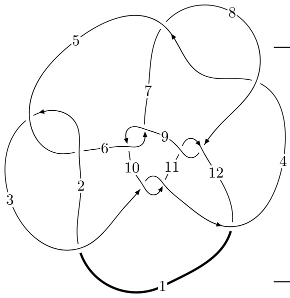
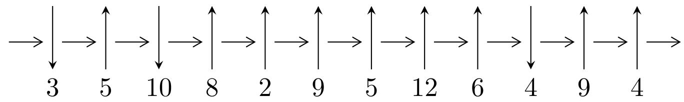
$12n_{0542}$ $(K12n_{0542})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 974u^{18} - 999u^{17} + \cdots + 7097b - 1006,\ -1503u^{18} + 1476u^{17} + \cdots + 7097a - 16416,$$
$$u^{19} + u^{18} + \cdots + 3u - 1\rangle$$
$$I_2^u = \langle -2.79075 \times 10^{77}u^{61} + 3.09654 \times 10^{77}u^{60} + \cdots + 3.26293 \times 10^{76}b - 2.63657 \times 10^{79},$$
$$-1.11588 \times 10^{81}u^{61} - 2.33393 \times 10^{81}u^{60} + \cdots + 2.25893 \times 10^{80}a - 7.73676 \times 10^{83},$$
$$u^{62} - u^{61} + \cdots + 219u + 161\rangle$$
$$I_3^u = \langle u^5 - u^4 + 3u^3 - 2u^2 + b + 2u - 1,\ -u^5 - 3u^3 + a - 3u + 1,\ u^6 - u^5 + 3u^4 - 2u^3 + 3u^2 - 2u + 1\rangle$$
$$I_4^u = \langle 202u^{17} - 333u^{16} + \cdots + 67b + 117,\ 584u^{17} - 976u^{16} + \cdots + 67a + 122,\ u^{18} - 2u^{17} + \cdots - u + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 105 representations.

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[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. $\boldsymbol{I_1^u = \langle 974u^{18} - 999u^{17} + \cdots + 7097b - 1006,\ -1503u^{18} + 1476u^{17} + \cdots + 7097a - 16416,\ u^{19} + u^{18} + \cdots + 3u - 1\rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.211780u^{18} - 0.207975u^{17} + \cdots - 1.45977u + 2.31309 \\ -0.137241u^{18} + 0.140764u^{17} + \cdots - 0.499789u + 0.141750 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.104129u^{18} + 0.448640u^{17} + \cdots + 2.49317u + 0.0834155 \\ 0.666056u^{18} + 0.178244u^{17} + \cdots - 2.10934u + 0.334648 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.424968u^{18} - 0.0580527u^{17} + \cdots - 0.897985u + 2.08468 \\ -0.344089u^{18} - 0.398619u^{17} + \cdots - 1.46456u + 0.433423 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.123432u^{18} + 0.351839u^{17} + \cdots + 0.488516u - 2.03509 \\ -0.378611u^{18} - 1.16711u^{17} + \cdots - 2.49274u + 1.20008 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.123432u^{18} + 0.351839u^{17} + \cdots + 0.488516u - 2.03509 \\ -0.591799u^{18} - 1.31704u^{17} + \cdots - 3.05453u + 1.42849 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.468367u^{18} + 0.965197u^{17} + \cdots + 2.56601u + 0.606594 \\ 0.968156u^{18} + 0.911512u^{17} + \cdots - 1.08722u - 0.162181 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.433423u^{18} - 0.0893335u^{17} + \cdots + 4.76863u + 0.164295 \\ 1.80738u^{18} + 1.07538u^{17} + \cdots - 4.64703u + 0.722559 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0495984u^{18} + 0.597999u^{17} + \cdots + 3.95886u - 0.260674 \\ 1.86191u^{18} + 0.926025u^{17} + \cdots - 6.11272u + 1.06665 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{29393}{7097}u^{18} + \frac{35263}{7097}u^{17} + \cdots + \frac{4731}{7097}u + \frac{28953}{7097}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} + 9u^{18} + \cdots + 3u - 1$
c_2, c_5, c_8 c_{11}	$u^{19} + u^{18} + \cdots + 3u - 1$
c_3, c_{10}	$u^{19} - 6u^{18} + \cdots + 138u - 20$
