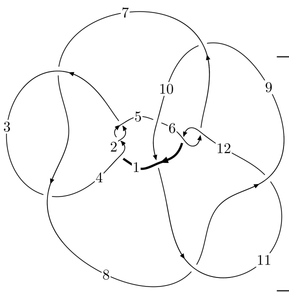
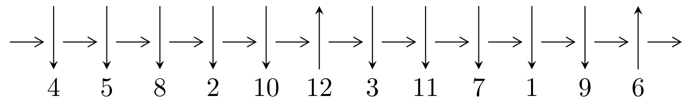
$12a_{0829}$ ($K12a_{0829}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & 7.15195\times 10^{399}u^{106} - 8.59095\times 10^{399}u^{105} + \cdots + 3.48006\times 10^{400}b - 4.32470\times 10^{402},\\
& 3.78913\times 10^{398}u^{106} - 5.25909\times 10^{398}u^{105} + \cdots + 4.09419\times 10^{399}a - 3.05225\times 10^{401},\\
& u^{107} - 2u^{106} + \cdots - 512u + 512\rangle\\
I^u_2 = \langle & 22u^2 + 17b + 2u + 40,\ u^2 + a - u + 2,\ u^3 - u^2 + 2u - 1\rangle
\end{aligned}$$

$$\begin{aligned}
I^v_1 = \langle & a,\ 14536v^8 + 40690v^7 + \cdots + 11959b + 36034,\\
& v^9 + 3v^8 - 2v^7 - 9v^6 + 11v^5 + 25v^4 + 6v^3 - 2v^2 + 3v + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 119 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. $\boldsymbol{I_1^u = \langle 7.15 \times 10^{399} u^{106} - 8.59 \times 10^{399} u^{105} + \cdots + 3.48 \times 10^{400} b - 4.32 \times 10^{402},\ 3.79 \times 10^{398} u^{106} - 5.26 \times 10^{398} u^{105} + \cdots + 4.09 \times 10^{399} a - 3.05 \times 10^{401},\ u^{107} - 2u^{106} + \cdots - 512u + 512 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0925491u^{106} + 0.128453u^{105} + \cdots + 27.8911u + 74.5508 \\ -0.205512u^{106} + 0.246862u^{105} + \cdots + 10.0191u + 124.271 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.141762u^{106} + 0.160044u^{105} + \cdots - 13.9980u + 76.5882 \\ -0.0579410u^{106} + 0.0583727u^{105} + \cdots - 24.6379u + 21.0757 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.225565u^{106} + 0.289473u^{105} + \cdots + 48.0564u + 157.554 \\ -0.280106u^{106} + 0.347672u^{105} + \cdots + 48.3843u + 184.903 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.192530u^{106} + 0.222762u^{105} + \cdots - 4.85824u + 110.365 \\ -0.108709u^{106} + 0.121091u^{105} + \cdots - 15.4981u + 54.8520 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.151786u^{106} - 0.171743u^{105} + \cdots + 15.7215u - 78.5804 \\ 0.00714381u^{106} - 0.00235302u^{105} + \cdots + 22.5669u + 5.72998 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0917504u^{106} - 0.139578u^{105} + \cdots - 54.8541u - 83.2245 \\ -0.0193726u^{106} + 0.0291699u^{105} + \cdots + 7.73340u + 16.5814 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.125588u^{106} + 0.200162u^{105} + \cdots + 87.0752u + 122.294 \\ -0.0338377u^{106} + 0.0605837u^{105} + \cdots + 32.2211u + 39.0699 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.125588u^{106} - 0.200162u^{105} + \cdots - 87.0752u - 122.294 \\ -0.0267303u^{106} + 0.0296535u^{105} + \cdots - 5.96052u + 12.9504 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.991312u^{106} - 1.30501u^{105} + \cdots - 366.569u - 745.449$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{107} - 11u^{106} + \cdots - u - 1$
