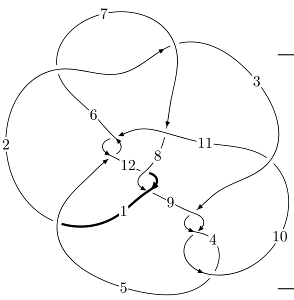
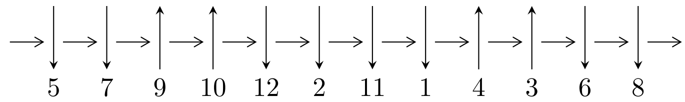
$12a_{1261}$ ($K12a_{1261}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -6.86400 \times 10^{38} u^{39} + 1.22276 \times 10^{38} u^{38} + \cdots + 1.38766 \times 10^{39} b + 6.71756 \times 10^{39}, \\
& -1.41733 \times 10^{40} u^{39} + 5.75302 \times 10^{39} u^{38} + \cdots + 1.38766 \times 10^{40} a + 1.26988 \times 10^{41},\ u^{40} - u^{39} + \cdots - 8u +
\end{aligned}$$

$$\begin{aligned}
I_2^u = \langle & 1.49972 \times 10^{95} u^{63} - 1.89102 \times 10^{95} u^{62} + \cdots + 1.42532 \times 10^{96} b - 6.59620 \times 10^{93}, \\
& -9.36179 \times 10^{96} u^{63} + 6.79343 \times 10^{96} u^{62} + \cdots + 7.12662 \times 10^{96} a - 8.34927 \times 10^{96},\ u^{64} - u^{63} + \cdots + 2u -
\end{aligned}$$

$$I_3^u = \langle b + u,\ 8a^3 - 12a^2 u + 4a^2 - 4au - 6a + u - 2,\ u^2 + 1 \rangle$$

$$I_4^u = \langle b,\ a + 1,\ u + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 111 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.

$\boldsymbol{I_1^u = \langle -6.86\times 10^{38}u^{39}+1.22\times 10^{38}u^{38}+\cdots+1.39\times 10^{39}b+6.72\times 10^{39},\ -1.42\times 10^{40}u^{39}+5.75\times 10^{39}u^{38}+\cdots+1.39\times 10^{40}a+1.27\times 10^{41},\ u^{40}-u^{39}+\cdots-8u+5\rangle}$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1.02138u^{39} - 0.414584u^{38} + \cdots + 4.29657u - 9.15125 \\ 0.494646u^{39} - 0.0881164u^{38} + \cdots + 2.78143u - 4.84092 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.232933u^{39} - 0.199072u^{38} + \cdots - 0.626073u - 2.92962 \\ 0.200267u^{39} - 0.138012u^{38} + \cdots - 0.0964501u - 2.63367 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.526734u^{39} - 0.326467u^{38} + \cdots + 1.51515u - 4.31032 \\ 0.494646u^{39} - 0.0881164u^{38} + \cdots + 2.78143u - 4.84092 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.361388u^{39} - 0.0370447u^{38} + \cdots + 1.83025u + 0.142855 \\ 0.407986u^{39} - 0.0703407u^{38} + \cdots + 1.54549u - 0.676271 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.492873u^{39} - 0.140306u^{38} + \cdots + 2.58130u - 3.14566 \\ 0.432390u^{39} + 0.0156258u^{38} + \cdots + 3.81296u - 3.83959 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.585500u^{39} - 0.322926u^{38} + \cdots + 0.171255u - 5.39399 \\ 0.648283u^{39} - 0.410746u^{38} + \cdots - 0.476912u - 4.79562 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.633625u^{39} - 0.286109u^{38} + \cdots + 3.62724u - 4.52753 \\ 0.902893u^{39} - 0.249069u^{38} + \cdots + 3.31529u - 8.16823 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.148813u^{39} - 0.00235840u^{38} + \cdots + 0.508516u + 0.427860 \\ -0.524790u^{39} + 0.102722u^{38} + \cdots - 1.39513u + 3.44351 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.246686u^{39} + 0.293708u^{38} + \cdots + 1.39766u - 6.81633$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$64(64u^{40} + 128u^{39} + \cdots - 18u + 4)$
