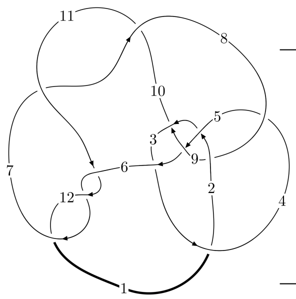
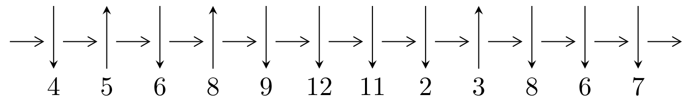
$12n_{0668}$ ($K12n_{0668}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & -70612u^{32} - 259819u^{31} + \cdots + 11551b + 473521, \\
& 70736u^{32} + 311623u^{31} + \cdots + 103959a - 759123,\ u^{33} + 5u^{32} + \cdots - 27u - 9\rangle \\
I_2^u = \langle & -u^{15} + u^{14} + 6u^{13} - 5u^{12} - 14u^{11} + 8u^{10} + 15u^9 - 2u^8 - 7u^7 - 5u^6 + 2u^5 + u^4 + 2u^2 + b - 3u + 1, \\
& u^{15} - u^{14} - 6u^{13} + 5u^{12} + 13u^{11} - 7u^{10} - 10u^9 - u^8 - 3u^7 + 5u^6 + 6u^5 + 6u^4 + u^3 - 6u^2 + a - u - 4, \\
& u^{16} - 2u^{15} - 6u^{14} + 12u^{13} + 15u^{12} - 26u^{11} - 22u^{10} + 20u^9 + 23u^8 + 6u^7 - 14u^6 - 13u^5 - 4u^4 + u^3 + 9u^2 + \\
I_3^u = \langle & -u^{17}a - 7u^{17} + \cdots + a + 7,\ -u^{17}a + u^{17} + \cdots - a + 3,\ u^{18} - 2u^{17} + \cdots - 2u + 1\rangle \\
I_4^u = \langle & b^2 + b - 1,\ a + 1,\ u + 1\rangle
\end{aligned}
$$

$$
I_1^v = \langle a,\ b + 1,\ v - 1\rangle
$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 88 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.

$\boldsymbol{I_1^u = \langle -7.06 \times 10^4 u^{32} - 2.60 \times 10^5 u^{31} + \cdots + 1.16 \times 10^4 b + 4.74 \times 10^5,\ 7.07 \times 10^4 u^{32} + 3.12 \times 10^5 u^{31} + \cdots + 1.04 \times 10^5 a - 7.59 \times 10^5,\ u^{33} + 5u^{32} + \cdots - 27u - 9 \rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.680422u^{32} - 2.99756u^{31} + \cdots + 13.8497u + 7.30214 \\ 6.11306u^{32} + 22.4932u^{31} + \cdots - 91.7728u - 40.9939 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -11.9768u^{32} - 41.2941u^{31} + \cdots + 157.358u + 64.2446 \\ -3.85404u^{32} - 19.2469u^{31} + \cdots + 90.4188u + 47.0737 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.680422u^{32} - 2.99756u^{31} + \cdots + 13.8497u + 7.30214 \\ 5.63986u^{32} + 22.1549u^{31} + \cdots - 96.5720u - 44.6349 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -u^6 + 2u^4 - u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.537664u^{32} + 2.96977u^{31} + \cdots - 21.8762u - 9.12449 \\ -4.55935u^{32} - 18.5188u^{31} + \cdots + 82.5148u + 36.1951 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 4.30313u^{32} + 14.8725u^{31} + \cdots - 56.2462u - 22.2317 \\ 0.236603u^{32} + 3.16916u^{31} + \cdots - 20.1004u - 12.6795 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{924167}{11551}u^{32} - \frac{3254604}{11551}u^{31} + \cdots + \frac{13356036}{11551}u + \frac{5544210}{11551}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{33} + 2u^{32} + \cdots + 7u - 1$
