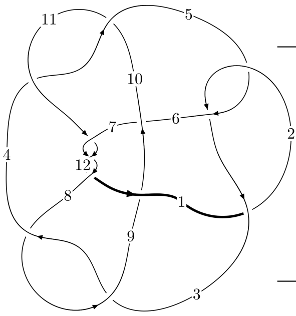
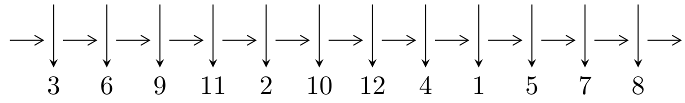
$12a_{0391}$ ($K12a_{0391}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 544u^{36} + 6427u^{35} + \cdots + 4b + 11548,\ 1863u^{36} + 20659u^{35} + \cdots + 32a + 23056,\\
&\quad u^{37} + 13u^{36} + \cdots + 416u + 32\rangle\\
I_2^u &= \langle -1.94716 \times 10^{15}a^9u^7 - 3.59875 \times 10^{15}a^8u^7 + \cdots + 1.27159 \times 10^{14}a + 2.70520 \times 10^{14},\\
&\quad 2a^9u^7 + 21a^8u^7 + \cdots - 2134a + 3278,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle\\
I_3^u &= \langle -2u^{23} + 2u^{22} + \cdots + b - 1,\ -u^{23} + 2u^{22} + \cdots + a - 4,\ u^{24} - 2u^{23} + \cdots - 2u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 141 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. $\boldsymbol{I_1^u = \langle 544u^{36} + 6427u^{35} + \cdots + 4b + 11548,\ 1863u^{36} + 20659u^{35} + \cdots + 32a + 23056,\ u^{37} + 13u^{36} + \cdots + 416u + 32\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -58.2188u^{36} - 645.594u^{35} + \cdots - 9423u - 720.500 \\ -136u^{36} - \frac{6427}{4}u^{35} + \cdots - \frac{72311}{2}u - 2887 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{205}{32}u^{36} + \frac{2379}{32}u^{35} + \cdots + 9u - 19 \\ -\frac{11}{16}u^{36} - \frac{301}{16}u^{35} + \cdots - 2628u - 225 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 77.7813u^{36} + 961.156u^{35} + \cdots + 26732.5u + 2166.50 \\ -136u^{36} - \frac{6427}{4}u^{35} + \cdots - \frac{72311}{2}u - 2887 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{479}{8}u^{36} - 599u^{35} + \cdots + 11117u + 1067 \\ -\frac{851}{8}u^{36} - \frac{5439}{4}u^{35} + \cdots - 50186u - 4130 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -\frac{541}{32}u^{36} - \frac{6235}{32}u^{35} + \cdots - 3157u - 243 \\ -\frac{27}{16}u^{36} - \frac{509}{16}u^{35} + \cdots - 3043u - 257 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -140.219u^{36} - 1723.59u^{35} + \cdots - 47943u - 3864.50 \\ \frac{147}{2}u^{36} + 771u^{35} + \cdots - \frac{13221}{2}u - 687 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 30.2500u^{36} + 180.688u^{35} + \cdots - 37250.8u - 3265.50 \\ 126.313u^{36} + 1576.19u^{35} + \cdots + 47332.5u + 3836 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 51u^{36} + 733u^{35} + \cdots + 41316u + 3454$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{37} + 11u^{36} + \cdots + 26112u + 1024$
c_2, c_5	$u^{37} + 13u^{36} + \cdots + 416u + 32$
c_3, c_4, c_8 c_{10}	$u^{37} + 11u^{35} + \cdots + 4u + 1$
c_6, c_9	$u^{37} - u^{36} + \cdots + 6u + 1$
c_7, c_{11}, c_{12}	$u^{37} - 18u^{36} + \cdots + 512u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{37}+17y^{36}+\cdots+387842048y-1048576$
c_2, c_5	$y^{37}-11y^{36}+\cdots+26112y-1024$
c_3, c_4, c_8 c_{10}	$y^{37}+22y^{36}+\cdots+8y-1$
c_6, c_9	$y^{37}-9y^{36}+\cdots+10y-1$
c_7, c_{11}, c_{12}	$y^{37}-32y^{36}+\cdots+720896y-65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.957322 + 0.313722I$ $a = -1.37747 + 0.35388I$ $b = -0.371748 - 0.629257I$	$-2.42925 - 1.37778I$	$-15.2263 + 4.5212I$
$u = 0.957322 - 0.313722I$ $a = -1.37747 - 0.35388I$ $b = -0.371748 + 0.629257I$	$-2.42925 + 1.37778I$	$-15.2263 - 4.5212I$
