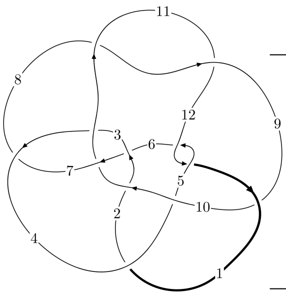
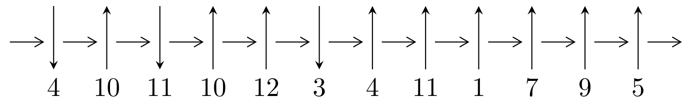
$12n_{0717}$ ($K12n_{0717}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & 25879u^{15} - 46049u^{14} + \cdots + 675712b - 1063104, \\
& 463377u^{15} - 1801209u^{14} + \cdots + 9459968a - 26845656,\ u^{16} - 3u^{15} + \cdots - 32u - 16\rangle \\
I^u_2 = \langle & 56993u^{13}a + 77423u^{13} + \cdots + 148181a + 443926, \\
& - 5240829u^{13}a - 8288009u^{13} + \cdots - 52771818a + 2325177, \\
& u^{14} + u^{13} + 10u^{12} + 8u^{11} + 36u^{10} + 22u^9 + 61u^8 + 34u^7 + 73u^6 + 54u^5 + 82u^4 + 53u^3 + 43u^2 + 20u + 11\rangle \\
I^u_3 = \langle & 31u^{15} - 15u^{14} + \cdots + 92b - 472,\ -577u^{15} + 3333u^{14} + \cdots + 9292a + 191294, \\
& u^{16} + 11u^{14} + 54u^{12} + 160u^{10} + 329u^8 + 496u^6 + 526u^4 + 343u^2 + 101\rangle
\end{aligned}$$

$$I^v_1 = \langle a,\ -v^2 + b - 3v - 1,\ v^3 + 3v^2 + 2v + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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. $I_1^u = \langle 2.59\times10^4u^{15} - 4.60\times10^4u^{14} + \cdots + 6.76\times10^5 b - 1.06\times10^6,\ 4.63\times10^5u^{15} - 1.80\times10^6u^{14} + \cdots + 9.46\times10^6 a - 2.68\times10^7,\ u^{16} - 3u^{15} + \cdots - 32u - 16\rangle$