c_2	$u^{33} + 22u^{32} + \cdots + 90u + 9$
c_4, c_9	$u^{33} - 2u^{32} + \cdots - 37u + 7$
c_5, c_8	$u^{33} - u^{32} + \cdots + 2u + 1$
c_6, c_{11}, c_{12}	$u^{33} + 5u^{32} + \cdots - 27u - 9$
c_7, c_{10}	$u^{33} - 15u^{32} + \cdots - 621u + 1341$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{33} - 50y^{32} + \cdots + 37y - 1$
c_2	$y^{33} + 58y^{31} + \cdots - 540y - 81$
c_4, c_9	$y^{33} + 18y^{32} + \cdots + 1173y - 49$
c_5, c_8	$y^{33} - 13y^{32} + \cdots + 30y - 1$
c_6, c_{11}, c_{12}	$y^{33} - 33y^{32} + \cdots + 351y - 81$
c_7, c_{10}	$y^{33} - 13y^{32} + \cdots + 28562733y - 1798281$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.615295 + 0.690025I$ $a = -0.98614 + 1.55343I$ $b = -0.40560 - 1.50849I$	$-6.37902 + 7.26772I$	$-8.48178 - 3.05803I$
$u = 0.615295 - 0.690025I$ $a = -0.98614 - 1.55343I$ $b = -0.40560 + 1.50849I$	$-6.37902 - 7.26772I$	$-8.48178 + 3.05803I$
$u = 0.457629 + 0.777634I$ $a = -1.51279 + 1.36228I$ $b = 0.72143 - 1.81895I$	$-5.86299 - 12.19570I$	$-7.30193 + 8.04387I$
$u = 0.457629 - 0.777634I$ $a = -1.51279 - 1.36228I$ $b = 0.72143 + 1.81895I$	$-5.86299 + 12.19570I$	$-7.30193 - 8.04387I$
$u = -0.087307 + 0.812187I$ $a = -0.141714 + 0.501526I$ $b = 0.491481 - 0.424666I$	$2.71643 + 3.62722I$	$-8.53869 - 2.13399I$
$u = -0.087307 - 0.812187I$ $a = -0.141714 - 0.501526I$ $b = 0.491481 + 0.424666I$	$2.71643 - 3.62722I$	$-8.53869 + 2.13399I$
$u = -1.161150 + 0.326234I$ $a = 0.206831 - 0.059375I$ $b = -0.393012 - 0.608436I$	$-0.540380 + 0.517517I$	$-9.25187 - 4.14256I$
$u = -1.161150 - 0.326234I$ $a = 0.206831 + 0.059375I$ $b = -0.393012 + 0.608436I$	$-0.540380 - 0.517517I$	$-9.25187 + 4.14256I$
$u = 0.430358 + 0.659643I$ $a = 0.91402 - 1.98819I$ $b = -0.01529 + 1.61480I$	$-4.97909 - 0.59659I$	$-11.69644 - 1.11532I$
$u = 0.430358 - 0.659643I$ $a = 0.91402 + 1.98819I$ $b = -0.01529 - 1.61480I$	$-4.97909 + 0.59659I$	$-11.69644 + 1.11532I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.478485 + 0.624833I$ $a = 1.95619 - 1.29179I$ $b = -0.69033 + 1.45431I$	$-5.15410 - 3.61074I$	$-12.7241 + 8.1859I$
