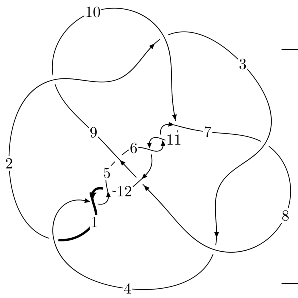
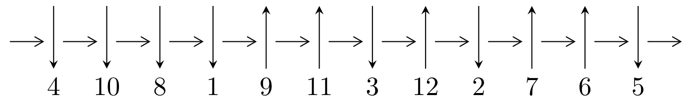
$12a_{1181}$ $(K12a_{1181})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -14254847226477u^{26} + 36513086551233u^{25} + \cdots + 252185821042466b + 69411294847385,$$
$$a - 1,\ u^{27} - 2u^{26} + \cdots - u + 1\rangle$$

$$I_2^u = \langle 1.54251 \times 10^{20}u^{23} - 1.34594 \times 10^{20}u^{22} + \cdots + 4.03018 \times 10^{21}b + 1.66567 \times 10^{20},$$
$$2.09874 \times 10^{23}u^{23} + 2.15950 \times 10^{23}u^{22} + \cdots + 7.08424 \times 10^{25}a - 6.56169 \times 10^{25},\ u^{24} - 7u^{22} + \cdots - 17u +$$

$$I_3^u = \langle -2706u^{15} + 399u^{14} + \cdots + 2389b + 1730,\ a + 1,$$
$$u^{16} - 8u^{14} + 28u^{12} - u^{11} - 50u^{10} + 3u^9 + 46u^8 - 2u^7 - 23u^6 - u^5 + 12u^4 + 4u^3 - 4u^2 - u + 1\rangle$$

$$I_4^u = \langle 2.71133 \times 10^{33}u^{31} - 1.79455 \times 10^{33}u^{30} + \cdots + 1.73517 \times 10^{36}b + 3.10903 \times 10^{35},$$
$$-1.46619 \times 10^{42}u^{31} - 3.55764 \times 10^{42}u^{30} + \cdots + 1.02938 \times 10^{44}a - 1.96344 \times 10^{44},$$
$$u^{32} + u^{31} + \cdots + 556u + 109\rangle$$

* 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. $I_1^u = \langle -1.43 \times 10^{13}u^{26} + 3.65 \times 10^{13}u^{25} + \cdots + 2.52 \times 10^{13}b + 6.94 \times 10^{13},\ a-1,\ u^{27} - 2u^{26} + \cdots - u + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0.565252u^{26} - 1.44786u^{25} + \cdots + 3.67612u - 2.75239 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.565252u^{26} - 1.44786u^{25} + \cdots + 3.67612u - 1.75239 \\ 0.565252u^{26} - 1.44786u^{25} + \cdots + 3.67612u - 2.75239 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ -0.317361u^{26} + 0.398104u^{25} + \cdots - 1.18714u - 0.565252 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0683574u^{26} - 0.219861u^{25} + \cdots + 1.08074u + 0.236618 \\ -0.398080u^{26} + 0.502028u^{25} + \cdots - 1.41938u - 0.718723 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1.04115u^{26} + 1.62303u^{25} + \cdots - 4.19819u - 1.11991 \\ -1.60640u^{26} + 3.07090u^{25} + \cdots - 7.87431u + 0.632474 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.337903u^{26} + 0.670668u^{25} + \cdots - 1.19240u - 0.372411 \\ 0.703245u^{26} - 0.952366u^{25} + \cdots + 3.00579u + 0.747502 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ 0.801869u^{26} - 1.98946u^{25} + \cdots + 4.55874u - 3.06975 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0367769u^{26} - 0.0781692u^{25} + \cdots - 0.950528u - 0.0601984 \\ -0.265354u^{26} + 0.386964u^{25} + \cdots - 0.436197u - 0.0643596 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$$= -\frac{32741796610216}{12609291052123}u^{26} + \frac{41485402060855}{12609291052123}u^{25} + \cdots - \frac{145165804658306}{12609291052123}u - \frac{32798700861086}{12609291052123}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{12}	$u^{27} - 13u^{26} + \cdots + 240u - 16$
c_2, c_3, c_7 c_9	$u^{27} - 2u^{26} + \cdots - u + 1$