(i) Arc colorings

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

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

$$a_1 = \begin{pmatrix}-0.0489829u^{15} + 0.190403u^{14} + \cdots - 2.28630u + 2.83782\\ -0.0382989u^{15} + 0.0681489u^{14} + \cdots + 1.61772u + 1.57331\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}-0.0363658u^{15} + 0.193159u^{14} + \cdots - 3.29721u + 1.95978\\ -0.0226024u^{15} - 0.0410566u^{14} + \cdots + 3.11903u + 2.22303\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-0.0363658u^{15} + 0.193159u^{14} + \cdots - 3.29721u + 1.95978\\ -0.0126172u^{15} - 0.00275582u^{14} + \cdots + 1.01091u + 0.878038\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.0877234u^{15} + 0.254037u^{14} + \cdots - 1.23991u + 4.49819\\ -0.0395677u^{15} + 0.170191u^{14} + \cdots - 1.04092u + 0.176944\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.0106841u^{15} + 0.122254u^{14} + \cdots - 3.90403u + 1.26451\\ -0.0382989u^{15} + 0.0681489u^{14} + \cdots + 1.61772u + 1.57331\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.0800201u^{15} + 0.250091u^{14} + \cdots + 1.11319u - 1.40403\\ 0.0910791u^{15} - 0.322836u^{14} + \cdots + 0.378447u + 0.00921990\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.0489829u^{15} + 0.190403u^{14} + \cdots - 2.28630u + 2.83782\\ 0.0126172u^{15} + 0.00275582u^{14} + \cdots - 1.01091u - 0.878038\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.0106841u^{15} + 0.122254u^{14} + \cdots - 3.90403u + 1.26451\\ -0.00563321u^{15} - 0.00282644u^{14} + \cdots + 1.09780u - 0.130074\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}0.0877234u^{15} - 0.254037u^{14} + \cdots + 1.23991u - 4.49819\\ -0.0179562u^{15} + 0.0609672u^{14} + \cdots + 0.654917u + 0.323076\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3140595}{4729984}u^{15} + \frac{9339149}{4729984}u^{14} + \cdots + \frac{1984439}{1182496}u + \frac{1721569}{73906}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - u^{15} + \cdots - 11u + 1$
c_2	$u^{16} - 2u^{15} + \cdots + 194u - 121$
c_3	$u^{16} - u^{15} + \cdots - 19u + 7$
c_4	$u^{16} - 3u^{15} + \cdots - 32u - 16$
c_5, c_7, c_{12}	$u^{16} + u^{15} + \cdots - 4u + 4$
c_6	$u^{16} + 7u^{15} + \cdots - 65u + 28$
c_8, c_{11}	$u^{16} + 3u^{15} + \cdots + 13u - 28$
c_9, c_{10}	$u^{16} - 2u^{14} + \cdots + 4u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} - 21y^{15} + \cdots - 131y + 1$
c_2	$y^{16} + 26y^{15} + \cdots - 15614y + 14641$
c_3	$y^{16} - 19y^{15} + \cdots - 501y + 49$
c_4	$y^{16} + 23y^{15} + \cdots - 2304y + 256$
c_5, c_7, c_{12}	$y^{16} + 19y^{15} + \cdots - 80y + 16$
c_6	$y^{16} - 25y^{15} + \cdots - 33289y + 784$
c_8, c_{11}	$y^{16} + y^{15} + \cdots - 7169y + 784$
c_9, c_{10}	$y^{16} - 4y^{15} + \cdots - 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.119335 + 1.038870I$ $a = -0.494008 - 1.094850I$ $b = 0.17992 + 1.59062I$	$-3.83744 - 3.93600I$	$2.87663 + 4.26125I$
$u = 0.119335 - 1.038870I$ $a = -0.494008 + 1.094850I$ $b = 0.17992 - 1.59062I$	$-3.83744 + 3.93600I$	$2.87663 - 4.26125I$
$u = -0.034961 + 1.296400I$ $a = -0.608719 + 0.180864I$ $b = -0.891539 - 0.005634I$	$-3.72865 + 1.11794I$	$3.47362 - 6.30090I$
$u = -0.034961 - 1.296400I$ $a = -0.608719 - 0.180864I$ $b = -0.891539 + 0.005634I$	$-3.72865 - 1.11794I$	$3.47362 + 6.30090I$
$u = -0.622483 + 0.254551I$ $a = 0.390738 + 0.662414I$ $b = -0.030479 + 1.183440I$	$-1.46484 + 2.93564I$	$5.07482 - 1.11353I$
$u = -0.622483 - 0.254551I$ $a = 0.390738 - 0.662414I$ $b = -0.030479 - 1.183440I$	$-1.46484 - 2.93564I$	$5.07482 + 1.11353I$
$u = 0.28607 + 1.44355I$ $a = 0.138612 - 0.552258I$ $b = -0.181437 + 0.590003I$	$1.87947 - 1.24485I$	$11.40323 + 4.68247I$
$u = 0.28607 - 1.44355I$ $a = 0.138612 + 0.552258I$ $b = -0.181437 - 0.590003I$	$1.87947 + 1.24485I$	$11.40323 - 4.68247I$
$u = 0.503828$ $a = 0.941502$ $b = 0.334619$	0.729058	13.6990
$u = -0.382038$ $a = 3.33621$ $b = 0.692814$	6.53070	22.8110