$u = 0.478485 - 0.624833I$ $a = 1.95619 + 1.29179I$ $b = -0.69033 - 1.45431I$	$-5.15410 + 3.61074I$	$-12.7241 - 8.1859I$
$u = -1.23864$ $a = 0.294761$ $b = -1.07773$	-2.25658	-4.76340
$u = 1.26064$ $a = 0.775692$ $b = 0.800176$	-5.61796	-16.2880
$u = 1.347420 + 0.163931I$ $a = 0.321296 + 0.675196I$ $b = 0.111312 + 0.951165I$	$-4.31416 - 4.24029I$	$0. + 5.24975I$
$u = 1.347420 - 0.163931I$ $a = 0.321296 - 0.675196I$ $b = 0.111312 - 0.951165I$	$-4.31416 + 4.24029I$	$0. - 5.24975I$
$u = 1.307390 + 0.370979I$ $a = -0.395726 + 0.191298I$ $b = -0.565963 - 0.166815I$	$-1.64117 - 7.89167I$	0
$u = 1.307390 - 0.370979I$ $a = -0.395726 - 0.191298I$ $b = -0.565963 + 0.166815I$	$-1.64117 + 7.89167I$	0
$u = -1.39825$ $a = -1.11011$ $b = 1.72724$	-6.43514	-13.8800
$u = -0.161042 + 0.523048I$ $a = -0.958016 + 0.069367I$ $b = 0.421774 + 0.647047I$	$0.41915 + 1.76265I$	$-3.15254 - 5.56900I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.161042-0.523048I$ $a=-0.958016-0.069367I$ $b=\ \ 0.421774-0.647047I$	$0.41915-1.76265I$	$-3.15254+5.56900I$
$u=\ \ 1.46232+0.04987I$ $a=\ \ 0.207692-0.644243I$ $b=\ \ 0.408897-0.964739I$	$-7.32359+0.12289I$	0
$u=\ \ 1.46232-0.04987I$ $a=\ \ 0.207692+0.644243I$ $b=\ \ 0.408897+0.964739I$	$-7.32359-0.12289I$	0
$u=-1.47199+0.24653I$ $a=-1.246970-0.231738I$ $b=\ \ 0.32685+2.11863I$	$-11.11090+3.92371I$	0
$u=-1.47199-0.24653I$ $a=-1.246970+0.231738I$ $b=\ \ 0.32685-2.11863I$	$-11.11090-3.92371I$	0
$u=-0.494115+0.101505I$ $a=-0.444814+0.225779I$ $b=-0.395720+0.470268I$	$-1.070850+0.384320I$	$-10.13714-2.26166I$
$u=-0.494115-0.101505I$ $a=-0.444814-0.225779I$ $b=-0.395720-0.470268I$	$-1.070850-0.384320I$	$-10.13714+2.26166I$
$u=-1.48426+0.22127I$ $a=-1.39684+0.31844I$ $b=\ \ 1.23193+1.83135I$	$-11.50660+6.70613I$	0
$u=-1.48426-0.22127I$ $a=-1.39684-0.31844I$ $b=\ \ 1.23193-1.83135I$	$-11.50660-6.70613I$	0
$u=-1.50332+0.28479I$ $a=\ \ 1.319620-0.230307I$ $b=-0.82368-2.17854I$	$-12.2142+16.0764I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.50332 - 0.28479I$ $a = 1.319620 + 0.230307I$ $b = -0.82368 + 2.17854I$	$-12.2142 - 16.0764I$	0
$u = -1.54758 + 0.20289I$ $a = 1.177190 + 0.120725I$ $b = -0.14892 - 1.47002I$	$-13.53260 - 4.04812I$	0
$u = -1.54758 - 0.20289I$ $a = 1.177190 - 0.120725I$ $b = -0.14892 + 1.47002I$	$-13.53260 + 4.04812I$	0

II.

