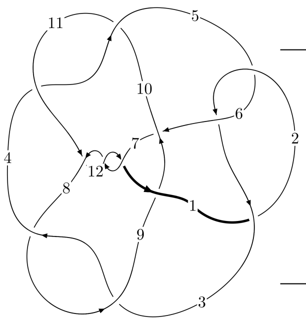
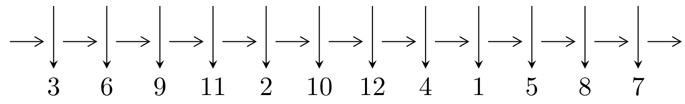
$12a_{0392}$ $(K12a_{0392})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 43u^{38} + 714u^{37} + \cdots + 128b - 4224,\ -119u^{38} - 2108u^{37} + \cdots + 256a - 156160,\\
&\quad u^{39} + 18u^{38} + \cdots + 5120u + 256\rangle\\
I_2^u &= \langle -1.58971 \times 10^{86}a^{15}u^3 + 2.22794 \times 10^{86}a^{14}u^3 + \cdots - 5.54346 \times 10^{88}a - 7.99467 \times 10^{88},\\
&\quad -2a^{15}u^3 + 5a^{14}u^3 + \cdots + 348a - 417,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle\\
I_3^u &= \langle u^{26} + u^{25} + \cdots + b + 2,\ -3u^{26} + 2u^{25} + \cdots + a - 2,\ u^{27} - u^{26} + \cdots - 2u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 130 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. $\boldsymbol{I_1^u = \langle 43u^{38} + 714u^{37} + \cdots + 128b - 4224,\ -119u^{38} - 2108u^{37} + \cdots + 256a - 156160,\ u^{39} + 18u^{38} + \cdots + 5120u + 256\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} \frac{119}{256}u^{38} + \frac{527}{64}u^{37} + \cdots + \frac{20949}{2}u + 610 \\ -\frac{43}{128}u^{38} - \frac{357}{64}u^{37} + \cdots + 17u + 33 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{33}{256}u^{38} + \frac{85}{32}u^{37} + \cdots + \frac{20983}{2}u + 643 \\ -\frac{43}{128}u^{38} - \frac{357}{64}u^{37} + \cdots + 17u + 33 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{3}{2}u^{38} + \frac{51}{2}u^{37} + \cdots + 4544u + \frac{449}{2} \\ \frac{3}{2}u^{38} + 26u^{37} + \cdots + \frac{14913}{2}u + 384 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -3.08594u^{38} - 51.7266u^{37} + \cdots + 4079u + 359.500 \\ -\frac{429}{128}u^{38} - \frac{937}{16}u^{37} + \cdots - \frac{28813}{2}u - 704 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.500000u^{37} + 8.25000u^{36} + \cdots + 2911.50u + 160.500 \\ -\frac{3}{2}u^{38} - 26u^{37} + \cdots - \frac{14911}{2}u - 384 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{38} + 8u^{37} + \cdots - \frac{5947}{4}u - 96 \\ \frac{5}{4}u^{38} + \frac{85}{4}u^{37} + \cdots + 7201u + 384 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -6u^{38} - \frac{1669}{16}u^{37} + \cdots - 35327u - \frac{3677}{2} \\ -\frac{55}{16}u^{38} - \frac{485}{8}u^{37} + \cdots - \frac{48673}{2}u - 1280 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{49}{8}u^{38} - \frac{1605}{16}u^{37} + \cdots + 16358u + 1094$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{39} + 18u^{38} + \cdots + 5504u + 256$
c_2, c_5	$u^{39} + 12u^{38} + \cdots + 176u + 16$
c_3, c_4, c_8 c_{10}	$u^{39} + 20u^{37} + \cdots + 4u + 1$
c_6, c_9	$u^{39} - u^{38} + \cdots - 8u + 1$
c_7, c_{11}, c_{12}	$u^{39} + 18u^{38} + \cdots + 5120u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{39} + 10y^{38} + \cdots + 19341312y - 65536$
c_2, c_5	$y^{39} - 18y^{38} + \cdots + 5504y - 256$
c_3, c_4, c_8 c_{10}	$y^{39} + 40y^{38} + \cdots + 20y^2 - 1$