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.03599 + 1.87656I$ $a = 0.554024 + 0.651219I$ $b = -0.12246 - 1.50429I$	$-15.1090 - 2.7222I$	$2.22525 + 1.87237I$
$u = 0.03599 - 1.87656I$ $a = 0.554024 - 0.651219I$ $b = -0.12246 + 1.50429I$	$-15.1090 + 2.7222I$	$2.22525 - 1.87237I$
$u = 1.25896 + 1.40167I$ $a = -0.587811 + 0.033755I$ $b = -0.566111 - 1.293200I$	$-5.72547 + 7.15671I$	$3.37598 - 8.21855I$
$u = 1.25896 - 1.40167I$ $a = -0.587811 - 0.033755I$ $b = -0.566111 + 1.293200I$	$-5.72547 - 7.15671I$	$3.37598 + 8.21855I$
$u = 0.39619 + 1.87970I$ $a = 0.718306 - 0.433411I$ $b = 0.59839 + 1.77105I$	$-15.9449 + 14.1335I$	$2.81526 - 6.31158I$
$u = 0.39619 - 1.87970I$ $a = 0.718306 + 0.433411I$ $b = 0.59839 - 1.77105I$	$-15.9449 - 14.1335I$	$2.81526 + 6.31158I$

II.
$\boldsymbol{I_2^u = \langle 5.70\times 10^4 au^{13} + 7.74\times 10^4 u^{13} + \cdots + 1.48\times 10^5 a + 4.44\times 10^5,\ -5.24\times 10^6 au^{13} - 8.29\times 10^6 u^{13} + \cdots - 5.28\times 10^7 a + 2.33\times 10^6,\ u^{14} + u^{13} + \cdots + 20u + 11\rangle}$

