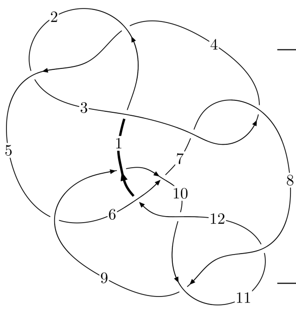
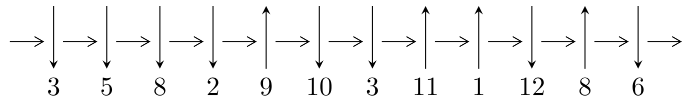
$12n_{0099}$ ($K12n_{0099}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -5.67717 \times 10^{122} u^{80} + 2.40640 \times 10^{123} u^{79} + \cdots + 1.36344 \times 10^{123} b - 1.28567 \times 10^{122}, \\
& -1.49380 \times 10^{122} u^{80} + 9.63422 \times 10^{122} u^{79} + \cdots + 6.81720 \times 10^{122} a - 3.22718 \times 10^{124}, \\
& u^{81} - 4u^{80} + \cdots + 83u + 1 \rangle \\
I_2^u = \langle & b,\ -u^3 + a - 2,\ u^4 + u^2 + u + 1 \rangle \\
I_3^u = \langle & b,\ -u^3 + u^2 + a - 2u + 1,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1 \rangle \\
I_4^u = \langle & -au + b + 2u,\ a^2 + au - 3a - 3u + 2,\ u^2 + u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 95 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. $I_1^u = \langle -5.68\times10^{122}u^{80} + 2.41\times10^{123}u^{79} + \cdots + 1.36\times10^{123}b - 1.29\times10^{122},\ -1.49\times10^{122}u^{80} + 9.63\times10^{122}u^{79} + \cdots + 6.82\times10^{122}a - 3.23\times10^{124},\ u^{81} - 4u^{80} + \cdots + 83u + 1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.219123u^{80} - 1.41322u^{79} + \cdots + 157.415u + 47.3388\\0.416386u^{80} - 1.76495u^{79} + \cdots - 43.2149u + 0.0942957\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.327866u^{80} + 1.87240u^{79} + \cdots - 62.8797u - 27.5857\\-0.435511u^{80} + 1.87462u^{79} + \cdots + 47.9628u + 0.199503\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^3\\u^3+u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.236666u^{80} + 1.65002u^{79} + \cdots - 61.3415u - 27.5686\\-0.457531u^{80} + 2.08795u^{79} + \cdots + 57.2670u + 0.314050\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.253925u^{80} - 0.469551u^{79} + \cdots + 57.0053u + 9.60025\\-0.376132u^{80} + 1.67454u^{79} + \cdots + 43.3245u + 0.630057\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.0290630u^{80} - 0.406433u^{79} + \cdots + 115.361u + 29.5970\\0.334532u^{80} - 1.24445u^{79} + \cdots - 23.7001u + 0.0863807\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.567784u^{80} + 2.57406u^{79} + \cdots - 60.4666u - 27.1793\\-0.334532u^{80} + 1.24445u^{79} + \cdots + 23.7001u - 0.0863807\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.197263u^{80} - 0.351727u^{79} + \cdots - 200.629u - 47.2445\\-0.416386u^{80} + 1.76495u^{79} + \cdots + 43.2149u - 0.0942957\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.523679u^{80} - 1.64827u^{79} + \cdots + 61.1096u - 9.44591$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{81} + 33u^{80} + \cdots + 130u + 1$
c_2, c_4	$u^{81} - 13u^{80} + \cdots - 12u + 1$
c_3, c_7	$u^{81} - 3u^{80} + \cdots + 1024u + 1024$
c_5	$u^{81} + u^{80} + \cdots + 8905262u + 2124511$
c_6	$u^{81} + 5u^{80} + \cdots - 47488u + 22208$
c_8, c_{11}	$u^{81} + 4u^{80} + \cdots + 83u - 1$
c_9	$u^{81} + 8u^{80} + \cdots + 256u + 16$
c_{10}	$u^{81} + 30u^{80} + \cdots + 6303u - 1$