c_6, c_9	$y^{39} + 21y^{38} + \cdots + 4y - 1$
c_7, c_{11}, c_{12}	$y^{39} + 36y^{38} + \cdots + 589824y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.400663 + 0.963427I$ $a = 0.451632 + 0.816397I$ $b = 0.369575 - 0.774310I$	$-0.15313 + 4.84342I$	0
$u = -0.400663 - 0.963427I$ $a = 0.451632 - 0.816397I$ $b = 0.369575 + 0.774310I$	$-0.15313 - 4.84342I$	0
$u = 0.451130 + 0.992863I$ $a = 0.138378 + 1.102670I$ $b = 0.280699 - 0.629532I$	$-1.18720 - 1.89318I$	0
$u = 0.451130 - 0.992863I$ $a = 0.138378 - 1.102670I$ $b = 0.280699 + 0.629532I$	$-1.18720 + 1.89318I$	0
$u = -0.052624 + 1.102050I$ $a = -0.168827 - 0.844431I$ $b = -0.347523 + 0.553746I$	$2.60173 + 1.38324I$	0
$u = -0.052624 - 1.102050I$ $a = -0.168827 + 0.844431I$ $b = -0.347523 - 0.553746I$	$2.60173 - 1.38324I$	0
$u = -0.864676 + 0.737942I$ $a = 0.729080 + 0.693284I$ $b = 0.35512 - 1.48245I$	$8.1445 + 12.7684I$	0
$u = -0.864676 - 0.737942I$ $a = 0.729080 - 0.693284I$ $b = 0.35512 + 1.48245I$	$8.1445 - 12.7684I$	0
$u = -1.052450 + 0.490837I$ $a = 0.533205 + 0.265820I$ $b = -0.112515 - 1.397090I$	$7.28855 - 6.50907I$	0
$u = -1.052450 - 0.490837I$ $a = 0.533205 - 0.265820I$ $b = -0.112515 + 1.397090I$	$7.28855 + 6.50907I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.910975+0.731798I$ $a=-0.702822-0.636181I$ $b=-0.26897+1.47836I$	$9.80197+6.44149I$	0
$u=-0.910975-0.731798I$ $a=-0.702822+0.636181I$ $b=-0.26897-1.47836I$	$9.80197-6.44149I$	0
$u=-1.061090+0.576155I$ $a=-0.567903-0.380804I$ $b=0.01767+1.42483I$	$9.20680+0.05896I$	0
$u=-1.061090-0.576155I$ $a=-0.567903+0.380804I$ $b=0.01767-1.42483I$	$9.20680-0.05896I$	0
$u=-0.690930+0.149615I$ $a=0.021817-0.306127I$ $b=-0.353074-0.523995I$	$-2.57796-0.99729I$	$-13.7858+6.1595I$
$u=-0.690930-0.149615I$ $a=0.021817+0.306127I$ $b=-0.353074+0.523995I$	$-2.57796+0.99729I$	$-13.7858-6.1595I$
$u=-0.255978+1.318020I$ $a=-0.463212-0.163607I$ $b=0.218629+0.376986I$	$1.98110+2.40422I$	0
$u=-0.255978-1.318020I$ $a=-0.463212+0.163607I$ $b=0.218629-0.376986I$	$1.98110-2.40422I$	0
$u=-0.537476+0.324278I$ $a=-0.171379-0.673239I$ $b=-0.761237-0.128475I$	$-0.73710+3.72784I$	$-13.9761-6.1233I$
$u=-0.537476-0.324278I$ $a=-0.171379+0.673239I$ $b=-0.761237+0.128475I$	$-0.73710-3.72784I$	$-13.9761+6.1233I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.115760+0.810029I$ $a=\ \ 0.508718+0.600988I$ $b=\ \ 0.130410-1.320350I$	$1.72502+3.78448I$	0
$u=-1.115760-0.810029I$ $a=\ \ 0.508718-0.600988I$ $b=\ \ 0.130410+1.320350I$	$1.72502-3.78448I$	0
$u=-0.149861+1.383670I$ $a=\ \ 0.469652-0.674866I$ $b=-0.672332+0.210913I$	$5.20966+1.40328I$	0
$u=-0.149861-1.383670I$ $a=\ \ 0.469652+0.674866I$ $b=-0.672332-0.210913I$	$5.20966-1.40328I$	0
$u=-0.190013+1.391680I$ $a=-0.653793+0.515105I$ $b=\ \ 0.726029-0.003275I$	$4.70756+6.35711I$	0
$u=-0.190013-1.391680I$ $a=-0.653793-0.515105I$ $b=\ \ 0.726029+0.003275I$	$4.70756-6.35711I$	0
$u=-0.399279+0.387480I$ $a=\ \ 0.394234+0.785740I$ $b=\ \ 0.665015-0.160987I$	$-0.299504-0.631618I$	$-12.71997-1.63926I$