c_2, c_6, c_8 c_{12}	$u^{40} - u^{39} + \cdots - 8u + 5$
c_3, c_4, c_9	$u^{40} - 3u^{39} + \cdots + 40u + 10$
c_5, c_{11}	$u^{40} - 3u^{39} + \cdots - 116u + 178$
c_{10}	$u^{40} + 9u^{39} + \cdots + 223540u + 24310$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$4096(4096y^{40} - 16384y^{39} + \cdots + 4y + 16)$
c_2, c_6, c_8 c_{12}	$y^{40} - 15y^{39} + \cdots - 64y + 25$
c_3, c_4, c_9	$y^{40} - 33y^{39} + \cdots - 140y + 100$
c_5, c_{11}	$y^{40} + 23y^{39} + \cdots + 897548y + 31684$
c_{10}	$y^{40} + 19y^{39} + \cdots - 3244220940y + 590976100$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.951302 + 0.290221I$ $a = -0.277187 - 0.863557I$ $b = 0.11645 - 1.69893I$	$2.44631 - 5.94320I$	$-2.32452 + 10.00245I$
$u = 0.951302 - 0.290221I$ $a = -0.277187 + 0.863557I$ $b = 0.11645 + 1.69893I$	$2.44631 + 5.94320I$	$-2.32452 - 10.00245I$
$u = -0.986545 + 0.209518I$ $a = -1.94798 + 0.60057I$ $b = -1.21607 + 1.07214I$	$-2.78388 + 2.32701I$	$-5.94560 - 9.38612I$
$u = -0.986545 - 0.209518I$ $a = -1.94798 - 0.60057I$ $b = -1.21607 - 1.07214I$	$-2.78388 - 2.32701I$	$-5.94560 + 9.38612I$
$u = 0.359550 + 0.837445I$ $a = -0.225374 + 0.398951I$ $b = 0.114727 - 1.121370I$	$3.64892 - 0.52199I$	$4.59024 + 2.59542I$
$u = 0.359550 - 0.837445I$ $a = -0.225374 - 0.398951I$ $b = 0.114727 + 1.121370I$	$3.64892 + 0.52199I$	$4.59024 - 2.59542I$
$u = -0.839767 + 0.098563I$ $a = 0.96828 - 1.28580I$ $b = 0.39640 - 1.74102I$	$-1.26065 + 0.86355I$	$1.74294 - 5.70273I$
$u = -0.839767 - 0.098563I$ $a = 0.96828 + 1.28580I$ $b = 0.39640 + 1.74102I$	$-1.26065 - 0.86355I$	$1.74294 + 5.70273I$
$u = 1.111420 + 0.352542I$ $a = 1.72549 + 0.41631I$ $b = 0.89022 + 1.22122I$	$-2.02045 - 7.48389I$	$-6.59522 + 9.84827I$
$u = 1.111420 - 0.352542I$ $a = 1.72549 - 0.41631I$ $b = 0.89022 - 1.22122I$	$-2.02045 + 7.48389I$	$-6.59522 - 9.84827I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.690269 + 0.961401I$ $a = 0.092925 + 0.142714I$ $b = -0.264351 - 1.186530I$	$8.68492 + 1.39150I$	$3.97132 - 0.73814I$
$u = -0.690269 - 0.961401I$ $a = 0.092925 - 0.142714I$ $b = -0.264351 + 1.186530I$	$8.68492 - 1.39150I$	$3.97132 + 0.73814I$
$u = -1.093880 + 0.546781I$ $a = -1.82594 + 0.17728I$ $b = -0.711478 + 1.169160I$	$5.41370 + 9.49132I$	$-1.05941 - 8.20262I$
$u = -1.093880 - 0.546781I$ $a = -1.82594 - 0.17728I$ $b = -0.711478 - 1.169160I$	$5.41370 - 9.49132I$	$-1.05941 + 8.20262I$
$u = -1.217690 + 0.271137I$ $a = 1.46583 + 0.49454I$ $b = 1.358560 + 0.314654I$	$-6.64670 + 2.06191I$	$-9.67039 - 3.16010I$
$u = -1.217690 - 0.271137I$ $a = 1.46583 - 0.49454I$ $b = 1.358560 - 0.314654I$	$-6.64670 - 2.06191I$	$-9.67039 + 3.16010I$
$u = 0.639901 + 0.314914I$ $a = 1.83215 + 0.55944I$ $b = 0.682248 + 0.565377I$	$4.13991 + 0.54273I$	$-0.34588 + 4.27829I$
