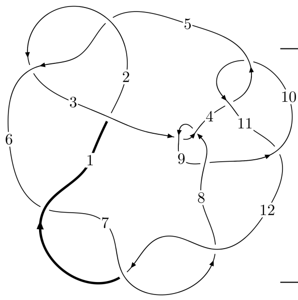
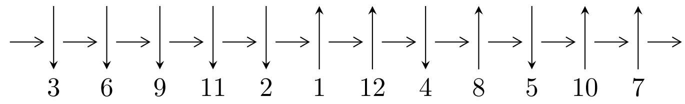
$12a_{0401}$ ($K12a_{0401}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle u^{36} - u^{35} + \cdots + 32b + 1,\ -u^4 - u^2 + a - 1,\ u^{37} + 7u^{35} + \cdots + 2u - 1\rangle \\
I_2^u &= \langle -3.61451 \times 10^{30} u^{51} - 1.19611 \times 10^{30} u^{50} + \cdots + 2.94109 \times 10^{31} b + 1.36329 \times 10^{32}, \\
&\quad - 4.07622 \times 10^{32} u^{51} - 5.85781 \times 10^{32} u^{50} + \cdots + 4.99985 \times 10^{32} a + 2.17209 \times 10^{32}, \\
&\quad u^{52} + u^{51} + \cdots + 30u + 17\rangle \\
I_3^u &= \langle b^5 + b^4 u + 2b^3 + b^2 u + b - u,\ a + 1,\ u^2 + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 99 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. $\boldsymbol{I_1^u = \langle u^{36} - u^{35} + \cdots + 32b + 1,\ -u^4 - u^2 + a - 1,\ u^{37} + 7u^{35} + \cdots + 2u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^4 + u^2 + 1 \\ -0.0312500u^{36} + 0.0312500u^{35} + \cdots + 0.0937500u - 0.0312500 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0312500u^{36} + 0.0312500u^{35} + \cdots + 0.0937500u + 0.968750 \\ 0.343750u^{36} - 0.406250u^{35} + \cdots - 1.34375u + 0.468750 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{4}u^{36} - \frac{5}{16}u^{35} + \cdots - \frac{17}{16}u + \frac{11}{8} \\ -0.812500u^{36} + 1.50000u^{35} + \cdots + 5.93750u - 2.25000 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{8}u^{36} + \frac{5}{8}u^{35} + \cdots + \frac{47}{16}u - \frac{3}{16} \\ -0.562500u^{36} - 1.37500u^{35} + \cdots - 8.62500u + 3.93750 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{8}u^{36} + \frac{5}{8}u^{35} + \cdots + \frac{47}{16}u - \frac{3}{16} \\ -\frac{19}{16}u^{36} + 2u^{35} + \cdots + \frac{123}{16}u - \frac{23}{8} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -0.0312500u^{36} + 0.0312500u^{35} + \cdots + 0.0937500u - 0.0312500 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -0.0312500u^{36} - 0.0312500u^{35} + \cdots + 0.968750u + 0.0312500 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{67}{8}u^{36} - \frac{29}{8}u^{35} + \cdots - \frac{13}{4}u + \frac{19}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{37} + 21u^{36} + \cdots - 3u + 4$
c_2, c_5	$u^{37} + 3u^{36} + \cdots + 9u + 2$
c_3, c_4, c_8 c_{10}	$u^{37} + 7u^{35} + \cdots + 2u + 1$
c_6, c_7, c_{12}	$u^{37} + 9u^{36} + \cdots + 251u + 22$
c_9, c_{11}	$u^{37} - 14u^{36} + \cdots - 10u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{37} - 9y^{36} + \cdots + 289y - 16$
c_2, c_5	$y^{37} - 21y^{36} + \cdots - 3y - 4$
c_3, c_4, c_8 c_{10}	$y^{37} + 14y^{36} + \cdots - 10y - 1$