c_4, c_6, c_7 c_9	$u^{19} - u^{18} + \cdots - 2u - 1$
c_{12}	$u^{19} + 3u^{18} + \cdots + 17u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} + 9y^{18} + \cdots + 83y - 1$
c_2, c_5, c_8 c_{11}	$y^{19} + 9y^{18} + \cdots + 3y - 1$
c_3, c_{10}	$y^{19} - 6y^{18} + \cdots + 3644y - 400$
c_4, c_6, c_7 c_9	$y^{19} + 11y^{18} + \cdots - 16y - 1$
c_{12}	$y^{19} - 9y^{18} + \cdots + 185y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.598892 + 0.793130I$ $a = -0.688695 - 1.114540I$ $b = 0.584926 + 0.753908I$	$-4.68072 - 4.53032I$	$0.23576 + 6.82608I$
$u = -0.598892 - 0.793130I$ $a = -0.688695 + 1.114540I$ $b = 0.584926 - 0.753908I$	$-4.68072 + 4.53032I$	$0.23576 - 6.82608I$
$u = 0.641885 + 0.791191I$ $a = -0.78268 - 1.74962I$ $b = -1.19111 + 0.78206I$	$2.72504 + 2.14853I$	$5.27491 - 4.89748I$
$u = 0.641885 - 0.791191I$ $a = -0.78268 + 1.74962I$ $b = -1.19111 - 0.78206I$	$2.72504 - 2.14853I$	$5.27491 + 4.89748I$
$u = -0.954552 + 0.529709I$ $a = 0.788913 - 0.809680I$ $b = -0.774159 + 0.942461I$	$4.02799 + 4.33818I$	$7.30330 - 2.78056I$
$u = -0.954552 - 0.529709I$ $a = 0.788913 + 0.809680I$ $b = -0.774159 - 0.942461I$	$4.02799 - 4.33818I$	$7.30330 + 2.78056I$
$u = 0.703458 + 0.924026I$ $a = 0.694693 + 0.652223I$ $b = -0.77405 - 1.50185I$	$1.92467 + 8.33135I$	$3.77225 - 7.85485I$
$u = 0.703458 - 0.924026I$ $a = 0.694693 - 0.652223I$ $b = -0.77405 + 1.50185I$	$1.92467 - 8.33135I$	$3.77225 + 7.85485I$
$u = -0.161487 + 0.755198I$ $a = 0.146971 - 1.177300I$ $b = 1.88402 + 0.21622I$	$-9.12584 - 1.43131I$	$-4.00366 + 3.62415I$
$u = -0.161487 - 0.755198I$ $a = 0.146971 + 1.177300I$ $b = 1.88402 - 0.21622I$	$-9.12584 + 1.43131I$	$-4.00366 - 3.62415I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.453786 + 0.554000I$ $a = 0.414166 + 1.161230I$ $b = 0.334354 - 0.847458I$	$0.38104 + 1.60999I$	$2.18079 - 5.36943I$
$u = 0.453786 - 0.554000I$ $a = 0.414166 - 1.161230I$ $b = 0.334354 + 0.847458I$	$0.38104 - 1.60999I$	$2.18079 + 5.36943I$
$u = -0.404171 + 1.249560I$ $a = -0.428625 + 0.261688I$ $b = -0.988583 + 0.139575I$	$-6.67425 - 2.09645I$	$-1.51316 - 1.19213I$
$u = -0.404171 - 1.249560I$ $a = -0.428625 - 0.261688I$ $b = -0.988583 - 0.139575I$	$-6.67425 + 2.09645I$	$-1.51316 + 1.19213I$
$u = 0.412299 + 1.282300I$ $a = -0.913206 - 0.624518I$ $b = -0.609142 + 0.776738I$	$-4.85217 + 5.72791I$	$-0.72528 - 2.49727I$
$u = 0.412299 - 1.282300I$ $a = -0.913206 + 0.624518I$ $b = -0.609142 - 0.776738I$	$-4.85217 - 5.72791I$	$-0.72528 + 2.49727I$
$u = -0.754119 + 1.179290I$ $a = -0.44083 + 1.39445I$ $b = -1.30424 - 1.00552I$	$0.0879 - 16.9991I$	$2.43611 + 9.58640I$
$u = -0.754119 - 1.179290I$ $a = -0.44083 - 1.39445I$ $b = -1.30424 + 1.00552I$	$0.0879 + 16.9991I$	$2.43611 - 9.58640I$
$u = 0.323587$ $a = 2.41860$ $b = -0.324027$	1.11886	7.07800

