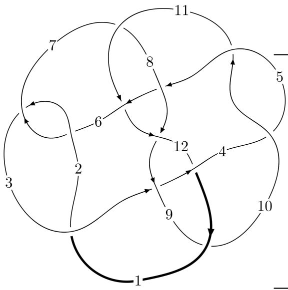
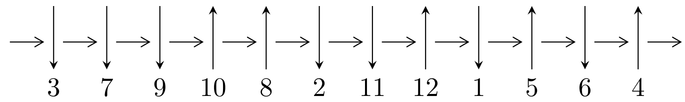
$12a_{0567}$ ($K12a_{0567}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -4.09131 \times 10^{58} u^{48} + 1.86986 \times 10^{59} u^{47} + \cdots + 3.40871 \times 10^{59} b - 2.44132 \times 10^{59}, \\
& 3.95934 \times 10^{59} u^{48} - 1.71738 \times 10^{60} u^{47} + \cdots + 2.72697 \times 10^{60} a + 4.13840 \times 10^{60},\ u^{49} - 4u^{48} + \cdots + 23u +\\
I_2^u = \langle & 5.76602 \times 10^{36} a u^{55} - 4.95035 \times 10^{36} u^{55} + \cdots + 4.07129 \times 10^{37} a - 2.44952 \times 10^{37}, \\
& - 3.06643 \times 10^{37} a u^{55} + 1.88524 \times 10^{37} u^{55} + \cdots - 2.77446 \times 10^{38} a + 8.18996 \times 10^{38}, \\
& u^{56} + 2u^{55} + \cdots + 6u - 1 \rangle \\
I_3^u = \langle & 4249 u^{14} a - 18260 u^{14} + \cdots + 1889 a - 19853,\ 391 u^{14} a - 404 u^{14} + \cdots + 414 a - 30, \\
& u^{15} + u^{14} - 4u^{13} - 6u^{12} + 5u^{11} + 11u^{10} - 5u^9 - 15u^8 + 12u^6 + 3u^5 - 4u^4 + 2u^2 - u - 1 \rangle \\
I_4^u = \langle & b + u,\ -u^3 + u^2 + a + 1,\ u^4 - u^3 + 1 \rangle \\
I_5^u = \langle & u^2 + b - 1,\ u^2 + a - 1,\ u^3 - u + 1 \rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 198 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. $I_1^u = \langle -4.09\times 10^{58}u^{48} + 1.87\times 10^{59}u^{47} + \cdots + 3.41\times 10^{59}b - 2.44\times 10^{59},\ 3.96\times 10^{59}u^{48} - 1.72\times 10^{60}u^{47} + \cdots + 2.73\times 10^{60}a + 4.14\times 10^{60},\ u^{49} - 4u^{48} + \cdots + 23u + 8\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.145192u^{48} + 0.629778u^{47} + \cdots - 4.54924u - 1.51758\\0.120025u^{48} - 0.548555u^{47} + \cdots + 0.606531u + 0.716200\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.189703u^{48} - 0.932656u^{47} + \cdots + 2.33137u + 9.48319\\-0.186093u^{48} + 0.727299u^{47} + \cdots + 1.76881u - 1.97297\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.265217u^{48} + 1.17833u^{47} + \cdots - 5.15578u - 2.23378\\0.120025u^{48} - 0.548555u^{47} + \cdots + 0.606531u + 0.716200\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.206990u^{48} - 0.945493u^{47} + \cdots + 14.0872u + 3.57428\\-0.0567147u^{48} + 0.239211u^{47} + \cdots - 2.81883u - 1.18146\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^3\\u^5 - u^3 + u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.562435u^{48} + 2.55775u^{47} + \cdots - 12.9670u - 8.28467\\0.114740u^{48} - 0.470163u^{47} + \cdots + 4.03582u + 2.02292\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.169778u^{48} - 0.780402u^{47} + \cdots + 14.4821u + 3.69444\\-0.0697919u^{48} + 0.249032u^{47} + \cdots - 1.50204u - 0.424318\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.180310u^{48} + 0.904758u^{47} + \cdots - 9.77548u - 7.99759\\0.107011u^{48} - 0.544666u^{47} + \cdots + 2.86335u + 2.67307\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.767693u^{48} + 3.20767u^{47} + \cdots - 21.2132u - 8.56327$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{49}+16u^{48}+\cdots+1553u+64$
c_2, c_6	$u^{49}-4u^{48}+\cdots+23u+8$
c_3, c_{11}	$23(23u^{49}+48u^{48}+\cdots+4u+1)$
c_4, c_{10}	$23(23u^{49}+117u^{48}+\cdots-2048u-256)$
c_5, c_{12}	$u^{49}+4u^{48}+\cdots+2u-23$
c_7, c_9	$u^{49}-4u^{48}+\cdots-202u+23$
c_8	$u^{49}-8u^{48}+\cdots+84571u-12398$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{49} + 16y^{48} + \cdots - 2527y - 4096$
c_2, c_6	$y^{49} - 16y^{48} + \cdots + 1553y - 64$
c_3, c_{11}	$529(529y^{49} - 4328y^{48} + \cdots + 8y - 1)$
c_4, c_{10}	$529(529y^{49} - 23901y^{48} + \cdots - 1048576y - 65536)$
c_5, c_{12}	$y^{49} - 4y^{48} + \cdots - 2480y - 529$
c_7, c_9	$y^{49} + 16y^{48} + \cdots + 5108y - 529$
c_8	$y^{49} + 2y^{48} + \cdots + 658603173y - 153710404$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.990760 + 0.010241I$ $a = 1.66046 - 1.49171I$ $b = 0.575647 - 0.169924I$	$-0.30315 + 5.10924I$	$-9.01712 - 6.22750I$
$u = -0.990760 - 0.010241I$ $a = 1.66046 + 1.49171I$ $b = 0.575647 + 0.169924I$	$-0.30315 - 5.10924I$	$-9.01712 + 6.22750I$
$u = 1.012260 + 0.023476I$ $a = -1.68942 + 0.80249I$ $b = -0.727210 + 0.167304I$	$-4.31448 + 1.69841I$	$-13.26922 - 4.56796I$
$u = 1.012260 - 0.023476I$ $a = -1.68942 - 0.80249I$ $b = -0.727210 - 0.167304I$	$-4.31448 - 1.69841I$	$-13.26922 + 4.56796I$