c_5, c_8	$u^{27} - u^{25} + \cdots - 4u - 1$
c_6, c_{10}, c_{11}	$u^{27} - 15u^{26} + \cdots + 1792u - 128$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$y^{27} + 23y^{26} + \cdots + 384y - 256$
c_2, c_3, c_7 c_9	$y^{27} - 24y^{26} + \cdots - 13y - 1$
c_5, c_8	$y^{27} - 2y^{26} + \cdots + 32y - 1$
c_6, c_{10}, c_{11}	$y^{27} + 23y^{26} + \cdots + 49152y - 16384$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.606808 + 0.696344I$ $a = 1.00000$ $b = -0.420246 + 0.658451I$	$5.31904 - 1.53633I$	$0.97752 + 4.58695I$
$u = 0.606808 - 0.696344I$ $a = 1.00000$ $b = -0.420246 - 0.658451I$	$5.31904 + 1.53633I$	$0.97752 - 4.58695I$
$u = -0.414460 + 0.742322I$ $a = 1.00000$ $b = -0.633985 + 0.290639I$	$6.49491 - 2.15245I$	$3.36843 + 1.56518I$
$u = -0.414460 - 0.742322I$ $a = 1.00000$ $b = -0.633985 - 0.290639I$	$6.49491 + 2.15245I$	$3.36843 - 1.56518I$
$u = -1.171460 + 0.136751I$ $a = 1.00000$ $b = -1.05498 - 1.55972I$	$-3.97655 + 0.54664I$	$30.5727 + 2.7472I$
$u = -1.171460 - 0.136751I$ $a = 1.00000$ $b = -1.05498 + 1.55972I$	$-3.97655 - 0.54664I$	$30.5727 - 2.7472I$
$u = -1.19268$ $a = 1.00000$ $b = -1.69791$	-4.06015	36.8660
$u = 1.237680 + 0.193185I$ $a = 1.00000$ $b = -1.049080 - 0.332758I$	$1.45272 - 6.00981I$	$-2.55081 + 5.00274I$
$u = 1.237680 - 0.193185I$ $a = 1.00000$ $b = -1.049080 + 0.332758I$	$1.45272 + 6.00981I$	$-2.55081 - 5.00274I$
$u = 0.272498 + 0.656447I$ $a = 1.00000$ $b = -0.232111 - 1.384450I$	$1.19387 + 5.26918I$	$-1.87715 - 0.41400I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.272498 - 0.656447I$ $a = 1.00000$ $b = -0.232111 + 1.384450I$	$1.19387 - 5.26918I$	$-1.87715 + 0.41400I$
$u = -0.544239 + 0.357222I$ $a = 1.00000$ $b = -0.039400 - 1.138300I$	$-1.49429 + 1.37539I$	$-1.96403 - 5.12263I$
$u = -0.544239 - 0.357222I$ $a = 1.00000$ $b = -0.039400 + 1.138300I$	$-1.49429 - 1.37539I$	$-1.96403 + 5.12263I$
$u = 1.327650 + 0.303823I$ $a = 1.00000$ $b = -0.890497 + 0.845146I$	$-5.92020 - 7.30574I$	$-7.23638 + 8.13726I$
$u = 1.327650 - 0.303823I$ $a = 1.00000$ $b = -0.890497 - 0.845146I$	$-5.92020 + 7.30574I$	$-7.23638 - 8.13726I$
$u = -1.38999 + 0.44746I$ $a = 1.00000$ $b = -0.810708 - 0.774977I$	$0.07846 + 12.01660I$	$-3.25285 - 8.03502I$
$u = -1.38999 - 0.44746I$ $a = 1.00000$ $b = -0.810708 + 0.774977I$	$0.07846 - 12.01660I$	$-3.25285 + 8.03502I$
$u = 1.41817 + 0.42518I$ $a = 1.00000$ $b = -0.29217 + 1.70490I$	$-13.2741 - 6.0424I$	$-9.03644 + 3.94723I$
$u = 1.41817 - 0.42518I$ $a = 1.00000$ $b = -0.29217 - 1.70490I$	$-13.2741 + 6.0424I$	$-9.03644 - 3.94723I$
$u = 0.145479 + 0.452208I$ $a = 1.00000$ $b = -0.507451 - 0.168459I$	$1.007930 + 0.745055I$	$5.32116 - 2.57707I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.145479 - 0.452208I$ $a = 1.00000$ $b = -0.507451 + 0.168459I$	$1.007930 - 0.745055I$	$5.32116 + 2.57707I$
$u = 0.050720 + 0.437517I$ $a = 1.00000$ $b = -0.189311 + 1.341130I$	$-3.75311 - 3.26931I$	$1.67169 + 1.70953I$
