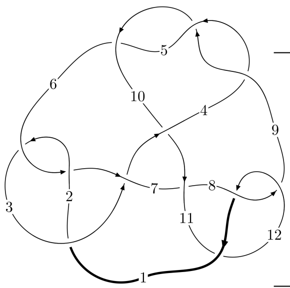
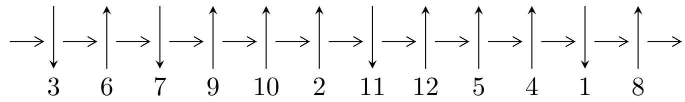
$12a_{0215}$ ($K12a_{0215}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{25} + u^{24} + \cdots + 2b + 1,\ u^{25} - u^{24} + \cdots + 2a - 1,\ u^{27} - u^{26} + \cdots + 2u - 1\rangle$$
$$I_2^u = \langle -8.39891 \times 10^{38} u^{81} + 2.15045 \times 10^{38} u^{80} + \cdots + 2.93276 \times 10^{39} b - 1.22548 \times 10^{40},$$
$$2.50222 \times 10^{40} u^{81} - 4.66705 \times 10^{40} u^{80} + \cdots + 2.05293 \times 10^{40} a - 7.74216 \times 10^{40},\ u^{82} - 2u^{81} + \cdots - 19u +$$
$$I_3^u = \langle b + a + u,\ a^2 - 2a - 2u + 1,\ u^2 + u + 1\rangle$$
$$I_4^u = \langle b + u - 1,\ a + 1,\ u^2 - u + 1\rangle$$
$$I_5^u = \langle b + a + 1,\ a^2 + 2au + 2a - u,\ u^2 + u + 1\rangle$$
$$I_6^u = \langle b - u,\ a + u - 1,\ u^2 - u + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 121 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.

$$\boldsymbol{I_1^u = \langle -u^{25}+u^{24}+\cdots+2b+1,\ u^{25}-u^{24}+\cdots+2a-1,\ u^{27}-u^{26}+\cdots+2u-1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^{25}+\frac{1}{2}u^{24}+\cdots-2u+\frac{1}{2} \\ \frac{1}{2}u^{25}-\frac{1}{2}u^{24}+\cdots+2u-\frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^{23}+\frac{1}{2}u^{22}+\cdots-2u+\frac{1}{2} \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{2}u^{26}+\frac{1}{2}u^{25}+\cdots+\frac{1}{2}u+1 \\ u^6+2u^4+u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5+u^3+u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{26}-3u^{24}+\cdots-2u+\frac{3}{2} \\ \frac{1}{2}u^{25}-\frac{1}{2}u^{24}+\cdots+2u-\frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^{26}-\frac{1}{2}u^{25}+\cdots-\frac{1}{2}u^3-1 \\ -u^8-2u^6-2u^4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{23}+\frac{1}{2}u^{22}+\cdots-2u+\frac{1}{2} \\ -u^7-u^5+u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 5u^{26}-2u^{25}+36u^{24}-11u^{23}+127u^{22}-33u^{21}+270u^{20}-62u^{19}+367u^{18}-85u^{17}+313u^{16}-86u^{15}+164u^{14}-67u^{13}+84u^{12}-29u^{11}+98u^{10}-8u^9+82u^8-9u^7+17u^6-25u^5-9u^3+9u^2-2u+6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{27} + 15u^{26} + \cdots - 2u - 1$
c_2, c_6, c_8 c_{12}	$u^{27} - u^{26} + \cdots + 2u - 1$
c_3, c_7	$u^{27} + u^{26} + \cdots - 3u - 2$
c_4, c_5, c_9	$u^{27} + 5u^{26} + \cdots + 4u - 4$
c_{10}	$u^{27} - 15u^{26} + \cdots + 212u + 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{27} - y^{26} + \cdots - 2y - 1$
c_2, c_6, c_8 c_{12}	$y^{27} + 15y^{26} + \cdots - 2y - 1$
c_3, c_7	$y^{27} - 17y^{26} + \cdots - 35y - 4$
c_4, c_5, c_9	$y^{27} - 25y^{26} + \cdots + 48y - 16$