$u=-0.399279-0.387480I$ $a=\ \ 0.394234-0.785740I$ $b=\ \ 0.665015+0.160987I$	$-0.299504+0.631618I$	$-12.71997+1.63926I$
$u=-0.27536+1.63405I$ $a=-0.50107-1.80207I$ $b=-0.53416+1.64963I$	$15.9909+17.0430I$	0
$u=-0.27536-1.63405I$ $a=-0.50107+1.80207I$ $b=-0.53416-1.64963I$	$15.9909-17.0430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.28713+1.63936I$ $a=\ \ 0.54343+1.73997I$ $b=\ \ 0.47039-1.63060I$	$17.6388+10.9152I$	0
$u=-0.28713-1.63936I$ $a=\ \ 0.54343-1.73997I$ $b=\ \ 0.47039+1.63060I$	$17.6388-10.9152I$	0
$u=-0.308532$ $a=\ \ 0.796218$ $b=\ \ 0.355272$	-0.538927	-18.2760
$u=-0.35579+1.66576I$ $a=\ \ 0.62206+1.45371I$ $b=\ \ 0.26274-1.48497I$	$16.6078+5.4335I$	0
$u=-0.35579-1.66576I$ $a=\ \ 0.62206-1.45371I$ $b=\ \ 0.26274+1.48497I$	$16.6078-5.4335I$	0
$u=-0.41026+1.66303I$ $a=-0.64890-1.31609I$ $b=-0.17699+1.41341I$	$14.2343-0.9071I$	0
$u=-0.41026-1.66303I$ $a=-0.64890+1.31609I$ $b=-0.17699-1.41341I$	$14.2343+0.9071I$	0
$u=-0.28654+1.68929I$ $a=-0.43241-1.56815I$ $b=-0.44711+1.45266I$	$10.16570+8.90260I$	0
$u=-0.28654-1.68929I$ $a=-0.43241+1.56815I$ $b=-0.44711-1.45266I$	$10.16570-8.90260I$	0

II. $\boldsymbol{I_2^u = \langle -1.59 \times 10^{86} a^{15} u^3 + 2.23 \times 10^{86} a^{14} u^3 + \cdots - 5.54 \times 10^{88} a - 7.99 \times 10^{88},\ -2a^{15}u^3 + 5a^{14}u^3 + \cdots + 348a - 417,\ u^4 - u^3 + 3u^2 - 2u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} a \\ 0.00408887a^{15}u^3 - 0.00573044a^{14}u^3 + \cdots + 1.42582a + 2.05629 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00408887a^{15}u^3 - 0.00573044a^{14}u^3 + \cdots + 2.42582a + 2.05629 \\ 0.00408887a^{15}u^3 - 0.00573044a^{14}u^3 + \cdots + 1.42582a + 2.05629 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.00155418a^{15}u^3 + 0.00258699a^{14}u^3 + \cdots + 0.0885681a + 1.18429 \\ -0.00126205a^{15}u^3 + 0.000265938a^{14}u^3 + \cdots + 1.25572a + 0.310048 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.00131987a^{15}u^3 + 0.00795777a^{14}u^3 + \cdots - 4.11698a - 0.379473 \\ 0.00514080a^{15}u^3 - 0.000145096a^{14}u^3 + \cdots + 1.65513a + 0.682050 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^3 - u^2 + 2u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.000982963a^{15}u^3 + 0.00140342a^{14}u^3 + \cdots - 0.640785a + 0.472882 \\ 0.00120849a^{15}u^3 + 0.00435844a^{14}u^3 + \cdots + 0.567163a - 0.159396 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.00145898a^{15}u^3 - 0.00366768a^{14}u^3 + \cdots + 0.244446a + 0.563875 \\ -0.00148404a^{15}u^3 + 0.00319394a^{14}u^3 + \cdots - 0.647576a - 0.831641 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.000836775a^{15}u^3 + 0.00741350a^{14}u^3 + \cdots - 2.24164a - 1.04569 \\ 0.00384949a^{15}u^3 - 0.00353384a^{14}u^3 + \cdots + 2.01767a - 1.78758 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00740162a^{15}u^3 - 0.000148538a^{14}u^3 + \cdots - 0.708796a - 10.4488$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^8$