II. $I_2^u = \langle -2.79 \times 10^{77}u^{61} + 3.10 \times 10^{77}u^{60} + \cdots + 3.26 \times 10^{76}b - 2.64 \times 10^{79},\ -1.12 \times 10^{81}u^{61} - 2.33 \times 10^{81}u^{60} + \cdots + 2.26 \times 10^{80}a - 7.74 \times 10^{83},\ u^{62} - u^{61} + \cdots + 219u + 161\rangle$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 4.93988u^{61} + 10.3320u^{60} + \cdots + 3052.06u + 3424.97 \\ 8.55289u^{61} - 9.49004u^{60} + \cdots + 2109.35u + 808.036 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -14.8092u^{61} + 45.3794u^{60} + \cdots - 351.887u + 3904.63 \\ 4.35772u^{61} + 0.633217u^{60} + \cdots + 1652.87u + 1449.85 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1.24358u^{61} + 11.5998u^{60} + \cdots + 910.505u + 1789.93 \\ 6.13216u^{61} - 0.902867u^{60} + \cdots + 2178.83u + 1651.65 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 3.30008u^{61} - 7.44802u^{60} + \cdots + 382.105u - 385.923 \\ 21.1575u^{61} - 41.4404u^{60} + \cdots + 3194.89u - 1232.69 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 3.30008u^{61} - 7.44802u^{60} + \cdots + 382.105u - 385.923 \\ 20.9712u^{61} - 37.5906u^{60} + \cdots + 3571.97u - 564.873 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 5.39314u^{61} - 4.87046u^{60} + \cdots + 1455.83u + 739.007 \\ 9.48677u^{61} - 7.50330u^{60} + \cdots + 2635.64u + 1534.00 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.01304u^{61} + 11.9845u^{60} + \cdots + 1771.40u + 2539.05 \\ -4.85695u^{61} + 5.93802u^{60} + \cdots - 1149.76u - 313.552 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2.53436u^{61} + 4.93608u^{60} + \cdots - 367.326u + 131.517 \\ -5.55600u^{61} + 18.3449u^{60} + \cdots - 49.1658u + 1701.70 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -110.094u^{61} + 161.634u^{60} + \cdots - 22814.4u - 3810.06$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{62} + 21u^{61} + \cdots + 490101u + 25921$
c_2, c_5, c_8 c_{11}	$u^{62} - u^{61} + \cdots + 219u + 161$
c_3, c_{10}	$(u^{31} + 3u^{30} + \cdots + 8u^2 - 1)^2$
c_4, c_6, c_7 c_9	$u^{62} + 4u^{61} + \cdots + 189u + 29$
c_{12}	$u^{62} + 5u^{61} + \cdots - 20878u + 5329$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{62} + 33y^{61} + \cdots + 4781262113y + 671898241$
c_2, c_5, c_8 c_{11}	$y^{62} + 21y^{61} + \cdots + 490101y + 25921$
c_3, c_{10}	$(y^{31} - 9y^{30} + \cdots + 16y - 1)^2$
c_4, c_6, c_7 c_9	$y^{62} + 18y^{61} + \cdots + 44435y + 841$
c_{12}	$y^{62} - 15y^{61} + \cdots - 380852972y + 28398241$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.880538 + 0.423378I$ $a = 0.314688 + 0.978587I$ $b = 0.274664 - 0.986060I$	$0.11599 + 1.55086I$	0
$u = 0.880538 - 0.423378I$ $a = 0.314688 - 0.978587I$ $b = 0.274664 + 0.986060I$	$0.11599 - 1.55086I$	0
$u = -0.555340 + 0.882550I$ $a = 0.88135 + 1.13257I$ $b = -0.424965$	-5.03919	0
$u = -0.555340 - 0.882550I$ $a = 0.88135 - 1.13257I$ $b = -0.424965$	-5.03919	0
$u = -0.704833 + 0.774815I$ $a = 0.339950 - 0.851399I$ $b = -0.656234 + 1.058070I$	$4.12245 - 2.52430I$	0
$u = -0.704833 - 0.774815I$ $a = 0.339950 + 0.851399I$ $b = -0.656234 - 1.058070I$	$4.12245 + 2.52430I$	0
$u = -0.761240 + 0.735997I$ $a = -0.501700 + 0.598901I$ $b = 1.00918 - 1.06732I$	$3.03685 + 3.84833I$	0
$u = -0.761240 - 0.735997I$ $a = -0.501700 - 0.598901I$ $b = 1.00918 + 1.06732I$	$3.03685 - 3.84833I$	0
