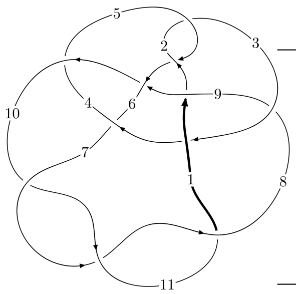
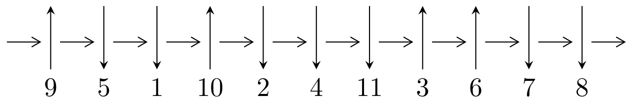
$11a_{277}$ ($K11a_{277}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -1.82122 \times 10^{22} u^{34} + 1.39965 \times 10^{23} u^{33} + \cdots + 1.46127 \times 10^{23} b + 1.58974 \times 10^{23}, \\
& -3.04671 \times 10^{23} u^{34} + 2.69618 \times 10^{24} u^{33} + \cdots + 1.16902 \times 10^{24} a - 1.80715 \times 10^{25}, \\
& u^{35} - 9u^{34} + \cdots + 129u - 8 \rangle \\
I_2^u = \langle & -u^{23}a - u^{23} + \cdots - 3a - 1,\ 4u^{23}a - u^{23} + \cdots - 18a - 11,\ u^{24} + 7u^{23} + \cdots + 15u + 3 \rangle \\
I_3^u = \langle & -u^{11} - 6u^{10} - 20u^9 - 46u^8 - 76u^7 - 94u^6 - 86u^5 - 57u^4 - 28u^3 - 11u^2 + b - 5u - 1, \\
& -u^{10} - 6u^9 - 20u^8 - 45u^7 - 72u^6 - 85u^5 - 72u^4 - 43u^3 - 18u^2 + a - 6u - 3, \\
& u^{12} + 6u^{11} + 20u^{10} + 46u^9 + 77u^8 + 98u^7 + 95u^6 + 71u^5 + 42u^4 + 21u^3 + 10u^2 + 3u + 1 \rangle \\
I_4^u = \langle & au + 2b - a - u - 1,\ a^2 + au - a - 3u - 2,\ u^2 + 1 \rangle
\end{aligned}$$

* 4 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. $I_1^u = \langle -1.82 \times 10^{22} u^{34} + 1.40 \times 10^{23} u^{33} + \cdots + 1.46 \times 10^{23} b + 1.59 \times 10^{23},\ -3.05 \times 10^{23} u^{34} + 2.70 \times 10^{24} u^{33} + \cdots + 1.17 \times 10^{24} a - 1.81 \times 10^{25},\ u^{35} - 9u^{34} + \cdots + 129u - 8 \rangle$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 0.260621u^{34} - 2.30636u^{33} + \cdots - 109.860u + 15.4587 \\ 0.124632u^{34} - 0.957827u^{33} + \cdots + 0.995973u - 1.08791 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0292774u^{34} - 0.335350u^{33} + \cdots + 46.0876u - 8.56756 \\ 0.255676u^{34} - 2.11726u^{33} + \cdots - 17.8267u + 1.81119 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0652835u^{34} - 0.480129u^{33} + \cdots + 39.1684u - 5.24345 \\ 0.0574092u^{34} - 0.366296u^{33} + \cdots + 9.72748u - 0.148606 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.135989u^{34} - 1.34853u^{33} + \cdots - 110.856u + 16.5466 \\ 0.124632u^{34} - 0.957827u^{33} + \cdots + 0.995973u - 1.08791 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0878378u^{34} - 0.551320u^{33} + \cdots + 70.1500u - 12.5898 \\ -0.239219u^{34} + 2.22799u^{33} + \cdots + 24.9209u - 0.702702 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0523471u^{34} - 0.798413u^{33} + \cdots - 122.147u + 17.1988 \\ 0.207975u^{34} - 1.87903u^{33} + \cdots - 13.1866u - 0.118874 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.115771u^{34} + 1.07918u^{33} + \cdots - 32.8480u + 6.98223 \\ -0.0743855u^{34} + 0.536396u^{33} + \cdots - 12.8514u + 0.573324 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.115771u^{34} + 