c_2, c_5	$(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)^8$
c_3, c_4, c_8 c_{10}	$u^{64}-u^{63}+\cdots-56048u+9017$
c_6, c_9	$u^{64}+9u^{63}+\cdots-186580u+125537$
c_7, c_{11}, c_{12}	$(u^4-u^3+3u^2-2u+1)^{16}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^8$
c_2, c_5	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)^8$
c_3, c_4, c_8 c_{10}	$y^{64} + 63y^{63} + \cdots + 550974992y + 81306289$
c_6, c_9	$y^{64} + 23y^{63} + \cdots + 140468688776y + 15759538369$
c_7, c_{11}, c_{12}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^{16}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.395123 + 0.506844I$ $a = 0.529964 - 0.894339I$ $b = -0.271440 + 1.194030I$	$3.68314 - 0.28387I$	$-7.24196 + 4.39795I$
$u = 0.395123 + 0.506844I$ $a = -0.834931 - 0.385761I$ $b = -0.868179 - 0.429906I$	$3.68314 - 2.54634I$	$-7.24196 + 5.41953I$
$u = 0.395123 + 0.506844I$ $a = -1.106250 + 0.193590I$ $b = -0.53504 - 1.55487I$	$6.88321 - 3.99360I$	$-4.10382 + 8.47670I$
$u = 0.395123 + 0.506844I$ $a = 1.090130 - 0.270344I$ $b = 0.39737 + 1.63331I$	$6.88321 + 1.16339I$	$-4.10382 + 1.34079I$
$u = 0.395123 + 0.506844I$ $a = 0.497578 + 0.719297I$ $b = 0.672533 - 0.182376I$	$-1.77893 - 1.41510I$	$-13.6908 + 4.9087I$
$u = 0.395123 + 0.506844I$ $a = -0.325623 + 0.736979I$ $b = 0.516120 - 1.133730I$	$2.34412 + 5.02843I$	$-9.25519 - 0.38543I$
$u = 0.395123 + 0.506844I$ $a = 0.692179 + 0.327627I$ $b = 1.083680 + 0.298282I$	$2.34412 - 7.85864I$	$-9.25519 + 10.20291I$
$u = 0.395123 + 0.506844I$ $a = -1.51485 - 0.13034I$ $b = -0.280648 - 1.037500I$	$3.87876 - 1.41510I$	$-11.72120 + 4.90874I$
$u = 0.395123 + 0.506844I$ $a = 1.42416 - 0.72333I$ $b = 0.117535 + 1.371480I$	$3.87876 - 1.41510I$	$-11.72120 + 4.90874I$
$u = 0.395123 + 0.506844I$ $a = -1.25536 - 1.22597I$ $b = 0.049747 - 0.249446I$	$3.68314 - 0.28387I$	$-7.24196 + 4.39795I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.395123 + 0.506844I$ $a = -0.22939 + 1.80501I$ $b = -0.190203 - 0.805214I$	$-1.77893 - 1.41510I$	$-13.6908 + 4.9087I$
$u = 0.395123 + 0.506844I$ $a = 1.17390 + 1.65779I$ $b = -0.276362 + 0.060214I$	$2.34412 + 5.02843I$	$-9.25519 - 0.38543I$
$u = 0.395123 + 0.506844I$ $a = 1.09863 - 1.83963I$ $b = 0.259522 + 1.185500I$	$3.68314 - 2.54634I$	$-7.24196 + 5.41953I$
$u = 0.395123 + 0.506844I$ $a = -1.01834 + 2.19191I$ $b = -0.384446 - 1.147400I$	$2.34412 - 7.85864I$	$-9.25519 + 10.20291I$
$u = 0.395123 + 0.506844I$ $a = -2.48760 + 0.21755I$ $b = 0.103066 - 1.292470I$	$6.88321 + 1.16339I$	$-4.10382 + 1.34079I$
$u = 0.395123 + 0.506844I$ $a = 2.46143 - 0.53883I$ $b = -0.041443 + 1.369750I$	$6.88321 - 3.99360I$	$-4.10382 + 8.47670I$
$u = 0.395123 - 0.506844I$ $a = 0.529964 + 0.894339I$ $b = -0.271440 - 1.194030I$	$3.68314 + 0.28387I$	$-7.24196 - 4.39795I$
$u = 0.395123 - 0.506844I$ $a = -0.834931 + 0.385761I$ $b = -0.868179 + 0.429906I$	$3.68314 + 2.54634I$	$-7.24196 - 5.41953I$