$u = -0.312749 + 0.928676I$ $a = 0.216831 - 0.264675I$ $b = -0.577562 + 0.648919I$	$1.60781 + 4.77505I$	$0.7752 - 16.7290I$
$u = -0.312749 - 0.928676I$ $a = 0.216831 + 0.264675I$ $b = -0.577562 - 0.648919I$	$1.60781 - 4.77505I$	$0.7752 + 16.7290I$
$u = 0.853950 + 0.601895I$ $a = 0.91949 - 1.33690I$ $b = 0.603418 + 0.748102I$	$3.57906 - 3.77603I$	$0.68519 + 6.98344I$
$u = 0.853950 - 0.601895I$ $a = 0.91949 + 1.33690I$ $b = 0.603418 - 0.748102I$	$3.57906 + 3.77603I$	$0.68519 - 6.98344I$
$u = 0.751553 + 0.728094I$ $a = -1.098480 + 0.238897I$ $b = -0.917649 + 0.653286I$	$4.63095 + 4.66427I$	$-0.48019 - 6.24279I$
$u = 0.751553 - 0.728094I$ $a = -1.098480 - 0.238897I$ $b = -0.917649 - 0.653286I$	$4.63095 - 4.66427I$	$-0.48019 + 6.24279I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.622417 + 0.699695I$ $a = 0.511387 + 0.269950I$ $b = 0.813837 + 0.666017I$	$0.67081 - 2.28505I$	$-5.95751 + 2.10511I$
$u = -0.622417 - 0.699695I$ $a = 0.511387 - 0.269950I$ $b = 0.813837 - 0.666017I$	$0.67081 + 2.28505I$	$-5.95751 - 2.10511I$
$u = -0.679488 + 0.852718I$ $a = 0.367118 - 0.009690I$ $b = -0.91748 - 1.39279I$	$3.85833 - 8.18929I$	$1.17804 + 7.15730I$
$u = -0.679488 - 0.852718I$ $a = 0.367118 + 0.009690I$ $b = -0.91748 + 1.39279I$	$3.85833 + 8.18929I$	$1.17804 - 7.15730I$
$u = 0.969892 + 0.566315I$ $a = 0.464777 - 0.615118I$ $b = -0.188565 + 0.396771I$	$3.35118 - 0.71038I$	$-1.12350 - 1.34429I$
$u = 0.969892 - 0.566315I$ $a = 0.464777 + 0.615118I$ $b = -0.188565 - 0.396771I$	$3.35118 + 0.71038I$	$-1.12350 + 1.34429I$
$u = 0.679113 + 0.905010I$ $a = 0.248678 - 0.766030I$ $b = 0.349493 - 0.169174I$	$5.29678 - 4.75824I$	$-1.81791 + 6.68023I$
$u = 0.679113 - 0.905010I$ $a = 0.248678 + 0.766030I$ $b = 0.349493 + 0.169174I$	$5.29678 + 4.75824I$	$-1.81791 - 6.68023I$
$u = 1.132310 + 0.186560I$ $a = 1.68536 + 0.59737I$ $b = 1.086950 + 0.852635I$	$-3.21951 - 7.86938I$	$-6.63301 + 8.97427I$
$u = 1.132310 - 0.186560I$ $a = 1.68536 - 0.59737I$ $b = 1.086950 - 0.852635I$	$-3.21951 + 7.86938I$	$-6.63301 - 8.97427I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.832906$ $a=\ 3.68483$ $b=\ 2.05274$	0.673510	-30.4930
$u=-1.151700+0.226303I$ $a=\ 0.787962+0.316767I$ $b=\ 0.775756+0.006400I$	$-2.35055+0.22485I$	$-5.48316-6.06612I$
$u=-1.151700-0.226303I$ $a=\ 0.787962-0.316767I$ $b=\ 0.775756-0.006400I$	$-2.35055-0.22485I$	$-5.48316+6.06612I$
$u=\ 0.963159+0.696372I$ $a=\ 2.02429-0.69272I$ $b=\ 1.009660+0.509444I$	$3.98032-10.12050I$	$-2.53052+11.41214I$
$u=\ 0.963159-0.696372I$ $a=\ 2.02429+0.69272I$ $b=\ 1.009660-0.509444I$	$3.98032+10.12050I$	$-2.53052-11.41214I$
$u=-1.007620+0.650126I$ $a=-1.71961-0.69174I$ $b=-0.983070+0.578977I$	$-0.46730+7.50602I$	$-10.62062-8.40734I$
$u=-1.007620-0.650126I$ $a=-1.71961+0.69174I$ $b=-0.983070-0.578977I$	$-0.46730-7.50602I$	$-10.62062+8.40734I$
$u=\ 0.664979+1.010740I$ $a=\ 0.0490397-0.0679405I$ $b=\ 0.96811-1.21500I$	$10.7432+14.0283I$	$3.41403-6.66068I$
$u=\ 0.664979-1.010740I$ $a=\ 0.0490397+0.0679405I$ $b=\ 0.96811+1.21500I$	$10.7432-14.0283I$	$3.41403+6.66068I$
$u=-0.940771+0.774401I$ $a=-0.479255-0.605762I$ $b=-0.156878+0.437253I$	$0.22555+2.99206I$	$-9.23818-4.58020I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.940771 - 0.774401I$ $a = -0.479255 + 0.605762I$ $b = -0.156878 - 0.437253I$	$0.22555 - 2.99206I$	$-9.23818 + 4.58020I$
$u = 0.921978 + 0.832111I$ $a = -0.202913 + 0.593928I$ $b = -1.088090 + 0.407029I$	$4.88611 - 1.92773I$	$-4.45196 - 2.98835I$
$u = 0.921978 - 0.832111I$ $a = -0.202913 - 0.593928I$ $b = -1.088090 - 0.407029I$	$4.88611 + 1.92773I$	$-4.45196 + 2.98835I$
$u = -1.032470 + 0.738931I$ $a = 1.81198 + 0.70417I$ $b = 1.10239 - 1.44459I$	$2.7816 + 14.1245I$	$0. - 11.47530I$
$u = -1.032470 - 0.738931I$ $a = 1.81198 - 0.70417I$ $b = 1.10239 + 1.44459I$	$2.7816 - 14.1245I$	$0. + 11.47530I$
$u = 0.945419 + 0.920642I$ $a = 0.610439 - 0.546138I$ $b = 0.717987 + 0.408108I$	$4.99471 - 4.54872I$	$0. + 8.24622I$
$u = 0.945419 - 0.920642I$ $a = 0.610439 + 0.546138I$ $b = 0.717987 - 0.408108I$	$4.99471 + 4.54872I$	$0. - 8.24622I$
$u = 0.110954 + 1.347940I$ $a = 0.0385506 + 0.0442015I$ $b = 0.608073 + 0.613858I$	$7.12930 - 6.91949I$	$0. + 13.46028I$
$u = 0.110954 - 1.347940I$ $a = 0.0385506 - 0.0442015I$ $b = 0.608073 - 0.613858I$	$7.12930 + 6.91949I$	$0. - 13.46028I$