$u = -0.212937 + 1.010140I$ $a = 0.105717 + 0.341356I$ $b = 0.417230 - 1.057270I$	$0.06787 + 6.99887I$	$-9.49176 - 9.04622I$
$u = -0.212937 - 1.010140I$ $a = 0.105717 - 0.341356I$ $b = 0.417230 + 1.057270I$	$0.06787 - 6.99887I$	$-9.49176 + 9.04622I$
$u = -0.808608 + 0.468821I$ $a = 0.794637 + 0.373997I$ $b = 0.652472 + 0.162568I$	$-0.382992 + 0.607426I$	$-13.17243 + 1.65752I$
$u = -0.808608 - 0.468821I$ $a = 0.794637 - 0.373997I$ $b = 0.652472 - 0.162568I$	$-0.382992 - 0.607426I$	$-13.17243 - 1.65752I$
$u = 0.930819 + 0.078146I$ $a = 2.43124 - 0.30243I$ $b = 0.561271 + 0.218932I$	$-10.40420 - 0.06262I$	$-27.5972 + 8.6345I$
$u = 0.930819 - 0.078146I$ $a = 2.43124 + 0.30243I$ $b = 0.561271 - 0.218932I$	$-10.40420 + 0.06262I$	$-27.5972 - 8.6345I$
$u = -0.926437 + 0.557113I$ $a = -1.031580 - 0.740190I$ $b = -0.770583 - 0.153074I$	$-0.87598 + 3.63195I$	$-14.6770 - 6.3220I$
$u = -0.926437 - 0.557113I$ $a = -1.031580 + 0.740190I$ $b = -0.770583 + 0.153074I$	$-0.87598 - 3.63195I$	$-14.6770 + 6.3220I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.614591+0.927505I$ $a=\ \ 0.101554-0.338395I$ $b=\ \ 0.59999+1.38292I$	$2.35753-12.00730I$	$-10.01703+5.56781I$
$u=-0.614591-0.927505I$ $a=\ \ 0.101554+0.338395I$ $b=\ \ 0.59999-1.38292I$	$2.35753+12.00730I$	$-10.01703-5.56781I$
$u=-0.630557+0.967163I$ $a=-0.048373+0.373479I$ $b=-0.405525-1.330510I$	$8.47416-7.17337I$	0
$u=-0.630557-0.967163I$ $a=-0.048373-0.373479I$ $b=-0.405525+1.330510I$	$8.47416+7.17337I$	0
$u=-0.990193+0.597141I$ $a=\ \ 1.12308+1.13131I$ $b=\ \ 0.981847+0.092937I$	$-7.29602+5.47264I$	$-18.3738+0.I$
$u=-0.990193-0.597141I$ $a=\ \ 1.12308-1.13131I$ $b=\ \ 0.981847-0.092937I$	$-7.29602-5.47264I$	$-18.3738+0.I$
$u=-0.536542+0.602236I$ $a=-0.573017-0.130584I$ $b=-0.886654+0.014064I$	$-6.05184-0.72046I$	$-16.3757-0.2379I$
$u=-0.536542-0.602236I$ $a=-0.573017+0.130584I$ $b=-0.886654-0.014064I$	$-6.05184+0.72046I$	$-16.3757+0.2379I$
$u=\ \ 1.221810+0.174233I$ $a=-1.37712-0.86239I$ $b=-0.670944-1.153860I$	$-5.18126-10.69840I$	0
$u=\ \ 1.221810-0.174233I$ $a=-1.37712+0.86239I$ $b=-0.670944+1.153860I$	$-5.18126+10.69840I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.215278+1.228850I$ $a=\ \ 0.054876-0.356628I$ $b=-0.149731+0.905170I$	$4.52184+0.80776I$	0
$u=\ \ 0.215278-1.228850I$ $a=\ \ 0.054876+0.356628I$ $b=-0.149731-0.905170I$	$4.52184-0.80776I$	0
$u=-0.694901+1.046620I$ $a=-0.055254-0.424345I$ $b=\ \ 0.200354+1.178170I$	$7.14912-0.88155I$	0
$u=-0.694901-1.046620I$ $a=-0.055254+0.424345I$ $b=\ \ 0.200354-1.178170I$	$7.14912+0.88155I$	0
$u=\ \ 1.226760+0.280486I$ $a=\ \ 1.109360+0.476558I$ $b=\ \ 0.460985+1.013230I$	$0.19290-5.94150I$	0
$u=\ \ 1.226760-0.280486I$ $a=\ \ 1.109360-0.476558I$ $b=\ \ 0.460985-1.013230I$	$0.19290+5.94150I$	0
$u=-1.257750+0.369372I$ $a=\ \ 0.003296-0.634264I$ $b=-0.379654-0.721501I$	$-3.74392-1.77689I$	0
$u=-1.257750-0.369372I$ $a=\ \ 0.003296+0.634264I$ $b=-0.379654+0.721501I$	$-3.74392+1.77689I$	0
$u=-1.087090+0.734376I$ $a=-1.92634-0.43812I$ $b=-0.66863+1.42209I$	$0.8899+18.1180I$	0
$u=-1.087090-0.734376I$ $a=-1.92634+0.43812I$ $b=-0.66863-1.42209I$	$0.8899-18.1180I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.095130 + 0.752809I$ $a = \quad 1.70277 + 0.33196I$ $b = \quad 0.48754 - 1.36862I$	$7.0104 + 13.4550I$	0