(i) Arc colorings

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

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

$$a_1 = \begin{pmatrix} a \\ -0.0750130au^{13} - 0.101903u^{13} + \cdots - 0.195033a - 0.584286 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.0750130au^{13} + 0.101903u^{13} + \cdots + 1.19503a + 0.584286 \\ -0.224463au^{13} - 0.244106u^{13} + \cdots + 0.0452147a - 0.589078 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0750130au^{13} + 0.101903u^{13} + \cdots + 1.19503a + 0.584286 \\ -0.0750130au^{13} - 0.101903u^{13} + \cdots - 0.195033a - 0.584286 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0975842au^{13} + 0.0595029u^{13} + \cdots + 0.627079a + 0.991682 \\ -0.163468au^{13} - 0.151136u^{13} + \cdots - 0.199622a - 1.64704 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0750130au^{13} + 0.101903u^{13} + \cdots + 1.19503a + 0.584286 \\ -0.0750130au^{13} - 0.101903u^{13} + \cdots - 0.195033a - 0.584286 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.00230200au^{13} + 0.190411u^{13} + \cdots - 1.39365a + 0.990069 \\ 0.0204495au^{13} - 0.0406805u^{13} + \cdots - 0.334311a - 1.07057 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0570072u^{13} - 0.0405770u^{12} + \cdots - a + 0.574026 \\ -0.0750130au^{13} + 0.0927235u^{13} + \cdots - 0.195033a - 0.654532 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0750130au^{13} + 0.0751547u^{13} + \cdots - 1.19503a - 1.15393 \\ 0.0744365au^{13} + 0.246160u^{13} + \cdots - 0.435280a + 1.14362 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0975842au^{13} + 0.0187794u^{13} + \cdots + 0.627079a + 0.0745087 \\ 0.0535514au^{13} - 0.0354421u^{13} + \cdots + 1.01996a + 0.618570 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{4926}{30391}u^{13} - \frac{83536}{151955}u^{12} + \cdots - \frac{1805974}{151955}u - \frac{701964}{151955}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{28} - 5u^{27} + \cdots + 1150u + 5663$
c_2	$u^{28} + u^{27} + \cdots + 20378u + 5689$
c_3	$u^{28} - 14u^{26} + \cdots + 40u + 13$
c_4	$(u^{14} + u^{13} + \cdots + 20u + 11)^2$
c_5, c_7, c_{12}	$u^{28} - 4u^{27} + \cdots + 52u + 4$
c_6	$(u^{14} - 3u^{13} + \cdots + 9u + 1)^2$
c_8, c_{11}	$(u^{14} - 2u^{13} + \cdots + 10u + 19)^2$
c_9, c_{10}	$u^{28} - u^{27} + \cdots - 2u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{28} - 65y^{27} + \cdots + 1024529950y + 32069569$
c_2	$y^{28} + 95y^{27} + \cdots + 1623868142y + 32364721$
c_3	$y^{28} - 28y^{27} + \cdots + 5316y + 169$
c_4	$(y^{14} + 19y^{13} + \cdots + 546y + 121)^2$
c_5, c_7, c_{12}	$y^{28} + 22y^{27} + \cdots - 192y + 16$
c_6	$(y^{14} - 25y^{13} + \cdots + 213y + 1)^2$
c_8, c_{11}	$(y^{14} + 6y^{13} + \cdots + 1572y + 361)^2$
c_9, c_{10}	$y^{28} + 5y^{27} + \cdots + 808y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.608535+0.818694I$ $a=-0.411980+0.907499I$ $b=\ \ 0.06835-1.89797I$	$-6.55425-2.13545I$	$-1.029851+0.927255I$
$u=-0.608535+0.818694I$ $a=-1.176640+0.343109I$ $b=-0.361633+1.267890I$	$-6.55425-2.13545I$	$-1.029851+0.927255I$
$u=-0.608535-0.818694I$ $a=-0.411980-0.907499I$ $b=\ \ 0.06835+1.89797I$	$-6.55425+2.13545I$	$-1.029851-0.927255I$