$u = 1.105590 + 0.788327I$ $a = -1.72452 + 0.59522I$ $b = -1.08248 - 1.25928I$	$9.3385 - 20.5675I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 1.105590 - 0.788327I$ $a = -1.72452 - 0.59522I$ $b = -1.08248 + 1.25928I$	$9.3385 + 20.5675I$	0
$u = -1.342990 + 0.314986I$ $a = -1.355500 + 0.358423I$ $b = -0.981026 + 0.806984I$	$1.72502 + 12.43410I$	0
$u = -1.342990 - 0.314986I$ $a = -1.355500 - 0.358423I$ $b = -0.981026 - 0.806984I$	$1.72502 - 12.43410I$	0
$u = -0.323280 + 0.360692I$ $a = \ \ 0.615793 - 0.612104I$ $b = \ \ 0.182207 - 0.540934I$	$-0.355252 + 1.132390I$	$-3.37752 - 6.52476I$
$u = -0.323280 - 0.360692I$ $a = \ \ 0.615793 + 0.612104I$ $b = \ \ 0.182207 + 0.540934I$	$-0.355252 - 1.132390I$	$-3.37752 + 6.52476I$
$u = \ \ 0.390090$ $a = \ \ 0.833908$ $b = -0.714999$	3.47781	-0.345410
$u = -0.345538 + 0.146876I$ $a = \ \ 2.21115 - 2.51791I$ $b = -0.450186 + 0.783323I$	$2.32562 + 5.47653I$	$5.17929 - 7.75033I$
$u = -0.345538 - 0.146876I$ $a = \ \ 2.21115 + 2.51791I$ $b = -0.450186 - 0.783323I$	$2.32562 - 5.47653I$	$5.17929 + 7.75033I$
$u = \ \ 1.72004$ $a = -0.518361$ $b = -0.697464$	0.634491	0

II. $\boldsymbol{I_2^u = \langle 5.77 \times 10^{36} a u^{55} - 4.95 \times 10^{36} u^{55} + \cdots + 4.07 \times 10^{37} a - 2.45 \times 10^{37},\ -3.07 \times 10^{37} a u^{55} + 1.89 \times 10^{37} u^{55} + \cdots - 2.77 \times 10^{38} a + 8.19 \times 10^{38},\ u^{56} + 2u^{55} + \cdots + 6u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ -0.263852au^{55} + 0.226528u^{55} + \cdots - 1.86302a + 1.12090 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.13311au^{55} + 3.97767u^{55} + \cdots - 1.44837a + 3.96049 \\ 0.346941au^{55} + 0.263235u^{55} + \cdots + 0.0411106a - 1.88298 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.263852au^{55} - 0.226528u^{55} + \cdots + 2.86302a - 1.12090 \\ -0.263852au^{55} + 0.226528u^{55} + \cdots - 1.86302a + 1.12090 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.48785au^{55} + 3.09205u^{55} + \cdots - 1.35678a + 2.63162 \\ 1.15377au^{55} + 1.14886u^{55} + \cdots - 1.37061a - 0.554114 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.142306au^{55} - 3.09075u^{55} + \cdots + 3.95964a - 3.40186 \\ -0.296599au^{55} + 0.0319163u^{55} + \cdots - 0.758939a + 0.440740 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.334078au^{55} + 4.35457u^{55} + \cdots - 2.72739a + 1.39494 \\ -0.296599au^{55} + 0.675780u^{55} + \cdots - 0.758939a + 2.05880 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0113552au^{55} + 0.787260u^{55} + \cdots + 2.03843a - 5.29814 \\ -0.166899au^{55} + 0.565160u^{55} + \cdots - 1.50228a + 4.66470 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.564168u^{55} - 0.320433u^{54} + \cdots + 1.27052u - 7.10051$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{56}+22u^{55}+\cdots-30u+1)^2$
c_2	$(u^{56}+2u^{55}+\cdots+6u-1)^2$
c_3	$u^{112}-u^{111}+\cdots-45277u+4693$
c_4	$(u^{56}-u^{55}+\cdots+215u-71)^2$
c_5	$u^{112}+11u^{111}+\cdots+179619u+54371$
c_6	$(u^{56}-2u^{55}+\cdots-6u-1)^2$
c_7	$u^{112}+7u^{111}+\cdots-864296u-57901$
c_8	$(u^{56}+9u^{55}+\cdots+3202u-5311)^2$
c_9	$-u^{112}+7u^{111}+\cdots-864296u+57901$
c_{10}	$(u^{56}+u^{55}+\cdots-215u-71)^2$
c_{11}	$u^{112}+u^{111}+\cdots+45277u+4693$
c_{12}	$u^{112}-11u^{111}+\cdots-179619u+54371$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{56} + 34y^{55} + \cdots + 290y + 1)^2$
c_2, c_6	$(y^{56} - 22y^{55} + \cdots + 30y + 1)^2$
c_3, c_{11}	$y^{112} + 49y^{111} + \cdots - 2487957489y + 22024249$
c_4, c_{10}	$(y^{56} - 49y^{55} + \cdots - 29043y + 5041)^2$
c_5, c_{12}	$y^{112} - 55y^{111} + \cdots - 150031984807y + 2956205641$
c_7, c_9	$y^{112} + 37y^{111} + \cdots - 781066217638y + 3352525801$
c_8	$(y^{56} - 49y^{55} + \cdots - 1194117192y + 28206721)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.671053 + 0.735319I$ $a = 0.034452 + 0.413041I$ $b = -1.00065 + 1.35060I$	$8.15930 + 4.91971I$	$12.2797 - 8.5675I$
$u = 0.671053 + 0.735319I$ $a = -1.26603 + 2.27586I$ $b = 0.098678 - 0.462847I$	$8.15930 + 4.91971I$	$12.2797 - 8.5675I$
$u = 0.671053 - 0.735319I$ $a = 0.034452 - 0.413041I$ $b = -1.00065 - 1.35060I$	$8.15930 - 4.91971I$	$12.2797 + 8.5675I$
$u = 0.671053 - 0.735319I$ $a = -1.26603 - 2.27586I$ $b = 0.098678 + 0.462847I$	$8.15930 - 4.91971I$	$12.2797 + 8.5675I$