$u = 0.639901 - 0.314914I$ $a = 1.83215 - 0.55944I$ $b = 0.682248 - 0.565377I$	$4.13991 - 0.54273I$	$-0.34588 - 4.27829I$
$u = 0.673890 + 0.225219I$ $a = -1.44679 + 1.31081I$ $b = -0.646933 + 0.945006I$	$4.15321 - 3.33552I$	$0.65169 + 4.83950I$
$u = 0.673890 - 0.225219I$ $a = -1.44679 - 1.31081I$ $b = -0.646933 - 0.945006I$	$4.15321 + 3.33552I$	$0.65169 - 4.83950I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.278220 + 0.368967I$ $a = -1.308200 + 0.484946I$ $b = -1.257700 + 0.251336I$	$-9.32626 - 7.16028I$	$-11.16149 + 5.84922I$
$u = 1.278220 - 0.368967I$ $a = -1.308200 - 0.484946I$ $b = -1.257700 - 0.251336I$	$-9.32626 + 7.16028I$	$-11.16149 - 5.84922I$
$u = -0.312992 + 1.321470I$ $a = -0.054941 + 0.379383I$ $b = -0.266126 - 0.913766I$	$1.66131 - 1.14235I$	$-8.36689 + 6.54215I$
$u = -0.312992 - 1.321470I$ $a = -0.054941 - 0.379383I$ $b = -0.266126 + 0.913766I$	$1.66131 + 1.14235I$	$-8.36689 - 6.54215I$
$u = 0.152051 + 1.355020I$ $a = 0.067566 + 0.449076I$ $b = 0.211753 - 0.799074I$	$5.26440 - 2.10608I$	$-5.69050 - 1.42501I$
$u = 0.152051 - 1.355020I$ $a = 0.067566 - 0.449076I$ $b = 0.211753 + 0.799074I$	$5.26440 + 2.10608I$	$-5.69050 + 1.42501I$
$u = -1.290560 + 0.449291I$ $a = 1.222640 + 0.508158I$ $b = 1.197440 + 0.229093I$	$-4.32374 + 11.77480I$	$-6.90294 - 7.27320I$
$u = -1.290560 - 0.449291I$ $a = 1.222640 - 0.508158I$ $b = 1.197440 - 0.229093I$	$-4.32374 - 11.77480I$	$-6.90294 + 7.27320I$
$u = 1.302820 + 0.502514I$ $a = 1.54947 + 0.13563I$ $b = 0.71137 + 1.31109I$	$-3.42426 - 9.10911I$	$-5.82942 + 4.74238I$
$u = 1.302820 - 0.502514I$ $a = 1.54947 - 0.13563I$ $b = 0.71137 - 1.31109I$	$-3.42426 + 9.10911I$	$-5.82942 - 4.74238I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.44217+1.35910I$ $a = 0.073091+0.326814I$ $b = 0.329283-0.962921I$	$6.02988+4.62837I$	$-1.75825-7.71280I$
$u = 0.44217-1.35910I$ $a = 0.073091-0.326814I$ $b = 0.329283+0.962921I$	$6.02988-4.62837I$	$-1.75825+7.71280I$
$u = -1.33663+0.56826I$ $a = -1.54034+0.04516I$ $b = -0.67361+1.31446I$	$-5.9512+13.8535I$	$-7.97274-8.38074I$
$u = -1.33663-0.56826I$ $a = -1.54034-0.04516I$ $b = -0.67361-1.31446I$	$-5.9512-13.8535I$	$-7.97274+8.38074I$
$u = 1.34073+0.61791I$ $a = 1.55507-0.01242I$ $b = 0.65114+1.30988I$	$-0.9117-18.2438I$	$-4.00000+9.83715I$
$u = 1.34073-0.61791I$ $a = 1.55507+0.01242I$ $b = 0.65114-1.30988I$	$-0.9117+18.2438I$	$-4.00000-9.83715I$
$u = 0.213178+0.467931I$ $a = 0.36399+1.66496I$ $b = 0.024263+0.470526I$	$4.47390-3.34803I$	$-0.32749+6.02159I$
$u = 0.213178-0.467931I$ $a = 0.36399-1.66496I$ $b = 0.024263-0.470526I$	$4.47390+3.34803I$	$-0.32749-6.02159I$
$u = -0.196895+0.308594I$ $a = -0.589750+0.965099I$ $b = -0.147597+0.322846I$	$-0.220482+0.849414I$	$-5.27557-8.01869I$
$u = -0.196895-0.308594I$ $a = -0.589750-0.965099I$ $b = -0.147597-0.322846I$	$-0.220482-0.849414I$	$-5.27557+8.01869I$

II.