$u = 0.050720 - 0.437517I$ $a = 1.00000$ $b = -0.189311 - 1.341130I$	$-3.75311 + 3.26931I$	$1.67169 - 1.70953I$
$u = -1.53697 + 0.51725I$ $a = 1.00000$ $b = -0.27260 - 1.65847I$	$-14.1771 + 11.6933I$	$-8.79505 - 6.96759I$
$u = -1.53697 - 0.51725I$ $a = 1.00000$ $b = -0.27260 + 1.65847I$	$-14.1771 - 11.6933I$	$-8.79505 + 6.96759I$
$u = 1.59445 + 0.61058I$ $a = 1.00000$ $b = -0.25851 + 1.63892I$	$-7.9325 - 16.0663I$	$-5.13174 + 7.30628I$
$u = 1.59445 - 0.61058I$ $a = 1.00000$ $b = -0.25851 - 1.63892I$	$-7.9325 + 16.0663I$	$-5.13174 - 7.30628I$

II. $I_2^u =$
$\langle 1.54\times10^{20}u^{23}-1.35\times10^{20}u^{22}+\cdots+4.03\times10^{21}b+1.67\times10^{20},\ 2.10\times10^{23}u^{23}+2.16\times10^{23}u^{22}+\cdots+7.08\times10^{25}a-6.56\times10^{25},\ u^{24}-7u^{22}+\cdots-17u+44\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00296255u^{23}-0.00304832u^{22}+\cdots-3.93361u+0.926237 \\ -0.0382739u^{23}+0.0333965u^{22}+\cdots-0.105335u-0.0413300 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0412365u^{23}+0.0303482u^{22}+\cdots-4.03895u+0.884907 \\ -0.0382739u^{23}+0.0333965u^{22}+\cdots-0.105335u-0.0413300 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0201774u^{23}+0.0155738u^{22}+\cdots-2.72579u-1.70248 \\ 0.00503082u^{23}+0.000302895u^{22}+\cdots+0.272744u+0.00411174 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.00116113u^{23}-0.00701763u^{22}+\cdots-3.72064u-0.461882 \\ 0.00950900u^{23}-0.00681322u^{22}+\cdots-0.0553531u-0.242466 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0490673u^{23}+0.0343037u^{22}+\cdots-0.624915u-1.18574 \\ -0.0489739u^{23}+0.0292729u^{22}+\cdots+1.76740u-1.46007 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0210466u^{23}-0.0368566u^{22}+\cdots-3.26892u-0.0171514 \\ 0.0163096u^{23}-0.0531254u^{22}+\cdots-0.469008u+1.01208 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0467094u^{23}-0.0349497u^{22}+\cdots-2.97974u+3.81507 \\ 0.0190281u^{23}+0.00280066u^{22}+\cdots-1.24120u+1.26645 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0201710u^{23}+0.0209149u^{22}+\cdots+0.277876u+1.39317 \\ -0.0172295u^{23}+0.0179602u^{22}+\cdots+1.65187u-1.28904 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{5128255811004017289888}{16100555293534916982909007}u^{23}+\frac{269382744526795906872124}{16100555293534916982909007}u^{22}+\cdots+\frac{117019107921873205424888702}{16100555293534916982909007}u-\frac{143589077264847865489666942}{16100555293534916982909007}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{12}	$(u^3 + 2u - 1)^8$
c_2, c_3, c_7 c_9	$u^{24} - 7u^{22} + \cdots - 17u + 44$
c_5, c_8	$u^{24} - 2u^{23} + \cdots - 3u + 2$
c_6, c_{10}, c_{11}	$(u^4 + u^3 + 3u^2 + 2u + 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$(y^3 + 4y^2 + 4y - 1)^8$
c_2, c_3, c_7 c_9	$y^{24} - 14y^{23} + \cdots + 1383y + 1936$
c_5, c_8	$y^{24} - 2y^{23} + \cdots + 363y + 4$
c_6, c_{10}, c_{11}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.010910 + 0.464639I$ $a = -0.456815 + 0.921980I$ $b = 0.395123 + 0.506844I$	$4.71694 + 6.55305I$	$-0.85533 - 8.11776I$