1.07918u^{33} + \cdots - 32.8480u + 6.98223 \\ -0.0743855u^{34} + 0.536396u^{33} + \cdots - 12.8514u + 0.573324 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{904900865812860937778343}{1461272008163126555174817}u^{34} - \frac{992059524318749332684051}{1461272008163126555174817}u^{33} + \cdots - \frac{2433568762718250011950776 5}{1461272008163126555174817}u + \frac{1325772668265518534675334}{1461272008163126555174817}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^{35} + 2u^{34} + \cdots - u - 1$
c_2, c_5	$u^{35} - 9u^{34} + \cdots + 129u - 8$
c_3, c_6	$u^{35} - 2u^{34} + \cdots - 7u - 2$
c_4, c_8	$u^{35} + 5u^{33} + \cdots - 10u - 4$
c_7, c_{10}, c_{11}	$u^{35} + 10u^{34} + \cdots - 7u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^{35} - 28y^{34} + \cdots + 97y - 1$
c_2, c_5	$y^{35} + 17y^{34} + \cdots + 5825y - 64$
c_3, c_6	$y^{35} + 4y^{34} + \cdots - 35y - 4$
c_4, c_8	$y^{35} + 10y^{34} + \cdots - 68y - 16$
c_7, c_{10}, c_{11}	$y^{35} - 38y^{34} + \cdots - 63y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.029467 + 1.005660I$ $a = 1.62337 + 0.62304I$ $b = 1.118990 - 0.474878I$	$3.33325 + 0.06783I$	$5.95235 + 0.12495I$
$u = -0.029467 - 1.005660I$ $a = 1.62337 - 0.62304I$ $b = 1.118990 + 0.474878I$	$3.33325 - 0.06783I$	$5.95235 - 0.12495I$
$u = -0.160155 + 0.940171I$ $a = -1.89608 - 0.73160I$ $b = -1.218050 + 0.448463I$	$-1.89744 + 0.70933I$	$-2.29610 + 0.18489I$
$u = -0.160155 - 0.940171I$ $a = -1.89608 + 0.73160I$ $b = -1.218050 - 0.448463I$	$-1.89744 - 0.70933I$	$-2.29610 - 0.18489I$
$u = 1.032060 + 0.216151I$ $a = 0.065858 - 0.238657I$ $b = -0.970266 - 0.697041I$	$-0.31706 + 7.01027I$	$-3.82014 - 7.79890I$
$u = 1.032060 - 0.216151I$ $a = 0.065858 + 0.238657I$ $b = -0.970266 + 0.697041I$	$-0.31706 - 7.01027I$	$-3.82014 + 7.79890I$
$u = 0.030627 + 1.114570I$ $a = -1.64670 - 0.23881I$ $b = -1.037110 + 0.708446I$	$-0.301669 - 0.553139I$	$-3.58187 + 1.60443I$
$u = 0.030627 - 1.114570I$ $a = -1.64670 + 0.23881I$ $b = -1.037110 - 0.708446I$	$-0.301669 + 0.553139I$	$-3.58187 - 1.60443I$
$u = -1.11586$ $a = -0.236593$ $b = -0.124774$	-2.17258	-20.5000
$u = 0.746671 + 0.829900I$ $a = -0.135819 - 1.208780I$ $b = -1.42250 - 0.65236I$	$-5.09357 - 3.39425I$	$-14.2242 + 15.5417I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.746671 - 0.829900I$ $a = -0.135819 + 1.208780I$ $b = -1.42250 + 0.65236I$	$-5.09357 + 3.39425I$	$-14.2242 - 15.5417I$
$u = 0.648498 + 0.961930I$ $a = -1.22988 - 0.79688I$ $b = -1.54855 + 0.59812I$	$-4.64663 - 2.02674I$	$-10.39702 - 3.31188I$
$u = 0.648498 - 0.961930I$ $a = -1.22988 + 0.79688I$ $b = -1.54855 - 0.59812I$	$-4.64663 + 2.02674I$	$-10.39702 + 3.31188I$