c_{10}	$y^{27} - 5y^{26} + \cdots + 206224y - 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.803618 + 0.349348I$ $a = 1.007060 + 0.949020I$ $b = -1.41653 + 1.34230I$	$5.22371 - 6.72306I$	$9.84931 + 3.39478I$
$u = 0.803618 - 0.349348I$ $a = 1.007060 - 0.949020I$ $b = -1.41653 - 1.34230I$	$5.22371 + 6.72306I$	$9.84931 - 3.39478I$
$u = -0.299281 + 0.820284I$ $a = -0.48606 - 1.73494I$ $b = 0.88880 + 1.18954I$	$4.11938 - 2.82450I$	$2.13183 + 1.79598I$
$u = -0.299281 - 0.820284I$ $a = -0.48606 + 1.73494I$ $b = 0.88880 - 1.18954I$	$4.11938 + 2.82450I$	$2.13183 - 1.79598I$
$u = 0.116549 + 0.860765I$ $a = 0.078400 - 1.016090I$ $b = -0.278709 + 0.364691I$	$-1.97453 + 1.43518I$	$-2.24818 - 4.96930I$
$u = 0.116549 - 0.860765I$ $a = 0.078400 + 1.016090I$ $b = -0.278709 - 0.364691I$	$-1.97453 - 1.43518I$	$-2.24818 + 4.96930I$
$u = -0.513874 + 1.069060I$ $a = 0.352532 + 0.981625I$ $b = -0.76543 - 1.34247I$	$4.01281 - 6.61800I$	$3.83990 + 7.93477I$
$u = -0.513874 - 1.069060I$ $a = 0.352532 - 0.981625I$ $b = -0.76543 + 1.34247I$	$4.01281 + 6.61800I$	$3.83990 - 7.93477I$
$u = -0.615180 + 0.518291I$ $a = 1.61732 + 1.21180I$ $b = -0.501601 - 0.764150I$	$7.40368 - 2.31507I$	$12.17043 + 2.39012I$
$u = -0.615180 - 0.518291I$ $a = 1.61732 - 1.21180I$ $b = -0.501601 + 0.764150I$	$7.40368 + 2.31507I$	$12.17043 - 2.39012I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.743850 + 0.296760I$ $a = -0.370434 + 0.541518I$ $b = 0.339092 + 1.113750I$	$-0.14900 + 3.15153I$	$5.48053 - 3.24594I$
$u = -0.743850 - 0.296760I$ $a = -0.370434 - 0.541518I$ $b = 0.339092 - 1.113750I$	$-0.14900 - 3.15153I$	$5.48053 + 3.24594I$
$u = 0.264221 + 1.179210I$ $a = -1.117430 + 0.645366I$ $b = -0.213710 - 1.207370I$	$-4.23123 - 0.71359I$	$-1.52661 - 0.31939I$
$u = 0.264221 - 1.179210I$ $a = -1.117430 - 0.645366I$ $b = -0.213710 + 1.207370I$	$-4.23123 + 0.71359I$	$-1.52661 + 0.31939I$
$u = -0.338826 + 1.179080I$ $a = 0.42150 + 1.47832I$ $b = 0.72240 - 1.41289I$	$-8.48034 - 3.42330I$	$-5.15562 + 3.33733I$
$u = -0.338826 - 1.179080I$ $a = 0.42150 - 1.47832I$ $b = 0.72240 + 1.41289I$	$-8.48034 + 3.42330I$	$-5.15562 - 3.33733I$
$u = 0.411435 + 1.173870I$ $a = 0.52311 + 1.66108I$ $b = -1.11519 - 1.11629I$	$-5.27423 + 7.72991I$	$-0.94876 - 7.44715I$
$u = 0.411435 - 1.173870I$ $a = 0.52311 - 1.66108I$ $b = -1.11519 + 1.11629I$	$-5.27423 - 7.72991I$	$-0.94876 + 7.44715I$
$u = 0.528079 + 1.138480I$ $a = 0.703762 - 0.059607I$ $b = 0.123706 + 0.371890I$	$-3.65072 + 8.53958I$	$0.93638 - 5.62468I$
$u = 0.528079 - 1.138480I$ $a = 0.703762 + 0.059607I$ $b = 0.123706 - 0.371890I$	$-3.65072 - 8.53958I$	$0.93638 + 5.62468I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.568964+1.151920I$ $a=-0.84587-1.38262I$ $b=-0.64504+1.69437I$	$-5.12208-13.17930I$	$-0.30650+10.03114I$