$u = -1.010910 - 0.464639I$ $a = -0.456815 - 0.921980I$ $b = 0.395123 - 0.506844I$	$4.71694 - 6.55305I$	$-0.85533 + 8.11776I$
$u = 0.033411 + 1.144290I$ $a = -0.431476 + 0.870839I$ $b = 0.395123 - 0.506844I$	$4.71694 - 6.55305I$	$-0.85533 + 8.11776I$
$u = 0.033411 - 1.144290I$ $a = -0.431476 - 0.870839I$ $b = 0.395123 + 0.506844I$	$4.71694 + 6.55305I$	$-0.85533 - 8.11776I$
$u = 0.891188 + 0.733300I$ $a = -0.044870 - 0.389755I$ $b = 0.395123 + 0.506844I$	$4.71694 - 3.72284I$	$-0.85533 - 1.69972I$
$u = 0.891188 - 0.733300I$ $a = -0.044870 + 0.389755I$ $b = 0.395123 - 0.506844I$	$4.71694 + 3.72284I$	$-0.85533 + 1.69972I$
$u = -1.114270 + 0.395229I$ $a = 0.515228 - 0.399147I$ $b = 0.10488 - 1.55249I$	$-2.28481 + 1.97398I$	$-4.50880 - 0.64422I$
$u = -1.114270 - 0.395229I$ $a = 0.515228 + 0.399147I$ $b = 0.10488 + 1.55249I$	$-2.28481 - 1.97398I$	$-4.50880 + 0.64422I$
$u = -0.416348 + 0.648391I$ $a = 1.21293 + 0.93966I$ $b = 0.10488 - 1.55249I$	$-2.28481 + 1.97398I$	$-4.50880 - 0.64422I$
$u = -0.416348 - 0.648391I$ $a = 1.21293 - 0.93966I$ $b = 0.10488 + 1.55249I$	$-2.28481 - 1.97398I$	$-4.50880 + 0.64422I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.272640 + 0.033718I$ $a = -1.132040 - 0.253135I$ $b = 0.395123 - 0.506844I$	$-5.51100 - 1.41510I$	$-12.80913 + 4.90874I$
$u = 1.272640 - 0.033718I$ $a = -1.132040 + 0.253135I$ $b = 0.395123 + 0.506844I$	$-5.51100 + 1.41510I$	$-12.80913 - 4.90874I$
$u = 1.290960 + 0.234627I$ $a = -0.340402 - 1.248340I$ $b = 0.10488 - 1.55249I$	$-2.28481 - 8.30190I$	$-4.50880 + 5.77382I$
$u = 1.290960 - 0.234627I$ $a = -0.340402 + 1.248340I$ $b = 0.10488 + 1.55249I$	$-2.28481 + 8.30190I$	$-4.50880 - 5.77382I$
$u = -1.348220 + 0.322916I$ $a = -1.340340 + 0.224947I$ $b = 0.10488 + 1.55249I$	$-12.51270 + 3.16396I$	$-16.4626 - 2.5648I$
$u = -1.348220 - 0.322916I$ $a = -1.340340 - 0.224947I$ $b = 0.10488 - 1.55249I$	$-12.51270 - 3.16396I$	$-16.4626 + 2.5648I$
$u = -1.43214 + 0.36032I$ $a = -0.841292 - 0.188121I$ $b = 0.395123 + 0.506844I$	$-5.51100 + 1.41510I$	$-12.80913 - 4.90874I$
$u = -1.43214 - 0.36032I$ $a = -0.841292 + 0.188121I$ $b = 0.395123 - 0.506844I$	$-5.51100 - 1.41510I$	$-12.80913 + 4.90874I$
$u = 0.245820 + 0.380248I$ $a = -0.29151 - 2.53215I$ $b = 0.395123 - 0.506844I$	$4.71694 + 3.72284I$	$-0.85533 + 1.69972I$
$u = 0.245820 - 0.380248I$ $a = -0.29151 + 2.53215I$ $b = 0.395123 + 0.506844I$	$4.71694 - 3.72284I$	$-0.85533 - 1.69972I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.14655+1.69142I$ $a=-0.203319-0.745623I$ $b=\ \ 0.10488+1.55249I$	$-2.28481+8.30190I$	$-4.50880-5.77382I$
$u=-0.14655-1.69142I$ $a=-0.203319+0.745623I$ $b=\ \ 0.10488-1.55249I$	$-2.28481-8.30190I$	$-4.50880+5.77382I$
$u=\ \ 1.73443+0.73609I$ $a=-0.725643+0.121784I$ $b=\ \ 0.10488-1.55249I$	$-12.51270-3.16396I$	$-16.4626+2.5648I$
$u=\ \ 1.73443-0.73609I$ $a=-0.725643-0.121784I$ $b=\ \ 0.10488+1.55249I$	$-12.51270+3.16396I$	$-16.4626-2.5648I$

III.