$u = -0.322158 + 0.877553I$ $a = -1.192630 + 0.167789I$ $b = -1.331560 - 0.055456I$	$-6.42784 - 4.16920I$	$2.61762 + 7.23000I$
$u = -0.322158 - 0.877553I$ $a = -1.192630 - 0.167789I$ $b = -1.331560 + 0.055456I$	$-6.42784 + 4.16920I$	$2.61762 - 7.23000I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.323211 + 0.872183I$ $a = 1.11709 - 2.06897I$ $b = 0.230847 + 0.193317I$	$1.04832 - 1.42552I$	$-10.45750 - 4.66815I$
$u = -0.323211 - 0.872183I$ $a = 1.11709 + 2.06897I$ $b = 0.230847 - 0.193317I$	$1.04832 + 1.42552I$	$-10.45750 + 4.66815I$
$u = 0.321433 + 0.857244I$ $a = 0.69671 + 1.45294I$ $b = 0.274664 - 0.986060I$	$0.11599 + 1.55086I$	$0. - 2.83247I$
$u = 0.321433 - 0.857244I$ $a = 0.69671 - 1.45294I$ $b = 0.274664 + 0.986060I$	$0.11599 - 1.55086I$	$0. + 2.83247I$
$u = 0.738364 + 0.803627I$ $a = 0.91857 + 1.41297I$ $b = 1.02061 - 1.10114I$	$2.30077 - 2.83428I$	0
$u = 0.738364 - 0.803627I$ $a = 0.91857 - 1.41297I$ $b = 1.02061 + 1.10114I$	$2.30077 + 2.83428I$	0
$u = -0.161867 + 0.874417I$ $a = -1.03396 + 1.39536I$ $b = -1.60582$	-9.62704	$-6.32419 + 0.I$
$u = -0.161867 - 0.874417I$ $a = -1.03396 - 1.39536I$ $b = -1.60582$	-9.62704	$-6.32419 + 0.I$
$u = 0.632047 + 0.924598I$ $a = -0.690760 - 0.442538I$ $b = 1.02061 + 1.10114I$	$2.30077 + 2.83428I$	0
$u = 0.632047 - 0.924598I$ $a = -0.690760 + 0.442538I$ $b = 1.02061 - 1.10114I$	$2.30077 - 2.83428I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.738797 + 0.844402I$ $a = -0.616959 - 1.028670I$ $b = 1.43788 + 0.39387I$	$-6.06260 - 1.36069I$	0
$u = -0.738797 - 0.844402I$ $a = -0.616959 + 1.028670I$ $b = 1.43788 - 0.39387I$	$-6.06260 + 1.36069I$	0
$u = -0.333024 + 0.787088I$ $a = 0.612484 - 0.040784I$ $b = 1.43788 - 0.39387I$	$-6.06260 + 1.36069I$	$3.05496 + 3.58665I$
$u = -0.333024 - 0.787088I$ $a = 0.612484 + 0.040784I$ $b = 1.43788 + 0.39387I$	$-6.06260 - 1.36069I$	$3.05496 - 3.58665I$
$u = -0.668918 + 0.938345I$ $a = 0.99125 - 1.25893I$ $b = 0.923139 + 0.712544I$	$3.61426 - 2.76516I$	0
$u = -0.668918 - 0.938345I$ $a = 0.99125 + 1.25893I$ $b = 0.923139 - 0.712544I$	$3.61426 + 2.76516I$	0
$u = -0.043664 + 0.838028I$ $a = -1.01464 + 2.65763I$ $b = -0.293987 + 0.302045I$	$-1.92162 + 5.04186I$	$-1.96742 - 5.03142I$
$u = -0.043664 - 0.838028I$ $a = -1.01464 - 2.65763I$ $b = -0.293987 - 0.302045I$	$-1.92162 - 5.04186I$	$-1.96742 + 5.03142I$
$u = -0.688297 + 0.942130I$ $a = 0.450937 + 1.314910I$ $b = -1.331560 - 0.055456I$	$-6.42784 - 4.16920I$	0
$u = -0.688297 - 0.942130I$ $a = 0.450937 - 1.314910I$ $b = -1.331560 + 0.055456I$	$-6.42784 + 4.16920I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.819017 + 0.053471I$ $a = -0.091379 + 0.684673I$ $b = 0.854298 - 0.246502I$	$-2.76144 + 2.29121I$	$1.38772 - 4.30711I$
$u = -0.819017 - 0.053471I$ $a = -0.091379 - 0.684673I$ $b = 0.854298 + 0.246502I$	$-2.76144 - 2.29121I$	$1.38772 + 4.30711I$
$u = 0.008722 + 1.184200I$ $a = 0.234534 + 0.024290I$ $b = 0.854298 - 0.246502I$	$-2.76144 + 2.29121I$	0