$u = -1.095130 - 0.752809I$ $a = \quad 1.70277 - 0.33196I$ $b = \quad 0.48754 + 1.36862I$	$7.0104 - 13.4550I$	0
$u = -0.983113 + 0.905356I$ $a = \quad 0.658309 + 0.731201I$ $b = \quad 0.068498 - 0.917485I$	$-3.94428 + 3.41322I$	0
$u = -0.983113 - 0.905356I$ $a = \quad 0.658309 - 0.731201I$ $b = \quad 0.068498 + 0.917485I$	$-3.94428 - 3.41322I$	0
$u = -1.100530 + 0.794275I$ $a = -1.344770 - 0.325865I$ $b = -0.298478 + 1.225560I$	$5.79816 + 7.52421I$	0
$u = -1.100530 - 0.794275I$ $a = -1.344770 + 0.325865I$ $b = -0.298478 - 1.225560I$	$5.79816 - 7.52421I$	0
$u = -0.227221$ $a = \quad 1.29817$ $b = \quad 0.343523$	-0.528764	-18.5960

II. $I_2^u = \langle -1.95 \times 10^{15} a^9 u^7 - 3.60 \times 10^{15} a^8 u^7 + \cdots + 1.27 \times 10^{14} a + 2.71 \times 10^{14},\ 2a^9u^7 + 21a^8u^7 + \cdots - 2134a + 3278,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ 11.1056a^9u^7 + 20.5255a^8u^7 + \cdots - 0.725251a - 1.54291 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 3.98131a^9u^7 - 2.65272a^8u^7 + \cdots - 0.325728a - 0.746886 \\ 1.02326a^2u^7 - 0.511628u^7 + \cdots + 0.139535a^2 - 1.06977 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -11.1056a^9u^7 - 20.5255a^8u^7 + \cdots + 1.72525a + 1.54291 \\ 11.1056a^9u^7 + 20.5255a^8u^7 + \cdots - 0.725251a - 1.54291 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -20.1671a^9u^7 - 27.8400a^8u^7 + \cdots + 1.73758a - 0.272610 \\ 11.1859a^9u^7 + 29.1048a^8u^7 + \cdots - 0.552681a + 1.07179 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1.02730a^9u^7 + 3.91889a^8u^7 + \cdots + 0.758648a + 1.50660 \\ -2.95401a^9u^7 - 1.26617a^8u^7 + \cdots - 0.432919a + 1.24029 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.906309a^9u^7 + 1.79884a^8u^7 + \cdots + 2.18676a + 1.25107 \\ 9.35107a^9u^7 + 13.2623a^8u^7 + \cdots + 0.466900a - 1.73564 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -8.72539a^9u^7 - 15.3608a^8u^7 + \cdots + 1.00957a - 1.08501 \\ 2.09106a^9u^7 + 10.0259a^8u^7 + \cdots + 0.977705a - 0.181873 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{3312696866563328}{175330710141469}a^9u^7 - \frac{10860915930820932}{175330710141469}a^8u^7 + \cdots - \frac{524784750398904}{175330710141469}a - \frac{3778793332341578}{175330710141469}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1)^{10}$
c_2, c_5	$(u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1)^{10}$
c_3, c_4, c_8 c_{10}	$u^{80} - u^{79} + \cdots + 3548u + 1579$
c_6, c_9	$u^{80} + 9u^{79} + \cdots + 6422u + 569$
c_7, c_{11}, c_{12}	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^{16}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^{10}$
c_2, c_5	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^{10}$
c_3, c_4, c_8 c_{10}	$y^{80}+63y^{79}+\cdots+269522152y+2493241$
c_6, c_9	$y^{80}+27y^{79}+\cdots+120888776y+323761$
c_7, c_{11}, c_{12}	$(y^5-5y^4+8y^3-3y^2-y-1)^{16}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.570868 + 0.730671I$ $a = 0.317717 - 0.891415I$ $b = 1.305780 - 0.021800I$	$-1.97842 + 5.53207I$	$-12.15954 - 4.00938I$