$u = 0.395123 - 0.506844I$ $a = -1.106250 - 0.193590I$ $b = -0.53504 + 1.55487I$	$6.88321 + 3.99360I$	$-4.10382 - 8.47670I$
$u = 0.395123 - 0.506844I$ $a = 1.090130 + 0.270344I$ $b = 0.39737 - 1.63331I$	$6.88321 - 1.16339I$	$-4.10382 - 1.34079I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.395123 - 0.506844I$ $a = 0.497578 - 0.719297I$ $b = 0.672533 + 0.182376I$	$-1.77893 + 1.41510I$	$-13.6908 - 4.9087I$
$u = 0.395123 - 0.506844I$ $a = -0.325623 - 0.736979I$ $b = 0.516120 + 1.133730I$	$2.34412 - 5.02843I$	$-9.25519 + 0.38543I$
$u = 0.395123 - 0.506844I$ $a = 0.692179 - 0.327627I$ $b = 1.083680 - 0.298282I$	$2.34412 + 7.85864I$	$-9.25519 - 10.20291I$
$u = 0.395123 - 0.506844I$ $a = -1.51485 + 0.13034I$ $b = -0.280648 + 1.037500I$	$3.87876 + 1.41510I$	$-11.72120 - 4.90874I$
$u = 0.395123 - 0.506844I$ $a = 1.42416 + 0.72333I$ $b = 0.117535 - 1.371480I$	$3.87876 + 1.41510I$	$-11.72120 - 4.90874I$
$u = 0.395123 - 0.506844I$ $a = -1.25536 + 1.22597I$ $b = 0.049747 + 0.249446I$	$3.68314 + 0.28387I$	$-7.24196 - 4.39795I$
$u = 0.395123 - 0.506844I$ $a = -0.22939 - 1.80501I$ $b = -0.190203 + 0.805214I$	$-1.77893 + 1.41510I$	$-13.6908 - 4.9087I$
$u = 0.395123 - 0.506844I$ $a = 1.17390 - 1.65779I$ $b = -0.276362 - 0.060214I$	$2.34412 - 5.02843I$	$-9.25519 + 0.38543I$
$u = 0.395123 - 0.506844I$ $a = 1.09863 + 1.83963I$ $b = 0.259522 - 1.185500I$	$3.68314 + 2.54634I$	$-7.24196 - 5.41953I$
$u = 0.395123 - 0.506844I$ $a = -1.01834 - 2.19191I$ $b = -0.384446 + 1.147400I$	$2.34412 + 7.85864I$	$-9.25519 - 10.20291I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.395123 - 0.506844I$ $a = -2.48760 - 0.21755I$ $b = 0.103066 + 1.292470I$	$6.88321 - 1.16339I$	$-4.10382 - 1.34079I$
$u = 0.395123 - 0.506844I$ $a = 2.46143 + 0.53883I$ $b = -0.041443 - 1.369750I$	$6.88321 + 3.99360I$	$-4.10382 - 8.47670I$
$u = 0.10488 + 1.55249I$ $a = 0.765534 + 0.529987I$ $b = -1.66280 - 0.43897I$	$9.34587 - 9.60750I$	$-5.60171 + 7.85897I$
$u = 0.10488 + 1.55249I$ $a = -0.511096 - 0.652030I$ $b = 1.44154 + 0.59151I$	$10.68490 - 4.29520I$	$-3.58849 + 3.07559I$
$u = 0.10488 + 1.55249I$ $a = 0.325514 - 1.328990I$ $b = 0.722005 + 1.189080I$	$10.88050 - 3.16396I$	$-8.06773 + 2.56480I$
$u = 0.10488 + 1.55249I$ $a = -0.484520 - 0.281104I$ $b = -0.469711 - 0.025814I$	$9.34587 + 3.27957I$	$-5.60171 - 2.72937I$
$u = 0.10488 + 1.55249I$ $a = 0.418737 - 0.128216I$ $b = 0.602408 + 0.299006I$	$10.68490 - 2.03273I$	$-3.58849 + 2.05401I$
$u = 0.10488 + 1.55249I$ $a = 0.370887 + 0.007580I$ $b = -1.200660 - 0.042489I$	$5.22281 - 3.16396I$	$-10.03730 + 2.56480I$
$u = 0.10488 + 1.55249I$ $a = 0.41331 - 1.81369I$ $b = -0.37641 + 1.51363I$	$9.34587 + 3.27957I$	$-5.60171 - 2.72937I$
$u = 0.10488 + 1.55249I$ $a = -0.07999 - 1.98132I$ $b = 0.97084 + 1.91424I$	$13.8850 - 5.7425I$	$-0.45034 + 6.13276I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.10488 + 1.55249I$ $a = -0.37587 + 1.97654I$ $b = 0.15806 - 1.60323I$	$10.68490 - 2.03273I$	$-3.58849 + 2.05401I$