$u = 0.008722 - 1.184200I$ $a = 0.234534 - 0.024290I$ $b = 0.854298 + 0.246502I$	$-2.76144 - 2.29121I$	0
$u = 0.128103 + 0.797173I$ $a = -0.45608 - 2.09717I$ $b = 0.303847 + 1.172310I$	$-1.67295 - 4.62397I$	$-2.07779 + 1.32263I$
$u = 0.128103 - 0.797173I$ $a = -0.45608 + 2.09717I$ $b = 0.303847 - 1.172310I$	$-1.67295 + 4.62397I$	$-2.07779 - 1.32263I$
$u = -0.702406 + 0.967738I$ $a = -0.86851 + 1.43021I$ $b = -1.21644 - 0.81414I$	$2.32939 - 9.40399I$	0
$u = -0.702406 - 0.967738I$ $a = -0.86851 - 1.43021I$ $b = -1.21644 + 0.81414I$	$2.32939 + 9.40399I$	0
$u = 0.958116 + 0.721272I$ $a = 0.779508 + 0.543823I$ $b = -0.656234 - 1.058070I$	$4.12245 + 2.52430I$	0
$u = 0.958116 - 0.721272I$ $a = 0.779508 - 0.543823I$ $b = -0.656234 + 1.058070I$	$4.12245 - 2.52430I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.082620 + 0.533747I$ $a = -0.800331 + 0.606904I$ $b = 1.03536 - 0.98869I$	$2.12962 + 10.40970I$	0
$u = -1.082620 - 0.533747I$ $a = -0.800331 - 0.606904I$ $b = 1.03536 + 0.98869I$	$2.12962 - 10.40970I$	0
$u = 1.039630 + 0.699325I$ $a = -0.720564 - 0.293050I$ $b = 0.923139 + 0.712544I$	$3.61426 - 2.76516I$	0
$u = 1.039630 - 0.699325I$ $a = -0.720564 + 0.293050I$ $b = 0.923139 - 0.712544I$	$3.61426 + 2.76516I$	0
$u = -0.479366 + 1.198710I$ $a = -0.83274 + 1.30196I$ $b = -0.811516 - 0.370609I$	$-6.15144 - 6.93633I$	0
$u = -0.479366 - 1.198710I$ $a = -0.83274 - 1.30196I$ $b = -0.811516 + 0.370609I$	$-6.15144 + 6.93633I$	0
$u = 0.782667 + 1.056430I$ $a = 0.378022 + 1.278080I$ $b = 1.00918 - 1.06732I$	$3.03685 + 3.84833I$	0
$u = 0.782667 - 1.056430I$ $a = 0.378022 - 1.278080I$ $b = 1.00918 + 1.06732I$	$3.03685 - 3.84833I$	0
$u = -0.702326 + 1.138380I$ $a = 0.51785 - 1.41136I$ $b = 1.03536 + 0.98869I$	$2.12962 - 10.40970I$	0
$u = -0.702326 - 1.138380I$ $a = 0.51785 + 1.41136I$ $b = 1.03536 - 0.98869I$	$2.12962 + 10.40970I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.782473 + 1.095100I$ $a = 0.358659 + 0.761459I$ $b = 0.303847 - 1.172310I$	$-1.67295 + 4.62397I$	0
$u = 0.782473 - 1.095100I$ $a = 0.358659 - 0.761459I$ $b = 0.303847 + 1.172310I$	$-1.67295 - 4.62397I$	0
$u = 0.801657 + 1.089810I$ $a = -0.187234 - 1.326080I$ $b = -1.21644 + 0.81414I$	$2.32939 + 9.40399I$	0
$u = 0.801657 - 1.089810I$ $a = -0.187234 + 1.326080I$ $b = -1.21644 - 0.81414I$	$2.32939 - 9.40399I$	0
$u = 1.331690 + 0.249393I$ $a = -0.0878421 - 0.0786949I$ $b = 0.230847 - 0.193317I$	$1.04832 + 1.42552I$	0
$u = 1.331690 - 0.249393I$ $a = -0.0878421 + 0.0786949I$ $b = 0.230847 + 0.193317I$	$1.04832 - 1.42552I$	0
$u = 0.719158 + 1.164620I$ $a = -0.052952 - 0.721865I$ $b = -0.293987 + 0.302045I$	$-1.92162 + 5.04186I$	0
$u = 0.719158 - 1.164620I$ $a = -0.052952 + 0.721865I$ $b = -0.293987 - 0.302045I$	$-1.92162 - 5.04186I$	0
$u = 0.331198 + 0.511142I$ $a = 0.61237 - 2.04841I$ $b = -0.529398$	0.947764	$-60.736645 + 0.10I$
$u = 0.331198 - 0.511142I$ $a = 0.61237 + 2.04841I$ $b = -0.529398$	0.947764	$-60.736645 + 0.10I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.13128 + 1.50361I$ $a = -0.176799 + 0.132893I$ $b = -0.811516 + 0.370609I$	$-6.15144 + 6.93633I$	0