$u = -0.795787 + 0.881934I$ $a = 0.657988 - 0.155281I$ $b = 0.328568 - 0.230594I$	$-6.54898 + 2.97371I$	$-10.02830 - 2.31900I$
$u = -0.795787 - 0.881934I$ $a = 0.657988 + 0.155281I$ $b = 0.328568 + 0.230594I$	$-6.54898 - 2.97371I$	$-10.02830 + 2.31900I$
$u = 0.405669 + 1.141420I$ $a = 0.894751 + 0.750550I$ $b = 1.090950 - 0.135501I$	$4.39987 - 1.11837I$	$2.66422 + 2.51524I$
$u = 0.405669 - 1.141420I$ $a = 0.894751 - 0.750550I$ $b = 1.090950 + 0.135501I$	$4.39987 + 1.11837I$	$2.66422 - 2.51524I$
$u = 0.719504 + 0.276631I$ $a = -0.532660 + 0.260522I$ $b = 0.894361 + 0.739088I$	$0.64524 + 2.18197I$	$-1.66363 - 5.31437I$
$u = 0.719504 - 0.276631I$ $a = -0.532660 - 0.260522I$ $b = 0.894361 - 0.739088I$	$0.64524 - 2.18197I$	$-1.66363 + 5.31437I$
$u = 1.204480 + 0.248072I$ $a = 0.084193 + 0.300543I$ $b = 0.972158 + 0.693076I$	$-7.58044 + 10.41690I$	$-6.58450 - 6.84896I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.204480 - 0.248072I$ $a = 0.084193 - 0.300543I$ $b = 0.972158 - 0.693076I$	$-7.58044 - 10.41690I$	$-6.58450 + 6.84896I$
$u = 0.548826 + 1.162060I$ $a = 1.67262 + 0.38811I$ $b = 1.47723 - 0.97539I$	$3.22979 - 7.07568I$	$-1.38313 + 9.02703I$
$u = 0.548826 - 1.162060I$ $a = 1.67262 - 0.38811I$ $b = 1.47723 + 0.97539I$	$3.22979 + 7.07568I$	$-1.38313 - 9.02703I$
$u = -0.308052 + 0.545459I$ $a = -0.928218 + 0.582030I$ $b = -0.165653 + 0.455061I$	$-0.241930 + 1.296500I$	$-3.54219 - 4.67694I$
$u = -0.308052 - 0.545459I$ $a = -0.928218 - 0.582030I$ $b = -0.165653 - 0.455061I$	$-0.241930 - 1.296500I$	$-3.54219 + 4.67694I$
$u = 0.271698 + 1.365610I$ $a = -0.854456 - 0.533102I$ $b = -0.898585 + 0.116131I$	$5.18517 + 2.44630I$	$0. - 4.73123I$
$u = 0.271698 - 1.365610I$ $a = -0.854456 + 0.533102I$ $b = -0.898585 - 0.116131I$	$5.18517 - 2.44630I$	$0. + 4.73123I$
$u = 0.595757 + 1.264360I$ $a = -1.58942 - 0.26495I$ $b = -1.41489 + 0.93635I$	$2.94252 - 12.83480I$	$0. + 9.50250I$
$u = 0.595757 - 1.264360I$ $a = -1.58942 + 0.26495I$ $b = -1.41489 - 0.93635I$	$2.94252 + 12.83480I$	$0. - 9.50250I$
$u = -1.41303$ $a = 0.370029$ $b = 0.216683$	-8.46698	-18.1290

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.64890 + 1.31702I$ $a = 1.53917 + 0.20834I$ $b = 1.39598 - 0.92217I$	$-4.1620 - 16.9207I$	0
$u = 0.64890 - 1.31702I$ $a = 1.53917 - 0.20834I$ $b = 1.39598 + 0.92217I$	$-4.1620 + 16.9207I$	0
$u = 0.15479 + 1.53945I$ $a = 0.793512 + 0.415691I$ $b = 0.783542 - 0.094287I$	$-0.87578 + 5.04274I$	0
$u = 0.15479 - 1.53945I$ $a = 0.793512 - 0.415691I$ $b = 0.783542 + 0.094287I$	$-0.87578 - 5.04274I$	0
$u = 0.100849$ $a = 7.70512$ $b = -0.864213$	-3.33456	-1.41010