c_3, c_7	$u^{107} - 2u^{106} + \cdots - 512u + 512$
c_5	$u^{107} + 2u^{106} + \cdots - 10404u + 2312$
c_6, c_{12}	$u^{107} + 3u^{106} + \cdots - 3u - 1$
c_8, c_{11}	$u^{107} - 5u^{106} + \cdots - 5466u - 289$
c_9	$17(17u^{107} + 96u^{106} + \cdots - 2.67194 \times 10^8 u + 4.35330 \times 10^7)$
c_{10}	$17(17u^{107} + 61u^{106} + \cdots + 4.98410 \times 10^7 u - 2813417)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{107} - 99y^{106} + \cdots - 29y - 1$
c_3, c_7	$y^{107} - 54y^{106} + \cdots + 7340032y - 262144$
c_5	$y^{107} - 18y^{106} + \cdots + 277740560y - 5345344$
c_6, c_{12}	$y^{107} + 73y^{106} + \cdots + 55y - 1$
c_8, c_{11}	$y^{107} - 81y^{106} + \cdots + 6093612y - 83521$
c_9	$289(289y^{107} - 19076y^{106} + \cdots + 8.77063 \times 10^{16}y - 1.89512 \times 10^{15})$
c_{10}	289 $\cdot (289y^{107} - 7971y^{106} + \cdots + 1153422073109755y - 7915315215889)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.931265 + 0.406170I$ $a = 0.180524 + 0.102775I$ $b = -0.628756 + 1.070630I$	$-2.30486 + 1.44330I$	0
$u = -0.931265 - 0.406170I$ $a = 0.180524 - 0.102775I$ $b = -0.628756 - 1.070630I$	$-2.30486 - 1.44330I$	0
$u = 0.976707 + 0.115936I$ $a = 0.599235 + 0.941304I$ $b = 0.698962 - 0.236650I$	$-3.84509 + 1.95256I$	0
$u = 0.976707 - 0.115936I$ $a = 0.599235 - 0.941304I$ $b = 0.698962 + 0.236650I$	$-3.84509 - 1.95256I$	0
$u = -0.356416 + 0.955461I$ $a = -0.592799 + 0.220178I$ $b = -0.938545 + 0.461272I$	$-1.66924 - 1.97469I$	0
$u = -0.356416 - 0.955461I$ $a = -0.592799 - 0.220178I$ $b = -0.938545 - 0.461272I$	$-1.66924 + 1.97469I$	0
$u = -1.012720 + 0.132824I$ $a = 1.54325 + 0.67120I$ $b = 2.50954 + 0.63542I$	$-7.33756 + 0.07613I$	0
$u = -1.012720 - 0.132824I$ $a = 1.54325 - 0.67120I$ $b = 2.50954 - 0.63542I$	$-7.33756 - 0.07613I$	0
$u = -0.971497 + 0.327337I$ $a = 1.094850 + 0.029360I$ $b = 2.56859 + 0.95662I$	$-2.56341 + 2.94691I$	0
$u = -0.971497 - 0.327337I$ $a = 1.094850 - 0.029360I$ $b = 2.56859 - 0.95662I$	$-2.56341 - 2.94691I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.088254 + 0.953155I$ $a = 0.143294 + 1.178500I$ $b = 1.132480 - 0.334989I$	$-4.79638 + 0.98699I$	0
$u = 0.088254 - 0.953155I$ $a = 0.143294 - 1.178500I$ $b = 1.132480 + 0.334989I$	$-4.79638 - 0.98699I$	0
$u = 0.933039 + 0.143215I$ $a = -0.494644 - 1.048140I$ $b = -0.343321 - 1.127840I$	$-3.78091 - 2.99219I$	0
$u = 0.933039 - 0.143215I$ $a = -0.494644 + 1.048140I$ $b = -0.343321 + 1.127840I$	$-3.78091 + 2.99219I$	0
$u = -0.431800 + 0.976154I$ $a = -0.668560 - 0.913554I$ $b = -0.428460 + 0.364883I$	$-3.77986 + 4.80948I$	0
$u = -0.431800 - 0.976154I$ $a = -0.668560 + 0.913554I$ $b = -0.428460 - 0.364883I$	$-3.77986 - 4.80948I$	0
$u = 0.228518 + 0.892361I$ $a = -0.264082 + 0.338861I$ $b = 0.70974 + 1.40915I$	$-4.76982 - 0.36186I$	0