$\boldsymbol{I_2^u = \langle -u^{15}+u^{14}+\cdots+b+1,\ u^{15}-u^{14}+\cdots+a-4,\ u^{16}-2u^{15}+\cdots+9u^2+1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3-2u \\ -u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{15}+u^{14}+\cdots+u+4 \\ u^{15}-u^{14}+\cdots+3u-1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2u^{15}-3u^{14}+\cdots-4u^2+10u \\ -3u^{15}+2u^{14}+\cdots-u+1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{15}+u^{14}+\cdots+u+4 \\ 3u^{15}-2u^{14}+\cdots+2u-2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^6-3u^4+2u^2+1 \\ -u^6+2u^4-u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{14}+u^{13}+\cdots+7u-1 \\ 3u^{15}-2u^{14}+\cdots-5u-3 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -2u^{15}+2u^{14}+\cdots+11u^2+4 \\ 3u^{15}-2u^{14}+\cdots+3u-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6u^{15}+u^{14}+40u^{13}+7u^{12}-101u^{11}-62u^{10}+95u^9+144u^8+34u^7-109u^6-111u^5-33u^4+29u^3+52u^2+22u+5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{16} - 7u^{15} + \cdots - 4u + 1$
c_2	$u^{16} + 9u^{15} + \cdots + 11u + 5$
c_4, c_9	$u^{16} - u^{15} + \cdots + 2u^2 + 1$
c_5, c_8	$u^{16} + 2u^{14} + \cdots + u + 1$
c_6	$u^{16} + 2u^{15} + \cdots + 9u^2 + 1$
c_7	$u^{16} - 6u^{15} + \cdots - 12u + 5$
c_{10}	$u^{16} + 6u^{15} + \cdots + 12u + 5$
c_{11}, c_{12}	$u^{16} - 2u^{15} + \cdots + 9u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{16} - y^{15} + \cdots + 16y + 1$
c_2	$y^{16} - 3y^{15} + \cdots - 191y + 25$
c_4, c_9	$y^{16} + 7y^{15} + \cdots + 4y + 1$
c_5, c_8	$y^{16} + 4y^{15} + \cdots + 7y + 1$
c_6, c_{11}, c_{12}	$y^{16} - 16y^{15} + \cdots + 18y + 1$
c_7, c_{10}	$y^{16} + 18y^{14} + \cdots + 396y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.513943 + 0.697356I$ $a = -1.22872 - 1.28747I$ $b = 0.23245 + 1.44429I$	$-4.25844 + 2.34152I$	$-8.19461 - 3.09667I$
$u = -0.513943 - 0.697356I$ $a = -1.22872 + 1.28747I$ $b = 0.23245 - 1.44429I$	$-4.25844 - 2.34152I$	$-8.19461 + 3.09667I$
$u = -0.041928 + 0.737611I$ $a = -0.828729 - 0.160875I$ $b = 0.811180 - 0.178567I$	$3.49750 + 3.94912I$	$1.82875 - 5.70898I$
$u = -0.041928 - 0.737611I$ $a = -0.828729 + 0.160875I$ $b = 0.811180 + 0.178567I$	$3.49750 - 3.94912I$	$1.82875 + 5.70898I$
$u = -1.239030 + 0.314632I$ $a = -0.137190 - 0.504551I$ $b = -0.482263 - 0.342547I$	$-0.197771 - 0.146116I$	$-3.97287 + 4.66079I$
$u = -1.239030 - 0.314632I$ $a = -0.137190 + 0.504551I$ $b = -0.482263 + 0.342547I$	$-0.197771 + 0.146116I$	$-3.97287 - 4.66079I$