$u=-0.608535-0.818694I$ $a=-1.176640-0.343109I$ $b=-0.361633-1.267890I$	$-6.55425+2.13545I$	$-1.029851-0.927255I$
$u=\ \ 0.867236+0.768486I$ $a=\ \ 0.660917-0.753698I$ $b=\ \ 0.417481+0.355557I$	$1.07339-1.32380I$	$7.73703-5.74981I$
$u=\ \ 0.867236+0.768486I$ $a=\ \ 0.437028+0.279301I$ $b=-0.241912+0.857846I$	$1.07339-1.32380I$	$7.73703-5.74981I$
$u=\ \ 0.867236-0.768486I$ $a=\ \ 0.660917+0.753698I$ $b=\ \ 0.417481-0.355557I$	$1.07339+1.32380I$	$7.73703+5.74981I$
$u=\ \ 0.867236-0.768486I$ $a=\ \ 0.437028-0.279301I$ $b=-0.241912-0.857846I$	$1.07339+1.32380I$	$7.73703+5.74981I$
$u=\ \ 0.166845+0.745853I$ $a=\ \ 1.198390-0.576968I$ $b=\ \ 0.58958+1.51898I$	$0.78349+4.75239I$	$9.02300-5.96017I$
$u=\ \ 0.166845+0.745853I$ $a=-0.90241+1.32619I$ $b=-0.128235+0.168215I$	$0.78349+4.75239I$	$9.02300-5.96017I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.166845 - 0.745853I$ $a = 1.198390 + 0.576968I$ $b = 0.58958 - 1.51898I$	$0.78349 - 4.75239I$	$9.02300 + 5.96017I$
$u = 0.166845 - 0.745853I$ $a = -0.90241 - 1.32619I$ $b = -0.128235 - 0.168215I$	$0.78349 - 4.75239I$	$9.02300 + 5.96017I$
$u = -0.564009 + 0.438487I$ $a = -0.755998 + 0.580538I$ $b = -0.825125 - 0.177451I$	$-2.32511 - 1.81694I$	$2.43913 + 3.97393I$
$u = -0.564009 + 0.438487I$ $a = 1.174370 - 0.329537I$ $b = 0.126698 - 1.153290I$	$-2.32511 - 1.81694I$	$2.43913 + 3.97393I$
$u = -0.564009 - 0.438487I$ $a = -0.755998 - 0.580538I$ $b = -0.825125 + 0.177451I$	$-2.32511 + 1.81694I$	$2.43913 - 3.97393I$
$u = -0.564009 - 0.438487I$ $a = 1.174370 + 0.329537I$ $b = 0.126698 + 1.153290I$	$-2.32511 + 1.81694I$	$2.43913 - 3.97393I$
$u = -0.22941 + 1.46771I$ $a = -1.023950 - 0.634998I$ $b = -0.25347 + 1.40401I$	$-8.50378 - 4.79575I$	$-8.7502 + 11.1583I$
$u = -0.22941 + 1.46771I$ $a = 0.405862 + 0.057348I$ $b = 2.70787 - 0.47109I$	$-8.50378 - 4.79575I$	$-8.7502 + 11.1583I$
$u = -0.22941 - 1.46771I$ $a = -1.023950 + 0.634998I$ $b = -0.25347 - 1.40401I$	$-8.50378 + 4.79575I$	$-8.7502 - 11.1583I$
$u = -0.22941 - 1.46771I$ $a = 0.405862 - 0.057348I$ $b = 2.70787 + 0.47109I$	$-8.50378 + 4.79575I$	$-8.7502 - 11.1583I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.20751 + 1.75492I$ $a = 0.579759 - 0.748808I$ $b = -0.11875 + 1.53558I$	$-15.7247 - 5.5362I$	$2.24093 + 2.42211I$
$u = -0.20751 + 1.75492I$ $a = 0.732938 + 0.492983I$ $b = 0.60418 - 1.81331I$	$-15.7247 - 5.5362I$	$2.24093 + 2.42211I$
$u = -0.20751 - 1.75492I$ $a = 0.579759 + 0.748808I$ $b = -0.11875 - 1.53558I$	$-15.7247 + 5.5362I$	$2.24093 - 2.42211I$
$u = -0.20751 - 1.75492I$ $a = 0.732938 - 0.492983I$ $b = 0.60418 + 1.81331I$	$-15.7247 + 5.5362I$	$2.24093 - 2.42211I$
$u = 0.07539 + 1.95612I$ $a = -0.602812 + 0.538409I$ $b = -0.34660 - 1.66417I$	$-9.87238 + 4.14557I$	$-1.66007 - 2.24011I$
$u = 0.07539 + 1.95612I$ $a = 0.457249 + 0.003148I$ $b = -0.238434 - 0.063577I$	$-9.87238 + 4.14557I$	$-1.66007 - 2.24011I$
$u = 0.07539 - 1.95612I$ $a = -0.602812 - 0.538409I$ $b = -0.34660 + 1.66417I$	$-9.87238 - 4.14557I$	$-1.66007 + 2.24011I$
$u = 0.07539 - 1.95612I$ $a = 0.457249 - 0.003148I$ $b = -0.238434 + 0.063577I$	$-9.87238 - 4.14557I$	$-1.66007 + 2.24011I$