$u = \quad 0.13128 - 1.50361I$ $a = -0.176799 - 0.132893I$ $b = -0.811516 - 0.370609I$	$-6.15144 - 6.93633I$	0

III. $I^u_3 = \langle u^5 - u^4 + 3u^3 - 2u^2 + b + 2u - 1,\ -u^5 - 3u^3 + a - 3u + 1,\ u^6 - u^5 + 3u^4 - 2u^3 + 3u^2 - 2u + 1\rangle$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^5 + 3u^3 + 3u - 1 \\ -u^5 + u^4 - 3u^3 + 2u^2 - 2u + 1 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} u^5 - u^4 + 2u^3 - 2u^2 + 2u - 1 \\ u^4 - u^3 + u^2 - u + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^5 - u^4 + 4u^3 - 2u^2 + 4u - 2 \\ -u^5 + u^4 - 3u^3 + 2u^2 - u + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^5 + 2u^3 + 2u - 1 \\ u^4 - u^3 + 3u^2 - 2u + 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^5 + 2u^3 + 2u - 1 \\ u^2 - u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^5 - 2u^3 - u^2 - u \\ u^4 - u^3 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^5 + 2u^3 + u^2 + u - 1 \\ -u^4 + u^3 - u^2 + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^5 - u^4 + 2u^3 + u \\ -u^4 + u^3 - 3u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7u^5 + 10u^4 - 19u^3 + 13u^2 - 14u + 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - 3y^5 + 15y^4 - 8y^3 + 23y^2 + 10y + 1$
c_2, c_5, c_8 c_{11}	$y^6 + 5y^5 + 11y^4 + 12y^3 + 7y^2 + 2y + 1$
c_3, c_{10}	$y^6 - 5y^5 + 6y^4 + 5y^2 + y + 1$
c_4, c_6, c_7 c_9	$y^6 + 3y^5 + 2y^4 + y^2 + y + 1$
c_{12}	$y^6 - 5y^5 + 8y^4 - 2y^3 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.368622 + 1.044700I$ $a = -0.290865 + 0.782701I$ $b = -1.66898 + 0.19346I$	$-9.91965 - 2.91185I$	$-3.45428 + 5.11141I$
$u = -0.368622 - 1.044700I$ $a = -0.290865 - 0.782701I$ $b = -1.66898 - 0.19346I$	$-9.91965 + 2.91185I$	$-3.45428 - 5.11141I$
$u = 0.474902 + 0.458521I$ $a = -0.24864 + 1.93653I$ $b = 0.564694 - 0.593680I$	$1.33814 + 0.90202I$	$6.98442 - 4.12364I$
$u = 0.474902 - 0.458521I$ $a = -0.24864 - 1.93653I$ $b = 0.564694 + 0.593680I$	$1.33814 - 0.90202I$	$6.98442 + 4.12364I$
$u = 0.393720 + 1.309500I$ $a = -0.960493 - 0.454104I$ $b = -0.395713 + 0.609164I$	$-4.57797 + 6.62522I$	$2.96986 - 9.69037I$
$u = 0.393720 - 1.309500I$ $a = -0.960493 + 0.454104I$ $b = -0.395713 - 0.609164I$	$-4.57797 - 6.62522I$	$2.96986 + 9.69037I$

IV. $\boldsymbol{I_4^u = \langle 202u^{17} - 333u^{16} + \cdots + 67b + 117,\ 584u^{17} - 976u^{16} + \cdots + 67a + 122,\ u^{18} - 2u^{17} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -8.71642u^{17} + 14.5672u^{16} + \cdots - 24.1343u - 1.82090 \\ -3.01493u^{17} + 4.97015u^{16} + \cdots + 1.05970u - 1.74627 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 2.16418u^{17} - 19.6716u^{16} + \cdots + 32.3433u - 35.7910 \\ 8.05970u^{17} - 14.8806u^{16} + \cdots + 6.76119u + 2.98507 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -3.82090u^{17} + 7.35821u^{16} + \cdots - 16.7164u + 0.955224 \\ -6.23881u^{17} + 10.5224u^{16} + \cdots - 4.04478u - 1.94030 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 9.05970u^{17} - 16.8806u^{16} + \cdots + 13.7612u + 1.98507 \\ 0.835821u^{17} - 