$u = 1.331470 + 0.116092I$ $a = -0.300310 - 0.649478I$ $b = 1.39100 + 0.87664I$	$-3.21145 + 2.06263I$	$-9.83386 - 3.81751I$
$u = 1.331470 - 0.116092I$ $a = -0.300310 + 0.649478I$ $b = 1.39100 - 0.87664I$	$-3.21145 - 2.06263I$	$-9.83386 + 3.81751I$
$u = 1.306250 + 0.303862I$ $a = 0.116790 + 0.407149I$ $b = -1.108390 - 0.136579I$	$-0.72717 - 7.70203I$	$-3.85260 + 5.91558I$
$u = 1.306250 - 0.303862I$ $a = 0.116790 - 0.407149I$ $b = -1.108390 + 0.136579I$	$-0.72717 + 7.70203I$	$-3.85260 - 5.91558I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.363160 + 0.105294I$ $a = -0.139846 + 1.028760I$ $b = 0.098436 + 1.343460I$	$-3.45321 + 5.20308I$	$-7.91234 - 8.27064I$
$u = -1.363160 - 0.105294I$ $a = -0.139846 - 1.028760I$ $b = 0.098436 - 1.343460I$	$-3.45321 - 5.20308I$	$-7.91234 + 8.27064I$
$u = 1.50649 + 0.23461I$ $a = 1.206110 + 0.124568I$ $b = -0.67768 + 1.70952I$	$-10.83930 - 5.72011I$	$-10.87989 + 2.94641I$
$u = 1.50649 - 0.23461I$ $a = 1.206110 - 0.124568I$ $b = -0.67768 - 1.70952I$	$-10.83930 + 5.72011I$	$-10.87989 - 2.94641I$
$u = 0.013846 + 0.326826I$ $a = 3.31189 + 0.40322I$ $b = -0.764739 + 0.955045I$	$1.09551 - 3.67765I$	$-0.68259 + 6.26202I$
$u = 0.013846 - 0.326826I$ $a = 3.31189 - 0.40322I$ $b = -0.764739 - 0.955045I$	$1.09551 + 3.67765I$	$-0.68259 - 6.26202I$

III.
$\boldsymbol{I_3^u = \langle -u^{17}a - 7u^{17} + \cdots + a + 7,\ -u^{17}a + u^{17} + \cdots - a + 3,\ u^{18} - 2u^{17} + \cdots - 2u + 1 \rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ \frac{1}{2}u^{17}a + \frac{7}{2}u^{17} + \cdots - \frac{1}{2}a - \frac{7}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{17} + 2u^{16} + \cdots - 5u + 2 \\ \frac{9}{2}u^{17}a + \frac{7}{2}u^{17} + \cdots - \frac{7}{2}a - \frac{9}{2} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ \frac{1}{2}u^{17}a + \frac{7}{2}u^{17} + \cdots - \frac{1}{2}a - \frac{7}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -u^6 + 2u^4 - u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{2}u^{17}a - \frac{1}{2}u^{17} + \cdots + \frac{1}{2}a + \frac{7}{2} \\ -\frac{3}{2}u^{17}a - \frac{7}{2}u^{17} + \cdots + \frac{3}{2}a + \frac{1}{2} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{2}u^{17}a - \frac{1}{2}u^{17} + \cdots + \frac{1}{2}a + \frac{3}{2} \\ \frac{1}{2}u^{17}a + \frac{11}{2}u^{17} + \cdots - \frac{1}{2}a - \frac{11}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 11u^{17} - 9u^{16} - 88u^{15} + 43u^{14} + 295u^{13} - 13u^{12} - 526u^{11} - 254u^{10} + 489u^9 + 529u^8 - 136u^7 - 370u^6 - 102u^5 + 70u^4 + 28u^3 - 12u^2 + 27u - 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{36} + 3u^{35} + \cdots + 7002u + 1463$