$u = -0.655268 + 0.731518I$ $a = -0.398273 + 0.154608I$ $b = 0.019812 + 1.334000I$	$8.20794 + 4.66184I$	$11.91846 - 7.01691I$
$u = -0.655268 + 0.731518I$ $a = -1.92896 - 1.98521I$ $b = -0.091543 + 0.686724I$	$8.20794 + 4.66184I$	$11.91846 - 7.01691I$
$u = -0.655268 - 0.731518I$ $a = -0.398273 - 0.154608I$ $b = 0.019812 - 1.334000I$	$8.20794 - 4.66184I$	$11.91846 + 7.01691I$
$u = -0.655268 - 0.731518I$ $a = -1.92896 + 1.98521I$ $b = -0.091543 - 0.686724I$	$8.20794 - 4.66184I$	$11.91846 + 7.01691I$
$u = 1.051480 + 0.111605I$ $a = -0.970862 + 0.318740I$ $b = -0.59009 + 1.32672I$	$3.39610 - 5.69525I$	$1.93131 + 6.67173I$
$u = 1.051480 + 0.111605I$ $a = 1.47223 + 1.23810I$ $b = 0.514661 + 0.883305I$	$3.39610 - 5.69525I$	$1.93131 + 6.67173I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.051480 - 0.111605I$ $a = -0.970862 - 0.318740I$ $b = -0.59009 - 1.32672I$	$3.39610 + 5.69525I$	$1.93131 - 6.67173I$
$u = 1.051480 - 0.111605I$ $a = 1.47223 - 1.23810I$ $b = 0.514661 - 0.883305I$	$3.39610 + 5.69525I$	$1.93131 - 6.67173I$
$u = 0.647956 + 0.835756I$ $a = 0.147561 - 0.081423I$ $b = -0.096629 - 0.884005I$	$8.58456 - 3.25562I$	$9.50170 + 3.89012I$
$u = 0.647956 + 0.835756I$ $a = 1.33719 - 1.38588I$ $b = 1.29716 + 0.92050I$	$8.58456 - 3.25562I$	$9.50170 + 3.89012I$
$u = 0.647956 - 0.835756I$ $a = 0.147561 + 0.081423I$ $b = -0.096629 + 0.884005I$	$8.58456 + 3.25562I$	$9.50170 - 3.89012I$
$u = 0.647956 - 0.835756I$ $a = 1.33719 + 1.38588I$ $b = 1.29716 - 0.92050I$	$8.58456 + 3.25562I$	$9.50170 - 3.89012I$
$u = 0.606316 + 0.870830I$ $a = 0.339911 + 0.114485I$ $b = -0.83087 + 1.24284I$	$4.57895 + 2.01945I$	$5.91153 - 3.01862I$
$u = 0.606316 + 0.870830I$ $a = 0.236613 + 0.256096I$ $b = 0.084853 - 0.779988I$	$4.57895 + 2.01945I$	$5.91153 - 3.01862I$
$u = 0.606316 - 0.870830I$ $a = 0.339911 - 0.114485I$ $b = -0.83087 - 1.24284I$	$4.57895 - 2.01945I$	$5.91153 + 3.01862I$
$u = 0.606316 - 0.870830I$ $a = 0.236613 - 0.256096I$ $b = 0.084853 + 0.779988I$	$4.57895 - 2.01945I$	$5.91153 + 3.01862I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.843962 + 0.643797I$ $a = 1.42039 - 0.43709I$ $b = 0.169785 + 0.925363I$	$3.18492 - 2.51394I$	$1.39602 + 4.07845I$
$u = 0.843962 + 0.643797I$ $a = 0.321321 - 0.313385I$ $b = -0.099338 + 1.112230I$	$3.18492 - 2.51394I$	$1.39602 + 4.07845I$
$u = 0.843962 - 0.643797I$ $a = 1.42039 + 0.43709I$ $b = 0.169785 - 0.925363I$	$3.18492 + 2.51394I$	$1.39602 - 4.07845I$
$u = 0.843962 - 0.643797I$ $a = 0.321321 + 0.313385I$ $b = -0.099338 - 1.112230I$	$3.18492 + 2.51394I$	$1.39602 - 4.07845I$
$u = -0.722762 + 0.789161I$ $a = -0.083301 + 0.139465I$ $b = -0.72018 - 1.28447I$	$9.49380 - 5.41487I$	$7.18004 + 3.12682I$
$u = -0.722762 + 0.789161I$ $a = 1.52309 + 1.35169I$ $b = 1.49182 - 1.13675I$	$9.49380 - 5.41487I$	$7.18004 + 3.12682I$
$u = -0.722762 - 0.789161I$ $a = -0.083301 - 0.139465I$ $b = -0.72018 + 1.28447I$	$9.49380 + 5.41487I$	$7.18004 - 3.12682I$
$u = -0.722762 - 0.789161I$ $a = 1.52309 - 1.35169I$ $b = 1.49182 + 1.13675I$	$9.49380 + 5.41487I$	$7.18004 - 3.12682I$
$u = -0.784911 + 0.730923I$ $a = -0.380802 + 0.936687I$ $b = 1.01727 + 1.42356I$	$7.84044 + 1.14495I$	$9.86468 + 0.47121I$
$u = -0.784911 + 0.730923I$ $a = -0.738756 + 0.986320I$ $b = -0.252150 - 0.745357I$	$7.84044 + 1.14495I$	$9.86468 + 0.47121I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.784911 - 0.730923I$ $a = -0.380802 - 0.936687I$ $b = 1.01727 - 1.42356I$	$7.84044 - 1.14495I$	$9.86468 - 0.47121I$
$u = -0.784911 - 0.730923I$ $a = -0.738756 - 0.986320I$ $b = -0.252150 + 0.745357I$	$7.84044 - 1.14495I$	$9.86468 - 0.47121I$
$u = -0.821390 + 0.697737I$ $a = -0.146388 + 0.503983I$ $b = 1.02303 + 1.37591I$	$3.47674 - 1.58032I$	$2.87158 + 3.23738I$
$u = -0.821390 + 0.697737I$ $a = 1.44211 + 0.64984I$ $b = 0.023723 - 0.545974I$	$3.47674 - 1.58032I$	$2.87158 + 3.23738I$
$u = -0.821390 - 0.697737I$ $a = -0.146388 - 0.503983I$ $b = 1.02303 - 1.37591I$	$3.47674 + 1.58032I$	$2.87158 - 3.23738I$
$u = -0.821390 - 0.697737I$ $a = 1.44211 - 0.64984I$ $b = 0.023723 + 0.545974I$	$3.47674 + 1.58032I$	$2.87158 - 3.23738I$
$u = 0.903982$ $a = -0.712165$ $b = -0.938052$	3.16663	2.67970
$u = 0.903982$ $a = 1.55929$ $b = -0.0837679$	3.16663	2.67970
$u = -1.100210 + 0.028227I$ $a = -1.188090 - 0.600760I$ $b = -0.490366 + 0.894894I$	$2.64990 + 4.34352I$	$1.80546 - 6.02172I$