$u=-0.568964-1.151920I$ $a=-0.84587+1.38262I$ $b=-0.64504-1.69437I$	$-5.12208+13.17930I$	$-0.30650-10.03114I$
$u=\ 0.597410+1.146880I$ $a=\ 0.30821-2.43725I$ $b=\ 1.60210+2.43878I$	$0.5058+17.2462I$	$3.99567-10.69153I$
$u=\ 0.597410-1.146880I$ $a=\ 0.30821+2.43725I$ $b=\ 1.60210-2.43878I$	$0.5058-17.2462I$	$3.99567+10.69153I$
$u=\ 0.541018+0.346561I$ $a=-0.594979+0.357100I$ $b=\ 0.282228+0.197681I$	$1.153800+0.433800I$	$8.89068-3.10738I$
$u=\ 0.541018-0.346561I$ $a=-0.594979-0.357100I$ $b=\ 0.282228-0.197681I$	$1.153800-0.433800I$	$8.89068+3.10738I$
$u=\ 0.635291$ $a=-0.194238$ $b=\ 0.955765$	1.41139	7.78190

II. $\boldsymbol{I_2^u = \langle -8.40 \times 10^{38} u^{81} + 2.15 \times 10^{38} u^{80} + \cdots + 2.93 \times 10^{39} b - 1.23 \times 10^{40},\ 2.50 \times 10^{40} u^{81} - 4.67 \times 10^{40} u^{80} + \cdots + 2.05 \times 10^{40} a - 7.74 \times 10^{40},\ u^{82} - 2u^{81} + \cdots - 19u + 7 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1.21886u^{81} + 2.27336u^{80} + \cdots - 12.9728u + 3.77127 \\ 0.286383u^{81} - 0.0733251u^{80} + \cdots - 4.86257u + 4.17860 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.411067u^{81} - 0.288547u^{80} + \cdots + 4.78352u - 3.00988 \\ -0.614218u^{81} + 1.70547u^{80} + \cdots - 15.3414u + 6.51871 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.318231u^{81} - 2.32467u^{80} + \cdots + 24.6828u - 12.1894 \\ -1.92973u^{81} + 3.70643u^{80} + \cdots - 27.3383u + 10.1543 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.371191u^{81} + 0.108615u^{80} + \cdots + 1.54552u + 0.653397 \\ -0.134364u^{81} + 0.768131u^{80} + \cdots - 5.41326u + 3.53888 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.932035u^{81} - 1.61400u^{80} + \cdots + 1.95754u + 0.0479519 \\ -0.335091u^{81} + 0.133733u^{80} + \cdots + 9.76711u - 6.52731 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.854155u^{81} + 0.424449u^{80} + \cdots + 5.52400u - 3.77735 \\ -0.0430260u^{81} + 1.07121u^{80} + \cdots - 14.4429u + 9.10127 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -1.08647u^{81} + 2.72577u^{80} + \cdots - 37.5801u + 26.3020$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{82} + 38u^{81} + \cdots + 171u + 49$
c_2, c_6, c_8 c_{12}	$u^{82} - 2u^{81} + \cdots - 19u + 7$
c_3, c_7	$u^{82} + 2u^{81} + \cdots + 653965u + 115507$
c_4, c_5, c_9	$(u^{41} - 2u^{40} + \cdots + 4u + 2)^2$
c_{10}	$(u^{41} + 6u^{40} + \cdots - 144u - 32)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{82} + 14y^{81} + \cdots + 65427y + 2401$
c_2, c_6, c_8 c_{12}	$y^{82} + 38y^{81} + \cdots + 171y + 49$
c_3, c_7	$y^{82} - 10y^{81} + \cdots - 231414356651y + 13341867049$