c_2	$(u^{18} - 7u^{17} + \cdots - 3u + 2)^2$
c_4, c_9	$u^{36} + 2u^{35} + \cdots - 3995u + 2209$
c_5, c_8	$u^{36} + 2u^{35} + \cdots - 11u + 7$
c_6, c_{11}, c_{12}	$(u^{18} - 2u^{17} + \cdots - 2u + 1)^2$
c_7, c_{10}	$(u^{18} + 9u^{17} + \cdots - 9u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{36} - 23y^{35} + \cdots - 22808118y + 2140369$
c_2	$(y^{18} + 3y^{17} + \cdots + 27y + 4)^2$
c_4, c_9	$y^{36} + 16y^{35} + \cdots + 14457905y + 4879681$
c_5, c_8	$y^{36} + 4y^{35} + \cdots - 527y + 49$
c_6, c_{11}, c_{12}	$(y^{18} - 18y^{17} + \cdots + 6y + 1)^2$
c_7, c_{10}	$(y^{18} - 13y^{17} + \cdots - 65y + 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.623735+0.676903I$ $a=\ \ 1.09092+0.90516I$ $b=-0.388747-1.126670I$	$-5.00931+1.37809I$	$-15.9129+1.4125I$
$u=-0.623735+0.676903I$ $a=-1.20346-1.43263I$ $b=-0.60225+1.58175I$	$-5.00931+1.37809I$	$-15.9129+1.4125I$
$u=-0.623735-0.676903I$ $a=\ \ 1.09092-0.90516I$ $b=-0.388747+1.126670I$	$-5.00931-1.37809I$	$-15.9129-1.4125I$
$u=-0.623735-0.676903I$ $a=-1.20346+1.43263I$ $b=-0.60225-1.58175I$	$-5.00931-1.37809I$	$-15.9129-1.4125I$
$u=-0.459508+0.785840I$ $a=\ \ 0.82807+1.29522I$ $b=-0.149366-1.191720I$	$-4.44669+3.56504I$	$-11.6079-9.8797I$
$u=-0.459508+0.785840I$ $a=-1.35269-1.24838I$ $b=\ \ 0.64977+1.98575I$	$-4.44669+3.56504I$	$-11.6079-9.8797I$
$u=-0.459508-0.785840I$ $a=\ \ 0.82807-1.29522I$ $b=-0.149366+1.191720I$	$-4.44669-3.56504I$	$-11.6079+9.8797I$
$u=-0.459508-0.785840I$ $a=-1.35269+1.24838I$ $b=\ \ 0.64977-1.98575I$	$-4.44669-3.56504I$	$-11.6079+9.8797I$
$u=-1.217420+0.149232I$ $a=\ \ 0.758661+0.017633I$ $b=-0.639849+0.209705I$	$-2.54082-0.26760I$	$-6.08660+2.02101I$
$u=-1.217420+0.149232I$ $a=-0.324598-0.531544I$ $b=-1.80724+0.07151I$	$-2.54082-0.26760I$	$-6.08660+2.02101I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.217420 - 0.149232I$ $a = 0.758661 - 0.017633I$ $b = -0.639849 - 0.209705I$	$-2.54082 + 0.26760I$	$-6.08660 - 2.02101I$
$u = -1.217420 - 0.149232I$ $a = -0.324598 + 0.531544I$ $b = -1.80724 - 0.07151I$	$-2.54082 + 0.26760I$	$-6.08660 - 2.02101I$
$u = 1.321350 + 0.051743I$ $a = 0.448951 + 0.755907I$ $b = -1.46818 + 1.80716I$	$-2.27934 - 4.22577I$	$-4.79351 + 4.92260I$
$u = 1.321350 + 0.051743I$ $a = -0.695523 + 1.089510I$ $b = 0.944109 + 0.327725I$	$-2.27934 - 4.22577I$	$-4.79351 + 4.92260I$
$u = 1.321350 - 0.051743I$ $a = 0.448951 - 0.755907I$ $b = -1.46818 - 1.80716I$	$-2.27934 + 4.22577I$	$-4.79351 - 4.92260I$
$u = 1.321350 - 0.051743I$ $a = -0.695523 - 1.089510I$ $b = 0.944109 - 0.327725I$	$-2.27934 + 4.22577I$	$-4.79351 - 4.92260I$