$\boldsymbol{I_2^u = \langle 1.50\times10^{95}u^{63} - 1.89\times10^{95}u^{62} + \cdots + 1.43\times10^{96}b - 6.60\times10^{93},\ -9.36\times10^{96}u^{63} + 6.79\times10^{96}u^{62} + \cdots + 7.13\times10^{96}a - 8.35\times10^{96},\ u^{64} - u^{63} + \cdots + 2u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1.31364u^{63} - 0.953248u^{62} + \cdots + 22.8835u + 1.17156 \\ -0.105220u^{63} + 0.132673u^{62} + \cdots + 2.42160u + 0.00462786 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.591570u^{63} - 0.939185u^{62} + \cdots + 0.632587u - 4.37195 \\ 0.333288u^{63} - 0.0714706u^{62} + \cdots + 3.87249u + 0.0751465 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1.41886u^{63} - 1.08592u^{62} + \cdots + 20.4619u + 1.16693 \\ -0.105220u^{63} + 0.132673u^{62} + \cdots + 2.42160u + 0.00462786 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.286105u^{63} + 0.0322819u^{62} + \cdots + 2.98990u + 6.42850 \\ -0.344151u^{63} + 0.261233u^{62} + \cdots - 4.40148u + 0.160323 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1.52678u^{63} - 0.656432u^{62} + \cdots + 16.3035u + 0.874416 \\ 0.108961u^{63} - 0.112844u^{62} + \cdots + 7.91452u - 0.0527111 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.363225u^{63} + 0.303479u^{62} + \cdots - 19.7594u - 0.654120 \\ 0.406438u^{63} - 0.258918u^{62} + \cdots - 1.56762u + 1.20312 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1.19432u^{63} - 0.869854u^{62} + \cdots + 22.5993u + 0.781068 \\ -0.0493788u^{63} + 0.0918939u^{62} + \cdots + 2.65837u + 0.359194 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.337715u^{63} + 0.299253u^{62} + \cdots + 5.27380u + 1.54019 \\ -0.424950u^{63} + 0.350613u^{62} + \cdots - 2.19695u - 0.803842 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.629721u^{63} + 0.145367u^{62} + \cdots + 2.60522u - 5.20665$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$25(25u^{64} - 115u^{63} + \cdots - 5955714u - 1598267)$
c_2, c_6, c_8 c_{12}	$u^{64} - u^{63} + \cdots + 2u - 1$
c_3, c_4, c_9	$(u^{32} + u^{31} + \cdots - 2u - 1)^2$
c_5, c_{11}	$(u^{32} + u^{31} + \cdots - 2u - 1)^2$
c_{10}	$(u^{32} - 3u^{31} + \cdots - 4u^4 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	625 $\cdot (625y^{64} - 18125y^{63} + \cdots - 16248056965572y + 2554457403289)$
c_2, c_6, c_8 c_{12}	$y^{64} - 41y^{63} + \cdots + 1056y^2 + 1$
c_3, c_4, c_9	$(y^{32} - 27y^{31} + \cdots + 16y^2 + 1)^2$
c_5, c_{11}	$(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$
c_{10}	$(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.990635 + 0.241870I$ $a = 2.26968 - 0.29396I$ $b = 0.192477 + 0.755088I$	$-2.78881 - 1.03498I$	$-4.81241 + 6.41402I$