c_{12}	$u^{81} - 4u^{80} + \cdots - 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{81} + 43y^{80} + \cdots + 5274y - 1$
c_2, c_4	$y^{81} - 33y^{80} + \cdots + 130y - 1$
c_3, c_7	$y^{81} + 57y^{80} + \cdots - 27787264y - 1048576$
c_5	$y^{81} + 47y^{80} + \cdots + 59668081079090y - 4513546989121$
c_6	$y^{81} + 103y^{80} + \cdots - 19451522048y - 493195264$
c_8, c_{11}	$y^{81} + 30y^{80} + \cdots + 6303y - 1$
c_9	$y^{81} - 20y^{80} + \cdots - 1152y - 256$
c_{10}	$y^{81} + 46y^{80} + \cdots + 39786411y - 1$
c_{12}	$y^{81} - 6y^{80} + \cdots + 11y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.505398+0.861438I$ $a=-4.37384-2.52183I$ $b=\ \ 0.603292-0.010555I$	$-1.02453-2.05291I$	$-171.972+28.532I$
$u=-0.505398-0.861438I$ $a=-4.37384+2.52183I$ $b=\ \ 0.603292+0.010555I$	$-1.02453+2.05291I$	$-171.972-28.532I$
$u=-0.009112+1.005390I$ $a=-0.308654+0.203514I$ $b=-0.336499-0.810387I$	$-4.60609-1.52975I$	0
$u=-0.009112-1.005390I$ $a=-0.308654-0.203514I$ $b=-0.336499+0.810387I$	$-4.60609+1.52975I$	0
$u=\ \ 0.742803+0.679982I$ $a=-0.167793+0.282223I$ $b=\ \ 0.67879+1.59644I$	$6.21314-4.26930I$	0
$u=\ \ 0.742803-0.679982I$ $a=-0.167793-0.282223I$ $b=\ \ 0.67879-1.59644I$	$6.21314+4.26930I$	0
$u=\ \ 0.724035+0.675293I$ $a=\ \ 1.163810+0.739644I$ $b=\ \ 0.239752-1.287670I$	$0.58736-1.68614I$	0
$u=\ \ 0.724035-0.675293I$ $a=\ \ 1.163810-0.739644I$ $b=\ \ 0.239752+1.287670I$	$0.58736+1.68614I$	0
$u=-0.264835+0.948397I$ $a=-0.02548-2.76624I$ $b=\ \ 0.086690-1.153850I$	$1.73887+0.56914I$	0
$u=-0.264835-0.948397I$ $a=-0.02548+2.76624I$ $b=\ \ 0.086690+1.153850I$	$1.73887-0.56914I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.479721 + 0.852602I$ $a = -1.22325 - 1.39529I$ $b = -1.59287 + 0.05128I$	$-8.92096 + 1.95711I$	$-29.9268 + 41.7453I$
$u = 0.479721 - 0.852602I$ $a = -1.22325 + 1.39529I$ $b = -1.59287 - 0.05128I$	$-8.92096 - 1.95711I$	$-29.9268 - 41.7453I$
$u = -0.615664 + 0.829871I$ $a = -1.37738 + 1.51974I$ $b = 0.154661 - 1.382630I$	$3.68961 + 0.58365I$	0
$u = -0.615664 - 0.829871I$ $a = -1.37738 - 1.51974I$ $b = 0.154661 + 1.382630I$	$3.68961 - 0.58365I$	0
$u = 0.825094 + 0.624144I$ $a = -0.916453 - 0.626602I$ $b = -1.357180 + 0.050552I$	$2.74432 - 4.49163I$	0
$u = 0.825094 - 0.624144I$ $a = -0.916453 + 0.626602I$ $b = -1.357180 - 0.050552I$	$2.74432 + 4.49163I$	0
$u = -0.524882 + 0.802233I$ $a = 4.37321 + 0.45617I$ $b = 0.458462 + 0.233945I$	$-1.11518 - 1.63608I$	$-22.5154 + 16.4209I$
$u = -0.524882 - 0.802233I$ $a = 4.37321 - 0.45617I$ $b = 0.458462 - 0.233945I$	$-1.11518 + 1.63608I$	$-22.5154 - 16.4209I$
$u = 0.703049 + 0.783366I$ $a = 0.83771 + 1.13988I$ $b = 1.42270 + 0.44570I$	$1.96531 + 1.49483I$	0
$u = 0.703049 - 0.783366I$ $a = 0.83771 - 1.13988I$ $b = 1.42270 - 0.44570I$	$1.96531 - 1.49483I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.026493 + 0.936757I$ $a = 0.59780 + 2.29454I$ $b = 0.439042 + 1.154740I$	$0.95414 - 4.42889I$	$-4.00000 + 4.19606I$
$u = -0.026493 - 0.936757I$ $a = 0.59780 - 2.29454I$ $b = 0.439042 - 1.154740I$	$0.95414 + 4.42889I$	$-4.00000 - 4.19606I$