$u = 0.10488 + 1.55249I$ $a = 1.13639 - 1.69735I$ $b = 0.192108 + 1.283880I$	$13.88500 - 0.58547I$	$-0.450339 - 1.003158I$
$u = 0.10488 + 1.55249I$ $a = 0.04642 - 2.05989I$ $b = 0.032827 + 1.291870I$	$5.22281 - 3.16396I$	$-10.03730 + 2.56480I$
$u = 0.10488 + 1.55249I$ $a = -0.46664 + 2.02303I$ $b = -0.32707 - 1.61159I$	$10.88050 - 3.16396I$	$-8.06773 + 2.56480I$
$u = 0.10488 + 1.55249I$ $a = -0.05031 + 2.08668I$ $b = -0.78123 - 2.01911I$	$13.88500 - 0.58547I$	$-0.450339 - 1.003158I$
$u = 0.10488 + 1.55249I$ $a = -1.07189 + 1.91560I$ $b = -0.197571 - 1.376010I$	$13.8850 - 5.7425I$	$-0.45034 + 6.13276I$
$u = 0.10488 + 1.55249I$ $a = -0.25019 + 2.33684I$ $b = -0.19153 - 1.43815I$	$10.68490 - 4.29520I$	$-3.58849 + 3.07559I$
$u = 0.10488 + 1.55249I$ $a = 0.11810 - 2.43062I$ $b = 0.235399 + 1.383450I$	$9.34587 - 9.60750I$	$-5.60171 + 7.85897I$
$u = 0.10488 - 1.55249I$ $a = 0.765534 - 0.529987I$ $b = -1.66280 + 0.43897I$	$9.34587 + 9.60750I$	$-5.60171 - 7.85897I$
$u = 0.10488 - 1.55249I$ $a = -0.511096 + 0.652030I$ $b = 1.44154 - 0.59151I$	$10.68490 + 4.29520I$	$-3.58849 - 3.07559I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.10488 - 1.55249I$ $a = 0.325514 + 1.328990I$ $b = 0.722005 - 1.189080I$	$10.88050 + 3.16396I$	$-8.06773 - 2.56480I$
$u = 0.10488 - 1.55249I$ $a = -0.484520 + 0.281104I$ $b = -0.469711 + 0.025814I$	$9.34587 - 3.27957I$	$-5.60171 + 2.72937I$
$u = 0.10488 - 1.55249I$ $a = 0.418737 + 0.128216I$ $b = 0.602408 - 0.299006I$	$10.68490 + 2.03273I$	$-3.58849 - 2.05401I$
$u = 0.10488 - 1.55249I$ $a = 0.370887 - 0.007580I$ $b = -1.200660 + 0.042489I$	$5.22281 + 3.16396I$	$-10.03730 - 2.56480I$
$u = 0.10488 - 1.55249I$ $a = 0.41331 + 1.81369I$ $b = -0.37641 - 1.51363I$	$9.34587 - 3.27957I$	$-5.60171 + 2.72937I$
$u = 0.10488 - 1.55249I$ $a = -0.07999 + 1.98132I$ $b = 0.97084 - 1.91424I$	$13.8850 + 5.7425I$	$-0.45034 - 6.13276I$
$u = 0.10488 - 1.55249I$ $a = -0.37587 - 1.97654I$ $b = 0.15806 + 1.60323I$	$10.68490 + 2.03273I$	$-3.58849 - 2.05401I$
$u = 0.10488 - 1.55249I$ $a = 1.13639 + 1.69735I$ $b = 0.192108 - 1.283880I$	$13.88500 + 0.58547I$	$-0.450339 + 1.003158I$
$u = 0.10488 - 1.55249I$ $a = 0.04642 + 2.05989I$ $b = 0.032827 - 1.291870I$	$5.22281 + 3.16396I$	$-10.03730 - 2.56480I$
$u = 0.10488 - 1.55249I$ $a = -0.46664 - 2.02303I$ $b = -0.32707 + 1.61159I$	$10.88050 + 3.16396I$	$-8.06773 - 2.56480I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.10488 - 1.55249I$ $a = -0.05031 - 2.08668I$ $b = -0.78123 + 2.01911I$	$13.88500 + 0.58547I$	$-0.450339 + 1.003158I$
$u = 0.10488 - 1.55249I$ $a = -1.07189 - 1.91560I$ $b = -0.197571 + 1.376010I$	$13.8850 + 5.7425I$	$-0.45034 - 6.13276I$
$u = 0.10488 - 1.55249I$ $a = -0.25019 - 2.33684I$ $b = -0.19153 + 1.43815I$	$10.68490 + 4.29520I$	$-3.58849 - 3.07559I$
$u = 0.10488 - 1.55249I$ $a = 0.11810 + 2.43062I$ $b = 0.235399 - 1.383450I$	$9.34587 + 9.60750I$	$-5.60171 - 7.85897I$

III.