II. $I_2^u = \langle -u^{23}a-u^{23}+\cdots-3a-1,\ 4u^{23}a-u^{23}+\cdots-18a-11,\ u^{24}+7u^{23}+\cdots+15u+3\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ \frac{1}{2}u^{23}a+\frac{1}{2}u^{23}+\cdots+\frac{3}{2}a+\frac{1}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{2}u^{23}a+\frac{1}{6}u^{23}+\cdots+\frac{3}{2}a-\frac{3}{2} \\ -u^{23}a-6u^{22}a+\cdots+u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{2}u^{23}a+\frac{5}{6}u^{23}+\cdots+\frac{1}{2}a+\frac{7}{2} \\ u^{23}a+7u^{22}a+\cdots+3a-1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{2}u^{23}a-\frac{1}{2}u^{23}+\cdots-\frac{1}{2}a-\frac{1}{2} \\ \frac{1}{2}u^{23}a+\frac{1}{2}u^{23}+\cdots+\frac{3}{2}a+\frac{1}{2} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{2}u^{23}a+\frac{5}{6}u^{23}+\cdots+\frac{1}{2}a+\frac{9}{2} \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{23}+8u^{22}+\cdots+a-2 \\ -\frac{1}{2}u^{23}a+\frac{1}{2}u^{23}+\cdots-\frac{3}{2}a+\frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{23}a+\frac{5}{6}u^{23}+\cdots+\frac{3}{2}a+\frac{5}{2} \\ \frac{1}{2}u^{23}a+\frac{1}{2}u^{23}+\cdots+\frac{3}{2}a-\frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{23}a+\frac{5}{6}u^{23}+\cdots+\frac{3}{2}a+\frac{5}{2} \\ \frac{1}{2}u^{23}a+\frac{1}{2}u^{23}+\cdots+\frac{3}{2}a-\frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^{23}-10u^{22}-38u^{21}-96u^{20}-196u^{19}-310u^{18}-390u^{17}-364u^{16}-176u^{15}+152u^{14}+576u^{13}+960u^{12}+1228u^{11}+1294u^{10}+1190u^{9}+956u^{8}+698u^{7}+454u^{6}+254u^{5}+136u^{4}+48u^{3}+26u^{2}+2u-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^{48} + u^{47} + \cdots + 16u^2 + 2$
c_2, c_5	$(u^{24} + 7u^{23} + \cdots + 15u + 3)^2$
c_3, c_6	$u^{48} - 7u^{47} + \cdots - 28u + 8$
c_4, c_8	$u^{48} + u^{47} + \cdots - 48u + 32$
c_7, c_{10}, c_{11}	$(u^{24} - 3u^{23} + \cdots + 3u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^{48} + y^{47} + \cdots + 64y + 4$
c_2, c_5	$(y^{24} + 15y^{23} + \cdots + 69y + 9)^2$
c_3, c_6	$y^{48} - 21y^{47} + \cdots + 176y + 64$
c_4, c_8	$y^{48} + 9y^{47} + \cdots + 20736y + 1024$
c_7, c_{10}, c_{11}	$(y^{24} - 25y^{23} + \cdots - 15y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.333614 + 0.958581I$ $a = 0.238717 + 0.952089I$ $b = 0.52014 + 1.77867I$	$-7.10793 - 8.02681I$	$-5.10804 + 8.04729I$
$u = 0.333614 + 0.958581I$ $a = -2.52196 + 0.45351I$ $b = -0.698461 + 0.545528I$	$-7.10793 - 8.02681I$	$-5.10804 + 8.04729I$
$u = 0.333614 - 0.958581I$ $a = 0.238717 - 0.952089I$ $b = 0.52014 - 1.77867I$	$-7.10793 + 8.02681I$	$-5.10804 - 8.04729I$
$u = 0.333614 - 0.958581I$ $a = -2.52196 - 0.45351I$ $b = -0.698461 - 0.545528I$	$-7.10793 + 8.02681I$	$-5.10804 - 8.04729I$
$u = -1.06754$ $a = -0.247659 + 0.014314I$ $b = -0.127875 + 0.226247I$	-2.16765	-17.3620