$u = -0.671407 + 0.627762I$ $a = -0.913409 - 0.028748I$ $b = -0.412488 + 0.213180I$	$1.15026 - 1.50439I$	$2.46877 + 2.61626I$
$u = -0.671407 - 0.627762I$ $a = -0.913409 + 0.028748I$ $b = -0.412488 - 0.213180I$	$1.15026 + 1.50439I$	$2.46877 - 2.61626I$
$u = -0.599484 + 0.904512I$ $a = 2.63171 - 1.35351I$ $b = 0.277078 + 1.371800I$	$3.45045 - 5.35632I$	0
$u = -0.599484 - 0.904512I$ $a = 2.63171 + 1.35351I$ $b = 0.277078 - 1.371800I$	$3.45045 + 5.35632I$	0
$u = -0.561505 + 0.944951I$ $a = 1.70785 + 3.15850I$ $b = 0.110600 - 0.423339I$	$-1.63060 - 2.73282I$	0
$u = -0.561505 - 0.944951I$ $a = 1.70785 - 3.15850I$ $b = 0.110600 + 0.423339I$	$-1.63060 + 2.73282I$	0
$u = -0.455620 + 1.013820I$ $a = -0.238189 + 0.544842I$ $b = 0.029747 + 0.351694I$	$-0.39491 - 2.82152I$	0
$u = -0.455620 - 1.013820I$ $a = -0.238189 - 0.544842I$ $b = 0.029747 - 0.351694I$	$-0.39491 + 2.82152I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.761415 + 0.820530I$ $a = 0.531324 - 0.454947I$ $b = -0.42765 - 1.74880I$	$8.06491 + 2.92024I$	0
$u = 0.761415 - 0.820530I$ $a = 0.531324 + 0.454947I$ $b = -0.42765 + 1.74880I$	$8.06491 - 2.92024I$	0
$u = -0.108997 + 1.122070I$ $a = -2.39634 - 0.23797I$ $b = -0.890661 + 0.321140I$	$-3.72961 - 3.73093I$	0
$u = -0.108997 - 1.122070I$ $a = -2.39634 + 0.23797I$ $b = -0.890661 - 0.321140I$	$-3.72961 + 3.73093I$	0
$u = 0.997287 + 0.541891I$ $a = -0.369368 - 0.079618I$ $b = -0.66734 - 1.50573I$	$7.29123 - 11.70270I$	0
$u = 0.997287 - 0.541891I$ $a = -0.369368 + 0.079618I$ $b = -0.66734 + 1.50573I$	$7.29123 + 11.70270I$	0
$u = 0.959008 + 0.624962I$ $a = -0.148070 + 0.092204I$ $b = 0.36850 + 1.64315I$	$9.10043 - 4.86820I$	0
$u = 0.959008 - 0.624962I$ $a = -0.148070 - 0.092204I$ $b = 0.36850 - 1.64315I$	$9.10043 + 4.86820I$	0
$u = 0.682699 + 0.926132I$ $a = 1.43843 + 0.92415I$ $b = 1.54169 - 0.19466I$	$1.52644 + 3.83350I$	0
$u = 0.682699 - 0.926132I$ $a = 1.43843 - 0.92415I$ $b = 1.54169 + 0.19466I$	$1.52644 - 3.83350I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.745953 + 0.906662I$ $a = -1.80870 - 0.05187I$ $b = -0.63390 + 1.61836I$	$7.80552 + 2.77364I$	0
$u = 0.745953 - 0.906662I$ $a = -1.80870 + 0.05187I$ $b = -0.63390 - 1.61836I$	$7.80552 - 2.77364I$	0
$u = -0.714581 + 0.401247I$ $a = -1.165920 - 0.348917I$ $b = -0.616988 - 0.161976I$	$1.29375 - 1.45245I$	$3.62930 + 4.86424I$
$u = -0.714581 - 0.401247I$ $a = -1.165920 + 0.348917I$ $b = -0.616988 + 0.161976I$	$1.29375 + 1.45245I$	$3.62930 - 4.86424I$
$u = 0.062348 + 0.798476I$ $a = 1.53880 + 1.10941I$ $b = 0.880183 - 0.328930I$	$-2.15630 + 0.07606I$	$-8.00350 + 0.07144I$
$u = 0.062348 - 0.798476I$ $a = 1.53880 - 1.10941I$ $b = 0.880183 + 0.328930I$	$-2.15630 - 0.07606I$	$-8.00350 - 0.07144I$
$u = 0.675941 + 0.993873I$ $a = -0.976588 - 0.077747I$ $b = 0.00539 + 1.42943I$	$-0.36837 + 7.06216I$	0
$u = 0.675941 - 0.993873I$ $a = -0.976588 + 0.077747I$ $b = 0.00539 - 1.42943I$	$-0.36837 - 7.06216I$	0
$u = 0.680506 + 0.995566I$ $a = 2.16987 + 0.15146I$ $b = 0.83647 - 1.48482I$	$5.25967 + 9.70670I$	0