$u = 0.570868 + 0.730671I$ $a = -0.372527 + 0.813712I$ $b = 0.473970 - 0.367837I$	$-1.97842 - 3.26960I$	$-12.15954 + 2.98779I$
$u = 0.570868 + 0.730671I$ $a = -0.472750 - 0.641845I$ $b = -0.445650 + 1.315720I$	$-1.97842 + 5.53207I$	$-12.15954 - 4.00938I$
$u = 0.570868 + 0.730671I$ $a = 0.453598 - 0.633400I$ $b = 0.0442048 - 0.1093490I$	$3.56505 - 0.39935I$	$-7.93034 + 3.91986I$
$u = 0.570868 + 0.730671I$ $a = -0.242021 + 0.721707I$ $b = -0.914022 + 0.321383I$	$3.56505 + 2.66181I$	$-7.93034 - 4.94144I$
$u = 0.570868 + 0.730671I$ $a = -0.701722 + 0.223215I$ $b = 0.118471 + 0.985556I$	$1.49307 + 1.13123I$	$-8.89637 - 0.51079I$
$u = 0.570868 + 0.730671I$ $a = -0.529151 + 0.436048I$ $b = -0.258551 - 1.170880I$	$-1.97842 - 3.26960I$	$-12.15954 + 2.98779I$
$u = 0.570868 + 0.730671I$ $a = 0.379390 + 0.337276I$ $b = 0.292944 - 1.200800I$	$3.56505 + 2.66181I$	$-7.93034 - 4.94144I$
$u = 0.570868 + 0.730671I$ $a = -0.187370 - 0.461746I$ $b = 0.78647 - 1.19152I$	$1.49307 + 1.13123I$	$-8.89637 - 0.51079I$
$u = 0.570868 + 0.730671I$ $a = 0.195391 - 0.214615I$ $b = -0.223507 + 1.170930I$	$3.56505 - 0.39935I$	$-7.93034 + 3.91986I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.570868 - 0.730671I$ $a = 0.317717 + 0.891415I$ $b = 1.305780 + 0.021800I$	$-1.97842 - 5.53207I$	$-12.15954 + 4.00938I$
$u = 0.570868 - 0.730671I$ $a = -0.372527 - 0.813712I$ $b = 0.473970 + 0.367837I$	$-1.97842 + 3.26960I$	$-12.15954 - 2.98779I$
$u = 0.570868 - 0.730671I$ $a = -0.472750 + 0.641845I$ $b = -0.445650 - 1.315720I$	$-1.97842 - 5.53207I$	$-12.15954 + 4.00938I$
$u = 0.570868 - 0.730671I$ $a = 0.453598 + 0.633400I$ $b = 0.0442048 + 0.1093490I$	$3.56505 + 0.39935I$	$-7.93034 - 3.91986I$
$u = 0.570868 - 0.730671I$ $a = -0.242021 - 0.721707I$ $b = -0.914022 - 0.321383I$	$3.56505 - 2.66181I$	$-7.93034 + 4.94144I$
$u = 0.570868 - 0.730671I$ $a = -0.701722 - 0.223215I$ $b = 0.118471 - 0.985556I$	$1.49307 - 1.13123I$	$-8.89637 + 0.51079I$
$u = 0.570868 - 0.730671I$ $a = -0.529151 - 0.436048I$ $b = -0.258551 + 1.170880I$	$-1.97842 + 3.26960I$	$-12.15954 - 2.98779I$
$u = 0.570868 - 0.730671I$ $a = 0.379390 - 0.337276I$ $b = 0.292944 + 1.200800I$	$3.56505 - 2.66181I$	$-7.93034 + 4.94144I$
$u = 0.570868 - 0.730671I$ $a = -0.187370 + 0.461746I$ $b = 0.78647 + 1.19152I$	$1.49307 - 1.13123I$	$-8.89637 + 0.51079I$
$u = 0.570868 - 0.730671I$ $a = 0.195391 + 0.214615I$ $b = -0.223507 - 1.170930I$	$3.56505 + 0.39935I$	$-7.93034 - 3.91986I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.855237+0.665892I$ $a=\ \ 0.184288+1.123720I$ $b=-0.049819-1.318620I$	$6.76512+4.10907I$	$-4.79219-7.99861I$
$u=-0.855237+0.665892I$ $a=-0.000369-0.558136I$ $b=-0.89941-1.42516I$	$1.22165-1.82234I$	$-9.02139-0.06937I$
$u=-0.855237+0.665892I$ $a=\ \ 0.55671-1.37754I$ $b=-0.094640+1.087870I$	$1.22165+6.97933I$	$-9.02139-7.06654I$
$u=-0.855237+0.665892I$ $a=-0.461095+0.026790I$ $b=\ \ 0.46574+1.57218I$	$6.76512+1.04791I$	$-4.79219+0.86269I$
$u=-0.855237+0.665892I$ $a=\ \ 1.67042-0.02563I$ $b=\ \ 0.09310-2.08054I$	$4.69313+2.57849I$	$-5.75822-3.56796I$
$u=-0.855237+0.665892I$ $a=-2.07727-0.57527I$ $b=-0.60157+1.48322I$	$6.76512+4.10907I$	$-4.79219-7.99861I$
$u=-0.855237+0.665892I$ $a=-1.48542-1.66320I$ $b=-0.01022+1.50733I$	$4.69313+2.57849I$	$-5.75822-3.56796I$