$u = -1.42431 + 0.11756I$ $a = -0.52531 + 1.44263I$ $b = 1.084790 + 0.698218I$	$-5.01391 + 6.10285I$	$-11.9670 - 7.7853I$
$u = -1.42431 + 0.11756I$ $a = -0.210685 - 0.092418I$ $b = 1.05013 - 1.59041I$	$-5.01391 + 6.10285I$	$-11.9670 - 7.7853I$
$u = -1.42431 - 0.11756I$ $a = -0.52531 - 1.44263I$ $b = 1.084790 - 0.698218I$	$-5.01391 - 6.10285I$	$-11.9670 + 7.7853I$
$u = -1.42431 - 0.11756I$ $a = -0.210685 + 0.092418I$ $b = 1.05013 + 1.59041I$	$-5.01391 - 6.10285I$	$-11.9670 + 7.7853I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.070160 + 0.483617I$ $a = -1.35137 + 1.38836I$ $b = 0.0469130 + 0.1026370I$	$1.40266 + 2.67585I$	$-0.517536 + 0.048745I$
$u = 0.070160 + 0.483617I$ $a = -2.01365 - 1.09287I$ $b = 1.56099 + 0.71516I$	$1.40266 + 2.67585I$	$-0.517536 + 0.048745I$
$u = 0.070160 - 0.483617I$ $a = -1.35137 - 1.38836I$ $b = 0.0469130 - 0.1026370I$	$1.40266 - 2.67585I$	$-0.517536 - 0.048745I$
$u = 0.070160 - 0.483617I$ $a = -2.01365 + 1.09287I$ $b = 1.56099 - 0.71516I$	$1.40266 - 2.67585I$	$-0.517536 - 0.048745I$
$u = 1.50796 + 0.28469I$ $a = -1.038930 + 0.071518I$ $b = 0.51644 - 1.48081I$	$-10.83170 - 7.47357I$	$-12.4267 + 8.5659I$
$u = 1.50796 + 0.28469I$ $a = 1.193430 + 0.323516I$ $b = -0.59284 + 2.23330I$	$-10.83170 - 7.47357I$	$-12.4267 + 8.5659I$
$u = 1.50796 - 0.28469I$ $a = -1.038930 - 0.071518I$ $b = 0.51644 + 1.48081I$	$-10.83170 + 7.47357I$	$-12.4267 - 8.5659I$
$u = 1.50796 - 0.28469I$ $a = 1.193430 - 0.323516I$ $b = -0.59284 - 2.23330I$	$-10.83170 + 7.47357I$	$-12.4267 - 8.5659I$
$u = 1.53783 + 0.20210I$ $a = -0.916476 - 0.183325I$ $b = 0.90960 - 1.50238I$	$-12.11830 - 4.51784I$	$-16.4492 + 1.0407I$
$u = 1.53783 + 0.20210I$ $a = 1.401570 - 0.085363I$ $b = 0.081288 + 1.327820I$	$-12.11830 - 4.51784I$	$-16.4492 + 1.0407I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.53783 - 0.20210I$ $a = -0.916476 + 0.183325I$ $b = 0.90960 + 1.50238I$	$-12.11830 + 4.51784I$	$-16.4492 - 1.0407I$
$u = 1.53783 - 0.20210I$ $a = 1.401570 + 0.085363I$ $b = 0.081288 - 1.327820I$	$-12.11830 + 4.51784I$	$-16.4492 - 1.0407I$
$u = 0.287680 + 0.336405I$ $a = 0.912787 + 0.372724I$ $b = -0.103332 - 1.226040I$	$0.53649 - 4.39821I$	$-7.7387 + 12.1185I$
$u = 0.287680 + 0.336405I$ $a = 2.99830 + 2.04992I$ $b = -1.092230 + 0.505133I$	$0.53649 - 4.39821I$	$-7.7387 + 12.1185I$
$u = 0.287680 - 0.336405I$ $a = 0.912787 - 0.372724I$ $b = -0.103332 + 1.226040I$	$0.53649 + 4.39821I$	$-7.7387 - 12.1185I$
$u = 0.287680 - 0.336405I$ $a = 2.99830 - 2.04992I$ $b = -1.092230 - 0.505133I$	$0.53649 + 4.39821I$	$-7.7387 - 12.1185I$