$u = -1.06754$ $a = -0.247659 - 0.014314I$ $b = -0.127875 - 0.226247I$	-2.16765	-17.3620
$u = -0.277461 + 1.036230I$ $a = 0.412312 - 1.328630I$ $b = 0.487830 + 0.447909I$	$1.42987 + 1.40919I$	$-2.00295 - 5.17297I$
$u = -0.277461 + 1.036230I$ $a = -2.14757 + 0.13261I$ $b = -1.86186 - 0.41467I$	$1.42987 + 1.40919I$	$-2.00295 - 5.17297I$
$u = -0.277461 - 1.036230I$ $a = 0.412312 + 1.328630I$ $b = 0.487830 - 0.447909I$	$1.42987 - 1.40919I$	$-2.00295 + 5.17297I$
$u = -0.277461 - 1.036230I$ $a = -2.14757 - 0.13261I$ $b = -1.86186 + 0.41467I$	$1.42987 - 1.40919I$	$-2.00295 + 5.17297I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.263524 + 0.887339I$ $a = 0.252966 - 0.916113I$ $b = -0.23360 - 1.73518I$	$-0.45153 - 3.90914I$	$-4.05947 + 8.41437I$
$u = 0.263524 + 0.887339I$ $a = 2.46741 - 0.35585I$ $b = 0.598566 - 0.647596I$	$-0.45153 - 3.90914I$	$-4.05947 + 8.41437I$
$u = 0.263524 - 0.887339I$ $a = 0.252966 + 0.916113I$ $b = -0.23360 + 1.73518I$	$-0.45153 + 3.90914I$	$-4.05947 - 8.41437I$
$u = 0.263524 - 0.887339I$ $a = 2.46741 + 0.35585I$ $b = 0.598566 + 0.647596I$	$-0.45153 + 3.90914I$	$-4.05947 - 8.41437I$
$u = -0.887982 + 0.619939I$ $a = 0.994897 - 0.465007I$ $b = 0.852325 + 0.186324I$	$-6.92221 + 3.07969I$	$-9.61105 - 4.95105I$
$u = -0.887982 + 0.619939I$ $a = 0.269644 - 0.075164I$ $b = -0.277184 - 0.666756I$	$-6.92221 + 3.07969I$	$-9.61105 - 4.95105I$
$u = -0.887982 - 0.619939I$ $a = 0.994897 + 0.465007I$ $b = 0.852325 - 0.186324I$	$-6.92221 - 3.07969I$	$-9.61105 + 4.95105I$
$u = -0.887982 - 0.619939I$ $a = 0.269644 + 0.075164I$ $b = -0.277184 + 0.666756I$	$-6.92221 - 3.07969I$	$-9.61105 + 4.95105I$
$u = 0.237103 + 0.737994I$ $a = -0.590664 - 0.004510I$ $b = 0.198307 + 1.243170I$	$-0.89648 + 1.35600I$	$-6.20233 + 1.19503I$
$u = 0.237103 + 0.737994I$ $a = -2.33888 + 0.63109I$ $b = -0.733711 + 0.878083I$	$-0.89648 + 1.35600I$	$-6.20233 + 1.19503I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.237103 - 0.737994I$ $a = -0.590664 + 0.004510I$ $b = 0.198307 - 1.243170I$	$-0.89648 - 1.35600I$	$-6.20233 - 1.19503I$
$u = 0.237103 - 0.737994I$ $a = -2.33888 - 0.63109I$ $b = -0.733711 - 0.878083I$	$-0.89648 - 1.35600I$	$-6.20233 - 1.19503I$
$u = -1.24600$ $a = 0.424934 + 0.086154I$ $b = 0.235738 + 0.436377I$	-8.40649	-13.8590
$u = -1.24600$ $a = 0.424934 - 0.086154I$ $b = 0.235738 - 0.436377I$	-8.40649	-13.8590
$u = 0.387072 + 0.629729I$ $a = -0.214970 + 0.319082I$ $b = -0.514411 - 1.214470I$	$-8.06651 + 4.88076I$	$-7.61294 - 0.00229I$
$u = 0.387072 + 0.629729I$ $a = 2.61397 - 0.51468I$ $b = 0.849819 - 0.782163I$	$-8.06651 + 4.88076I$	$-7.61294 - 0.00229I$
$u = 0.387072 - 0.629729I$ $a = -0.214970 - 0.319082I$ $b = -0.514411 + 1.214470I$	$-8.06651 - 4.88076I$	$-7.61294 + 0.00229I$