c_4, c_5, c_9	$(y^{41} - 38y^{40} + \cdots - 32y - 4)^2$
c_{10}	$(y^{41} + 2y^{40} + \cdots - 3456y - 1024)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.689028 + 0.715237I$ $a = 0.426260 - 0.243286I$ $b = 0.022676 - 0.162534I$	$-0.36156 + 5.69573I$	0
$u = 0.689028 - 0.715237I$ $a = 0.426260 + 0.243286I$ $b = 0.022676 + 0.162534I$	$-0.36156 - 5.69573I$	0
$u = -0.765330 + 0.659348I$ $a = -1.34566 - 0.92456I$ $b = 0.239119 + 0.976808I$	$4.65659 - 8.77727I$	0
$u = -0.765330 - 0.659348I$ $a = -1.34566 + 0.92456I$ $b = 0.239119 - 0.976808I$	$4.65659 + 8.77727I$	0
$u = -0.695472 + 0.747401I$ $a = -1.19111 - 0.96963I$ $b = 0.366764 + 1.155420I$	$2.83527 - 1.77985I$	0
$u = -0.695472 - 0.747401I$ $a = -1.19111 + 0.96963I$ $b = 0.366764 - 1.155420I$	$2.83527 + 1.77985I$	0
$u = -0.719446 + 0.634218I$ $a = 1.37551 + 0.99667I$ $b = -0.323967 - 0.941289I$	$6.76688 - 4.02505I$	$11.00664 + 3.97880I$
$u = -0.719446 - 0.634218I$ $a = 1.37551 - 0.99667I$ $b = -0.323967 + 0.941289I$	$6.76688 + 4.02505I$	$11.00664 - 3.97880I$
$u = 0.283270 + 1.031430I$ $a = 2.04178 - 0.89333I$ $b = -0.20075 + 1.91629I$	$2.83527 - 1.77985I$	0
$u = 0.283270 - 1.031430I$ $a = 2.04178 + 0.89333I$ $b = -0.20075 - 1.91629I$	$2.83527 + 1.77985I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.341629 + 1.027430I$ $a = -2.44843 + 0.21696I$ $b = 0.90934 - 1.82491I$	$2.46019 + 3.45470I$	0
$u = 0.341629 - 1.027430I$ $a = -2.44843 - 0.21696I$ $b = 0.90934 + 1.82491I$	$2.46019 - 3.45470I$	0
$u = 0.839192 + 0.351360I$ $a = -1.044020 - 0.844502I$ $b = 1.31623 - 1.40977I$	$2.88789 - 11.91530I$	$6.77003 + 7.12233I$
$u = 0.839192 - 0.351360I$ $a = -1.044020 + 0.844502I$ $b = 1.31623 + 1.40977I$	$2.88789 + 11.91530I$	$6.77003 - 7.12233I$
$u = 0.644899 + 0.881737I$ $a = 0.401320 - 0.122971I$ $b = 0.0900442 - 0.0322691I$	$-0.847371 - 0.579153I$	0
$u = 0.644899 - 0.881737I$ $a = 0.401320 + 0.122971I$ $b = 0.0900442 + 0.0322691I$	$-0.847371 + 0.579153I$	0
$u = -0.396078 + 1.023630I$ $a = 0.282828 + 1.206450I$ $b = -0.79733 - 1.30420I$	3.09696	0
$u = -0.396078 - 1.023630I$ $a = 0.282828 - 1.206450I$ $b = -0.79733 + 1.30420I$	3.09696	0
$u = -0.672412 + 0.878423I$ $a = 0.862261 + 0.794570I$ $b = -0.57402 - 1.37006I$	$2.46019 - 3.45470I$	0
$u = -0.672412 - 0.878423I$ $a = 0.862261 - 0.794570I$ $b = -0.57402 + 1.37006I$	$2.46019 + 3.45470I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.564931 + 0.954516I$ $a = -0.417859 - 0.016464I$ $b = -0.0477010 - 0.0604940I$	$0.44383 + 3.16653I$	0
$u = 0.564931 - 0.954516I$ $a = -0.417859 + 0.016464I$ $b = -0.0477010 + 0.0604940I$	$0.44383 - 3.16653I$	0