IV. $I_4^u = \langle b^2 + b - 1,\ a + 1,\ u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000$ $b = \quad 0.618034$	-3.28987	-17.0000
$u = -1.00000$ $a = -1.00000$ $b = -1.61803$	-3.28987	-17.0000

V. $I_1^v = \langle a,\ b+1,\ v-1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

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

$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$

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

$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -1.00000$	-1.64493	-6.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3	$((u-1)^2)(u+1)(u^{16}-7u^{15}+\cdots-4u+1)(u^{33}+2u^{32}+\cdots+7u-1)$ $\cdot(u^{36}+3u^{35}+\cdots+7002u+1463)$
c_2	$u^3(u^{16}+9u^{15}+\cdots+11u+5)(u^{18}-7u^{17}+\cdots-3u+2)^2$ $\cdot(u^{33}+22u^{32}+\cdots+90u+9)$
c_4, c_9	$(u+1)(u^2-u-1)(u^{16}-u^{15}+\cdots+2u^2+1)(u^{33}-2u^{32}+\cdots-37u+7)$ $\cdot(u^{36}+2u^{35}+\cdots-3995u+2209)$
c_5, c_8	$(u+1)(u^2-u-1)(u^{16}+2u^{14}+\cdots+u+1)(u^{33}-u^{32}+\cdots+2u+1)$ $\cdot(u^{36}+2u^{35}+\cdots-11u+7)$
c_6	$u(u-1)^2(u^{16}+2u^{15}+\cdots+9u^2+1)(u^{18}-2u^{17}+\cdots-2u+1)^2$ $\cdot(u^{33}+5u^{32}+\cdots-27u-9)$
c_7	$u^3(u^{16}-6u^{15}+\cdots-12u+5)(u^{18}+9u^{17}+\cdots-9u+8)^2$ $\cdot(u^{33}-15u^{32}+\cdots-621u+1341)$
c_{10}	$u^3(u^{16}+6u^{15}+\cdots+12u+5)(u^{18}+9u^{17}+\cdots-9u+8)^2$ $\cdot(u^{33}-15u^{32}+\cdots-621u+1341)$
c_{11}, c_{12}	$u(u+1)^2(u^{16}-2u^{15}+\cdots+9u^2+1)(u^{18}-2u^{17}+\cdots-2u+1)^2$ $\cdot(u^{33}+5u^{32}+\cdots-27u-9)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$((y-1)^3)(y^{16} - y^{15} + \cdots + 16y + 1)(y^{33} - 50y^{32} + \cdots + 37y - 1)$ $\cdot (y^{36} - 23y^{35} + \cdots - 22808118y + 2140369)$
c_2	$y^3(y^{16} - 3y^{15} + \cdots - 191y + 25)(y^{18} + 3y^{17} + \cdots + 27y + 4)^2$ $\cdot (y^{33} + 58y^{31} + \cdots - 540y - 81)$
c_4, c_9	$(y-1)(y^2 - 3y + 1)(y^{16} + 7y^{15} + \cdots + 4y + 1)$ $\cdot (y^{33} + 18y^{32} + \cdots + 1173y - 49)$ $\cdot (y^{36} + 16y^{35} + \cdots + 14457905y + 4879681)$
c_5, c_8	$(y-1)(y^2 - 3y + 1)(y^{16} + 4y^{15} + \cdots + 7y + 1)$ $\cdot (y^{33} - 13y^{32} + \cdots + 30y - 1)(y^{36} + 4y^{35} + \cdots - 527y + 49)$
c_6, c_{11}, c_{12}	$y(y-1)^2(y^{16} - 16y^{15} + \cdots + 18y + 1)(y^{18} - 18y^{17} + \cdots + 6y + 1)^2$ $\cdot (y^{33} - 33y^{32} + \cdots + 351y - 81)$
c_7, c_{10}	$y^3(y^{16} + 18y^{14} + \cdots + 396y + 25)(y^{18} - 13y^{17} + \cdots - 65y + 64)^2$ $\cdot (y^{33} - 13y^{32} + \cdots + 28562733y - 1798281)$