$u=-0.855237+0.665892I$ $a=\ \ 2.19641+0.66346I$ $b=\ \ 1.04102-1.29878I$	$1.22165+6.97933I$	$-9.02139-7.06654I$
$u=-0.855237+0.665892I$ $a=\ \ 2.19046+0.91845I$ $b=\ \ 0.112336-1.229800I$	$6.76512+1.04791I$	$-4.79219+0.86269I$
$u=-0.855237+0.665892I$ $a=-2.53287-0.73501I$ $b=\ \ 0.051544+0.954798I$	$1.22165-1.82234I$	$-9.02139-0.06937I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.855237 - 0.665892I$ $a = 0.184288 - 1.123720I$ $b = -0.049819 + 1.318620I$	$6.76512 - 4.10907I$	$-4.79219 + 7.99861I$
$u = -0.855237 - 0.665892I$ $a = -0.000369 + 0.558136I$ $b = -0.89941 + 1.42516I$	$1.22165 + 1.82234I$	$-9.02139 + 0.06937I$
$u = -0.855237 - 0.665892I$ $a = 0.55671 + 1.37754I$ $b = -0.094640 - 1.087870I$	$1.22165 - 6.97933I$	$-9.02139 + 7.06654I$
$u = -0.855237 - 0.665892I$ $a = -0.461095 - 0.026790I$ $b = 0.46574 - 1.57218I$	$6.76512 - 1.04791I$	$-4.79219 - 0.86269I$
$u = -0.855237 - 0.665892I$ $a = 1.67042 + 0.02563I$ $b = 0.09310 + 2.08054I$	$4.69313 - 2.57849I$	$-5.75822 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = -2.07727 + 0.57527I$ $b = -0.60157 - 1.48322I$	$6.76512 - 4.10907I$	$-4.79219 + 7.99861I$
$u = -0.855237 - 0.665892I$ $a = -1.48542 + 1.66320I$ $b = -0.01022 - 1.50733I$	$4.69313 - 2.57849I$	$-5.75822 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = 2.19641 - 0.66346I$ $b = 1.04102 + 1.29878I$	$1.22165 - 6.97933I$	$-9.02139 + 7.06654I$
$u = -0.855237 - 0.665892I$ $a = 2.19046 - 0.91845I$ $b = 0.112336 + 1.229800I$	$6.76512 - 1.04791I$	$-4.79219 - 0.86269I$
$u = -0.855237 - 0.665892I$ $a = -2.53287 + 0.73501I$ $b = 0.051544 - 0.954798I$	$1.22165 + 1.82234I$	$-9.02139 + 0.06937I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.09818$ $a=\ \ 1.213950+0.060472I$ $b=\ \ 0.743281-0.274344I$	$-1.89703-1.53058I$	$-14.3792+4.4306I$
$u=-1.09818$ $a=\ \ 1.213950-0.060472I$ $b=\ \ 0.743281+0.274344I$	$-1.89703+1.53058I$	$-14.3792-4.4306I$
$u=-1.09818$ $a=-0.794603+1.077430I$ $b=-0.278360+0.853134I$	$-1.89703+1.53058I$	$-14.3792-4.4306I$
$u=-1.09818$ $a=-0.794603-1.077430I$ $b=-0.278360-0.853134I$	$-1.89703-1.53058I$	$-14.3792+4.4306I$
$u=-1.09818$ $a=-0.474135+1.292280I$ $b=-0.525660+0.657310I$	-3.96901	$-15.3452+0.I$
$u=-1.09818$ $a=-0.474135-1.292280I$ $b=-0.525660-0.657310I$	-3.96901	$-15.3452+0.I$
$u=-1.09818$ $a=-1.87939+0.04068I$ $b=-1.125010+0.465951I$	$-7.44049-4.40083I$	$-18.6084+3.4986I$
$u=-1.09818$ $a=-1.87939-0.04068I$ $b=-1.125010-0.465951I$	$-7.44049+4.40083I$	$-18.6084-3.4986I$
$u=-1.09818$ $a=\ \ 1.31587+1.44345I$ $b=\ \ 0.500246+1.179460I$	$-7.44049-4.40083I$	$-18.6084+3.4986I$
$u=-1.09818$ $a=\ \ 1.31587-1.44345I$ $b=\ \ 0.500246-1.179460I$	$-7.44049+4.40083I$	$-18.6084-3.4986I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.031810 + 0.655470I$ $a = -0.999846 + 0.759611I$ $b = -0.518695 - 0.817196I$	$-3.31744 - 2.04270I$	$-14.1728 + 1.7956I$
$u = 1.031810 + 0.655470I$ $a = 1.117550 - 0.688666I$ $b = 1.127550 + 0.190536I$	$2.22602 - 7.97412I$	$-9.94356 + 9.72482I$
$u = 1.031810 + 0.655470I$ $a = -0.452863 - 0.411616I$ $b = 0.293319 - 0.929775I$	$-3.31744 - 2.04270I$	$-14.1728 + 1.7956I$
$u = 1.031810 + 0.655470I$ $a = -0.523882 - 0.058026I$ $b = -0.298543 + 0.084388I$	$2.22602 - 4.91296I$	$-9.94356 + 0.86352I$