$u = -0.452391 + 1.015630I$ $a = -0.71504 - 1.98517I$ $b = -1.13769 + 1.76536I$	$-0.847371 - 0.579153I$	0
$u = -0.452391 - 1.015630I$ $a = -0.71504 + 1.98517I$ $b = -1.13769 - 1.76536I$	$-0.847371 + 0.579153I$	0
$u = 0.605854 + 0.628370I$ $a = -0.424775 + 0.321065I$ $b = 0.075036 + 0.153636I$	$1.40425 + 1.45669I$	$6.96953 - 5.06575I$
$u = 0.605854 - 0.628370I$ $a = -0.424775 - 0.321065I$ $b = 0.075036 - 0.153636I$	$1.40425 - 1.45669I$	$6.96953 + 5.06575I$
$u = -0.808418 + 0.297201I$ $a = 0.342419 - 0.461894I$ $b = -0.319219 - 1.185340I$	$-2.58795 + 8.05246I$	$2.39091 - 6.67607I$
$u = -0.808418 - 0.297201I$ $a = 0.342419 + 0.461894I$ $b = -0.319219 + 1.185340I$	$-2.58795 - 8.05246I$	$2.39091 + 6.67607I$
$u = -0.544403 + 1.015420I$ $a = -0.463853 - 0.980844I$ $b = 0.73592 + 1.33469I$	$5.94556 - 2.27206I$	0
$u = -0.544403 - 1.015420I$ $a = -0.463853 + 0.980844I$ $b = 0.73592 - 1.33469I$	$5.94556 + 2.27206I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.633782 + 0.965157I$ $a = -0.619693 - 0.846918I$ $b = 0.67438 + 1.36329I$	$5.78705 - 1.14285I$	0
$u = -0.633782 - 0.965157I$ $a = -0.619693 + 0.846918I$ $b = 0.67438 - 1.36329I$	$5.78705 + 1.14285I$	0
$u = 0.797763 + 0.273658I$ $a = -0.790370 - 0.865730I$ $b = 1.28854 - 1.12842I$	$0.33937 - 3.94176I$	$3.80485 + 2.05545I$
$u = 0.797763 - 0.273658I$ $a = -0.790370 + 0.865730I$ $b = 1.28854 + 1.12842I$	$0.33937 + 3.94176I$	$3.80485 - 2.05545I$
$u = -0.502229 + 1.050420I$ $a = 0.89797 + 1.74531I$ $b = 0.87575 - 1.84134I$	$-0.36156 - 5.69573I$	0
$u = -0.502229 - 1.050420I$ $a = 0.89797 - 1.74531I$ $b = 0.87575 + 1.84134I$	$-0.36156 + 5.69573I$	0
$u = -0.279574 + 1.135010I$ $a = -0.30915 - 1.50867I$ $b = -0.74203 + 1.28219I$	$-4.43409 + 0.19849I$	0
$u = -0.279574 - 1.135010I$ $a = -0.30915 + 1.50867I$ $b = -0.74203 - 1.28219I$	$-4.43409 - 0.19849I$	0
$u = 0.201185 + 1.156190I$ $a = 1.10226 - 0.88862I$ $b = 0.338911 + 1.367520I$	$0.33937 - 3.94176I$	0
$u = 0.201185 - 1.156190I$ $a = 1.10226 + 0.88862I$ $b = 0.338911 - 1.367520I$	$0.33937 + 3.94176I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.680761 + 0.963853I$ $a = 0.637175 + 0.746660I$ $b = -0.66131 - 1.39711I$	$3.75302 + 3.33055I$	0
$u = -0.680761 - 0.963853I$ $a = 0.637175 - 0.746660I$ $b = -0.66131 + 1.39711I$	$3.75302 - 3.33055I$	0
$u = 0.383840 + 1.124570I$ $a = -0.75917 - 1.43709I$ $b = 1.058920 + 0.664259I$	$-1.78976 + 3.63396I$	0
$u = 0.383840 - 1.124570I$ $a = -0.75917 + 1.43709I$ $b = 1.058920 - 0.664259I$	$-1.78976 - 3.63396I$	0
$u = 0.525005 + 1.078820I$ $a = -0.57133 - 3.05080I$ $b = 2.61883 + 1.84930I$	$3.75302 + 3.33055I$	0
$u = 0.525005 - 1.078820I$ $a = -0.57133 + 3.05080I$ $b = 2.61883 - 1.84930I$	$3.75302 - 3.33055I$	0