$\boldsymbol{I_3^u = \langle -2706u^{15} + 399u^{14} + \cdots + 2389b + 1730,\ a + 1,\ u^{16} - 8u^{14} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ 1.13269u^{15} - 0.167015u^{14} + \cdots - 0.808288u - 0.724152 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1.13269u^{15} - 0.167015u^{14} + \cdots - 0.808288u - 1.72415 \\ 1.13269u^{15} - 0.167015u^{14} + \cdots - 0.808288u - 0.724152 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ 0.167015u^{15} - 0.626622u^{14} + \cdots + 0.591461u + 1.13269 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.463792u^{15} - 0.356635u^{14} + \cdots + 0.206362u + 0.626622 \\ 0.161574u^{15} - 0.651319u^{14} + \cdots + 0.564671u + 0.862704 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1.61741u^{15} + 0.120971u^{14} + \cdots + 1.11427u + 0.136040 \\ -0.484722u^{15} - 0.0460444u^{14} + \cdots + 0.305986u - 1.58811 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1.87484u^{15} - 0.568020u^{14} + \cdots - 2.61616u + 1.79029 \\ 0.257430u^{15} - 0.447049u^{14} + \cdots - 1.50188u + 1.92633 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2 - 1 \\ 0.506069u^{15} + 0.296777u^{14} + \cdots + 0.491419u - 0.891168 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.948514u^{15} + 0.310590u^{14} + \cdots + 1.09962u - 1.21473 \\ -0.513604u^{15} + 0.438259u^{14} + \cdots + 1.93303u - 1.17497 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{9756}{2389}u^{15} - \frac{3319}{2389}u^{14} + \cdots - \frac{7285}{2389}u - \frac{36203}{2389}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{12}	$u^{16} - 2u^{15} + \cdots + 7u^2 + 1$
c_2, c_7	$u^{16} - 8u^{14} + \cdots - u + 1$
c_3, c_9	$u^{16} - 8u^{14} + \cdots + u + 1$
c_4	$u^{16} + 2u^{15} + \cdots + 7u^2 + 1$
c_5, c_8	$u^{16} + u^{14} + \cdots + 11u^2 + 1$
c_6	$u^{16} + 9u^{14} + \cdots + u^2 + 1$
c_{10}, c_{11}	$u^{16} + 9u^{14} + \cdots + u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$y^{16} + 16y^{15} + \cdots + 14y + 1$
c_2, c_3, c_7 c_9	$y^{16} - 16y^{15} + \cdots - 9y + 1$
c_5, c_8	$y^{16} + 2y^{15} + \cdots + 22y + 1$
c_6, c_{10}, c_{11}	$y^{16} + 18y^{15} + \cdots + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.567370 + 0.557169I$ $a = -1.00000$ $b = -0.350298 - 0.269016I$	$4.56619 - 4.78505I$	$-2.52350 + 6.12027I$
$u = 0.567370 - 0.557169I$ $a = -1.00000$ $b = -0.350298 + 0.269016I$	$4.56619 + 4.78505I$	$-2.52350 - 6.12027I$
$u = -1.240320 + 0.109568I$ $a = -1.00000$ $b = 0.749404 + 0.967609I$	$-4.25143 + 0.43751I$	$-7.44687 + 1.86427I$
$u = -1.240320 - 0.109568I$ $a = -1.00000$ $b = 0.749404 - 0.967609I$	$-4.25143 - 0.43751I$	$-7.44687 - 1.86427I$
$u = -0.711481 + 0.187291I$ $a = -1.00000$ $b = -0.575792 + 1.022690I$	$-2.13756 + 0.75149I$	$-18.1027 + 5.6218I$
$u = -0.711481 - 0.187291I$ $a = -1.00000$ $b = -0.575792 - 1.022690I$	$-2.13756 - 0.75149I$	$-18.1027 - 5.6218I$
$u = -0.360345 + 0.597726I$ $a = -1.00000$ $b = -0.133891 - 1.312560I$	$0.93102 + 6.43898I$	$-3.84687 - 6.35084I$
$u = -0.360345 - 0.597726I$ $a = -1.00000$ $b = -0.133891 + 1.312560I$	$0.93102 - 6.43898I$	$-3.84687 + 6.35084I$