$$\boldsymbol{I^u_3 = \langle u^{26}+u^{25}+\cdots+b+2,\ -3u^{26}+2u^{25}+\cdots+a-2,\ u^{27}-u^{26}+\cdots-2u+1\rangle}$$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 3u^{26}-2u^{25}+\cdots-2u^2+2 \\ -u^{26}-u^{25}+\cdots+4u-2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2u^{26}-3u^{25}+\cdots-10u^2+4u \\ -u^{26}-u^{25}+\cdots+4u-2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^{26}+u^{25}+\cdots-2u+1 \\ -u^{26}+u^{25}+\cdots-2u+2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2u^{26}-2u^{25}+\cdots+4u-1 \\ 2u^{26}-6u^{25}+\cdots+7u-3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{26}-16u^{24}+\cdots+16u^2+u \\ -u^{26}+u^{25}+\cdots-3u+2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{25}-u^{24}+\cdots+8u+1 \\ -u^{25}-u^{24}+\cdots+10u^2+u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2u^{26}-2u^{25}+\cdots+8u-4 \\ u^{26}-2u^{25}+\cdots-6u^2-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -2u^{26}+13u^{25}-44u^{24}+188u^{23}-384u^{22}+1192u^{21}-1840u^{20}+4386u^{19}-5485u^{18}+10446u^{17}-10749u^{16}+16942u^{15}-14071u^{14}+18932u^{13}-12062u^{12}+14034u^{11}-6237u^{10}+6033u^9-1389u^8+873u^7+287u^6-280u^5+211u^4-111u^3+26u^2-7u-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{27} - 15u^{26} + \cdots + 41u - 4$
c_2	$u^{27} + 3u^{26} + \cdots - 7u - 2$
c_3, c_{10}	$u^{27} + 15u^{25} + \cdots - 2u - 1$
c_4, c_8	$u^{27} + 15u^{25} + \cdots - 2u + 1$
c_5	$u^{27} - 3u^{26} + \cdots - 7u + 2$
c_6, c_9	$u^{27} - u^{26} + \cdots - 15u^2 - 1$
c_7	$u^{27} + u^{26} + \cdots - 2u - 1$
c_{11}, c_{12}	$u^{27} - u^{26} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{27} + 5y^{26} + \cdots - 287y - 16$
c_2, c_5	$y^{27} - 15y^{26} + \cdots + 41y - 4$
c_3, c_4, c_8 c_{10}	$y^{27} + 30y^{26} + \cdots + 22y - 1$
c_6, c_9	$y^{27} + 7y^{26} + \cdots - 30y - 1$
c_7, c_{11}, c_{12}	$y^{27} + 31y^{26} + \cdots - 8y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.535336 + 0.994922I$ $a = 0.298240 - 1.158590I$ $b = 0.182952 + 0.715794I$	$-0.88204 + 2.07531I$	$1.26343 - 6.37506I$
$u = -0.535336 - 0.994922I$ $a = 0.298240 + 1.158590I$ $b = 0.182952 - 0.715794I$	$-0.88204 - 2.07531I$	$1.26343 + 6.37506I$
$u = -0.102103 + 1.222710I$ $a = -0.972159 + 0.502576I$ $b = 0.349966 - 0.736841I$	$6.72383 + 1.77161I$	$-2.45683 - 1.18119I$
$u = -0.102103 - 1.222710I$ $a = -0.972159 - 0.502576I$ $b = 0.349966 + 0.736841I$	$6.72383 - 1.77161I$	$-2.45683 + 1.18119I$
$u = 0.899346 + 0.875420I$ $a = 0.645841 - 0.587993I$ $b = 0.100783 + 1.239900I$	$1.23298 - 3.24440I$	$-10.48599 - 0.27157I$
$u = 0.899346 - 0.875420I$ $a = 0.645841 + 0.587993I$ $b = 0.100783 - 1.239900I$	$1.23298 + 3.24440I$	$-10.48599 + 0.27157I$
$u = -0.108309 + 1.271070I$ $a = 1.023980 - 0.261267I$ $b = -0.508159 + 0.617101I$	$5.80839 + 7.31398I$	$-4.63619 - 6.85556I$
$u = -0.108309 - 1.271070I$ $a = 1.023980 + 0.261267I$ $b = -0.508159 - 0.617101I$	$5.80839 - 7.31398I$	$-4.63619 + 6.85556I$
$u = -0.071301 + 0.666496I$ $a = -1.13829 + 1.53614I$ $b = -0.270892 - 0.978942I$	$4.50988 - 0.90734I$	$-1.77390 + 1.10931I$
$u = -0.071301 - 0.666496I$ $a = -1.13829 - 1.53614I$ $b = -0.270892 + 0.978942I$	$4.50988 + 0.90734I$	$-1.77390 - 1.10931I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.203728+1.326250I$ $a=0.333870+0.252783I$ $b=-0.313098-0.019896I$	$1.67821+2.63001I$	$-17.8057-7.4070I$