$u = 0.387072 - 0.629729I$ $a = 2.61397 + 0.51468I$ $b = 0.849819 + 0.782163I$	$-8.06651 - 4.88076I$	$-7.61294 + 0.00229I$
$u = -0.334204 + 1.242180I$ $a = -1.064980 + 0.825666I$ $b = -0.715953 - 0.434854I$	$4.15748 + 4.71846I$	$5.79042 - 6.26335I$
$u = -0.334204 + 1.242180I$ $a = 1.63098 + 0.22953I$ $b = 1.44914 + 0.85482I$	$4.15748 + 4.71846I$	$5.79042 - 6.26335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.334204 - 1.242180I$ $a = -1.064980 - 0.825666I$ $b = -0.715953 + 0.434854I$	$4.15748 - 4.71846I$	$5.79042 + 6.26335I$
$u = -0.334204 - 1.242180I$ $a = 1.63098 - 0.22953I$ $b = 1.44914 - 0.85482I$	$4.15748 - 4.71846I$	$5.79042 + 6.26335I$
$u = -0.510133 + 0.304616I$ $a = -0.939645 + 0.262682I$ $b = 0.433520 + 0.540630I$	$-0.17657 + 1.63085I$	$-4.99918 - 5.43978I$
$u = -0.510133 + 0.304616I$ $a = -0.62521 + 1.43179I$ $b = -0.785164 + 0.276497I$	$-0.17657 + 1.63085I$	$-4.99918 - 5.43978I$
$u = -0.510133 - 0.304616I$ $a = -0.939645 - 0.262682I$ $b = 0.433520 - 0.540630I$	$-0.17657 - 1.63085I$	$-4.99918 + 5.43978I$
$u = -0.510133 - 0.304616I$ $a = -0.62521 - 1.43179I$ $b = -0.785164 - 0.276497I$	$-0.17657 - 1.63085I$	$-4.99918 + 5.43978I$
$u = -0.54684 + 1.32589I$ $a = 0.913096 - 0.034885I$ $b = 0.839736 + 0.802838I$	$1.92307 + 5.70686I$	$-7.16158 - 11.30466I$
$u = -0.54684 + 1.32589I$ $a = -1.364860 + 0.199330I$ $b = -1.070610 - 0.555366I$	$1.92307 + 5.70686I$	$-7.16158 - 11.30466I$
$u = -0.54684 - 1.32589I$ $a = 0.913096 + 0.034885I$ $b = 0.839736 - 0.802838I$	$1.92307 - 5.70686I$	$-7.16158 + 11.30466I$
$u = -0.54684 - 1.32589I$ $a = -1.364860 - 0.199330I$ $b = -1.070610 + 0.555366I$	$1.92307 - 5.70686I$	$-7.16158 + 11.30466I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.34545 + 1.40335I$ $a = -1.311200 - 0.410770I$ $b = -1.20101 - 1.06820I$	$-0.65429 + 7.12209I$	$0.24406 - 7.53717I$
$u = -0.34545 + 1.40335I$ $a = 1.40359 - 0.60184I$ $b = 0.884534 + 0.381753I$	$-0.65429 + 7.12209I$	$0.24406 - 7.53717I$
$u = -0.34545 - 1.40335I$ $a = -1.311200 + 0.410770I$ $b = -1.20101 + 1.06820I$	$-0.65429 - 7.12209I$	$0.24406 + 7.53717I$
$u = -0.34545 - 1.40335I$ $a = 1.40359 + 0.60184I$ $b = 0.884534 - 0.381753I$	$-0.65429 - 7.12209I$	$0.24406 + 7.53717I$
$u = -0.66247 + 1.36339I$ $a = -0.691207 - 0.146838I$ $b = -0.720461 - 0.932573I$	$-4.26677 + 6.65894I$	$-7.66647 - 7.55605I$
$u = -0.66247 + 1.36339I$ $a = 1.43628 - 0.21574I$ $b = 1.090640 + 0.480643I$	$-4.26677 + 6.65894I$	$-7.66647 - 7.55605I$
$u = -0.66247 - 1.36339I$ $a = -0.691207 + 0.146838I$ $b = -0.720461 + 0.932573I$	$-4.26677 - 6.65894I$	$-7.66647 + 7.55605I$
$u = -0.66247 - 1.36339I$ $a = 1.43628 + 0.21574I$ $b = 1.090640 - 0.480643I$	$-4.26677 - 6.65894I$	$-7.66647 + 7.55605I$

III.