$u = 1.43665 + 0.28361I$ $a = -1.00000$ $b = 0.284706 - 0.275286I$	$-1.58557 - 2.35863I$	$-5.77026 + 0.78709I$
$u = 1.43665 - 0.28361I$ $a = -1.00000$ $b = 0.284706 + 0.275286I$	$-1.58557 + 2.35863I$	$-5.77026 - 0.78709I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.455839 + 0.238502I$ $a = -1.00000$ $b = -0.177159 + 1.256650I$	$-4.35783 - 3.47301I$	$-11.51010 + 5.67528I$
$u = 0.455839 - 0.238502I$ $a = -1.00000$ $b = -0.177159 - 1.256650I$	$-4.35783 + 3.47301I$	$-11.51010 - 5.67528I$
$u = 1.45191 + 0.49519I$ $a = -1.00000$ $b = 0.11799 - 1.56046I$	$-11.63570 - 3.03892I$	$-5.31317 + 0.93772I$
$u = 1.45191 - 0.49519I$ $a = -1.00000$ $b = 0.11799 + 1.56046I$	$-11.63570 + 3.03892I$	$-5.31317 - 0.93772I$
$u = -1.59962 + 0.58103I$ $a = -1.00000$ $b = 0.08504 + 1.51659I$	$-7.84805 + 3.64236I$	$-4.98656 - 1.05999I$
$u = -1.59962 - 0.58103I$ $a = -1.00000$ $b = 0.08504 - 1.51659I$	$-7.84805 - 3.64236I$	$-4.98656 + 1.05999I$

IV. $\boldsymbol{I_4^u = \langle 2.71 \times 10^{33}u^{31} - 1.79 \times 10^{33}u^{30} + \cdots + 1.74 \times 10^{36}b + 3.11 \times 10^{35},\ -1.47 \times 10^{42}u^{31} - 3.56 \times 10^{42}u^{30} + \cdots + 1.03 \times 10^{44}a - 1.96 \times 10^{44},\ u^{32} + u^{31} + \cdots + 556u + 109\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0142434u^{31} + 0.0345611u^{30} + \cdots - 3.14382u + 1.90740 \\ -0.00156258u^{31} + 0.00103422u^{30} + \cdots - 2.55221u - 0.179177 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0126809u^{31} + 0.0355953u^{30} + \cdots - 5.69604u + 1.72823 \\ -0.00156258u^{31} + 0.00103422u^{30} + \cdots - 2.55221u - 0.179177 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0288608u^{31} - 0.0239141u^{30} + \cdots + 6.84731u - 1.96427 \\ 0.0443958u^{31} + 0.0998783u^{30} + \cdots - 20.0671u - 3.81402 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.00956947u^{31} + 0.0263152u^{30} + \cdots - 8.14313u - 4.57850 \\ 0.0471154u^{31} + 0.107494u^{30} + \cdots - 24.3809u - 4.57202 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0592026u^{31} + 0.131424u^{30} + \cdots - 43.2460u - 4.52615 \\ 0.0242115u^{31} + 0.0520369u^{30} + \cdots - 21.9865u - 3.91407 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0243945u^{31} + 0.0127569u^{30} + \cdots - 9.24622u + 1.14300 \\ 0.00302978u^{31} + 0.0360437u^{30} + \cdots - 20.7583u - 3.80929 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0368542u^{31} + 0.0548895u^{30} + \cdots + 24.5846u + 4.62265 \\ 0.0980429u^{31} + 0.175742u^{30} + \cdots - 37.0173u - 5.77455 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0574811u^{31} - 0.141022u^{30} + \cdots + 37.3394u + 8.60492 \\ -0.0219826u^{31} - 0.0224361u^{30} + \cdots + 13.9060u + 1.79852 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00776588u^{31} - 0.0131084u^{30} + \cdots - 13.8916u - 5.66401$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{12}	$(u^4 + u^3 + 2u^2 + 2u + 1)^8$
c_2, c_3, c_7 c_9	$u^{32} + u^{31} + \cdots + 556u + 109$