c_6, c_7, c_{12}	$y^{37} + 39y^{36} + \cdots - 1987y - 484$
c_9, c_{11}	$y^{37} + 30y^{36} + \cdots + 38y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.670225 + 0.795123I$ $a = -0.285502 - 0.675689I$ $b = -0.008509 - 0.791858I$	$-4.22390 + 4.84801I$	$-8.67350 - 6.63268I$
$u = -0.670225 - 0.795123I$ $a = -0.285502 + 0.675689I$ $b = -0.008509 + 0.791858I$	$-4.22390 - 4.84801I$	$-8.67350 + 6.63268I$
$u = 0.480944 + 0.804131I$ $a = 0.158893 + 0.131000I$ $b = 0.330381 + 1.003000I$	$-0.56798 - 1.62654I$	$-2.47163 + 4.05064I$
$u = 0.480944 - 0.804131I$ $a = 0.158893 - 0.131000I$ $b = 0.330381 - 1.003000I$	$-0.56798 + 1.62654I$	$-2.47163 - 4.05064I$
$u = -0.885704 + 0.619459I$ $a = 0.35724 - 1.97679I$ $b = 0.07168 - 1.57263I$	$-8.61348 + 0.58442I$	$-6.58298 - 2.11216I$
$u = -0.885704 - 0.619459I$ $a = 0.35724 + 1.97679I$ $b = 0.07168 + 1.57263I$	$-8.61348 - 0.58442I$	$-6.58298 + 2.11216I$
$u = 0.906376 + 0.600235I$ $a = 0.49006 + 2.09180I$ $b = 0.14833 + 1.65936I$	$-12.33880 + 4.27785I$	$-9.74358 - 1.05951I$
$u = 0.906376 - 0.600235I$ $a = 0.49006 - 2.09180I$ $b = 0.14833 - 1.65936I$	$-12.33880 - 4.27785I$	$-9.74358 + 1.05951I$
$u = -0.378523 + 0.822123I$ $a = 0.363700 + 0.040587I$ $b = 0.35329 - 1.39171I$	$-3.60485 - 2.81236I$	$-5.70776 - 1.61824I$
$u = -0.378523 - 0.822123I$ $a = 0.363700 - 0.040587I$ $b = 0.35329 + 1.39171I$	$-3.60485 + 2.81236I$	$-5.70776 + 1.61824I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.509957 + 0.977159I$ $a = -0.205307 - 0.388248I$ $b = 0.927591 + 0.449842I$	$2.09312 - 1.88703I$	$0.31539 + 1.43334I$
$u = 0.509957 - 0.977159I$ $a = -0.205307 + 0.388248I$ $b = 0.927591 - 0.449842I$	$2.09312 + 1.88703I$	$0.31539 - 1.43334I$
$u = 0.898488 + 0.646158I$ $a = 0.19345 + 2.06625I$ $b = -0.04381 + 1.61320I$	$-12.51130 - 5.32419I$	$-9.84317 + 5.18460I$
$u = 0.898488 - 0.646158I$ $a = 0.19345 - 2.06625I$ $b = -0.04381 - 1.61320I$	$-12.51130 + 5.32419I$	$-9.84317 - 5.18460I$
$u = -0.542969 + 1.023650I$ $a = -0.421670 + 0.562576I$ $b = 0.950468 - 0.040357I$	$2.66475 + 6.19686I$	$1.89152 - 7.89879I$
$u = -0.542969 - 1.023650I$ $a = -0.421670 - 0.562576I$ $b = 0.950468 + 0.040357I$	$2.66475 - 6.19686I$	$1.89152 + 7.89879I$
$u = -0.635272 + 0.460063I$ $a = 0.887068 - 0.808887I$ $b = 0.342500 - 0.887718I$	$-3.54036 - 2.08020I$	$-9.14141 + 1.19821I$
$u = -0.635272 - 0.460063I$ $a = 0.887068 + 0.808887I$ $b = 0.342500 + 0.887718I$	$-3.54036 + 2.08020I$	$-9.14141 - 1.19821I$
$u = 0.656373 + 1.034940I$ $a = -1.076160 - 0.381174I$ $b = 0.199892 - 0.364140I$	$-2.70237 - 5.71429I$	$-7.25295 + 4.84897I$