$$I_3^u = \langle -u^{11}-6u^{10}+\cdots+b-1,\ -u^{10}-6u^9+\cdots+a-3,\ u^{12}+6u^{11}+\cdots+3u+1\rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{10}+6u^9+\cdots+6u+3 \\ u^{11}+6u^{10}+\cdots+5u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{11}+6u^{10}+\cdots+9u+2 \\ -u^2-u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{11}-6u^{10}+\cdots-19u^2-7u \\ u^4+2u^3+3u^2+2u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{11}-5u^{10}+\cdots+u+2 \\ u^{11}+6u^{10}+\cdots+5u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^{11}-7u^{10}+\cdots-13u-4 \\ -u^{11}-5u^{10}+\cdots-3u^2+1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{11}-4u^{10}+\cdots+4u+3 \\ 2u^{11}+11u^{10}+\cdots+5u+1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{11}-6u^{10}+\cdots-8u-1 \\ u^8+3u^7+6u^6+8u^5+7u^4+6u^3+4u^2+3u+1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{11}-6u^{10}+\cdots-8u-1 \\ u^8+3u^7+6u^6+8u^5+7u^4+6u^3+4u^2+3u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 9u^{11}+51u^{10}+164u^9+360u^8+570u^7+678u^6+597u^5+401u^4+209u^3+104u^2+47u+6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.803624 + 0.881445I$ $a = 0.419174 - 0.885576I$ $b = 1.275410 - 0.219262I$	$-4.98090 + 3.00358I$	$-6.27510 + 2.27848I$
$u = -0.803624 - 0.881445I$ $a = 0.419174 + 0.885576I$ $b = 1.275410 + 0.219262I$	$-4.98090 - 3.00358I$	$-6.27510 - 2.27848I$
$u = -1.25207$ $a = -0.0881246$ $b = -0.437723$	-1.97860	21.2940
$u = -0.454285 + 1.279880I$ $a = -1.272580 + 0.120711I$ $b = -0.993655 - 0.754655I$	$2.68926 + 5.20905I$	$1.24389 - 5.17860I$
$u = -0.454285 - 1.279880I$ $a = -1.272580 - 0.120711I$ $b = -0.993655 + 0.754655I$	$2.68926 - 5.20905I$	$1.24389 + 5.17860I$
$u = 0.224527 + 0.491967I$ $a = -1.91527 - 1.61039I$ $b = -0.113628 - 1.019110I$	$-7.67039 - 6.40068I$	$-6.43797 + 4.87755I$
$u = 0.224527 - 0.491967I$ $a = -1.91527 + 1.61039I$ $b = -0.113628 + 1.019110I$	$-7.67039 + 6.40068I$	$-6.43797 - 4.87755I$
$u = -0.160845 + 0.502812I$ $a = 2.12350 + 0.53316I$ $b = -0.018632 + 1.181350I$	$-0.92209 - 2.24636I$	$-7.11132 + 8.83230I$
$u = -0.160845 - 0.502812I$ $a = 2.12350 - 0.53316I$ $b = -0.018632 - 1.181350I$	$-0.92209 + 2.24636I$	$-7.11132 - 8.83230I$
$u = -0.38777 + 1.48567I$ $a = 1.087720 + 0.062274I$ $b = 0.793975 + 0.673367I$	$-2.15077 + 6.80393I$	$-5.48461 - 6.50411I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.38777 - 1.48567I$ $a = \quad 1.087720 - 0.062274I$ $b = \quad 0.793975 - 0.673367I$	$-2.15077 - 6.80393I$	$-5.48461 + 6.50411I$
$u = -1.58393$ $a = \quad 0.203050$ $b = \quad 0.550778$	-8.14019	6.83590