c_5, c_8	$u^{32} - 5u^{31} + \cdots - 6u + 1$
c_6, c_{10}, c_{11}	$(u^4 + u^3 + 3u^2 + 2u + 1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$(y^4 + 3y^3 + 2y^2 + 1)^8$
c_2, c_3, c_7 c_9	$y^{32} - 35y^{31} + \cdots + 34650y + 11881$
c_5, c_8	$y^{32} + 9y^{31} + \cdots + 114y + 1$
c_6, c_{10}, c_{11}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.005860 + 0.246476I$ $a = -0.283234 - 0.719828I$ $b = 0.395123 - 0.506844I$	$-1.43393 - 3.44499I$	$-4.17326 + 8.37284I$
$u = 1.005860 - 0.246476I$ $a = -0.283234 + 0.719828I$ $b = 0.395123 + 0.506844I$	$-1.43393 + 3.44499I$	$-4.17326 - 8.37284I$
$u = -0.082071 + 0.902659I$ $a = -0.02831 - 1.52235I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 1.13408I$	$-7.82674 + 0.89930I$
$u = -0.082071 - 0.902659I$ $a = -0.02831 + 1.52235I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 1.13408I$	$-7.82674 - 0.89930I$
$u = -1.091330 + 0.132649I$ $a = -1.45196 - 0.32329I$ $b = 0.395123 - 0.506844I$	$-1.43393 + 0.61478I$	$-4.17326 + 1.44464I$
$u = -1.091330 - 0.132649I$ $a = -1.45196 + 0.32329I$ $b = 0.395123 + 0.506844I$	$-1.43393 - 0.61478I$	$-4.17326 - 1.44464I$
$u = 1.089690 + 0.255963I$ $a = -1.84888 + 0.02386I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 1.13408I$	$-7.82674 - 0.89930I$
$u = 1.089690 - 0.255963I$ $a = -1.84888 - 0.02386I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 1.13408I$	$-7.82674 + 0.89930I$
$u = -0.838428 + 0.177804I$ $a = 0.213205 - 0.186384I$ $b = 0.395123 - 0.506844I$	$-1.43393 + 0.61478I$	$-4.17326 + 1.44464I$
$u = -0.838428 - 0.177804I$ $a = 0.213205 + 0.186384I$ $b = 0.395123 + 0.506844I$	$-1.43393 - 0.61478I$	$-4.17326 - 1.44464I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.107472 + 0.793853I$ $a = -0.473340 - 1.202980I$ $b = 0.395123 + 0.506844I$	$-1.43393 + 3.44499I$	$-4.17326 - 8.37284I$
$u = -0.107472 - 0.793853I$ $a = -0.473340 + 1.202980I$ $b = 0.395123 - 0.506844I$	$-1.43393 - 3.44499I$	$-4.17326 + 8.37284I$
$u = -1.360610 + 0.125651I$ $a = -0.290211 + 0.965098I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 5.19385I$	$-7.82674 - 6.02890I$
$u = -1.360610 - 0.125651I$ $a = -0.290211 - 0.965098I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 5.19385I$	$-7.82674 + 6.02890I$
$u = 0.273598 + 1.349590I$ $a = -0.285743 + 0.950240I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 5.19385I$	$-7.82674 + 6.02890I$
$u = 0.273598 - 1.349590I$ $a = -0.285743 - 0.950240I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 5.19385I$	$-7.82674 - 6.02890I$
$u = 1.376490 + 0.099387I$ $a = -0.012211 + 0.656651I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 1.13408I$	$-7.82674 + 0.89930I$
$u = 1.376490 - 0.099387I$ $a = -0.012211 - 0.656651I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 1.13408I$	$-7.82674 - 0.89930I$
$u = -1.409760 + 0.075274I$ $a = -0.952995 + 0.430152I$ $b = 0.395123 + 0.506844I$	$-1.43393 + 3.44499I$	$-4.17326 - 8.37284I$