$u = 0.656373 - 1.034940I$ $a = -1.076160 + 0.381174I$ $b = 0.199892 + 0.364140I$	$-2.70237 + 5.71429I$	$-7.25295 - 4.84897I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.290646 + 0.717353I$ $a = 0.581001 - 0.058279I$ $b = -0.274591 - 1.313790I$	$-3.81002 + 5.56820I$	$-6.98582 - 8.76899I$
$u = -0.290646 - 0.717353I$ $a = 0.581001 + 0.058279I$ $b = -0.274591 + 1.313790I$	$-3.81002 - 5.56820I$	$-6.98582 + 8.76899I$
$u = -0.593670 + 1.080170I$ $a = -0.796092 + 0.806284I$ $b = 0.797124 + 0.561418I$	$1.77541 + 7.53533I$	$1.12920 - 6.50404I$
$u = -0.593670 - 1.080170I$ $a = -0.796092 - 0.806284I$ $b = 0.797124 - 0.561418I$	$1.77541 - 7.53533I$	$1.12920 + 6.50404I$
$u = 0.607709 + 1.116880I$ $a = -0.949770 - 1.026550I$ $b = 0.797104 - 0.922482I$	$0.06576 - 11.98300I$	$-2.00000 + 11.09767I$
$u = 0.607709 - 1.116880I$ $a = -0.949770 + 1.026550I$ $b = 0.797104 + 0.922482I$	$0.06576 + 11.98300I$	$-2.00000 - 11.09767I$
$u = 0.358680 + 0.579084I$ $a = 0.663465 + 0.243691I$ $b = -0.108400 + 0.864333I$	$-0.64632 - 1.44283I$	$-3.81239 + 5.10481I$
$u = 0.358680 - 0.579084I$ $a = 0.663465 - 0.243691I$ $b = -0.108400 - 0.864333I$	$-0.64632 + 1.44283I$	$-3.81239 - 5.10481I$
$u = 0.675999 + 1.162370I$ $a = -1.56435 - 1.23880I$ $b = 0.24445 - 1.54342I$	$-5.08320 - 11.27570I$	$-2.00000 + 6.81954I$
$u = 0.675999 - 1.162370I$ $a = -1.56435 + 1.23880I$ $b = 0.24445 + 1.54342I$	$-5.08320 + 11.27570I$	$-2.00000 - 6.81954I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.691615 + 1.157430I$ $a = -1.68262 + 1.15689I$ $b = 0.07127 + 1.51795I$	$-9.17720 + 6.73033I$	$-6.31476 - 3.78221I$
$u = -0.691615 - 1.157430I$ $a = -1.68262 - 1.15689I$ $b = 0.07127 - 1.51795I$	$-9.17720 - 6.73033I$	$-6.31476 + 3.78221I$
$u = -0.675732 + 1.175560I$ $a = -1.59314 + 1.35142I$ $b = 0.27313 + 1.68404I$	$-8.5942 + 16.2500I$	$-5.34441 - 9.76292I$
$u = -0.675732 - 1.175560I$ $a = -1.59314 - 1.35142I$ $b = 0.27313 - 1.68404I$	$-8.5942 - 16.2500I$	$-5.34441 + 9.76292I$
$u = 0.069180 + 0.547631I$ $a = 0.786237 + 0.031049I$ $b = -0.723577 + 0.256788I$	$1.06858 - 1.83619I$	$-0.74915 + 5.53995I$
$u = 0.069180 - 0.547631I$ $a = 0.786237 - 0.031049I$ $b = -0.723577 - 0.256788I$	$1.06858 + 1.83619I$	$-0.74915 - 5.53995I$
$u = 0.401304$ $a = 1.18698$ $b = 0.303349$	-1.03663	-10.7780

II. $I_2^u = \langle -3.61 \times 10^{30} u^{51} - 1.20 \times 10^{30} u^{50} + \cdots + 2.94 \times 10^{31} b + 1.36 \times 10^{32},\ -4.08 \times 10^{32} u^{51} - 5.86 \times 10^{32} u^{50} + \cdots + 5.00 \times 10^{32} a + 2.17 \times 10^{32},\ u^{52} + u^{51} + \cdots + 30u + 17 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.815268u^{51} + 1.17160u^{50} + \cdots + 23.9539u - 0.434432 \\ 0.122897u^{51} + 0.0406690u^{50} + \cdots - 8.31341u - 4.63532 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.603660u^{51} - 