10.3284u^{16} + \cdots + 8.65672u - 12.2090 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 9.05970u^{17} - 16.8806u^{16} + \cdots + 13.7612u + 1.98507 \\ -4.20896u^{17} - 1.41791u^{16} + \cdots + 0.835821u - 13.4478 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{16} + 2u^{15} + \cdots + 7u - 6 \\ 8.05970u^{17} - 14.8806u^{16} + \cdots + 7.76119u + 1.98507 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -12.7910u^{17} + 26.4179u^{16} + \cdots - 38.8358u + 0.447761 \\ 8.80597u^{17} - 20.3881u^{16} + \cdots + 17.7761u - 4.70149 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.07463u^{17} + 10.8507u^{16} + \cdots - 20.7015u + 9.26866 \\ 1.62687u^{17} - 9.74627u^{16} + \cdots + 6.49254u - 9.65672 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{3631}{67}u^{17} - \frac{5066}{67}u^{16} + \cdots + \frac{6179}{67}u + \frac{1789}{67}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18} - 6u^{17} + \cdots - 13u + 1$
c_2, c_8	$u^{18} + 2u^{17} + \cdots + u + 1$
c_3	$(u^9 + 3u^8 + u^7 - 4u^6 - 5u^5 - 3u^4 + u^3 + 4u^2 + 2u + 1)^2$
c_4, c_6	$u^{18} + u^{17} + \cdots + u + 1$
c_5, c_{11}	$u^{18} - 2u^{17} + \cdots - u + 1$
c_7, c_9	$u^{18} - u^{17} + \cdots - u + 1$
c_{10}	$(u^9 - 3u^8 + u^7 + 4u^6 - 5u^5 + 3u^4 + u^3 - 4u^2 + 2u - 1)^2$
c_{12}	$u^{18} + 5u^{16} + \cdots + 22u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} + 6y^{17} + \cdots - 15y + 1$
c_2, c_5, c_8 c_{11}	$y^{18} + 6y^{17} + \cdots + 13y + 1$
c_3, c_{10}	$(y^9 - 7y^8 + 15y^7 - 6y^6 - 17y^5 + 11y^4 + 13y^3 - 6y^2 - 4y - 1)^2$
c_4, c_6, c_7 c_9	$y^{18} + 15y^{17} + \cdots + 11y + 1$
c_{12}	$y^{18} + 10y^{17} + \cdots - 44y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.342912 + 0.833148I$ $a = 1.15322 + 2.05111I$ $b = 0.211261 - 0.513789I$	$1.30441 + 1.54301I$	$16.6608 - 7.1430I$
$u = 0.342912 - 0.833148I$ $a = 1.15322 - 2.05111I$ $b = 0.211261 + 0.513789I$	$1.30441 - 1.54301I$	$16.6608 + 7.1430I$
$u = -0.796545 + 0.768764I$ $a = -0.788205 - 0.913578I$ $b = 1.272940 + 0.355082I$	$-6.40959 - 2.04751I$	$-2.57470 + 5.29814I$
$u = -0.796545 - 0.768764I$ $a = -0.788205 + 0.913578I$ $b = 1.272940 - 0.355082I$	$-6.40959 + 2.04751I$	$-2.57470 - 5.29814I$
$u = 0.260259 + 1.085480I$ $a = -0.868381 + 0.394106I$ $b = -1.102310 + 0.083847I$	$-7.62664 + 3.85565I$	$-5.05044 - 4.04682I$
$u = 0.260259 - 1.085480I$ $a = -0.868381 - 0.394106I$ $b = -1.102310 - 0.083847I$	$-7.62664 - 3.85565I$	$-5.05044 + 4.04682I$
$u = 0.164659 + 0.798207I$ $a = 1.065200 - 0.773127I$ $b = 1.272940 + 0.355082I$	$-6.40959 - 2.04751I$	$-2.57470 + 5.29814I$
$u = 0.164659 - 0.798207I$ $a = 1.065200 + 0.773127I$ $b = 1.272940 - 0.355082I$	$-6.40959 + 2.04751I$	$-2.57470 - 5.29814I$
$u = -0.303814 + 0.709388I$ $a = 0.345523 - 1.282220I$ $b = 1.87686$	-8.62045	$1.96292 + 0.I$
$u = -0.303814 - 0.709388I$ $a = 0.345523 + 1.282220I$ $b = 1.87686$	-8.62045	$1.96292 + 0.I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.231780 + 0.251859I$ $a = -0.013021 + 0.389564I$ $b = 0.211261 - 0.513789I$	$1.30441 + 1.54301I$	$16.6608 - 7.1430I$