$u = -1.409760 - 0.075274I$ $a = -0.952995 - 0.430152I$ $b = 0.395123 - 0.506844I$	$-1.43393 - 3.44499I$	$-4.17326 + 8.37284I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.31112 + 0.67815I$ $a = -0.871724 + 0.393469I$ $b = 0.395123 - 0.506844I$	$-1.43393 - 3.44499I$	$-4.17326 + 8.37284I$
$u = 1.31112 - 0.67815I$ $a = -0.871724 - 0.393469I$ $b = 0.395123 + 0.506844I$	$-1.43393 + 3.44499I$	$-4.17326 - 8.37284I$
$u = 1.47337 + 0.23175I$ $a = -1.182970 - 0.610498I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 5.19385I$	$-7.82674 + 6.02890I$
$u = 1.47337 - 0.23175I$ $a = -1.182970 + 0.610498I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 5.19385I$	$-7.82674 - 6.02890I$
$u = 1.62744 + 0.16021I$ $a = -0.656194 + 0.146107I$ $b = 0.395123 - 0.506844I$	$-1.43393 + 0.61478I$	$-4.17326 + 1.44464I$
$u = 1.62744 - 0.16021I$ $a = -0.656194 - 0.146107I$ $b = 0.395123 + 0.506844I$	$-1.43393 - 0.61478I$	$-4.17326 - 1.44464I$
$u = -0.145617 + 0.194178I$ $a = 2.65857 + 2.32413I$ $b = 0.395123 - 0.506844I$	$-1.43393 + 0.61478I$	$-4.17326 + 1.44464I$
$u = -0.145617 - 0.194178I$ $a = 2.65857 - 2.32413I$ $b = 0.395123 + 0.506844I$	$-1.43393 - 0.61478I$	$-4.17326 - 1.44464I$
$u = -1.60147 + 1.17365I$ $a = -0.667544 - 0.344501I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 5.19385I$	0
$u = -1.60147 - 1.17365I$ $a = -0.667544 + 0.344501I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 5.19385I$	0

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -2.02081 + 0.44725I$ $a = -0.540778 + 0.006978I$ $b = 0.10488 + 1.55249I$	$-8.43568 + 1.13408I$	0
$u = -2.02081 - 0.44725I$ $a = -0.540778 - 0.006978I$ $b = 0.10488 - 1.55249I$	$-8.43568 - 1.13408I$	0

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{12}	$((u^3+2u-1)^8)(u^4+u^3+2u^2+2u+1)^8(u^{16}-2u^{15}+\cdots+7u^2+1)$ $\cdot(u^{27}-13u^{26}+\cdots+240u-16)$
c_2, c_7	$(u^{16}-8u^{14}+\cdots-u+1)(u^{24}-7u^{22}+\cdots-17u+44)$ $\cdot(u^{27}-2u^{26}+\cdots-u+1)(u^{32}+u^{31}+\cdots+556u+109)$
c_3, c_9	$(u^{16}-8u^{14}+\cdots+u+1)(u^{24}-7u^{22}+\cdots-17u+44)$ $\cdot(u^{27}-2u^{26}+\cdots-u+1)(u^{32}+u^{31}+\cdots+556u+109)$
c_4	$((u^3+2u-1)^8)(u^4+u^3+2u^2+2u+1)^8(u^{16}+2u^{15}+\cdots+7u^2+1)$ $\cdot(u^{27}-13u^{26}+\cdots+240u-16)$
c_5, c_8	$(u^{16}+u^{14}+\cdots+11u^2+1)(u^{24}-2u^{23}+\cdots-3u+2)$ $\cdot(u^{27}-u^{25}+\cdots-4u-1)(u^{32}-5u^{31}+\cdots-6u+1)$
c_6	$((u^4+u^3+3u^2+2u+1)^{14})(u^{16}+9u^{14}+\cdots+u^2+1)$ $\cdot(u^{27}-15u^{26}+\cdots+1792u-128)$
c_{10}, c_{11}	$((u^4+u^3+3u^2+2u+1)^{14})(u^{16}+9u^{14}+\cdots+u^2+1)$ $\cdot(u^{27}-15u^{26}+\cdots+1792u-128)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$(y^3+4y^2+4y-1)^8(y^4+3y^3+2y^2+1)^8$ $\cdot(y^{16}+16y^{15}+\cdots+14y+1)(y^{27}+23y^{26}+\cdots+384y-256)$
c_2, c_3, c_7 c_9	$(y^{16}-16y^{15}+\cdots-9y+1)(y^{24}-14y^{23}+\cdots+1383y+1936)$ $\cdot(y^{27}-24y^{26}+\cdots-13y-1)(y^{32}-35y^{31}+\cdots+34650y+11881)$
c_5, c_8	$(y^{16}+2y^{15}+\cdots+22y+1)(y^{24}-2y^{23}+\cdots+363y+4)$ $\cdot(y^{27}-2y^{26}+\cdots+32y-1)(y^{32}+9y^{31}+\cdots+114y+1)$
c_6, c_{10}, c_{11}	$((y^4+5y^3+7y^2+2y+1)^{14})(y^{16}+18y^{15}+\cdots+2y+1)$ $\cdot(y^{27}+23y^{26}+\cdots+49152y-16384)$