0.550873u^{50} + \cdots + 5.39906u + 8.11570 \\ -0.0396776u^{51} + 0.142896u^{50} + \cdots + 13.1169u + 5.25900 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1.06030u^{51} + 0.970299u^{50} + \cdots + 4.31666u - 8.59212 \\ 0.0653086u^{51} - 0.273432u^{50} + \cdots - 17.3837u - 7.10625 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1.12011u^{51} - 0.813324u^{50} + \cdots + 13.6153u + 11.1311 \\ -0.0102037u^{51} + 0.271561u^{50} + \cdots + 24.6387u + 7.82138 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.790972u^{51} + 0.764018u^{50} + \cdots - 5.28587u - 8.80006 \\ -0.262347u^{51} - 0.529752u^{50} + \cdots - 24.2991u - 8.38601 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.580715u^{51} + 0.805430u^{50} + \cdots + 15.6537u + 0.380740 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.165891u^{51} + 0.0542360u^{50} + \cdots - 24.5113u - 11.6369 \\ 0.224715u^{51} + 0.113060u^{50} + \cdots - 16.0407u - 9.87216 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1.13196u^{51} + 1.65706u^{50} + \cdots + 16.1608u - 20.7826$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{26} + 15u^{25} + \cdots + 3u + 1)^2$
c_2, c_5	$(u^{26} - u^{25} + \cdots - u + 1)^2$
c_3, c_4, c_8 c_{10}	$u^{52} - u^{51} + \cdots - 30u + 17$
c_6, c_7, c_{12}	$(u^{26} - 3u^{25} + \cdots - 11u + 3)^2$
c_9, c_{11}	$u^{52} - 27u^{51} + \cdots - 3996u + 289$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{26} - 7y^{25} + \cdots + 13y + 1)^2$
c_2, c_5	$(y^{26} - 15y^{25} + \cdots - 3y + 1)^2$
c_3, c_4, c_8 c_{10}	$y^{52} + 27y^{51} + \cdots + 3996y + 289$
c_6, c_7, c_{12}	$(y^{26} + 29y^{25} + \cdots + 65y + 9)^2$
c_9, c_{11}	$y^{52} - 5y^{51} + \cdots + 1807796y + 83521$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.550343 + 0.827493I$ $a = -1.93277 + 2.59907I$ $b = -0.09022 + 1.52061I$	$-4.80817 - 2.43962I$	$-5.44223 + 0.17519I$
$u = -0.550343 - 0.827493I$ $a = -1.93277 - 2.59907I$ $b = -0.09022 - 1.52061I$	$-4.80817 + 2.43962I$	$-5.44223 - 0.17519I$
$u = 0.529126 + 0.860647I$ $a = -1.71257 - 2.53937I$ $b = 0.08534 - 1.44303I$	$-1.01859 - 2.13264I$	$-1.81035 + 3.16032I$
$u = 0.529126 - 0.860647I$ $a = -1.71257 + 2.53937I$ $b = 0.08534 + 1.44303I$	$-1.01859 + 2.13264I$	$-1.81035 - 3.16032I$
$u = -0.554054 + 0.884455I$ $a = -1.61427 + 2.72347I$ $b = 0.19366 + 1.58163I$	$-4.61871 + 6.86486I$	$-4.85861 - 6.16378I$
$u = -0.554054 - 0.884455I$ $a = -1.61427 - 2.72347I$ $b = 0.19366 - 1.58163I$	$-4.61871 - 6.86486I$	$-4.85861 + 6.16378I$
$u = 0.951071 + 0.433551I$ $a = 0.04083 - 1.86805I$ $b = -0.17008 - 1.55712I$	$-7.30647 + 5.33673I$	$-5.16942 - 2.96646I$