$u = -1.100210 + 0.028227I$ $a = 1.24614 - 1.32051I$ $b = 0.787569 - 0.692463I$	$2.64990 + 4.34352I$	$1.80546 - 6.02172I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.100210-0.028227I$ $a=-1.188090+0.600760I$ $b=-0.490366-0.894894I$	$2.64990-4.34352I$	$1.80546+6.02172I$
$u=-1.100210-0.028227I$ $a=1.24614+1.32051I$ $b=0.787569+0.692463I$	$2.64990-4.34352I$	$1.80546+6.02172I$
$u=1.030240+0.406172I$ $a=0.925326-0.997111I$ $b=1.052900-0.017660I$	$-2.70052-5.63749I$	$-6.44125+7.08904I$
$u=1.030240+0.406172I$ $a=-2.08321-0.05879I$ $b=-0.851017-0.731337I$	$-2.70052-5.63749I$	$-6.44125+7.08904I$
$u=1.030240-0.406172I$ $a=0.925326+0.997111I$ $b=1.052900+0.017660I$	$-2.70052+5.63749I$	$-6.44125-7.08904I$
$u=1.030240-0.406172I$ $a=-2.08321+0.05879I$ $b=-0.851017+0.731337I$	$-2.70052+5.63749I$	$-6.44125-7.08904I$
$u=0.868540+0.705776I$ $a=-0.873366-0.293042I$ $b=0.77653-1.89663I$	$3.08142-2.70536I$	$1.25594+2.81571I$
$u=0.868540+0.705776I$ $a=-2.11391+0.91929I$ $b=-0.94598-1.72806I$	$3.08142-2.70536I$	$1.25594+2.81571I$
$u=0.868540-0.705776I$ $a=-0.873366+0.293042I$ $b=0.77653+1.89663I$	$3.08142+2.70536I$	$1.25594-2.81571I$
$u=0.868540-0.705776I$ $a=-2.11391-0.91929I$ $b=-0.94598+1.72806I$	$3.08142+2.70536I$	$1.25594-2.81571I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.093610+0.277348I$ $a=-0.659902-0.916771I$ $b=-0.486269-0.225346I$	$-3.46638+1.04104I$	$-9.55039-2.30638I$
$u=-1.093610+0.277348I$ $a=\ \ 1.75845-0.05068I$ $b=\ \ 1.194510-0.627546I$	$-3.46638+1.04104I$	$-9.55039-2.30638I$
$u=-1.093610-0.277348I$ $a=-0.659902+0.916771I$ $b=-0.486269+0.225346I$	$-3.46638-1.04104I$	$-9.55039+2.30638I$
$u=-1.093610-0.277348I$ $a=\ \ 1.75845+0.05068I$ $b=\ \ 1.194510+0.627546I$	$-3.46638-1.04104I$	$-9.55039+2.30638I$
$u=-0.899333+0.691537I$ $a=-0.203718+0.844361I$ $b=\ \ 0.056866-0.757996I$	$3.23931+6.92218I$	$2.18653-9.52211I$
$u=-0.899333+0.691537I$ $a=-2.03977-0.90936I$ $b=-1.26485+1.23057I$	$3.23931+6.92218I$	$2.18653-9.52211I$
$u=-0.899333-0.691537I$ $a=-0.203718-0.844361I$ $b=\ \ 0.056866+0.757996I$	$3.23931-6.92218I$	$2.18653+9.52211I$
$u=-0.899333-0.691537I$ $a=-2.03977+0.90936I$ $b=-1.26485-1.23057I$	$3.23931-6.92218I$	$2.18653+9.52211I$
$u=-0.940088+0.704068I$ $a=-1.70035-0.54160I$ $b=-1.29908+1.26359I$	$7.36120+4.33888I$	$9.15448-6.40900I$
$u=-0.940088+0.704068I$ $a=\ \ 1.91123+0.95452I$ $b=\ \ 0.318523-0.620422I$	$7.36120+4.33888I$	$9.15448-6.40900I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.940088 - 0.704068I$ $a = -1.70035 + 0.54160I$ $b = -1.29908 - 1.26359I$	$7.36120 - 4.33888I$	$9.15448 + 6.40900I$
$u = -0.940088 - 0.704068I$ $a = 1.91123 - 0.95452I$ $b = 0.318523 + 0.620422I$	$7.36120 - 4.33888I$	$9.15448 + 6.40900I$
$u = 1.005220 + 0.687044I$ $a = -0.00656 + 1.67607I$ $b = -0.054365 - 0.639241I$	$7.15644 - 10.37530I$	$10.9783 + 11.7769I$
$u = 1.005220 + 0.687044I$ $a = 2.09773 - 0.58903I$ $b = 1.22251 + 1.21995I$	$7.15644 - 10.37530I$	$10.9783 + 11.7769I$
$u = 1.005220 - 0.687044I$ $a = -0.00656 - 1.67607I$ $b = -0.054365 + 0.639241I$	$7.15644 + 10.37530I$	$10.9783 - 11.7769I$
$u = 1.005220 - 0.687044I$ $a = 2.09773 + 0.58903I$ $b = 1.22251 - 1.21995I$	$7.15644 + 10.37530I$	$10.9783 - 11.7769I$
$u = -0.992808 + 0.724667I$ $a = 0.019537 - 1.057320I$ $b = -1.46147 - 1.42377I$	$8.67176 + 11.13480I$	0
$u = -0.992808 + 0.724667I$ $a = 1.98474 + 0.67247I$ $b = 0.83751 - 1.21893I$	$8.67176 + 11.13480I$	0
$u = -0.992808 - 0.724667I$ $a = 0.019537 + 1.057320I$ $b = -1.46147 + 1.42377I$	$8.67176 - 11.13480I$	0
$u = -0.992808 - 0.724667I$ $a = 1.98474 - 0.67247I$ $b = 0.83751 + 1.21893I$	$8.67176 - 11.13480I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.762619 + 0.091383I$ $a = 1.120040 + 0.658603I$ $b = 0.548557 - 0.901107I$	$-0.27517 + 3.46206I$	$-4.92312 - 5.23114I$
$u = 0.762619 + 0.091383I$ $a = -1.45977 + 2.26715I$ $b = -1.009500 + 0.467491I$	$-0.27517 + 3.46206I$	$-4.92312 - 5.23114I$
$u = 0.762619 - 0.091383I$ $a = 1.120040 - 0.658603I$ $b = 0.548557 + 0.901107I$	$-0.27517 - 3.46206I$	$-4.92312 + 5.23114I$
$u = 0.762619 - 0.091383I$ $a = -1.45977 - 2.26715I$ $b = -1.009500 - 0.467491I$	$-0.27517 - 3.46206I$	$-4.92312 + 5.23114I$
$u = -1.030070 + 0.692608I$ $a = 0.240072 - 0.874574I$ $b = 0.267916 + 0.932851I$	$7.07940 + 0.81663I$	0
$u = -1.030070 + 0.692608I$ $a = -1.170500 + 0.289772I$ $b = -0.317845 + 1.099280I$	$7.07940 + 0.81663I$	0