$u = 1.031810 + 0.655470I$ $a = -1.00804 + 1.15213I$ $b = -1.49599 + 0.11672I$	$-3.31744 - 10.84440I$	$-14.1728 + 8.7928I$
$u = 1.031810 + 0.655470I$ $a = 1.52330 - 0.21142I$ $b = 0.488814 + 1.121250I$	$2.22602 - 4.91296I$	$-9.94356 + 0.86352I$
$u = 1.031810 + 0.655470I$ $a = 1.64924 + 0.59159I$ $b = -0.002912 + 0.837279I$	$0.15404 - 6.44354I$	$-10.90959 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = -1.76293 + 0.29343I$ $b = -1.02044 - 1.08184I$	$0.15404 - 6.44354I$	$-10.90959 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = -2.01641 + 0.17535I$ $b = -0.412717 - 1.179870I$	$2.22602 - 7.97412I$	$-9.94356 + 9.72482I$
$u = 1.031810 + 0.655470I$ $a = 2.32562 - 0.44824I$ $b = 0.50508 + 1.33958I$	$-3.31744 - 10.84440I$	$-14.1728 + 8.7928I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.031810 - 0.655470I$ $a = -0.999846 - 0.759611I$ $b = -0.518695 + 0.817196I$	$-3.31744 + 2.04270I$	$-14.1728 - 1.7956I$
$u = 1.031810 - 0.655470I$ $a = 1.117550 + 0.688666I$ $b = 1.127550 - 0.190536I$	$2.22602 + 7.97412I$	$-9.94356 - 9.72482I$
$u = 1.031810 - 0.655470I$ $a = -0.452863 + 0.411616I$ $b = 0.293319 + 0.929775I$	$-3.31744 + 2.04270I$	$-14.1728 - 1.7956I$
$u = 1.031810 - 0.655470I$ $a = -0.523882 + 0.058026I$ $b = -0.298543 - 0.084388I$	$2.22602 + 4.91296I$	$-9.94356 - 0.86352I$
$u = 1.031810 - 0.655470I$ $a = -1.00804 - 1.15213I$ $b = -1.49599 - 0.11672I$	$-3.31744 + 10.84440I$	$-14.1728 - 8.7928I$
$u = 1.031810 - 0.655470I$ $a = 1.52330 + 0.21142I$ $b = 0.488814 - 1.121250I$	$2.22602 + 4.91296I$	$-9.94356 - 0.86352I$
$u = 1.031810 - 0.655470I$ $a = 1.64924 - 0.59159I$ $b = -0.002912 - 0.837279I$	$0.15404 + 6.44354I$	$-10.90959 - 5.29417I$
$u = 1.031810 - 0.655470I$ $a = -1.76293 - 0.29343I$ $b = -1.02044 + 1.08184I$	$0.15404 + 6.44354I$	$-10.90959 - 5.29417I$
$u = 1.031810 - 0.655470I$ $a = -2.01641 - 0.17535I$ $b = -0.412717 + 1.179870I$	$2.22602 + 7.97412I$	$-9.94356 - 9.72482I$
$u = 1.031810 - 0.655470I$ $a = 2.32562 + 0.44824I$ $b = 0.50508 - 1.33958I$	$-3.31744 + 10.84440I$	$-14.1728 - 8.7928I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.603304$ $a = 0.955688 + 0.192007I$ $b = 0.152198 + 1.333960I$	$3.76067 - 1.53058I$	$-12.40958 + 4.43065I$
$u = 0.603304$ $a = 0.955688 - 0.192007I$ $b = 0.152198 - 1.333960I$	$3.76067 + 1.53058I$	$-12.40958 - 4.43065I$
$u = 0.603304$ $a = -1.62568 + 0.77113I$ $b = -0.436213 - 1.233300I$	$-1.78280 - 4.40083I$	$-16.6388 + 3.4986I$
$u = 0.603304$ $a = -1.62568 - 0.77113I$ $b = -0.436213 + 1.233300I$	$-1.78280 + 4.40083I$	$-16.6388 - 3.4986I$
$u = 0.603304$ $a = -1.39197 + 2.25490I$ $b = 0.17777 + 1.53018I$	1.68869	$-13.37561 + 0.I$
$u = 0.603304$ $a = -1.39197 - 2.25490I$ $b = 0.17777 - 1.53018I$	1.68869	$-13.37561 + 0.I$
$u = 0.603304$ $a = 0.27544 + 3.17761I$ $b = -0.309423 + 0.952672I$	$3.76067 + 1.53058I$	$-12.40958 - 4.43065I$
$u = 0.603304$ $a = 0.27544 - 3.17761I$ $b = -0.309423 - 0.952672I$	$3.76067 - 1.53058I$	$-12.40958 + 4.43065I$
$u = 0.603304$ $a = -0.02871 + 3.58598I$ $b = 0.647493 + 0.676864I$	$-1.78280 - 4.40083I$	$-16.6388 + 3.4986I$
$u = 0.603304$ $a = -0.02871 - 3.58598I$ $b = 0.647493 - 0.676864I$	$-1.78280 + 4.40083I$	$-16.6388 - 3.4986I$

III.