$u = 0.951071 - 0.433551I$ $a = 0.04083 + 1.86805I$ $b = -0.17008 + 1.55712I$	$-7.30647 - 5.33673I$	$-5.16942 + 2.96646I$
$u = 0.764264 + 0.566838I$ $a = 0.607267 - 0.533028I$ $b = -0.087798 - 0.532774I$	$-4.08260 + 0.32949I$	$-9.60033 + 0.20899I$
$u = 0.764264 - 0.566838I$ $a = 0.607267 + 0.533028I$ $b = -0.087798 + 0.532774I$	$-4.08260 - 0.32949I$	$-9.60033 - 0.20899I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.968590+0.418641I$ $a=-0.06346+2.01829I$ $b=-0.21971+1.67621I$	$-10.9094-10.2647I$	$-8.13372+5.98641I$
$u=-0.968590-0.418641I$ $a=-0.06346-2.01829I$ $b=-0.21971-1.67621I$	$-10.9094+10.2647I$	$-8.13372-5.98641I$
$u=0.537250+0.915539I$ $a=0.712664+0.797756I$ $b=-0.599592+0.613984I$	$-0.11782-2.56217I$	$-2.00000+2.97329I$
$u=0.537250-0.915539I$ $a=0.712664-0.797756I$ $b=-0.599592-0.613984I$	$-0.11782+2.56217I$	$-2.00000-2.97329I$
$u=-0.961357+0.458080I$ $a=0.24305+1.92202I$ $b=-0.02106+1.56255I$	$-11.31370-0.70419I$	$-8.80376-0.14810I$
$u=-0.961357-0.458080I$ $a=0.24305-1.92202I$ $b=-0.02106-1.56255I$	$-11.31370+0.70419I$	$-8.80376+0.14810I$
$u=0.383435+0.995342I$ $a=-0.84645-1.77462I$ $b=0.603458-0.686824I$	$2.92792-3.85582I$	$0.+7.89236I$
$u=0.383435-0.995342I$ $a=-0.84645+1.77462I$ $b=0.603458+0.686824I$	$2.92792+3.85582I$	$0.-7.89236I$
$u=-0.669360+0.847773I$ $a=1.148410-0.546853I$ $b=-0.087798-0.532774I$	$-4.08260+0.32949I$	$-9.60033+0.20899I$
$u=-0.669360-0.847773I$ $a=1.148410+0.546853I$ $b=-0.087798+0.532774I$	$-4.08260-0.32949I$	$-9.60033-0.20899I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.284204 + 1.048140I$ $a = -0.627711 + 1.198740I$ $b = 0.559166 + 0.216872I$	$4.34028 + 0.21572I$	$5.69812 - 1.13318I$
$u = -0.284204 - 1.048140I$ $a = -0.627711 - 1.198740I$ $b = 0.559166 - 0.216872I$	$4.34028 - 0.21572I$	$5.69812 + 1.13318I$
$u = 0.786486 + 0.369460I$ $a = -0.422286 - 0.769115I$ $b = -0.648696 - 0.938364I$	$-2.10171 + 6.75127I$	$-5.33497 - 7.43906I$
$u = 0.786486 - 0.369460I$ $a = -0.422286 + 0.769115I$ $b = -0.648696 + 0.938364I$	$-2.10171 - 6.75127I$	$-5.33497 + 7.43906I$
$u = -0.577721 + 0.996615I$ $a = 0.768435 - 1.108730I$ $b = -0.648696 - 0.938364I$	$-2.10171 + 6.75127I$	$-5.33497 - 7.43906I$
$u = -0.577721 - 0.996615I$ $a = 0.768435 + 1.108730I$ $b = -0.648696 + 0.938364I$	$-2.10171 - 6.75127I$	$-5.33497 + 7.43906I$
$u = 0.342052 + 0.774444I$ $a = 0.464099 + 0.449574I$ $b = -0.791162 + 0.159676I$	$1.10848 - 1.93104I$	$-0.74595 + 4.18474I$
$u = 0.342052 - 0.774444I$ $a = 0.464099 - 0.449574I$ $b = -0.791162 - 0.159676I$	$1.10848 + 1.93104I$	$-0.74595 - 4.18474I$
$u = -0.224633 + 1.133270I$ $a = -0.300749 + 0.796598I$ $b = 0.559166 - 0.216872I$	$4.34028 - 0.21572I$	$5.69812 + 0.I$