$u = 0.680506 - 0.995566I$ $a = 2.16987 - 0.15146I$ $b = 0.83647 + 1.48482I$	$5.25967 - 9.70670I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.753433 + 0.220803I$ $a = -0.235608 + 0.164102I$ $b = 0.020461 + 0.617454I$	$-1.20619 - 3.00339I$	$2.21341 + 3.98452I$
$u = 0.753433 - 0.220803I$ $a = -0.235608 - 0.164102I$ $b = 0.020461 - 0.617454I$	$-1.20619 + 3.00339I$	$2.21341 - 3.98452I$
$u = 0.292757 + 1.184200I$ $a = -0.573258 + 0.779271I$ $b = -0.077263 + 0.631820I$	$-5.47007 + 0.37522I$	0
$u = 0.292757 - 1.184200I$ $a = -0.573258 - 0.779271I$ $b = -0.077263 - 0.631820I$	$-5.47007 - 0.37522I$	0
$u = -1.152240 + 0.412570I$ $a = -0.130976 + 0.209918I$ $b = -0.16545 + 1.48707I$	$7.13557 + 1.25582I$	0
$u = -1.152240 - 0.412570I$ $a = -0.130976 - 0.209918I$ $b = -0.16545 - 1.48707I$	$7.13557 - 1.25582I$	0
$u = -0.684988 + 1.023750I$ $a = -1.51416 + 0.44312I$ $b = -0.757611 + 0.003546I$	$-0.12016 - 3.83503I$	0
$u = -0.684988 - 1.023750I$ $a = -1.51416 - 0.44312I$ $b = -0.757611 - 0.003546I$	$-0.12016 + 3.83503I$	0
$u = 0.703453 + 1.042720I$ $a = -1.25123 - 1.15161I$ $b = -1.45915 - 0.22710I$	$1.48186 + 10.21890I$	0
$u = 0.703453 - 1.042720I$ $a = -1.25123 + 1.15161I$ $b = -1.45915 + 0.22710I$	$1.48186 - 10.21890I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.532163 + 1.140700I$ $a = 0.456393 - 0.597727I$ $b = 0.060321 - 0.542689I$	$-3.86039 + 7.78753I$	0
$u = 0.532163 - 1.140700I$ $a = 0.456393 + 0.597727I$ $b = 0.060321 + 0.542689I$	$-3.86039 - 7.78753I$	0
$u = -1.138710 + 0.566751I$ $a = -0.479445 - 0.126460I$ $b = -0.25605 - 1.48232I$	$6.96738 - 5.09561I$	0
$u = -1.138710 - 0.566751I$ $a = -0.479445 + 0.126460I$ $b = -0.25605 + 1.48232I$	$6.96738 + 5.09561I$	0
$u = 0.752599 + 1.093140I$ $a = 1.79634 - 0.18613I$ $b = 0.51625 - 1.63587I$	$7.63873 + 11.12540I$	0
$u = 0.752599 - 1.093140I$ $a = 1.79634 + 0.18613I$ $b = 0.51625 + 1.63587I$	$7.63873 - 11.12540I$	0
$u = -0.240383 + 1.329020I$ $a = 0.39785 + 1.40917I$ $b = 0.123794 + 1.279290I$	$0.90648 - 3.26112I$	0
$u = -0.240383 - 1.329020I$ $a = 0.39785 - 1.40917I$ $b = 0.123794 - 1.279290I$	$0.90648 + 3.26112I$	0
$u = 0.729533 + 1.141910I$ $a = -2.16101 + 0.00371I$ $b = -0.75699 + 1.47497I$	$5.4200 + 17.9748I$	0
$u = 0.729533 - 1.141910I$ $a = -2.16101 - 0.00371I$ $b = -0.75699 - 1.47497I$	$5.4200 - 17.9748I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.100629 + 1.380790I$ $a = -1.09077 - 1.42258I$ $b = -0.50450 - 1.33076I$	$-0.35544 - 9.04141I$	0
$u = -0.100629 - 1.380790I$ $a = -1.09077 + 1.42258I$ $b = -0.50450 + 1.33076I$	$-0.35544 + 9.04141I$	0
$u = -0.87285 + 1.14057I$ $a = 0.715969 + 0.518957I$ $b = -0.05609 + 1.43328I$	$5.23560 - 2.02485I$	0
$u = -0.87285 - 1.14057I$ $a = 0.715969 - 0.518957I$ $b = -0.05609 - 1.43328I$	$5.23560 + 2.02485I$	0
$u = -0.80039 + 1.23078I$ $a = -1.41250 - 0.47345I$ $b = -0.35709 - 1.43000I$	$4.66300 - 8.19652I$	0
$u = -0.80039 - 1.23078I$ $a = -1.41250 + 0.47345I$ $b = -0.35709 + 1.43000I$	$4.66300 + 8.19652I$	0