III. $I^u_3 = \langle 31u^{15} - 15u^{14} + \cdots + 92b - 472,\ -577u^{15} + 3333u^{14} + \cdots + 9292a + 191294,\ u^{16} + 11u^{14} + \cdots + 343u^2 + 101\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0620964u^{15} - 0.358696u^{14} + \cdots + 1.99473u - 20.5870 \\ -0.336957u^{15} + 0.163043u^{14} + \cdots - 28.1196u + 5.13043 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.246879u^{15} + 0.0760870u^{14} + \cdots + 23.8426u + 10.5109 \\ -0.478261u^{15} - 0.478261u^{14} + \cdots - 46.7826u - 38.7826 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.246879u^{15} + 0.0760870u^{14} + \cdots + 23.8426u + 10.5109 \\ -0.184783u^{15} - 0.434783u^{14} + \cdots - 21.8478u - 31.0978 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.627206u^{15} - 0.391304u^{14} + \cdots - 41.2622u - 21.9130 \\ 0.239130u^{15} + 0.336957u^{14} + \cdots + 15.6413u + 28.1196 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.399053u^{15} - 0.521739u^{14} + \cdots + 30.1143u - 25.7174 \\ -0.336957u^{15} + 0.163043u^{14} + \cdots - 28.1196u + 5.13043 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.243328u^{15} - 0.130435u^{14} + \cdots + 25.1461u + 4.44565 \\ -0.521739u^{15} + 0.369565u^{14} + \cdots - 49.2174u + 11.1957 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0620964u^{15} - 0.358696u^{14} + \cdots - 1.99473u - 20.5870 \\ -0.184783u^{15} + 0.434783u^{14} + \cdots - 21.8478u + 31.0978 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.399053u^{15} - 0.521739u^{14} + \cdots - 30.1143u - 25.7174 \\ 0.293478u^{15} + 0.706522u^{14} + \cdots + 12.1848u + 47.5652 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.627206u^{15} - 0.391304u^{14} + \cdots + 41.2622u - 21.9130 \\ -0.695652u^{15} + 0.315217u^{14} + \cdots - 47.7065u + 11.4022 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{2}{23}u^{14} - \frac{34}{23}u^{12} - \frac{220}{23}u^{10} - \frac{766}{23}u^8 - \frac{1666}{23}u^6 - \frac{2524}{23}u^4 - \frac{2672}{23}u^2 - \frac{1354}{23}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 10u^{15} + \cdots - 602u + 79$
c_2	$u^{16} - 2u^{15} + \cdots + 2u + 1$
c_3	$u^{16} + u^{15} + \cdots + 4u + 1$
c_4	$u^{16} + 11u^{14} + \cdots + 343u^2 + 101$
c_5, c_7	$u^{16} - u^{15} + \cdots - 8u + 4$
c_6	$(u^8 - 4u^7 + 4u^6 + u^5 - 4u^4 + 4u^3 + 4u^2 - u - 1)^2$
c_8	$(u^8 + 2u^7 - u^6 - 3u^5 - 2u^4 - 3u^3 + u^2 + 5u + 1)^2$
c_9	$u^{16} - 2u^{14} + \cdots + 7u^2 + 1$
c_{10}	$u^{16} - 2u^{14} + \cdots + 7u^2 + 1$
c_{11}	$(u^8 - 2u^7 - u^6 + 3u^5 - 2u^4 + 3u^3 + u^2 - 5u + 1)^2$
c_{12}	$u^{16} + u^{15} + \cdots + 8u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} - 28y^{15} + \cdots + 11898y + 6241$
c_2	$y^{16} + 32y^{15} + \cdots + 50y + 1$
c_3	$y^{16} - 9y^{15} + \cdots - 6y + 1$
c_4	$(y^8 + 11y^7 + 54y^6 + 160y^5 + 329y^4 + 496y^3 + 526y^2 + 343y + 101)^2$
c_5, c_7, c_{12}	$y^{16} + 7y^{15} + \cdots + 224y + 16$
c_6	$(y^8 - 8y^7 + 16y^6 + 7y^5 + 30y^4 - 54y^3 + 32y^2 - 9y + 1)^2$
c_8, c_{11}	$(y^8 - 6y^7 + 9y^6 + 9y^5 - 34y^4 + 15y^3 + 27y^2 - 23y + 1)^2$
c_9, c_{10}	$y^{16} - 4y^{15} + \cdots + 14y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.090290I$ $a = -0.961088 + 0.180402I$ $b = -0.664122 - 0.999638I$	-5.13962	-1.84340
$u = -1.090290I$ $a = -0.961088 - 0.180402I$ $b = -0.664122 + 0.999638I$	-5.13962	-1.84340
$u = 0.258427 + 1.166580I$ $a = -0.565702 + 1.110660I$ $b = -0.139231 - 0.937062I$	$-0.44142 + 5.36486I$	$3.50284 - 6.38935I$
$u = 0.258427 - 1.166580I$ $a = -0.565702 - 1.110660I$ $b = -0.139231 + 0.937062I$	$-0.44142 - 5.36486I$	$3.50284 + 6.38935I$
$u = -0.258427 + 1.166580I$ $a = -0.870065 - 0.439798I$ $b = -0.83736 + 1.51086I$	$-0.44142 - 5.36486I$	$3.50284 + 6.38935I$
$u = -0.258427 - 1.166580I$ $a = -0.870065 + 0.439798I$ $b = -0.83736 - 1.51086I$	$-0.44142 + 5.36486I$	$3.50284 - 6.38935I$
$u = 0.892618 + 0.961745I$ $a = 0.611276 - 0.635790I$ $b = 0.197106 + 0.382187I$	$0.89291 - 1.78628I$	$1.46883 + 8.62602I$
$u = 0.892618 - 0.961745I$ $a = 0.611276 + 0.635790I$ $b = 0.197106 - 0.382187I$	$0.89291 + 1.78628I$	$1.46883 - 8.62602I$
$u = -0.892618 + 0.961745I$ $a = -0.259050 + 0.347570I$ $b = 0.227991 + 0.862739I$	$0.89291 + 1.78628I$	$1.46883 - 8.62602I$
$u = -0.892618 - 0.961745I$ $a = -0.259050 - 0.347570I$ $b = 0.227991 - 0.862739I$	$0.89291 - 1.78628I$	$1.46883 + 8.62602I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50959I$ $a = -0.312012 - 0.703036I$ $b = 0.167596 + 0.929211I$	0.871886	3.60060
$u = -1.50959I$ $a = -0.312012 + 0.703036I$ $b = 0.167596 - 0.929211I$	0.871886	3.60060
$u = -0.26473 + 1.55369I$ $a = 0.266058 + 0.030684I$ $b = 1.84403 - 0.56362I$	$-8.18722 - 4.50719I$	$6.14971 - 1.09337I$
$u = -0.26473 - 1.55369I$ $a = 0.266058 - 0.030684I$ $b = 1.84403 + 0.56362I$	$-8.18722 + 4.50719I$	$6.14971 + 1.09337I$
$u = 0.26473 + 1.55369I$ $a = -0.909417 + 0.550848I$ $b = -0.29601 - 1.42725I$	$-8.18722 + 4.50719I$	$6.14971 + 1.09337I$
$u = 0.26473 - 1.55369I$ $a = -0.909417 - 0.550848I$ $b = -0.29601 + 1.42725I$	$-8.18722 - 4.50719I$	$6.14971 - 1.09337I$