$u = 0.990635 - 0.241870I$ $a = 2.26968 + 0.29396I$ $b = 0.192477 - 0.755088I$	$-2.78881 + 1.03498I$	$-4.81241 - 6.41402I$
$u = -0.032718 + 0.967368I$ $a = -0.072441 - 0.475008I$ $b = -0.492704 + 1.133860I$	$0.60843 + 3.89503I$	$-2.64939 - 2.90091I$
$u = -0.032718 - 0.967368I$ $a = -0.072441 + 0.475008I$ $b = -0.492704 - 1.133860I$	$0.60843 - 3.89503I$	$-2.64939 + 2.90091I$
$u = -0.956448 + 0.075927I$ $a = 1.58187 - 0.40525I$ $b = 0.362087 - 1.159290I$	$-0.945525 + 0.397373I$	$-4.16402 + 0.58140I$
$u = -0.956448 - 0.075927I$ $a = 1.58187 + 0.40525I$ $b = 0.362087 + 1.159290I$	$-0.945525 - 0.397373I$	$-4.16402 - 0.58140I$
$u = -0.412639 + 0.830760I$ $a = 0.212906 - 0.019763I$ $b = 0.450235 + 1.200350I$	$7.53680 - 4.39858I$	$2.80847 + 3.53545I$
$u = -0.412639 - 0.830760I$ $a = 0.212906 + 0.019763I$ $b = 0.450235 - 1.200350I$	$7.53680 + 4.39858I$	$2.80847 - 3.53545I$
$u = 0.084877 + 0.893403I$ $a = -0.320511 - 0.640838I$ $b = -0.792800 + 0.172177I$	$-0.15402 - 7.01747I$	$-4.33777 + 4.88322I$
$u = 0.084877 - 0.893403I$ $a = -0.320511 + 0.640838I$ $b = -0.792800 - 0.172177I$	$-0.15402 + 7.01747I$	$-4.33777 - 4.88322I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.11160$ $a = -1.10145$ $b = -0.605013$	-2.06165	-4.00000
$u = -1.120250 + 0.166620I$ $a = -0.45014 + 1.61931I$ $b = 0.192477 + 0.755088I$	$-2.78881 - 1.03498I$	0
$u = -1.120250 - 0.166620I$ $a = -0.45014 - 1.61931I$ $b = 0.192477 - 0.755088I$	$-2.78881 + 1.03498I$	0
$u = -0.088436 + 1.131120I$ $a = 0.208910 - 0.387911I$ $b = 0.514933 + 1.164400I$	$-2.01515 - 7.88151I$	0
$u = -0.088436 - 1.131120I$ $a = 0.208910 + 0.387911I$ $b = 0.514933 - 1.164400I$	$-2.01515 + 7.88151I$	0
$u = 1.134990 + 0.013228I$ $a = -2.74635 + 1.89283I$ $b = -0.180753 + 1.016980I$	$1.71612 + 2.81562I$	$0. - 3.82546I$
$u = 1.134990 - 0.013228I$ $a = -2.74635 - 1.89283I$ $b = -0.180753 - 1.016980I$	$1.71612 - 2.81562I$	$0. + 3.82546I$
$u = 0.840181 + 0.161786I$ $a = -1.304710 + 0.455755I$ $b = -0.357265 + 1.197710I$	$3.96080 - 3.23058I$	$0.64791 + 1.85611I$
$u = 0.840181 - 0.161786I$ $a = -1.304710 - 0.455755I$ $b = -0.357265 - 1.197710I$	$3.96080 + 3.23058I$	$0.64791 - 1.85611I$
$u = 1.121800 + 0.348941I$ $a = -1.43264 - 0.22390I$ $b = -0.433982 - 1.139380I$	$0.99219 - 3.88889I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.121800 - 0.348941I$ $a = -1.43264 + 0.22390I$ $b = -0.433982 + 1.139380I$	$0.99219 + 3.88889I$	0
$u = -0.991993 + 0.629934I$ $a = 1.51377 + 0.08540I$ $b = 0.450235 - 1.200350I$	$7.53680 + 4.39858I$	0
$u = -0.991993 - 0.629934I$ $a = 1.51377 - 0.08540I$ $b = 0.450235 + 1.200350I$	$7.53680 - 4.39858I$	0