$u = 0.324132 + 1.156920I$ $a = 0.470124 + 1.324050I$ $b = -0.643195 - 0.862446I$	$-5.04218 - 0.52120I$	0
$u = 0.324132 - 1.156920I$ $a = 0.470124 - 1.324050I$ $b = -0.643195 + 0.862446I$	$-5.04218 + 0.52120I$	0
$u = 0.502544 + 1.098810I$ $a = -0.713487 - 0.031522I$ $b = -0.016767 - 0.335638I$	$-1.04581 + 3.83403I$	0
$u = 0.502544 - 1.098810I$ $a = -0.713487 + 0.031522I$ $b = -0.016767 + 0.335638I$	$-1.04581 - 3.83403I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.184539 + 1.194310I$ $a = -0.968047 + 0.860870I$ $b = -0.414774 - 1.294930I$	$-2.25867 - 8.98287I$	0
$u = 0.184539 - 1.194310I$ $a = -0.968047 - 0.860870I$ $b = -0.414774 + 1.294930I$	$-2.25867 + 8.98287I$	0
$u = -0.246275 + 1.183340I$ $a = 0.30446 + 1.42791I$ $b = 0.63553 - 1.29001I$	$-7.30150 + 4.90350I$	0
$u = -0.246275 - 1.183340I$ $a = 0.30446 - 1.42791I$ $b = 0.63553 + 1.29001I$	$-7.30150 - 4.90350I$	0
$u = -0.759560 + 0.170105I$ $a = 0.206959 - 0.563917I$ $b = -0.190983 - 1.102140I$	$-4.43409 + 0.19849I$	$-0.855132 - 0.263674I$
$u = -0.759560 - 0.170105I$ $a = 0.206959 + 0.563917I$ $b = -0.190983 + 1.102140I$	$-4.43409 - 0.19849I$	$-0.855132 + 0.263674I$
$u = 0.548764 + 1.094240I$ $a = 0.18219 + 2.93809I$ $b = -2.31640 - 2.17267I$	$4.65659 + 8.77727I$	0
$u = 0.548764 - 1.094240I$ $a = 0.18219 - 2.93809I$ $b = -2.31640 + 2.17267I$	$4.65659 - 8.77727I$	0
$u = 0.679190 + 0.367886I$ $a = 0.86819 + 1.43693I$ $b = -1.82727 + 1.10121I$	$6.76688 - 4.02505I$	$11.00664 + 3.97880I$
$u = 0.679190 - 0.367886I$ $a = 0.86819 - 1.43693I$ $b = -1.82727 - 1.10121I$	$6.76688 + 4.02505I$	$11.00664 - 3.97880I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.447381 + 1.149980I$ $a = 0.883459 - 0.065760I$ $b = 0.005837 + 0.564784I$	$-5.04218 + 0.52120I$	0
$u = 0.447381 - 1.149980I$ $a = 0.883459 + 0.065760I$ $b = 0.005837 - 0.564784I$	$-5.04218 - 0.52120I$	0
$u = -0.440145 + 0.608096I$ $a = 0.95391 - 1.06892I$ $b = -1.052950 - 0.702852I$	$0.44383 - 3.16653I$	$4.71993 - 0.58973I$
$u = -0.440145 - 0.608096I$ $a = 0.95391 + 1.06892I$ $b = -1.052950 + 0.702852I$	$0.44383 + 3.16653I$	$4.71993 + 0.58973I$
$u = 0.712533 + 0.226602I$ $a = 0.563149 - 0.287019I$ $b = -0.383162 - 0.371369I$	$-1.04581 - 3.83403I$	$4.44538 + 2.12907I$
$u = 0.712533 - 0.226602I$ $a = 0.563149 + 0.287019I$ $b = -0.383162 + 0.371369I$	$-1.04581 + 3.83403I$	$4.44538 - 2.12907I$
$u = -0.551632 + 1.132560I$ $a = 0.85256 + 1.44076I$ $b = 0.67530 - 1.71516I$	$-2.58795 - 8.05246I$	0
$u = -0.551632 - 1.132560I$ $a = 0.85256 - 1.44076I$ $b = 0.67530 + 1.71516I$	$-2.58795 + 8.05246I$	0
$u = 0.735105 + 0.006056I$ $a = 0.436191 - 0.362330I$ $b = -0.791059 - 0.477947I$	$-1.78976 + 3.63396I$	$3.00355 - 4.41372I$