IV. $\boldsymbol{I_1^v = \langle a,\ -v^2 + b - 3v - 1,\ v^3 + 3v^2 + 2v + 1\rangle}$

(i) Arc colorings

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

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

$$a_1 = \begin{pmatrix} 0 \\ v^2 + 3v + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -2v^2 - 4v - 1 \\ v^2 + 3v + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} v \\ -v^2 - 2v \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -v - 1 \\ v + 2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 3v^2 + 6v + 3 \\ -v^2 - 3v - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2v^2 + 3v + 2 \\ -v^2 - 3v - 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -9v^2 - 22v - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{12}	$y^3 + 3y^2 + 2y - 1$
c_2, c_9, c_{10}	$y^3 - 2y^2 + y - 1$
c_3	$y^3 - y^2 + 2y - 1$
c_4	y^3
c_6	$y^3 - 2y^2 + 9y - 25$
c_8, c_{11}	$y^3 - 2y^2 - 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.337641 + 0.562280I$ $a = 0$ $b = -0.215080 + 1.307140I$	$-1.45094 + 3.77083I$	$5.24751 - 8.95287I$
$v = -0.337641 - 0.562280I$ $a = 0$ $b = -0.215080 - 1.307140I$	$-1.45094 - 3.77083I$	$5.24751 + 8.95287I$
$v = -2.32472$ $a = 0$ $b = -0.569840$	6.19175	−1.49500