$u = -0.455946 + 0.115914I$ $a = -0.197228 + 1.245260I$ $b = 0.21037 + 1.44375I$	$4.09035 - 3.09672I$	$-6.42475 + 2.99947I$
$u = -0.455946 - 0.115914I$ $a = -0.197228 - 1.245260I$ $b = 0.21037 - 1.44375I$	$4.09035 + 3.09672I$	$-6.42475 - 2.99947I$
$u = -0.293387 + 0.220524I$ $a = 4.39202 + 0.48966I$ $b = 0.455347 - 0.441128I$	$-1.004280 - 0.810007I$	$-4.84130 - 2.46574I$
$u = -0.293387 - 0.220524I$ $a = 4.39202 - 0.48966I$ $b = 0.455347 + 0.441128I$	$-1.004280 + 0.810007I$	$-4.84130 + 2.46574I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.0125912$ $a = 45.4131$ $b = 0.612334$	-1.00318	-10.1710

II. $I_2^u = \langle b,\ -u^3 + a - 2,\ u^4 + u^2 + u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 9u^3 - 2u^2 + 2u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.547424 + 0.585652I$ $a = 2.39923 + 0.32564I$ $b = 0$	$-0.66484 - 1.39709I$	$1.58487 + 5.38446I$
$u = -0.547424 - 0.585652I$ $a = 2.39923 - 0.32564I$ $b = 0$	$-0.66484 + 1.39709I$	$1.58487 - 5.38446I$
$u = 0.547424 + 1.120870I$ $a = 0.100768 - 0.400532I$ $b = 0$	$-4.26996 + 7.64338I$	$-15.0849 - 3.8174I$
$u = 0.547424 - 1.120870I$ $a = 0.100768 + 0.400532I$ $b = 0$	$-4.26996 - 7.64338I$	$-15.0849 + 3.8174I$

III. $\boldsymbol{I_3^u = \langle b,\ -u^3+u^2+a-2u+1,\ u^6-u^5+2u^4-2u^3+2u^2-2u+1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3-u^2+2u-1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 \\ u^3+u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5+u^4-2u^3+2u^2-2u+2 \\ -u^5-2u^3+u^2-2u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^4-u^2+u-1 \\ 2u^5-u^4+3u^3-2u^2+3u-2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^4+u^3-2u^2+3u-2 \\ 2u^5-u^4+3u^3-2u^2+3u-2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^4+u^2-u+1 \\ -2u^5+u^4-3u^3+2u^2-3u+2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^3-u^2+2u-1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^5+u^4+2u^2+3u-12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.498832 + 1.001300I$ $a = 0.13238 + 2.74513I$ $b = 0$	$-1.91067 - 2.82812I$	$-14.1402 + 3.6935I$
$u = -0.498832 - 1.001300I$ $a = 0.13238 - 2.74513I$ $b = 0$	$-1.91067 + 2.82812I$	$-14.1402 - 3.6935I$
$u = 0.284920 + 1.115140I$ $a = -0.307599 + 0.479689I$ $b = 0$	-6.04826	$-14.4399 + 2.5036I$
$u = 0.284920 - 1.115140I$ $a = -0.307599 - 0.479689I$ $b = 0$	-6.04826	$-14.4399 - 2.5036I$
$u = 0.713912 + 0.305839I$ $a = 0.175218 + 0.614017I$ $b = 0$	$-1.91067 - 2.82812I$	$-8.91986 + 1.90022I$
$u = 0.713912 - 0.305839I$ $a = 0.175218 - 0.614017I$ $b = 0$	$-1.91067 + 2.82812I$	$-8.91986 - 1.90022I$

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