$\boldsymbol{I^u_3 = \langle -2u^{23}+2u^{22}+\cdots+b-1,\ -u^{23}+2u^{22}+\cdots+a-4,\ u^{24}-2u^{23}+\cdots-2u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{23} - 2u^{22} + \cdots - 3u + 4 \\ 2u^{23} - 2u^{22} + \cdots + 3u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -4u^{23} + 7u^{22} + \cdots + 3u - 1 \\ -2u^{23} + 2u^{22} + \cdots - 3u + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{23} + 6u^{21} + \cdots - 6u + 3 \\ 2u^{23} - 2u^{22} + \cdots + 3u + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^{23} + 5u^{22} + \cdots + 5u + 1 \\ 3u^{23} - 2u^{22} + \cdots + 2u + 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{20} + u^{19} + \cdots + 3u + 1 \\ -u^{22} + 4u^{20} + \cdots + 4u^2 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{23} - 3u^{21} + \cdots - u + 4 \\ u^{23} - u^{22} + \cdots + 4u - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2u^{23} - 4u^{22} + \cdots + 2u^2 - 2u \\ -2u^{23} + 3u^{22} + \cdots - 3u^2 - 3u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 22u^{23} - 38u^{22} - 42u^{21} + 159u^{20} + 11u^{19} - 320u^{18} + 155u^{17} + 435u^{16} - 413u^{15} - 315u^{14} + 694u^{13} - 11u^{12} - 699u^{11} + 324u^{10} + 595u^9 - 454u^8 - 311u^7 + 354u^6 + 145u^5 - 165u^4 - 58u^3 + 75u^2 + 2u - 16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{24} - 8u^{23} + \cdots - 8u + 1$
c_2	$u^{24} + 2u^{23} + \cdots + 2u + 1$
c_3, c_{10}	$u^{24} + 13u^{22} + \cdots - u - 1$
c_4, c_8	$u^{24} + 13u^{22} + \cdots + u - 1$
c_5	$u^{24} - 2u^{23} + \cdots - 2u + 1$
c_6, c_9	$u^{24} - u^{23} + \cdots + 9u - 3$
c_7	$u^{24} - u^{23} + \cdots - u - 1$
c_{11}, c_{12}	$u^{24} + u^{23} + \cdots + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{24} + 12y^{23} + \cdots + 16y + 1$
c_2, c_5	$y^{24} - 8y^{23} + \cdots - 8y + 1$
c_3, c_4, c_8 c_{10}	$y^{24} + 26y^{23} + \cdots - 21y + 1$
c_6, c_9	$y^{24} + 3y^{23} + \cdots + 69y + 9$
c_7, c_{11}, c_{12}	$y^{24} - 27y^{23} + \cdots - 9y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.859104+0.619061I$ $a=-1.77700-0.81550I$ $b=-0.05224+1.79614I$	$3.64574+2.43004I$	$-15.3160-2.5325I$
$u=-0.859104-0.619061I$ $a=-1.77700+0.81550I$ $b=-0.05224-1.79614I$	$3.64574-2.43004I$	$-15.3160+2.5325I$
$u=-0.921806$ $a=-1.13142$ $b=-0.238208$	-2.48108	-16.6080
$u=\ \ 0.274672+1.053350I$ $a=-0.186811+0.192436I$ $b=\ \ 0.163662-0.961355I$	$4.89050+0.67182I$	$-0.331093-0.291966I$
$u=\ \ 0.274672-1.053350I$ $a=-0.186811-0.192436I$ $b=\ \ 0.163662+0.961355I$	$4.89050-0.67182I$	$-0.331093+0.291966I$
$u=-0.847989+0.693024I$ $a=\ \ 1.23905+0.72068I$ $b=\ \ 0.06183-1.51814I$	$6.81902+2.66285I$	$-3.87424-2.89541I$
$u=-0.847989-0.693024I$ $a=\ \ 1.23905-0.72068I$ $b=\ \ 0.06183+1.51814I$	$6.81902-2.66285I$	$-3.87424+2.89541I$
$u=\ \ 0.694510+0.572688I$ $a=-0.830889+1.076290I$ $b=-0.698566+1.033420I$	$-0.25743+3.41207I$	$-11.71453-2.05195I$
$u=\ \ 0.694510-0.572688I$ $a=-0.830889-1.076290I$ $b=-0.698566-1.033420I$	$-0.25743-3.41207I$	$-11.71453+2.05195I$
$u=\ \ 0.998881+0.595015I$ $a=\ \ 1.82392+0.25160I$ $b=\ \ 0.776391+0.880199I$	$-1.25649-8.10140I$	$-14.1033+8.4780I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.998881 - 0.595015I$ $a = 1.82392 - 0.25160I$ $b = 0.776391 - 0.880199I$	$-1.25649 + 8.10140I$	$-14.1033 - 8.4780I$