$u = 0.529100 + 0.629309I$ $a = 0.205138 - 0.452753I$ $b = -0.649942 + 0.248644I$	$-1.96053 + 0.52783I$	$-6.40552 - 0.64788I$
$u = 0.529100 - 0.629309I$ $a = 0.205138 + 0.452753I$ $b = -0.649942 - 0.248644I$	$-1.96053 - 0.52783I$	$-6.40552 + 0.64788I$
$u = -0.222094 + 0.779441I$ $a = 0.142461 - 0.681629I$ $b = 0.747372 + 0.188735I$	$-4.85609 + 3.15266I$	$-9.32272 - 3.41480I$
$u = -0.222094 - 0.779441I$ $a = 0.142461 + 0.681629I$ $b = 0.747372 - 0.188735I$	$-4.85609 - 3.15266I$	$-9.32272 + 3.41480I$
$u = 0.168998 + 1.197470I$ $a = -0.258604 - 0.355588I$ $b = -0.521034 + 1.182060I$	$2.81659 + 11.87580I$	0
$u = 0.168998 - 1.197470I$ $a = -0.258604 + 0.355588I$ $b = -0.521034 - 1.182060I$	$2.81659 - 11.87580I$	0
$u = -0.760820 + 0.051630I$ $a = -2.50737 - 4.06109I$ $b = -0.180753 + 1.016980I$	$1.71612 + 2.81562I$	$1.51638 - 3.82546I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.760820 - 0.051630I$ $a = -2.50737 + 4.06109I$ $b = -0.180753 - 1.016980I$	$1.71612 - 2.81562I$	$1.51638 + 3.82546I$
$u = 0.625366 + 0.416232I$ $a = 1.174630 - 0.459173I$ $b = 0.778647$	4.02976	$-6 - 0.517485 + 0.10I$
$u = 0.625366 - 0.416232I$ $a = 1.174630 + 0.459173I$ $b = 0.778647$	4.02976	$-6 - 0.517485 + 0.10I$
$u = -1.333050 + 0.080938I$ $a = -1.020740 + 0.026377I$ $b = -0.649942 - 0.248644I$	$-1.96053 - 0.52783I$	0
$u = -1.333050 - 0.080938I$ $a = -1.020740 - 0.026377I$ $b = -0.649942 + 0.248644I$	$-1.96053 + 0.52783I$	0
$u = 1.307060 + 0.281166I$ $a = 0.979374 - 0.045795I$ $b = 0.747372 - 0.188735I$	$-4.85609 - 3.15266I$	0
$u = 1.307060 - 0.281166I$ $a = 0.979374 + 0.045795I$ $b = 0.747372 + 0.188735I$	$-4.85609 + 3.15266I$	0
$u = 0.052652 + 0.652966I$ $a = 0.416300 - 0.268528I$ $b = -0.433982 + 1.139380I$	$0.99219 + 3.88889I$	$-1.10872 - 4.90467I$
$u = 0.052652 - 0.652966I$ $a = 0.416300 + 0.268528I$ $b = -0.433982 - 1.139380I$	$0.99219 - 3.88889I$	$-1.10872 + 4.90467I$
$u = 1.122470 + 0.772783I$ $a = 0.882366 - 0.650904I$ $b = 0.565288 + 0.826638I$	$-3.22871 - 6.17510I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.122470 - 0.772783I$ $a = 0.882366 + 0.650904I$ $b = 0.565288 - 0.826638I$	$-3.22871 + 6.17510I$	0
$u = -1.305470 + 0.401673I$ $a = -0.947263 - 0.080604I$ $b = -0.792800 - 0.172177I$	$-0.15402 + 7.01747I$	0
$u = -1.305470 - 0.401673I$ $a = -0.947263 + 0.080604I$ $b = -0.792800 + 0.172177I$	$-0.15402 - 7.01747I$	0
$u = -1.206430 + 0.672296I$ $a = -0.964053 - 0.575406I$ $b = -0.561289 + 0.769750I$	$-7.30442 + 2.24194I$	0
$u = -1.206430 - 0.672296I$ $a = -0.964053 + 0.575406I$ $b = -0.561289 - 0.769750I$	$-7.30442 - 2.24194I$	0
$u = 1.320730 + 0.465485I$ $a = -1.231650 - 0.114539I$ $b = -0.492704 - 1.133860I$	$0.60843 - 3.89503I$	0