$u = -0.224633 - 1.133270I$ $a = -0.300749 - 0.796598I$ $b = 0.559166 + 0.216872I$	$4.34028 + 0.21572I$	$5.69812 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.036728+1.177540I$ $a=-0.397670-0.124485I$ $b=-0.313295+0.402304I$	$1.71189-1.00473I$	$-5.82896+0.I$
$u = 0.036728-1.177540I$ $a=-0.397670+0.124485I$ $b=-0.313295-0.402304I$	$1.71189+1.00473I$	$-5.82896+0.I$
$u=-0.690243+0.417206I$ $a=-0.132047+0.281676I$ $b=-0.599592+0.613984I$	$-0.11782-2.56217I$	$-1.94700+2.97329I$
$u=-0.690243-0.417206I$ $a=-0.132047-0.281676I$ $b=-0.599592-0.613984I$	$-0.11782+2.56217I$	$-1.94700-2.97329I$
$u = 0.203821+1.221330I$ $a = 0.017866-0.514233I$ $b = 0.603458+0.686824I$	$2.92792+3.85582I$	0
$u = 0.203821-1.221330I$ $a = 0.017866+0.514233I$ $b = 0.603458-0.686824I$	$2.92792-3.85582I$	0
$u = 0.220997+0.724279I$ $a=-2.17171-0.98902I$ $b=-0.313295-0.402304I$	$1.71189+1.00473I$	$-5.82896-0.57498I$
$u = 0.220997-0.724279I$ $a=-2.17171+0.98902I$ $b=-0.313295+0.402304I$	$1.71189-1.00473I$	$-5.82896+0.57498I$
$u=-0.720229+1.047070I$ $a = 1.40344-1.54237I$ $b=-0.17008-1.55712I$	$-7.30647+5.33673I$	0
$u=-0.720229-1.047070I$ $a = 1.40344+1.54237I$ $b=-0.17008+1.55712I$	$-7.30647-5.33673I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.741481 + 1.037370I$ $a = 1.54716 + 1.50406I$ $b = -0.02106 + 1.56255I$	$-11.31370 - 0.70419I$	0
$u = 0.741481 - 1.037370I$ $a = 1.54716 - 1.50406I$ $b = -0.02106 - 1.56255I$	$-11.31370 + 0.70419I$	0
$u = 0.722575 + 1.066990I$ $a = 1.39072 + 1.66975I$ $b = -0.21971 + 1.67621I$	$-10.9094 - 10.2647I$	0
$u = 0.722575 - 1.066990I$ $a = 1.39072 - 1.66975I$ $b = -0.21971 - 1.67621I$	$-10.9094 + 10.2647I$	0
$u = 0.117241 + 1.324870I$ $a = 0.0151086 + 0.0789385I$ $b = 0.08534 + 1.44303I$	$-1.01859 + 2.13264I$	0
$u = 0.117241 - 1.324870I$ $a = 0.0151086 - 0.0789385I$ $b = 0.08534 - 1.44303I$	$-1.01859 - 2.13264I$	0
$u = -0.095137 + 1.336100I$ $a = -0.059114 - 0.156098I$ $b = -0.09022 - 1.52061I$	$-4.80817 + 2.43962I$	0
$u = -0.095137 - 1.336100I$ $a = -0.059114 + 0.156098I$ $b = -0.09022 + 1.52061I$	$-4.80817 - 2.43962I$	0
$u = -0.131274 + 1.342360I$ $a = 0.105716 - 0.128904I$ $b = 0.19366 - 1.58163I$	$-4.61871 - 6.86486I$	0
$u = -0.131274 - 1.342360I$ $a = 0.105716 + 0.128904I$ $b = 0.19366 + 1.58163I$	$-4.61871 + 6.86486I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.409385 + 0.446289I$ $a = 0.286631 - 0.591162I$ $b = -0.791162 + 0.159676I$	$1.10848 - 1.93104I$	$-0.74595 + 4.18474I$
$u = -0.409385 - 0.446289I$ $a = 0.286631 + 0.591162I$ $b = -0.791162 - 0.159676I$	$1.10848 + 1.93104I$	$-0.74595 - 4.18474I$