$u = -1.030070 - 0.692608I$ $a = 0.240072 + 0.874574I$ $b = 0.267916 - 0.932851I$	$7.07940 - 0.81663I$	0
$u = -1.030070 - 0.692608I$ $a = -1.170500 - 0.289772I$ $b = -0.317845 - 1.099280I$	$7.07940 - 0.81663I$	0
$u = -0.731482 + 0.085796I$ $a = 0.16955 - 1.56338I$ $b = 0.06539 - 1.55390I$	$-0.305860 + 0.273475I$	$-5.19778 - 4.40178I$
$u = -0.731482 + 0.085796I$ $a = -1.36935 - 2.60328I$ $b = -0.635165 - 1.033230I$	$-0.305860 + 0.273475I$	$-5.19778 - 4.40178I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.731482 - 0.085796I$ $a = 0.16955 + 1.56338I$ $b = 0.06539 + 1.55390I$	$-0.305860 - 0.273475I$	$-5.19778 + 4.40178I$
$u = -0.731482 - 0.085796I$ $a = -1.36935 + 2.60328I$ $b = -0.635165 + 1.033230I$	$-0.305860 - 0.273475I$	$-5.19778 + 4.40178I$
$u = 1.060640 + 0.726908I$ $a = -1.146400 + 0.244174I$ $b = -0.281316 - 0.753506I$	$3.22224 - 7.94380I$	0
$u = 1.060640 + 0.726908I$ $a = 1.67828 - 0.54490I$ $b = 1.10619 + 1.31938I$	$3.22224 - 7.94380I$	0
$u = 1.060640 - 0.726908I$ $a = -1.146400 - 0.244174I$ $b = -0.281316 + 0.753506I$	$3.22224 + 7.94380I$	0
$u = 1.060640 - 0.726908I$ $a = 1.67828 + 0.54490I$ $b = 1.10619 - 1.31938I$	$3.22224 + 7.94380I$	0
$u = 1.060780 + 0.746153I$ $a = -0.868087 - 0.231573I$ $b = -0.098811 - 0.632183I$	$7.35144 - 2.67401I$	0
$u = 1.060780 + 0.746153I$ $a = -0.171399 + 0.728699I$ $b = -1.29309 + 1.25741I$	$7.35144 - 2.67401I$	0
$u = 1.060780 - 0.746153I$ $a = -0.868087 + 0.231573I$ $b = -0.098811 + 0.632183I$	$7.35144 + 2.67401I$	0
$u = 1.060780 - 0.746153I$ $a = -0.171399 - 0.728699I$ $b = -1.29309 - 1.25741I$	$7.35144 + 2.67401I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.639664+1.142700I$ $a=\ 0.0907454+0.0137080I$ $b=\ 0.92323+1.10207I$	$9.64435-4.35767I$	0
$u=-0.639664+1.142700I$ $a=\ 0.0579156-0.0509173I$ $b=-0.004300-0.805991I$	$9.64435-4.35767I$	0
$u=-0.639664-1.142700I$ $a=\ 0.0907454-0.0137080I$ $b=\ 0.92323-1.10207I$	$9.64435+4.35767I$	0
$u=-0.639664-1.142700I$ $a=\ 0.0579156+0.0509173I$ $b=-0.004300+0.805991I$	$9.64435+4.35767I$	0
$u=-1.39465$ $a=\ 0.978333$ $b=\ 1.15590$	-2.62295	0
$u=-1.39465$ $a=\ 0.0832108$ $b=\ 0.224734$	-2.62295	0
$u=\ 0.063466+0.584300I$ $a=\ 0.651341+0.089844I$ $b=-0.763936-0.319395I$	$-0.10326+2.06981I$	$-2.12397-3.13917I$
$u=\ 0.063466+0.584300I$ $a=\ 0.298658-0.272978I$ $b=\ 0.487593-0.746997I$	$-0.10326+2.06981I$	$-2.12397-3.13917I$
$u=\ 0.063466-0.584300I$ $a=\ 0.651341-0.089844I$ $b=-0.763936+0.319395I$	$-0.10326-2.06981I$	$-2.12397+3.13917I$
$u=\ 0.063466-0.584300I$ $a=\ 0.298658+0.272978I$ $b=\ 0.487593+0.746997I$	$-0.10326-2.06981I$	$-2.12397+3.13917I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.15196 + 0.83596I$ $a = 0.804054 - 0.064713I$ $b = 0.275082 - 0.834297I$	$8.00849 + 11.38970I$	0
$u = -1.15196 + 0.83596I$ $a = -1.54003 - 0.57492I$ $b = -1.01892 + 1.19474I$	$8.00849 + 11.38970I$	0
$u = -1.15196 - 0.83596I$ $a = 0.804054 + 0.064713I$ $b = 0.275082 + 0.834297I$	$8.00849 - 11.38970I$	0
$u = -1.15196 - 0.83596I$ $a = -1.54003 + 0.57492I$ $b = -1.01892 - 1.19474I$	$8.00849 - 11.38970I$	0
$u = 0.463532$ $a = 2.74448 + 0.43284I$ $b = 0.135146 - 1.050140I$	4.83953	4.50770
$u = 0.463532$ $a = 2.74448 - 0.43284I$ $b = 0.135146 + 1.050140I$	4.83953	4.50770
$u = 1.67030$ $a = -0.563240 + 0.165349I$ $b = -0.714634 + 0.222707I$	0.625659	0
$u = 1.67030$ $a = -0.563240 - 0.165349I$ $b = -0.714634 - 0.222707I$	0.625659	0
$u = 0.069713 + 0.153745I$ $a = 1.71682 - 1.09990I$ $b = -0.469761 + 1.259310I$	$6.94046 + 4.65477I$	$-8.88344 + 1.97207I$
$u = 0.069713 + 0.153745I$ $a = 17.3267 + 5.1539I$ $b = 0.665925 + 0.156361I$	$6.94046 + 4.65477I$	$-8.88344 + 1.97207I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.069713 - 0.153745I$ $a = 1.71682 + 1.09990I$ $b = -0.469761 - 1.259310I$	$6.94046 - 4.65477I$	$-8.88344 - 1.97207I$
$u = 0.069713 - 0.153745I$ $a = 17.3267 - 5.1539I$ $b = 0.665925 - 0.156361I$	$6.94046 - 4.65477I$	$-8.88344 - 1.97207I$