$u = 0.735105 - 0.006056I$ $a = 0.436191 + 0.362330I$ $b = -0.791059 + 0.477947I$	$-1.78976 - 3.63396I$	$3.00355 + 4.41372I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.512115+1.158870I$ $a=-0.74554-1.45277I$ $b=-0.70751+1.65463I$	$-7.30150-4.90350I$	0
$u=-0.512115-1.158870I$ $a=-0.74554+1.45277I$ $b=-0.70751-1.65463I$	$-7.30150+4.90350I$	0
$u=\ 0.585200+1.135380I$ $a=-0.22170+2.53693I$ $b=-1.73675-2.39250I$	$2.88789+11.91530I$	0
$u=\ 0.585200-1.135380I$ $a=-0.22170-2.53693I$ $b=-1.73675+2.39250I$	$2.88789-11.91530I$	0
$u=\ 0.556886+1.153190I$ $a=\ 0.00759-2.38243I$ $b=\ 1.66909+2.10879I$	$-2.25867+8.98287I$	0
$u=\ 0.556886-1.153190I$ $a=\ 0.00759+2.38243I$ $b=\ 1.66909-2.10879I$	$-2.25867-8.98287I$	0
$u=\ 0.592687+0.369522I$ $a=-0.61966-1.82844I$ $b=\ 2.04999-0.82047I$	$5.78705+1.14285I$	$9.35767-1.34968I$
$u=\ 0.592687-0.369522I$ $a=-0.61966+1.82844I$ $b=\ 2.04999+0.82047I$	$5.78705-1.14285I$	$9.35767+1.34968I$
$u=-0.532881+0.446002I$ $a=-0.675343+0.806391I$ $b=\ 0.633559+0.875574I$	$1.40425+1.45669I$	$6.96953-5.06575I$
$u=-0.532881-0.446002I$ $a=-0.675343-0.806391I$ $b=\ 0.633559-0.875574I$	$1.40425-1.45669I$	$6.96953+5.06575I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.552652 + 0.404350I$ $a = -1.98289 - 1.32692I$ $b = 0.605079 + 0.596657I$	$5.94556 + 2.27206I$	$8.68115 - 3.66498I$
$u = -0.552652 - 0.404350I$ $a = -1.98289 + 1.32692I$ $b = 0.605079 - 0.596657I$	$5.94556 - 2.27206I$	$8.68115 + 3.66498I$

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1 \\ u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -a-u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} au+a-u \\ -u-1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -au \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} au-3u-1 \\ a+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -au-a+u \\ u+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} au+a+1 \\ -u-1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u + 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = \quad 0.292893 - 1.224750I$ $b = \quad 0.207107 + 0.358719I$	$4.93480 - 4.05977I$	$8.00000 + 6.92820I$
$u = -0.500000 + 0.866025I$ $a = \quad 1.70711 + 1.22474I$ $b = -1.20711 - 2.09077I$	$4.93480 - 4.05977I$	$8.00000 + 6.92820I$
$u = -0.500000 - 0.866025I$ $a = \quad 0.292893 + 1.224750I$ $b = \quad 0.207107 - 0.358719I$	$4.93480 + 4.05977I$	$8.00000 - 6.92820I$
$u = -0.500000 - 0.866025I$ $a = \quad 1.70711 - 1.22474I$ $b = -1.20711 + 2.09077I$	$4.93480 + 4.05977I$	$8.00000 - 6.92820I$

IV. $I_4^u = \langle b + u - 1,\ a + 1,\ u^2 - u + 1 \rangle$

(i) Arc colorings