III. $I_3^u = \langle b^5 + b^4u + 2b^3 + b^2u + b - u,\ a+1,\ u^2+1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1 \\ b \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -b+1 \\ b^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -b^2+b-1 \\ b^3+b \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -b^3+b^2-2b+1 \\ b^4+2b^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} b^3-b^2+2b-1 \\ b^3+b \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ b-1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ bu \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4b^3u - 8bu$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.00000$ $b = 1.217740I$	0.888787	2.51890
$u = 1.000000I$ $a = -1.00000$ $b = 0.549911 + 0.309916I$	$2.96077 + 1.53058I$	$3.48489 - 4.43065I$
$u = 1.000000I$ $a = -1.00000$ $b = -0.549911 + 0.309916I$	$2.96077 - 1.53058I$	$3.48489 + 4.43065I$
$u = 1.000000I$ $a = -1.00000$ $b = 0.21917 - 1.41878I$	$-2.58269 - 4.40083I$	$-0.74431 + 3.49859I$
$u = 1.000000I$ $a = -1.00000$ $b = -0.21917 - 1.41878I$	$-2.58269 + 4.40083I$	$-0.74431 - 3.49859I$
$u = -1.000000I$ $a = -1.00000$ $b = -1.217740I$	0.888787	2.51890
$u = -1.000000I$ $a = -1.00000$ $b = 0.549911 - 0.309916I$	$2.96077 - 1.53058I$	$3.48489 + 4.43065I$
$u = -1.000000I$ $a = -1.00000$ $b = -0.549911 - 0.309916I$	$2.96077 + 1.53058I$	$3.48489 - 4.43065I$
$u = -1.000000I$ $a = -1.00000$ $b = -0.21917 + 1.41878I$	$-2.58269 + 4.40083I$	$-0.74431 - 3.49859I$
$u = -1.000000I$ $a = -1.00000$ $b = 0.21917 + 1.41878I$	$-2.58269 - 4.40083I$	$-0.74431 + 3.49859I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^5-3u^4+4u^3-u^2-u+1)^2)(u^{26}+15u^{25}+\cdots+3u+1)^2$ $\cdot(u^{37}+21u^{36}+\cdots-3u+4)$
c_2, c_5	$(u^{10}-3u^8+4u^6-u^4-u^2+1)(u^{26}-u^{25}+\cdots-u+1)^2$ $\cdot(u^{37}+3u^{36}+\cdots+9u+2)$
c_3, c_4, c_8 c_{10}	$((u^2+1)^5)(u^{37}+7u^{35}+\cdots+2u+1)(u^{52}-u^{51}+\cdots-30u+17)$
c_6, c_7, c_{12}	$(u^{10}+5u^8+8u^6+3u^4-u^2+1)(u^{26}-3u^{25}+\cdots-11u+3)^2$ $\cdot(u^{37}+9u^{36}+\cdots+251u+22)$
c_9, c_{11}	$((u-1)^{10})(u^{37}-14u^{36}+\cdots-10u+1)$ $\cdot(u^{52}-27u^{51}+\cdots-3996u+289)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^2)(y^{26} - 7y^{25} + \cdots + 13y + 1)^2$ $\cdot (y^{37} - 9y^{36} + \cdots + 289y - 16)$
c_2, c_5	$((y^5 - 3y^4 + 4y^3 - y^2 - y + 1)^2)(y^{26} - 15y^{25} + \cdots - 3y + 1)^2$ $\cdot (y^{37} - 21y^{36} + \cdots - 3y - 4)$
c_3, c_4, c_8 c_{10}	$((y + 1)^{10})(y^{37} + 14y^{36} + \cdots - 10y - 1)$ $\cdot (y^{52} + 27y^{51} + \cdots + 3996y + 289)$
c_6, c_7, c_{12}	$((y^5 + 5y^4 + 8y^3 + 3y^2 - y + 1)^2)(y^{26} + 29y^{25} + \cdots + 65y + 9)^2$ $\cdot (y^{37} + 39y^{36} + \cdots - 1987y - 484)$
c_9, c_{11}	$((y - 1)^{10})(y^{37} + 30y^{36} + \cdots + 38y - 1)$ $\cdot (y^{52} - 5y^{51} + \cdots + 1807796y + 83521)$