$u = 1.320730 - 0.465485I$ $a = -1.231650 + 0.114539I$ $b = -0.492704 + 1.133860I$	$0.60843 + 3.89503I$	0
$u = 1.30308 + 0.56958I$ $a = 1.009850 - 0.465543I$ $b = 0.570562 + 0.700867I$	$-3.58638 + 1.65231I$	0
$u = 1.30308 - 0.56958I$ $a = 1.009850 + 0.465543I$ $b = 0.570562 - 0.700867I$	$-3.58638 - 1.65231I$	0
$u = -1.38759 + 0.47149I$ $a = 0.241029 + 0.345866I$ $b = 0.570562 + 0.700867I$	$-3.58638 + 1.65231I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.38759 - 0.47149I$ $a = 0.241029 - 0.345866I$ $b = 0.570562 - 0.700867I$	$-3.58638 - 1.65231I$	0
$u = -1.35456 + 0.61920I$ $a = 1.202930 + 0.011131I$ $b = 0.514933 - 1.164400I$	$-2.01515 + 7.88151I$	0
$u = -1.35456 - 0.61920I$ $a = 1.202930 - 0.011131I$ $b = 0.514933 + 1.164400I$	$-2.01515 - 7.88151I$	0
$u = 1.46603 + 0.36888I$ $a = -0.368646 + 0.401072I$ $b = -0.561289 + 0.769750I$	$-7.30442 + 2.24194I$	0
$u = 1.46603 - 0.36888I$ $a = -0.368646 - 0.401072I$ $b = -0.561289 - 0.769750I$	$-7.30442 - 2.24194I$	0
$u = 1.35258 + 0.70435I$ $a = -1.198040 + 0.073158I$ $b = -0.521034 - 1.182060I$	$2.81659 - 11.87580I$	0
$u = 1.35258 - 0.70435I$ $a = -1.198040 - 0.073158I$ $b = -0.521034 + 1.182060I$	$2.81659 + 11.87580I$	0
$u = -1.53537 + 0.28145I$ $a = 0.487673 + 0.401373I$ $b = 0.565288 + 0.826638I$	$-3.22871 - 6.17510I$	0
$u = -1.53537 - 0.28145I$ $a = 0.487673 - 0.401373I$ $b = 0.565288 - 0.826638I$	$-3.22871 + 6.17510I$	0
$u = 0.294443 + 0.223570I$ $a = -3.60080 - 0.80864I$ $b = -0.357265 - 1.197710I$	$3.96080 + 3.23058I$	$0.64791 - 1.85611I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.294443 - 0.223570I$ $a = -3.60080 + 0.80864I$ $b = -0.357265 + 1.197710I$	$3.96080 - 3.23058I$	$0.64791 + 1.85611I$
$u = 0.285124$ $a = 2.12456$ $b = -0.605013$	-2.06165	-3.73830
$u = -0.093871 + 0.133166I$ $a = -3.41648 + 4.64714I$ $b = 0.362087 + 1.159290I$	$-0.945525 - 0.397373I$	$-4.16402 - 0.58140I$
$u = -0.093871 - 0.133166I$ $a = -3.41648 - 4.64714I$ $b = 0.362087 - 1.159290I$	$-0.945525 + 0.397373I$	$-4.16402 + 0.58140I$

III. $\boldsymbol{I_3^u = \langle b+u,\ 8a^3 - 12a^2u + 4a^2 - 4au - 6a + u - 2,\ u^2+1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ 2u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ -u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a^2 - au + 1 \\ -au - 2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a + u \\ -u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} au \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -a^2u \\ -a + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2a^2 - au + 1 \\ -2au - 3 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 3a - u \\ -4a + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 6a^2u + 2a^2 - au + 6a - 3u - \frac{1}{2} \\ -8a^2u - 4a^2 + 4au - 8a + 4u + 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$64(64u^6 + 64u^5 + 64u^4 + 16u^3 + 12u^2 + 16u + 5)$