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ -u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ -u + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -1 \\ -u + 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -1.00000$ $b = 0.500000 - 0.866025I$	$4.05977I$	$0. - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = -1.00000$ $b = 0.500000 + 0.866025I$	$-4.05977I$	$0. + 6.92820I$

V. $I_5^u = \langle b + a + 1,\ a^2 + 2au + 2a - u,\ u^2 + u + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1 \\ u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -a-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} au+a-1 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a-u+1 \\ -u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a-u \\ -au-a+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -au-a+1 \\ -u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} au+a-u-1 \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0.207107 + 0.358719I$ $b = -1.207110 - 0.358719I$	4.93480	8.00000
$u = -0.500000 + 0.866025I$ $a = -1.20711 - 2.09077I$ $b = 0.20711 + 2.09077I$	4.93480	8.00000
$u = -0.500000 - 0.866025I$ $a = 0.207107 - 0.358719I$ $b = -1.207110 + 0.358719I$	4.93480	8.00000
$u = -0.500000 - 0.866025I$ $a = -1.20711 + 2.09077I$ $b = 0.20711 - 2.09077I$	4.93480	8.00000

VI. $I_6^u = \langle b - u,\ a + u - 1,\ u^2 - u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.500000 + 0.866025I$		
$a =$	$0.500000 - 0.866025I$	0	6.00000
$b =$	$0.500000 + 0.866025I$		
$u =$	$0.500000 - 0.866025I$		
$a =$	$0.500000 + 0.866025I$	0	6.00000
$b =$	$0.500000 - 0.866025I$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$((u^2-u+1)^6)(u^{27}+15u^{26}+\cdots-2u-1)$ $\cdot(u^{82}+38u^{81}+\cdots+171u+49)$
c_2, c_8	$((u^2-u+1)^4)(u^2+u+1)^2(u^{27}-u^{26}+\cdots+2u-1)$ $\cdot(u^{82}-2u^{81}+\cdots-19u+7)$
c_3, c_7	$((u^2-u+1)^2)(u^2+u+1)^4(u^{27}+u^{26}+\cdots-3u-2)$ $\cdot(u^{82}+2u^{81}+\cdots+653965u+115507)$
c_4, c_5, c_9	$u^4(u^2-2)^4(u^{27}+5u^{26}+\cdots+4u-4)(u^{41}-2u^{40}+\cdots+4u+2)^2$
c_6, c_{12}	$((u^2-u+1)^2)(u^2+u+1)^4(u^{27}-u^{26}+\cdots+2u-1)$ $\cdot(u^{82}-2u^{81}+\cdots-19u+7)$
c_{10}	$u^4(u^2-2)^4(u^{27}-15u^{26}+\cdots+212u+32)$ $\cdot(u^{41}+6u^{40}+\cdots-144u-32)^2$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$((y^2+y+1)^6)(y^{27}-y^{26}+\cdots-2y-1)$ $\cdot(y^{82}+14y^{81}+\cdots+65427y+2401)$
c_2, c_6, c_8 c_{12}	$((y^2+y+1)^6)(y^{27}+15y^{26}+\cdots-2y-1)$ $\cdot(y^{82}+38y^{81}+\cdots+171y+49)$
c_3, c_7	$((y^2+y+1)^6)(y^{27}-17y^{26}+\cdots-35y-4)$ $\cdot(y^{82}-10y^{81}+\cdots-231414356651y+13341867049)$
c_4, c_5, c_9	$y^4(y-2)^8(y^{27}-25y^{26}+\cdots+48y-16)$ $\cdot(y^{41}-38y^{40}+\cdots-32y-4)^2$
c_{10}	$y^4(y-2)^8(y^{27}-5y^{26}+\cdots+206224y-1024)$ $\cdot(y^{41}+2y^{40}+\cdots-3456y-1024)^2$