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3-u^2+2u-1)(u^{16}-10u^{15}+\cdots-602u+79)$ $\cdot(u^{16}-u^{15}+\cdots-11u+1)(u^{28}-5u^{27}+\cdots+1150u+5663)$
c_2	$(u^3-u+1)(u^{16}-2u^{15}+\cdots+194u-121)(u^{16}-2u^{15}+\cdots+2u+1)$ $\cdot(u^{28}+u^{27}+\cdots+20378u+5689)$
c_3	$(u^3+u^2-1)(u^{16}-u^{15}+\cdots-19u+7)(u^{16}+u^{15}+\cdots+4u+1)$ $\cdot(u^{28}-14u^{26}+\cdots+40u+13)$
c_4	$u^3(u^{14}+u^{13}+\cdots+20u+11)^2(u^{16}+11u^{14}+\cdots+343u^2+101)$ $\cdot(u^{16}-3u^{15}+\cdots-32u-16)$
c_5, c_7	$(u^3+u^2+2u+1)(u^{16}-u^{15}+\cdots-8u+4)(u^{16}+u^{15}+\cdots-4u+4)$ $\cdot(u^{28}-4u^{27}+\cdots+52u+4)$
c_6	$(u^3+4u^2+7u+5)(u^8-4u^7+4u^6+u^5-4u^4+4u^3+4u^2-u-1)^2$ $\cdot((u^{14}-3u^{13}+\cdots+9u+1)^2)(u^{16}+7u^{15}+\cdots-65u+28)$
c_8	$(u^3-2u^2+u-1)(u^8+2u^7-u^6-3u^5-2u^4-3u^3+u^2+5u+1)^2$ $\cdot((u^{14}-2u^{13}+\cdots+10u+19)^2)(u^{16}+3u^{15}+\cdots+13u-28)$
c_9	$(u^3-u-1)(u^{16}-2u^{14}+\cdots+4u^2-1)(u^{16}-2u^{14}+\cdots+7u^2+1)$ $\cdot(u^{28}-u^{27}+\cdots-2u+7)$
c_{10}	$(u^3-u+1)(u^{16}-2u^{14}+\cdots+4u^2-1)(u^{16}-2u^{14}+\cdots+7u^2+1)$ $\cdot(u^{28}-u^{27}+\cdots-2u+7)$
c_{11}	$(u^3+2u^2+u+1)(u^8-2u^7-u^6+3u^5-2u^4+3u^3+u^2-5u+1)^2$ $\cdot((u^{14}-2u^{13}+\cdots+10u+19)^2)(u^{16}+3u^{15}+\cdots+13u-28)$
c_{12}	$(u^3-u^2+2u-1)(u^{16}+u^{15}+\cdots+8u+4)(u^{16}+u^{15}+\cdots-4u+4)$ $\cdot(u^{28}-4u^{27}+\cdots+52u+4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^3+3y^2+2y-1)(y^{16}-28y^{15}+\cdots+11898y+6241)$ $\cdot(y^{16}-21y^{15}+\cdots-131y+1)$ $\cdot(y^{28}-65y^{27}+\cdots+1024529950y+32069569)$
c_2	$(y^3-2y^2+y-1)(y^{16}+26y^{15}+\cdots-15614y+14641)$ $\cdot(y^{16}+32y^{15}+\cdots+50y+1)$ $\cdot(y^{28}+95y^{27}+\cdots+1623868142y+32364721)$
c_3	$(y^3-y^2+2y-1)(y^{16}-19y^{15}+\cdots-501y+49)$ $\cdot(y^{16}-9y^{15}+\cdots-6y+1)(y^{28}-28y^{27}+\cdots+5316y+169)$
c_4	y^3 $\cdot(y^8+11y^7+54y^6+160y^5+329y^4+496y^3+526y^2+343y+101)^2$ $\cdot((y^{14}+19y^{13}+\cdots+546y+121)^2)(y^{16}+23y^{15}+\cdots-2304y+256)$
c_5, c_7, c_{12}	$(y^3+3y^2+2y-1)(y^{16}+7y^{15}+\cdots+224y+16)$ $\cdot(y^{16}+19y^{15}+\cdots-80y+16)(y^{28}+22y^{27}+\cdots-192y+16)$
c_6	$(y^3-2y^2+9y-25)$ $\cdot(y^8-8y^7+16y^6+7y^5+30y^4-54y^3+32y^2-9y+1)^2$ $\cdot((y^{14}-25y^{13}+\cdots+213y+1)^2)(y^{16}-25y^{15}+\cdots-33289y+784)$
c_8, c_{11}	(y^3-2y^2-3y-1) $\cdot(y^8-6y^7+9y^6+9y^5-34y^4+15y^3+27y^2-23y+1)^2$ $\cdot((y^{14}+6y^{13}+\cdots+1572y+361)^2)(y^{16}+y^{15}+\cdots-7169y+784)$
c_9, c_{10}	$(y^3-2y^2+y-1)(y^{16}-4y^{15}+\cdots+14y+1)(y^{16}-4y^{15}+\cdots-8y+1)$ $\cdot(y^{28}+5y^{27}+\cdots+808y+49)$