$u = 1.231780 - 0.251859I$ $a = -0.013021 - 0.389564I$ $b = 0.211261 + 0.513789I$	$1.30441 - 1.54301I$	$16.6608 + 7.1430I$
$u = -0.687312 + 1.135150I$ $a = 0.193398 + 1.026570I$ $b = -1.102310 - 0.083847I$	$-7.62664 - 3.85565I$	$-5.05044 + 4.04682I$
$u = -0.687312 - 1.135150I$ $a = 0.193398 - 1.026570I$ $b = -1.102310 + 0.083847I$	$-7.62664 + 3.85565I$	$-5.05044 - 4.04682I$
$u = 0.802633 + 1.107250I$ $a = 0.223663 + 0.630139I$ $b = 0.179684 - 0.881245I$	$-1.05223 + 5.01504I$	$9.48288 - 6.97143I$
$u = 0.802633 - 1.107250I$ $a = 0.223663 - 0.630139I$ $b = 0.179684 + 0.881245I$	$-1.05223 - 5.01504I$	$9.48288 + 6.97143I$
$u = -0.014569 + 0.625748I$ $a = -1.31140 - 3.11852I$ $b = 0.179684 + 0.881245I$	$-1.05223 - 5.01504I$	$9.48288 + 6.97143I$
$u = -0.014569 - 0.625748I$ $a = -1.31140 + 3.11852I$ $b = 0.179684 - 0.881245I$	$-1.05223 + 5.01504I$	$9.48288 - 6.97143I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^6-5u^5+\cdots-2u+1)(u^{18}-6u^{17}+\cdots-13u+1)$ $\cdot(u^{19}+9u^{18}+\cdots+3u-1)(u^{62}+21u^{61}+\cdots+490101u+25921)$
c_2,c_8	$(u^6+u^5+3u^4+2u^3+3u^2+2u+1)(u^{18}+2u^{17}+\cdots+u+1)$ $\cdot(u^{19}+u^{18}+\cdots+3u-1)(u^{62}-u^{61}+\cdots+219u+161)$
c_3	$(u^6-3u^5+2u^4+u^2-u+1)$ $\cdot(u^9+3u^8+u^7-4u^6-5u^5-3u^4+u^3+4u^2+2u+1)^2$ $\cdot(u^{19}-6u^{18}+\cdots+138u-20)(u^{31}+3u^{30}+\cdots+8u^2-1)^2$
c_4,c_6	$(u^6+u^5+2u^4+2u^3+u^2+u+1)(u^{18}+u^{17}+\cdots+u+1)$ $\cdot(u^{19}-u^{18}+\cdots-2u-1)(u^{62}+4u^{61}+\cdots+189u+29)$
c_5,c_{11}	$(u^6-u^5+3u^4-2u^3+3u^2-2u+1)(u^{18}-2u^{17}+\cdots-u+1)$ $\cdot(u^{19}+u^{18}+\cdots+3u-1)(u^{62}-u^{61}+\cdots+219u+161)$
c_7,c_9	$(u^6-u^5+2u^4-2u^3+u^2-u+1)(u^{18}-u^{17}+\cdots-u+1)$ $\cdot(u^{19}-u^{18}+\cdots-2u-1)(u^{62}+4u^{61}+\cdots+189u+29)$
c_{10}	$(u^6+3u^5+2u^4+u^2+u+1)$ $\cdot(u^9-3u^8+u^7+4u^6-5u^5+3u^4+u^3-4u^2+2u-1)^2$ $\cdot(u^{19}-6u^{18}+\cdots+138u-20)(u^{31}+3u^{30}+\cdots+8u^2-1)^2$
c_{12}	$(u^6-u^5-2u^4+2u^2+2u+1)(u^{18}+5u^{16}+\cdots+22u+1)$ $\cdot(u^{19}+3u^{18}+\cdots+17u-1)(u^{62}+5u^{61}+\cdots-20878u+5329)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - 3y^5 + \cdots + 10y + 1)(y^{18} + 6y^{17} + \cdots - 15y + 1)$ $\cdot (y^{19} + 9y^{18} + \cdots + 83y - 1)$ $\cdot (y^{62} + 33y^{61} + \cdots + 4781262113y + 671898241)$
c_2, c_5, c_8 c_{11}	$(y^6 + 5y^5 + \cdots + 2y + 1)(y^{18} + 6y^{17} + \cdots + 13y + 1)$ $\cdot (y^{19} + 9y^{18} + \cdots + 3y - 1)(y^{62} + 21y^{61} + \cdots + 490101y + 25921)$
c_3, c_{10}	$(y^6 - 5y^5 + 6y^4 + 5y^2 + y + 1)$ $\cdot (y^9 - 7y^8 + 15y^7 - 6y^6 - 17y^5 + 11y^4 + 13y^3 - 6y^2 - 4y - 1)^2$ $\cdot (y^{19} - 6y^{18} + \cdots + 3644y - 400)(y^{31} - 9y^{30} + \cdots + 16y - 1)^2$
c_4, c_6, c_7 c_9	$(y^6 + 3y^5 + 2y^4 + y^2 + y + 1)(y^{18} + 15y^{17} + \cdots + 11y + 1)$ $\cdot (y^{19} + 11y^{18} + \cdots - 16y - 1)(y^{62} + 18y^{61} + \cdots + 44435y + 841)$
c_{12}	$(y^6 - 5y^5 + 8y^4 - 2y^3 + 1)(y^{18} + 10y^{17} + \cdots - 44y + 1)$ $\cdot (y^{19} - 9y^{18} + \cdots + 185y - 1)$ $\cdot (y^{62} - 15y^{61} + \cdots - 380852972y + 28398241)$