III. $\boldsymbol{I_3^u = \langle 4249u^{14}a - 18260u^{14} + \cdots + 1889a - 19853,\ 391u^{14}a - 404u^{14} + \cdots + 414a - 30,\ u^{15} + u^{14} + \cdots - u - 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_{11} = \begin{pmatrix} a \\ -2.10659au^{14} + 9.05305u^{14} + \cdots - 0.936539a + 9.84284 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 4.94695au^{14} - 1.61081u^{14} + \cdots + 7.15716a - 4.06891 \\ 6.48438au^{14} - 4.34804u^{14} + \cdots + 7.09767a - 6.10907 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2.10659au^{14} - 9.05305u^{14} + \cdots + 1.93654a - 9.84284 \\ -2.10659au^{14} + 9.05305u^{14} + \cdots - 0.936539a + 9.84284 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2.14031au^{14} + 1.26971u^{14} + \cdots + 4.99554a + 0.471988 \\ 1.29103au^{14} - 7.22856u^{14} + \cdots + 1.25930a - 10.6500 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 15.3733au^{14} - 27.8230u^{14} + \cdots + 16.9033a - 29.4403 \\ 2.33961au^{14} + 2.85424u^{14} + \cdots + 2.84432a + 2.24492 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 3.43133au^{14} + 6.04115u^{14} + \cdots + 6.25483a + 3.82201 \\ 2.33961au^{14} - 3.14576u^{14} + \cdots + 2.84432a - 5.75508 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 7.86019au^{14} - 1.50089u^{14} + \cdots + 8.25533a - 3.58309 \\ -1.18542au^{14} + 9.85527u^{14} + \cdots - 0.824492a + 4.37716 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -45u^{14} - 79u^{13} + 114u^{12} + 349u^{11} + 57u^{10} - 415u^9 - 99u^8 + 555u^7 + 433u^6 - 148u^5 - 227u^4 - 18u^3 - 17u^2 - 99u - 37$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{15} - 9u^{14} + \cdots + 5u - 1)^2$
c_2	$(u^{15} - u^{14} + \cdots - u + 1)^2$
c_3, c_{11}	$23(23u^{30} + 147u^{28} + \cdots + u + 1)$
c_4, c_{10}	$23(23u^{30} - 428u^{28} + \cdots - 56074u^2 + 361)$
c_5, c_{12}	$u^{30} - 4u^{29} + \cdots + 115u + 23$
c_6	$(u^{15} + u^{14} + \cdots - u - 1)^2$
c_7, c_9	$u^{30} + 2u^{29} + \cdots + 138u - 23$
c_8	$(u^{15} - 8u^{14} + \cdots - 5u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{15} - 5y^{14} + \cdots + y - 1)^2$
c_2, c_6	$(y^{15} - 9y^{14} + \cdots + 5y - 1)^2$
c_3, c_{11}	$529(529y^{30} + 6762y^{29} + \cdots - 45y + 1)$
c_4, c_{10}	$529(23y^{15} - 428y^{14} + \cdots - 56074y + 361)^2$
c_5, c_{12}	$y^{30} - 26y^{29} + \cdots - 4347y + 529$
c_7, c_9	$y^{30} + 10y^{29} + \cdots - 2438y + 529$
c_8	$(y^{15} - 12y^{14} + \cdots + 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.904032 + 0.500962I$ $a = 0.400934 + 0.876728I$ $b = 0.069706 - 1.116930I$	$4.87056 + 2.00812I$	$5.72627 - 3.22556I$
$u = -0.904032 + 0.500962I$ $a = 1.77208 - 0.00014I$ $b = 0.052148 - 0.855653I$	$4.87056 + 2.00812I$	$5.72627 - 3.22556I$
$u = -0.904032 - 0.500962I$ $a = 0.400934 - 0.876728I$ $b = 0.069706 + 1.116930I$	$4.87056 - 2.00812I$	$5.72627 + 3.22556I$
$u = -0.904032 - 0.500962I$ $a = 1.77208 + 0.00014I$ $b = 0.052148 + 0.855653I$	$4.87056 - 2.00812I$	$5.72627 + 3.22556I$
$u = -0.604563 + 0.739867I$ $a = 0.003512 - 0.169021I$ $b = -0.82144 - 1.27893I$	$7.78409 - 4.48024I$	$2.51653 - 2.10573I$
$u = -0.604563 + 0.739867I$ $a = -0.38868 - 2.08222I$ $b = -0.441933 + 0.363599I$	$7.78409 - 4.48024I$	$2.51653 - 2.10573I$
$u = -0.604563 - 0.739867I$ $a = 0.003512 + 0.169021I$ $b = -0.82144 + 1.27893I$	$7.78409 + 4.48024I$	$2.51653 + 2.10573I$
$u = -0.604563 - 0.739867I$ $a = -0.38868 + 2.08222I$ $b = -0.441933 - 0.363599I$	$7.78409 + 4.48024I$	$2.51653 + 2.10573I$
$u = 0.877651 + 0.004916I$ $a = 0.085115 + 0.992994I$ $b = -0.291346 - 0.853722I$	$1.07810 - 5.33896I$	$-3.04139 + 7.29844I$
$u = 0.877651 + 0.004916I$ $a = 1.79796 + 2.08916I$ $b = 0.677587 + 0.511986I$	$1.07810 - 5.33896I$	$-3.04139 + 7.29844I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.877651 - 0.004916I$ $a = 0.085115 - 0.992994I$ $b = -0.291346 + 0.853722I$	$1.07810 + 5.33896I$	$-3.04139 - 7.29844I$
$u = 0.877651 - 0.004916I$ $a = 1.79796 - 2.08916I$ $b = 0.677587 - 0.511986I$	$1.07810 + 5.33896I$	$-3.04139 - 7.29844I$
$u = 0.924863 + 0.711903I$ $a = -1.153080 + 0.162248I$ $b = -0.662154 - 0.614581I$	$6.24642 - 2.74833I$	$2.99946 + 3.06733I$
$u = 0.924863 + 0.711903I$ $a = 0.378437 - 0.530946I$ $b = 0.768488 - 0.833987I$	$6.24642 - 2.74833I$	$2.99946 + 3.06733I$
$u = 0.924863 - 0.711903I$ $a = -1.153080 - 0.162248I$ $b = -0.662154 + 0.614581I$	$6.24642 + 2.74833I$	$2.99946 - 3.06733I$
$u = 0.924863 - 0.711903I$ $a = 0.378437 + 0.530946I$ $b = 0.768488 + 0.833987I$	$6.24642 + 2.74833I$	$2.99946 - 3.06733I$
$u = -1.027220 + 0.711068I$ $a = 0.082567 - 0.636128I$ $b = 0.320419 + 0.524398I$	$6.56063 + 10.08130I$	$-0.80300 - 5.65611I$
$u = -1.027220 + 0.711068I$ $a = 1.94852 + 0.58493I$ $b = 1.07611 - 1.14951I$	$6.56063 + 10.08130I$	$-0.80300 - 5.65611I$