IV. $\boldsymbol{I_4^u = \langle au + 2b - a - u - 1,\ a^2 + au - a - 3u - 2,\ u^2 + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{2}au - \frac{1}{2}a - \frac{5}{2}u + \frac{3}{2} \\ -u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a - \frac{3}{2}u - \frac{3}{2} \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a - \frac{1}{2}u - \frac{1}{2} \\ -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{2}au - \frac{1}{2}a + \frac{3}{2}u + \frac{3}{2} \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{2}au + \frac{1}{2}a + \frac{3}{2}u + \frac{3}{2} \\ -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{3}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{2}au + \frac{1}{2}a + \frac{3}{2}u + \frac{3}{2} \\ -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{3}{2} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_9	$y^4 - 6y^3 + 13y^2 - 8y + 4$
c_2, c_3, c_5 c_6	$(y+1)^4$
c_4, c_8	$y^4 + 6y^3 + 13y^2 + 8y + 4$
c_7, c_{10}, c_{11}	$(y-1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.11269 - 1.27510I$ $b = -0.693897 + 0.418797I$	1.64493	0
$u = 1.000000I$ $a = 2.11269 + 0.27510I$ $b = 1.69390 - 0.41880I$	1.64493	0
$u = -1.000000I$ $a = -1.11269 + 1.27510I$ $b = -0.693897 - 0.418797I$	1.64493	0
$u = -1.000000I$ $a = 2.11269 - 0.27510I$ $b = 1.69390 + 0.41880I$	1.64493	0

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9	$(u^4+2u^3-u^2-2u+2)(u^{12}+2u^{11}+\cdots-u-1)$ $\cdot(u^{35}+2u^{34}+\cdots-u-1)(u^{48}+u^{47}+\cdots+16u^2+2)$
c_2	$((u^2+1)^2)(u^{12}-6u^{11}+\cdots-3u+1)(u^{24}+7u^{23}+\cdots+15u+3)^2$ $\cdot(u^{35}-9u^{34}+\cdots+129u-8)$
c_3, c_6	$((u^2+1)^2)(u^{12}+2u^{11}+\cdots+2u+1)(u^{35}-2u^{34}+\cdots-7u-2)$ $\cdot(u^{48}-7u^{47}+\cdots-28u+8)$
c_4, c_8	(u^4+3u^2+2u+2) $\cdot(u^{12}-u^{10}+u^9+2u^8-4u^7+2u^6-u^5+3u^4-u^3-u^2-u-1)$ $\cdot(u^{35}+5u^{33}+\cdots-10u-4)(u^{48}+u^{47}+\cdots-48u+32)$
c_5	$((u^2+1)^2)(u^{12}+6u^{11}+\cdots+3u+1)(u^{24}+7u^{23}+\cdots+15u+3)^2$ $\cdot(u^{35}-9u^{34}+\cdots+129u-8)$
c_7	$((u-1)^4)(u^{12}+3u^{11}+\cdots+u-1)(u^{24}-3u^{23}+\cdots+3u-1)^2$ $\cdot(u^{35}+10u^{34}+\cdots-7u-2)$
c_{10}, c_{11}	$((u+1)^4)(u^{12}-3u^{11}+\cdots-u-1)(u^{24}-3u^{23}+\cdots+3u-1)^2$ $\cdot(u^{35}+10u^{34}+\cdots-7u-2)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_9	$(y^4 - 6y^3 + 13y^2 - 8y + 4)(y^{12} - 2y^{10} + \cdots - 7y + 1)$ $\cdot (y^{35} - 28y^{34} + \cdots + 97y - 1)(y^{48} + y^{47} + \cdots + 64y + 4)$
c_2, c_5	$((y+1)^4)(y^{12} + 4y^{11} + \cdots + 11y + 1)(y^{24} + 15y^{23} + \cdots + 69y + 9)^2$ $\cdot (y^{35} + 17y^{34} + \cdots + 5825y - 64)$
c_3, c_6	$((y+1)^4)(y^{12} - 12y^{11} + \cdots - 10y^2 + 1)(y^{35} + 4y^{34} + \cdots - 35y - 4)$ $\cdot (y^{48} - 21y^{47} + \cdots + 176y + 64)$
c_4, c_8	$(y^4 + 6y^3 + 13y^2 + 8y + 4)(y^{12} - 2y^{11} + \cdots + y + 1)$ $\cdot (y^{35} + 10y^{34} + \cdots - 68y - 16)(y^{48} + 9y^{47} + \cdots + 20736y + 1024)$
c_7, c_{10}, c_{11}	$((y-1)^4)(y^{12} - 15y^{11} + \cdots + y + 1)(y^{24} - 25y^{23} + \cdots - 15y + 1)^2$ $\cdot (y^{35} - 38y^{34} + \cdots - 63y - 4)$