$u=-0.203728-1.326250I$ $a=0.333870-0.252783I$ $b=-0.313098+0.019896I$	$1.67821-2.63001I$	$-17.8057+7.4070I$
$u=0.223381+0.562186I$ $a=-1.75447+0.86382I$ $b=-0.256191-1.207040I$	$4.66163-0.95382I$	$-1.65126-0.42273I$
$u=0.223381-0.562186I$ $a=-1.75447-0.86382I$ $b=-0.256191+1.207040I$	$4.66163+0.95382I$	$-1.65126+0.42273I$
$u=-0.528649$ $a=-0.718645$ $b=0.248527$	-2.57061	-15.8870
$u=0.18505+1.50235I$ $a=-0.69475+1.58247I$ $b=-0.31292-1.49830I$	$11.92070+0.27365I$	$-5.83893-1.94056I$
$u=0.18505-1.50235I$ $a=-0.69475-1.58247I$ $b=-0.31292+1.49830I$	$11.92070-0.27365I$	$-5.83893+1.94056I$
$u=0.12626+1.50914I$ $a=0.62770-1.77432I$ $b=0.43321+1.57602I$	$12.57020-4.62331I$	$-4.80697+3.41997I$
$u=0.12626-1.50914I$ $a=0.62770+1.77432I$ $b=0.43321-1.57602I$	$12.57020+4.62331I$	$-4.80697-3.41997I$
$u=-0.199491+0.422310I$ $a=0.69405-2.61132I$ $b=0.502701+0.855643I$	$2.78684-6.14062I$	$-5.64523+6.93886I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.199491 - 0.422310I$ $a = 0.69405 + 2.61132I$ $b = 0.502701 - 0.855643I$	$2.78684 + 6.14062I$	$-5.64523 - 6.93886I$
$u = 0.07220 + 1.55296I$ $a = 0.33634 - 1.82029I$ $b = 0.62283 + 1.46382I$	$11.79130 - 2.01446I$	$-3.76548 - 1.58387I$
$u = 0.07220 - 1.55296I$ $a = 0.33634 + 1.82029I$ $b = 0.62283 - 1.46382I$	$11.79130 + 2.01446I$	$-3.76548 + 1.58387I$
$u = 0.414983 + 0.084128I$ $a = -0.80072 - 1.94175I$ $b = -0.07262 - 1.50298I$	$6.79655 - 2.68393I$	$-4.55211 + 2.58746I$
$u = 0.414983 - 0.084128I$ $a = -0.80072 + 1.94175I$ $b = -0.07262 + 1.50298I$	$6.79655 + 2.68393I$	$-4.55211 - 2.58746I$
$u = 0.06338 + 1.61476I$ $a = -0.24031 + 1.63696I$ $b = -0.58283 - 1.30833I$	$10.64370 - 5.89407I$	$-5.40122 + 5.44504I$
$u = 0.06338 - 1.61476I$ $a = -0.24031 - 1.63696I$ $b = -0.58283 + 1.30833I$	$10.64370 + 5.89407I$	$-5.40122 - 5.44504I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^8$ $\cdot(u^{27}-15u^{26}+\cdots+41u-4)(u^{39}+18u^{38}+\cdots+5504u+256)$
c_2	$((u^8-u^7+\cdots+2u-1)^8)(u^{27}+3u^{26}+\cdots-7u-2)$ $\cdot(u^{39}+12u^{38}+\cdots+176u+16)$
c_3, c_{10}	$(u^{27}+15u^{25}+\cdots-2u-1)(u^{39}+20u^{37}+\cdots+4u+1)$ $\cdot(u^{64}-u^{63}+\cdots-56048u+9017)$
c_4, c_8	$(u^{27}+15u^{25}+\cdots-2u+1)(u^{39}+20u^{37}+\cdots+4u+1)$ $\cdot(u^{64}-u^{63}+\cdots-56048u+9017)$
c_5	$((u^8-u^7+\cdots+2u-1)^8)(u^{27}-3u^{26}+\cdots-7u+2)$ $\cdot(u^{39}+12u^{38}+\cdots+176u+16)$
c_6, c_9	$(u^{27}-u^{26}+\cdots-15u^2-1)(u^{39}-u^{38}+\cdots-8u+1)$ $\cdot(u^{64}+9u^{63}+\cdots-186580u+125537)$
c_7	$((u^4-u^3+3u^2-2u+1)^{16})(u^{27}+u^{26}+\cdots-2u-1)$ $\cdot(u^{39}+18u^{38}+\cdots+5120u+256)$
c_{11}, c_{12}	$((u^4-u^3+3u^2-2u+1)^{16})(u^{27}-u^{26}+\cdots-2u+1)$ $\cdot(u^{39}+18u^{38}+\cdots+5120u+256)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^8$ $\cdot (y^{27}+5y^{26}+\cdots-287y-16)$ $\cdot (y^{39}+10y^{38}+\cdots+19341312y-65536)$
c_2, c_5	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^8$ $\cdot (y^{27}-15y^{26}+\cdots+41y-4)(y^{39}-18y^{38}+\cdots+5504y-256)$
c_3, c_4, c_8 c_{10}	$(y^{27}+30y^{26}+\cdots+22y-1)(y^{39}+40y^{38}+\cdots+20y^2-1)$ $\cdot (y^{64}+63y^{63}+\cdots+550974992y+81306289)$
c_6, c_9	$(y^{27}+7y^{26}+\cdots-30y-1)(y^{39}+21y^{38}+\cdots+4y-1)$ $\cdot (y^{64}+23y^{63}+\cdots+140468688776y+15759538369)$
c_7, c_{11}, c_{12}	$((y^4+5y^3+7y^2+2y+1)^{16})(y^{27}+31y^{26}+\cdots-8y-1)$ $\cdot (y^{39}+36y^{38}+\cdots+589824y-65536)$