$u = -0.829372$ $a = 2.78344$ $b = 0.236926$	-10.1589	5.82770
$u = 0.772444 + 0.266120I$ $a = 0.21598 + 1.86268I$ $b = -0.13292 + 1.53643I$	$1.73546 - 1.04679I$	$-12.7704 + 7.1412I$
$u = 0.772444 - 0.266120I$ $a = 0.21598 - 1.86268I$ $b = -0.13292 - 1.53643I$	$1.73546 + 1.04679I$	$-12.7704 - 7.1412I$
$u = -1.196510 + 0.259459I$ $a = -0.231267 + 0.835819I$ $b = 0.318802 + 0.654164I$	$-3.32815 - 1.41217I$	$-8.36483 + 0.95661I$
$u = -1.196510 - 0.259459I$ $a = -0.231267 - 0.835819I$ $b = 0.318802 - 0.654164I$	$-3.32815 + 1.41217I$	$-8.36483 - 0.95661I$
$u = -0.535643 + 0.545861I$ $a = -0.12086 - 1.74579I$ $b = -0.401964 + 1.059050I$	$-0.55694 + 5.07983I$	$-9.81409 - 5.66090I$
$u = -0.535643 - 0.545861I$ $a = -0.12086 + 1.74579I$ $b = -0.401964 - 1.059050I$	$-0.55694 - 5.07983I$	$-9.81409 + 5.66090I$
$u = 1.069460 + 0.653928I$ $a = -1.328700 - 0.042768I$ $b = -0.478932 - 0.857563I$	$2.77511 - 6.09098I$	$-6.24923 + 6.46782I$
$u = 1.069460 - 0.653928I$ $a = -1.328700 + 0.042768I$ $b = -0.478932 + 0.857563I$	$2.77511 + 6.09098I$	$-6.24923 - 6.46782I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.510957 + 0.450721I$ $a = -0.220431 - 1.219110I$ $b = 0.326073 - 1.173880I$	$4.69210 + 1.06045I$	$-2.95845 - 0.15547I$
$u = 0.510957 - 0.450721I$ $a = -0.220431 + 1.219110I$ $b = 0.326073 + 1.173880I$	$4.69210 - 1.06045I$	$-2.95845 + 0.15547I$
$u = 0.993906 + 0.876026I$ $a = 0.591000 - 0.624229I$ $b = 0.118504 + 0.699899I$	$-4.61425 - 3.36496I$	$-21.1138 + 3.8610I$
$u = 0.993906 - 0.876026I$ $a = 0.591000 + 0.624229I$ $b = 0.118504 - 0.699899I$	$-4.61425 + 3.36496I$	$-21.1138 - 3.8610I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^{10}$ $\cdot(u^{24}-8u^{23}+\cdots-8u+1)(u^{37}+11u^{36}+\cdots+26112u+1024)$
c_2	$((u^8-u^7+\cdots+2u-1)^{10})(u^{24}+2u^{23}+\cdots+2u+1)$ $\cdot(u^{37}+13u^{36}+\cdots+416u+32)$
c_3, c_{10}	$(u^{24}+13u^{22}+\cdots-u-1)(u^{37}+11u^{35}+\cdots+4u+1)$ $\cdot(u^{80}-u^{79}+\cdots+3548u+1579)$
c_4, c_8	$(u^{24}+13u^{22}+\cdots+u-1)(u^{37}+11u^{35}+\cdots+4u+1)$ $\cdot(u^{80}-u^{79}+\cdots+3548u+1579)$
c_5	$((u^8-u^7+\cdots+2u-1)^{10})(u^{24}-2u^{23}+\cdots-2u+1)$ $\cdot(u^{37}+13u^{36}+\cdots+416u+32)$
c_6, c_9	$(u^{24}-u^{23}+\cdots+9u-3)(u^{37}-u^{36}+\cdots+6u+1)$ $\cdot(u^{80}+9u^{79}+\cdots+6422u+569)$
c_7	$((u^5+u^4-2u^3-u^2+u-1)^{16})(u^{24}-u^{23}+\cdots-u-1)$ $\cdot(u^{37}-18u^{36}+\cdots+512u+256)$
c_{11}, c_{12}	$((u^5+u^4-2u^3-u^2+u-1)^{16})(u^{24}+u^{23}+\cdots+u-1)$ $\cdot(u^{37}-18u^{36}+\cdots+512u+256)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^{10}$ $\cdot(y^{24}+12y^{23}+\cdots+16y+1)$ $\cdot(y^{37}+17y^{36}+\cdots+387842048y-1048576)$
c_2, c_5	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^{10}$ $\cdot(y^{24}-8y^{23}+\cdots-8y+1)(y^{37}-11y^{36}+\cdots+26112y-1024)$
c_3, c_4, c_8 c_{10}	$(y^{24}+26y^{23}+\cdots-21y+1)(y^{37}+22y^{36}+\cdots+8y-1)$ $\cdot(y^{80}+63y^{79}+\cdots+269522152y+2493241)$
c_6, c_9	$(y^{24}+3y^{23}+\cdots+69y+9)(y^{37}-9y^{36}+\cdots+10y-1)$ $\cdot(y^{80}+27y^{79}+\cdots+120888776y+323761)$
c_7, c_{11}, c_{12}	$((y^5-5y^4+8y^3-3y^2-y-1)^{16})(y^{24}-27y^{23}+\cdots-9y+1)$ $\cdot(y^{37}-32y^{36}+\cdots+720896y-65536)$