c_2, c_5, c_6 c_8, c_{11}, c_{12}	$(u^2 + 1)^3$
c_3, c_4, c_9	$u^6 - 3u^4 + 2u^2 + 1$
c_{10}	$u^6 + u^4 + 2u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$4096(4096y^6 + 4096y^5 + 3584y^4 - 128y^3 + 272y^2 - 136y + 25)$
c_2, c_5, c_6 c_8, c_{11}, c_{12}	$(y+1)^6$
c_3, c_4, c_9	$(y^3 - 3y^2 + 2y + 1)^2$
c_{10}	$(y^3 + y^2 + 2y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.438719 + 0.872431I$ $b = -1.000000I$	$6.31400 + 2.82812I$	$3.50976 - 2.97945I$
$u = 1.000000I$ $a = 0.377439 + 0.500000I$ $b = -1.000000I$	2.17641	$-3.01951 + 0.I$
$u = 1.000000I$ $a = -0.438719 + 0.127569I$ $b = -1.000000I$	$6.31400 - 2.82812I$	$3.50976 + 2.97945I$
$u = -1.000000I$ $a = -0.438719 - 0.872431I$ $b = 1.000000I$	$6.31400 - 2.82812I$	$3.50976 + 2.97945I$
$u = -1.000000I$ $a = 0.377439 - 0.500000I$ $b = 1.000000I$	2.17641	$-3.01951 + 0.I$
$u = -1.000000I$ $a = -0.438719 - 0.127569I$ $b = 1.000000I$	$6.31400 + 2.82812I$	$3.50976 - 2.97945I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$102400(u-1)(64u^6+64u^5+64u^4+16u^3+12u^2+16u+5)$ $\cdot(64u^{40}+128u^{39}+\cdots-18u+4)$ $\cdot(25u^{64}-115u^{63}+\cdots-5955714u-1598267)$
c_2, c_8	$(u-1)(u^2+1)^3(u^{40}-u^{39}+\cdots-8u+5)(u^{64}-u^{63}+\cdots+2u-1)$
c_3, c_4, c_9	$u(u^6-3u^4+2u^2+1)(u^{32}+u^{31}+\cdots-2u-1)^2$ $\cdot(u^{40}-3u^{39}+\cdots+40u+10)$
c_5, c_{11}	$u(u^2+1)^3(u^{32}+u^{31}+\cdots-2u-1)^2(u^{40}-3u^{39}+\cdots-116u+178)$
c_6, c_{12}	$(u+1)(u^2+1)^3(u^{40}-u^{39}+\cdots-8u+5)(u^{64}-u^{63}+\cdots+2u-1)$
c_{10}	$u(u^6+u^4+2u^2+1)(u^{32}-3u^{31}+\cdots-4u^4+1)^2$ $\cdot(u^{40}+9u^{39}+\cdots+223540u+24310)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$10485760000(y-1)$ $\cdot (4096y^6 + 4096y^5 + 3584y^4 - 128y^3 + 272y^2 - 136y + 25)$ $\cdot (4096y^{40} - 16384y^{39} + \cdots + 4y + 16)$ $\cdot (625y^{64} - 18125y^{63} + \cdots - 16248056965572y + 2554457403289)$
c_2, c_6, c_8 c_{12}	$(y-1)(y+1)^6(y^{40} - 15y^{39} + \cdots - 64y + 25)$ $\cdot (y^{64} - 41y^{63} + \cdots + 1056y^2 + 1)$
c_3, c_4, c_9	$y(y^3 - 3y^2 + 2y + 1)^2(y^{32} - 27y^{31} + \cdots + 16y^2 + 1)^2$ $\cdot (y^{40} - 33y^{39} + \cdots - 140y + 100)$
c_5, c_{11}	$y(y+1)^6(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$ $\cdot (y^{40} + 23y^{39} + \cdots + 897548y + 31684)$
c_{10}	$y(y^3 + y^2 + 2y + 1)^2(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$ $\cdot (y^{40} + 19y^{39} + \cdots - 3244220940y + 590976100)$