cdot(u^{12}-11u^{11}+\cdots+38u+9)(u^{18}+38u^{17}+\cdots+21004u+2704)$
c_2	$((u-1)^8)(u^6-3u^5+\cdots+2u^2+1)^4(u^{12}+7u^{11}+\cdots+8u+3)$ $\cdot(u^{18}+12u^{17}+\cdots-42u+52)$
c_3, c_{11}	$(u^8-2u^7+u^6-2u^5+6u^4-4u^3-2u^2+2u+1)$ $\cdot(u^{12}+u^9+5u^8+u^7+2u^6+4u^5+6u^4+u^2+2u+1)$ $\cdot(u^{18}-u^{16}+\cdots+3u+1)(u^{24}-3u^{23}+\cdots+8u+1)$
c_4, c_8	$(u^8+u^6+\cdots+2u+1)(u^{12}+u^{11}+\cdots+3u+1)$ $\cdot(u^{18}-u^{17}+\cdots-6u^2+1)(u^{24}+u^{23}+\cdots-350u+139)$
c_5	$((u+1)^8)(u^6-3u^5+\cdots+2u^2+1)^4(u^{12}-7u^{11}+\cdots-8u+3)$ $\cdot(u^{18}+12u^{17}+\cdots-42u+52)$
c_6	$((u^2+u+1)^{16})(u^{12}-6u^{11}+\cdots-2u+1)$ $\cdot(u^{18}-13u^{17}+\cdots-184u+32)$
c_7	$(u^2+1)^4(u^6+u^5+2u^4+u^3+2u^2+2u+1)^4$ $\cdot(u^{12}-6u^{11}+\cdots-26u+7)(u^{18}-11u^{17}+\cdots-34u+4)$
c_9, c_{12}	$((u^4-u^2+1)^2)(u^{12}-u^{11}+\cdots-3u+1)(u^{18}+u^{17}+\cdots+27u+2)$ $\cdot(u^{24}-u^{23}+\cdots+3722u+2473)$
c_{10}	$(u^2+1)^4(u^6+u^5+2u^4+u^3+2u^2+2u+1)^4$ $\cdot(u^{12}+6u^{11}+\cdots+26u+7)(u^{18}-11u^{17}+\cdots-34u+4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^8(y^6-37y^5+366y^4+201y^3+116y^2-8y+1)^4$ $\cdot(y^{12}-31y^{11}+\cdots-814y+81)$ $\cdot(y^{18}-146y^{17}+\cdots-126806384y+7311616)$
c_2, c_5	$(y-1)^8(y^6-9y^5+22y^4-7y^3+4y^2+4y+1)^4$ $\cdot(y^{12}-11y^{11}+\cdots+38y+9)(y^{18}-38y^{17}+\cdots-21004y+2704)$
c_3, c_{11}	$(y^8-2y^7+5y^6-12y^5+26y^4-30y^3+32y^2-8y+1)$ $\cdot(y^{12}+10y^{10}+\cdots-2y+1)(y^{18}-2y^{17}+\cdots-11y+1)$ $\cdot(y^{24}+y^{23}+\cdots-4y+1)$
c_4, c_8	$(y^8+2y^7+5y^6+12y^5+26y^4+30y^3+32y^2+8y+1)$ $\cdot(y^{12}+15y^{11}+\cdots+9y+1)(y^{18}+29y^{17}+\cdots-12y+1)$ $\cdot(y^{24}+49y^{23}+\cdots+13164y+19321)$
c_6	$((y^2+y+1)^{16})(y^{12}+2y^{11}+\cdots+8y+1)$ $\cdot(y^{18}+3y^{17}+\cdots+8896y+1024)$
c_7, c_{10}	$(y+1)^8(y^6+3y^5+6y^4+5y^3+4y^2+1)^4$ $\cdot(y^{12}+6y^{11}+\cdots+94y+49)(y^{18}+7y^{17}+\cdots+212y+16)$
c_9, c_{12}	$((y^2-y+1)^4)(y^{12}+15y^{11}+\cdots-y+1)(y^{18}+41y^{17}+\cdots-53y+4)$ $\cdot(y^{24}+51y^{23}+\cdots+67849690y+6115729)$