$u = -1.027220 - 0.711068I$ $a = 0.082567 + 0.636128I$ $b = 0.320419 - 0.524398I$	$6.56063 - 10.08130I$	$-0.80300 + 5.65611I$
$u = -1.027220 - 0.711068I$ $a = 1.94852 - 0.58493I$ $b = 1.07611 + 1.14951I$	$6.56063 - 10.08130I$	$-0.80300 + 5.65611I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.33306$ $a=-0.835812$ $b=-0.858603$	-2.75865	-25.0550
$u=-1.33306$ $a=-0.647491$ $b=-0.647713$	-2.75865	-25.0550
$u=\ 0.318556+0.568840I$ $a=-0.221205-0.008661I$ $b=-0.339670-1.161460I$	$7.22377-4.92438I$	$6.89107+11.55615I$
$u=\ 0.318556+0.568840I$ $a=\ 1.50073+3.42899I$ $b=-0.522464+0.107351I$	$7.22377-4.92438I$	$6.89107+11.55615I$
$u=\ 0.318556-0.568840I$ $a=-0.221205+0.008661I$ $b=-0.339670+1.161460I$	$7.22377+4.92438I$	$6.89107-11.55615I$
$u=\ 0.318556-0.568840I$ $a=\ 1.50073-3.42899I$ $b=-0.522464-0.107351I$	$7.22377+4.92438I$	$6.89107-11.55615I$
$u=-0.619936$ $a=\ 0.22158+3.24295I$ $b=\ 0.28092+1.70648I$	0.189631	9.78680
$u=-0.619936$ $a=\ 0.22158-3.24295I$ $b=\ 0.28092-1.70648I$	0.189631	9.78680
$u=\ 1.78249$ $a=\ 0.690052$ $b=\ 1.02052$	0.839240	24.6900
$u=\ 1.78249$ $a=-0.0636766$ $b=\ 0.153043$	0.839240	24.6900

IV. $I_4^u = \langle b+u,\ -u^3+u^2+a+1,\ u^4-u^3+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^3+6u^2-2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7, c_9	$y^4 + 3y^3 + 6y^2 + 4y + 1$
c_2, c_3, c_6 c_{11}	$y^4 - y^3 + 2y^2 + 1$
c_4, c_{10}	y^4
c_5, c_{12}	$y^4 + 2y^2 - y + 1$
c_8	$y^4 + y^3 + y^2 + 5y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.518913 + 0.666610I$ $a = -0.272864 + 0.934099I$ $b = 0.518913 - 0.666610I$	$1.43949 + 4.22398I$	$-2.49855 - 3.90867I$
$u = -0.518913 - 0.666610I$ $a = -0.272864 - 0.934099I$ $b = 0.518913 + 0.666610I$	$1.43949 - 4.22398I$	$-2.49855 + 3.90867I$
$u = 1.018910 + 0.602565I$ $a = -1.72714 + 0.43001I$ $b = -1.018910 - 0.602565I$	$0.20545 - 7.54387I$	$1.99855 + 9.02548I$
$u = 1.018910 - 0.602565I$ $a = -1.72714 - 0.43001I$ $b = -1.018910 + 0.602565I$	$0.20545 + 7.54387I$	$1.99855 - 9.02548I$

V. $I_5^u = \langle u^2 + b - 1,\ u^2 + a - 1,\ u^3 - u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -11u^2 + 4u + 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.662359 + 0.562280I$ $a = 0.877439 - 0.744862I$ $b = 0.877439 - 0.744862I$	$1.37919 + 2.82812I$	$2.30126 - 5.94436I$
$u = 0.662359 - 0.562280I$ $a = 0.877439 + 0.744862I$ $b = 0.877439 + 0.744862I$	$1.37919 - 2.82812I$	$2.30126 + 5.94436I$
$u = -1.32472$ $a = -0.754878$ $b = -0.754878$	-2.75839	-23.6030

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3-2u^2+u-1)(u^4-u^3+2u^2+1)(u^{15}-9u^{14}+\cdots+5u-1)^2$ $\cdot(u^{49}+16u^{48}+\cdots+1553u+64)$
c_2	$(u^3-u-1)(u^4+u^3+1)(u^{15}-u^{14}+\cdots-u+1)^2$ $\cdot(u^{49}-4u^{48}+\cdots+23u+8)$
c_3, c_{11}	$529(u^3+u^2-1)(u^4-u^3+1)(23u^{30}+147u^{28}+\cdots+u+1)$ $\cdot(23u^{49}+48u^{48}+\cdots+4u+1)$
c_4, c_{10}	$529u^7(23u^{30}-428u^{28}+\cdots-56074u^2+361)$ $\cdot(23u^{49}+117u^{48}+\cdots-2048u-256)$
c_5, c_{12}	$(u^3-u-1)(u^4-u+1)(u^{30}-4u^{29}+\cdots+115u+23)$ $\cdot(u^{49}+4u^{48}+\cdots+2u-23)$
c_6	$(u^3-u+1)(u^4-u^3+1)(u^{15}+u^{14}+\cdots-u-1)^2$ $\cdot(u^{49}-4u^{48}+\cdots+23u+8)$
c_7, c_9	$(u^3-u^2+2u-1)(u^4-u^3+2u^2+1)(u^{30}+2u^{29}+\cdots+138u-23)$ $\cdot(u^{49}-4u^{48}+\cdots-202u+23)$
c_8	$(u^3+2u^2+3u+1)(u^4+3u^3+5u^2+5u+3)$ $\cdot((u^{15}-8u^{14}+\cdots-5u-1)^2)(u^{49}-8u^{48}+\cdots+84571u-12398)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^3-2y^2-3y-1)(y^4+3y^3+\cdots+4y+1)(y^{15}-5y^{14}+\cdots+y-1)^2$ $\cdot(y^{49}+16y^{48}+\cdots-2527y-4096)$
c_2, c_6	$(y^3-2y^2+y-1)(y^4-y^3+2y^2+1)(y^{15}-9y^{14}+\cdots+5y-1)^2$ $\cdot(y^{49}-16y^{48}+\cdots+1553y-64)$
c_3, c_{11}	$279841(y^3-y^2+2y-1)(y^4-y^3+2y^2+1)$ $\cdot(529y^{30}+6762y^{29}+\cdots-45y+1)(529y^{49}-4328y^{48}+\cdots+8y-1)$
c_4, c_{10}	$279841y^7(23y^{15}-428y^{14}+\cdots-56074y+361)^2$ $\cdot(529y^{49}-23901y^{48}+\cdots-1048576y-65536)$
c_5, c_{12}	$(y^3-2y^2+y-1)(y^4+2y^2-y+1)(y^{30}-26y^{29}+\cdots-4347y+529)$ $\cdot(y^{49}-4y^{48}+\cdots-2480y-529)$
c_7, c_9	$(y^3+3y^2+2y-1)(y^4+3y^3+6y^2+4y+1)$ $\cdot(y^{30}+10y^{29}+\cdots-2438y+529)(y^{49}+16y^{48}+\cdots+5108y-529)$
c_8	$(y^3+2y^2+5y-1)(y^4+y^3+y^2+5y+9)(y^{15}-12y^{14}+\cdots+3y-1)^2$ $\cdot(y^{49}+2y^{48}+\cdots+658603173y-153710404)$