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ au-2u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2au - a + 5u + 4 \\ -au + 2u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2au - 2a + 3u + 4 \\ -2au - a + 2u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -3au - 3a + 8u + 6 \\ -3au + 6u - 2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -au - a + 3u + 3 \\ -au + 2u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -2au - a + 5u + 4 \\ -au + 2u - 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -au + a + 2u \\ au - 2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -21au - 42a + 25u + 91$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{12}	$(y^2 - 7y + 1)^2$
c_2, c_3, c_4 c_7	$(y^2 - 3y + 1)^2$
c_5, c_6	$y^4 + 7y^3 + 48y^2 + 7y + 1$
c_8, c_{10}, c_{11}	$(y^2 + y + 1)^2$
c_9	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 1.19098 - 1.40126I$ $b = 1.61803$	$-8.88264 - 2.02988I$	$15.5000 + 44.1304I$
$u = -0.500000 + 0.866025I$ $a = 2.30902 + 0.53523I$ $b = -0.618034$	$-0.98696 - 2.02988I$	$15.5000 - 37.2022I$
$u = -0.500000 - 0.866025I$ $a = 1.19098 + 1.40126I$ $b = 1.61803$	$-8.88264 + 2.02988I$	$15.5000 - 44.1304I$
$u = -0.500000 - 0.866025I$ $a = 2.30902 - 0.53523I$ $b = -0.618034$	$-0.98696 + 2.02988I$	$15.5000 + 37.2022I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^2-3u+1)^2(u^{81}+33u^{80}+\cdots+130u+1)$
c_2	$((u-1)^{10})(u^2+u-1)^2(u^{81}-13u^{80}+\cdots-12u+1)$
c_3	$u^{10}(u^2+u-1)^2(u^{81}-3u^{80}+\cdots+1024u+1024)$
c_4	$((u+1)^{10})(u^2-u-1)^2(u^{81}-13u^{80}+\cdots-12u+1)$
c_5	$(u^4+u^2+u+1)(u^4-3u^3+8u^2-3u+1)$ $\cdot(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{81}+u^{80}+\cdots+8905262u+2124511)$
c_6	$(u^3-u^2+1)^2(u^4-3u^3+8u^2-3u+1)(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{81}+5u^{80}+\cdots-47488u+22208)$
c_7	$u^{10}(u^2-u-1)^2(u^{81}-3u^{80}+\cdots+1024u+1024)$
c_8	$(u^2+u+1)^2(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{81}+4u^{80}+\cdots+83u-1)$
c_9	$u^4(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{81}+8u^{80}+\cdots+256u+16)$
c_{10}	$(u^2-u+1)^2(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^{81}+30u^{80}+\cdots+6303u-1)$
c_{11}	$(u^2-u+1)^2(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{81}+4u^{80}+\cdots+83u-1)$
c_{12}	$(u^2-3u+1)^2(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{81}-4u^{80}+\cdots-5u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{10})(y^2-7y+1)^2(y^{81}+43y^{80}+\cdots+5274y-1)$
c_2, c_4	$((y-1)^{10})(y^2-3y+1)^2(y^{81}-33y^{80}+\cdots+130y-1)$
c_3, c_7	$y^{10}(y^2-3y+1)^2(y^{81}+57y^{80}+\cdots-2.77873\times 10^7 y-1048576)$
c_5	$(y^4+2y^3+3y^2+y+1)(y^4+7y^3+48y^2+7y+1)$ $\cdot(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{81}+47y^{80}+\cdots+59668081079090y-4513546989121)$
c_6	$((y^3-y^2+2y-1)^2)(y^4-y^3+2y^2+7y+4)(y^4+7y^3+\cdots+7y+1)$ $\cdot(y^{81}+103y^{80}+\cdots-19451522048y-493195264)$
c_8, c_{11}	$(y^2+y+1)^2(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{81}+30y^{80}+\cdots+6303y-1)$
c_9	$y^4(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{81}-20y^{80}+\cdots-1152y-256)$
c_{10}	$((y^2+y+1)^2)(y^4+2y^3+\cdots+5y+1)(y^6-y^5+\cdots+8y^2+1)$ $\cdot(y^{81}+46y^{80}+\cdots+39786411y-1)$
c_{12}	$((y^2-7y+1)^2)(y^4+2y^3+\cdots+5y+1)(y^6-y^5+\cdots+8y^2+1)$ $\cdot(y^{81}-6y^{80}+\cdots+11y-1)$