$u = 0.228518 - 0.892361I$ $a = -0.264082 - 0.338861I$ $b = 0.70974 - 1.40915I$	$-4.76982 + 0.36186I$	0
$u = -0.092471 + 1.078070I$ $a = -0.44549 + 1.54366I$ $b = -0.620069 + 0.456648I$	$-9.17182 - 2.19773I$	0
$u = -0.092471 - 1.078070I$ $a = -0.44549 - 1.54366I$ $b = -0.620069 - 0.456648I$	$-9.17182 + 2.19773I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.889247 + 0.203541I$ $a = -1.189030 + 0.430620I$ $b = -2.69411 - 0.64847I$	$-2.97691 - 0.95326I$	0
$u = 0.889247 - 0.203541I$ $a = -1.189030 - 0.430620I$ $b = -2.69411 + 0.64847I$	$-2.97691 + 0.95326I$	0
$u = -0.242919 + 0.867268I$ $a = 0.10892 - 1.53983I$ $b = 0.090572 + 0.409338I$	$-4.39157 - 8.45275I$	0
$u = -0.242919 - 0.867268I$ $a = 0.10892 + 1.53983I$ $b = 0.090572 - 0.409338I$	$-4.39157 + 8.45275I$	0
$u = 1.061410 + 0.301435I$ $a = -1.53828 - 0.25745I$ $b = -2.67895 + 0.02396I$	$-6.91732 - 4.41662I$	0
$u = 1.061410 - 0.301435I$ $a = -1.53828 + 0.25745I$ $b = -2.67895 - 0.02396I$	$-6.91732 + 4.41662I$	0
$u = 0.304573 + 1.063250I$ $a = 0.997292 + 0.520611I$ $b = 1.080310 + 0.440969I$	$-5.05564 + 5.39819I$	0
$u = 0.304573 - 1.063250I$ $a = 0.997292 - 0.520611I$ $b = 1.080310 - 0.440969I$	$-5.05564 - 5.39819I$	0
$u = -0.870663 + 0.176776I$ $a = -0.973907 + 0.679642I$ $b = -0.531737 - 0.185116I$	$-0.72189 + 2.74860I$	0
$u = -0.870663 - 0.176776I$ $a = -0.973907 - 0.679642I$ $b = -0.531737 + 0.185116I$	$-0.72189 - 2.74860I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.015450 + 0.504665I$ $a = -0.241834 - 0.639622I$ $b = -0.171049 - 0.300765I$	$1.09835 - 3.92237I$	0
$u = 1.015450 - 0.504665I$ $a = -0.241834 + 0.639622I$ $b = -0.171049 + 0.300765I$	$1.09835 + 3.92237I$	0
$u = 0.526835 + 0.664073I$ $a = 0.813713 + 0.084744I$ $b = 0.649668 + 0.235899I$	$2.60177 - 0.62792I$	0
$u = 0.526835 - 0.664073I$ $a = 0.813713 - 0.084744I$ $b = 0.649668 - 0.235899I$	$2.60177 + 0.62792I$	0
$u = -1.076720 + 0.464977I$ $a = 0.552748 - 0.958127I$ $b = 0.796377 - 0.842288I$	$-2.37272 + 7.54825I$	0
$u = -1.076720 - 0.464977I$ $a = 0.552748 + 0.958127I$ $b = 0.796377 + 0.842288I$	$-2.37272 - 7.54825I$	0
$u = -0.733065 + 0.330340I$ $a = 0.064198 - 0.514775I$ $b = -0.374792 - 0.363000I$	$-0.769990 - 0.237218I$	$-8.00000 - 1.04777I$
$u = -0.733065 - 0.330340I$ $a = 0.064198 + 0.514775I$ $b = -0.374792 + 0.363000I$	$-0.769990 + 0.237218I$	$-8.00000 + 1.04777I$
$u = 0.716753 + 0.360053I$ $a = -1.124690 + 0.448670I$ $b = 3.46273 - 0.61131I$	$-3.50386 - 1.66896I$	$-16.6348 - 15.7652I$
$u = 0.716753 - 0.360053I$ $a = -1.124690 - 0.448670I$ $b = 3.46273 + 0.61131I$	$-3.50386 + 1.66896I$	$-16.6348 + 15.7652I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.092779 + 0.786586I$ $a = -0.268044 - 1.184120I$ $b = -0.075212 + 0.508676I$	$0.99398 + 2.92097I$	$-2.14055 - 8.38546I$
$u = 0.092779 - 0.786586I$ $a = -0.268044 + 1.184120I$ $b = -0.075212 - 0.508676I$	$0.99398 - 2.92097I$	$-2.14055 + 8.38546I$
$u = 0.758308 + 0.133029I$ $a = -0.372777 + 0.723023I$ $b = 0.63345 + 1.29744I$	$-3.58750 + 2.31232I$	$-15.8918 - 2.7555I$
$u = 0.758308 - 0.133029I$ $a = -0.372777 - 0.723023I$ $b = 0.63345 - 1.29744I$	$-3.58750 - 2.31232I$	$-15.8918 + 2.7555I$
$u = 0.722730 + 0.161926I$ $a = 1.58847 + 0.40979I$ $b = 0.337724 - 0.130488I$	$-5.80226 - 7.40735I$	$-18.9937 + 9.1512I$
$u = 0.722730 - 0.161926I$ $a = 1.58847 - 0.40979I$ $b = 0.337724 + 0.130488I$	$-5.80226 + 7.40735I$	$-18.9937 - 9.1512I$
$u = 1.232030 + 0.307377I$ $a = -0.310429 + 0.667179I$ $b = 0.154826 - 0.286118I$	$-6.76847 - 1.51759I$	0
$u = 1.232030 - 0.307377I$ $a = -0.310429 - 0.667179I$ $b = 0.154826 + 0.286118I$	$-6.76847 + 1.51759I$	0
$u = -0.393537 + 0.609625I$ $a = -1.165490 + 0.721828I$ $b = -0.669946 + 0.274768I$	$-0.31883 - 3.28324I$	$-5.60431 + 3.66597I$
$u = -0.393537 - 0.609625I$ $a = -1.165490 - 0.721828I$ $b = -0.669946 - 0.274768I$	$-0.31883 + 3.28324I$	$-5.60431 - 3.66597I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.212990+0.397926I$ $a=\ \ 0.623595+0.309847I$ $b=-0.39774-2.98122I$	$-8.99268+4.16407I$	0
$u=-1.212990-0.397926I$ $a=\ \ 0.623595-0.309847I$ $b=-0.39774+2.98122I$	$-8.99268-4.16407I$	0
$u=\ \ 1.242800+0.298457I$ $a=\ \ 1.168920+0.075796I$ $b=\ \ 2.89703+0.03063I$	$-9.14754-8.24261I$	0
$u=\ \ 1.242800-0.298457I$ $a=\ \ 1.168920-0.075796I$ $b=\ \ 2.89703-0.03063I$	$-9.14754+8.24261I$	0
$u=-0.141063+1.304170I$ $a=-0.115873-0.757239I$ $b=-0.172892+0.880125I$	$1.38178+2.91494I$	0
$u=-0.141063-1.304170I$ $a=-0.115873+0.757239I$ $b=-0.172892-0.880125I$	$1.38178-2.91494I$	0
$u=\ \ 1.204720+0.538302I$ $a=-0.224257-0.099675I$ $b=\ \ 0.245011+1.036330I$	$-7.84058-4.80609I$	0
$u=\ \ 1.204720-0.538302I$ $a=-0.224257+0.099675I$ $b=\ \ 0.245011-1.036330I$	$-7.84058+4.80609I$	0
$u=-1.309760+0.270121I$ $a=\ \ 0.371792+1.058620I$ $b=\ \ 0.086820+0.488872I$	$-10.74750-1.26365I$	0
$u=-1.309760-0.270121I$ $a=\ \ 0.371792-1.058620I$ $b=\ \ 0.086820-0.488872I$	$-10.74750+1.26365I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.271700 + 0.434265I$ $a = 0.883155 - 0.416545I$ $b = 2.30508 - 0.40191I$	$-8.58798 + 4.36356I$	0
$u = 1.271700 - 0.434265I$ $a = 0.883155 + 0.416545I$ $b = 2.30508 + 0.40191I$	$-8.58798 - 4.36356I$	0
$u = -1.275970 + 0.428836I$ $a = 0.870350 + 0.396090I$ $b = 2.57554 - 0.73466I$	$-9.07128 + 3.71874I$	0
$u = -1.275970 - 0.428836I$ $a = 0.870350 - 0.396090I$ $b = 2.57554 + 0.73466I$	$-9.07128 - 3.71874I$	0
$u = 0.441267 + 1.276080I$ $a = 0.010079 - 1.136560I$ $b = -0.075031 + 0.587350I$	$-10.4011 + 11.2730I$	0
$u = 0.441267 - 1.276080I$ $a = 0.010079 + 1.136560I$ $b = -0.075031 - 0.587350I$	$-10.4011 - 11.2730I$	0
$u = -1.230600 + 0.564328I$ $a = -1.137020 - 0.087814I$ $b = -2.86197 - 0.20383I$	$-7.4189 + 13.7965I$	0
$u = -1.230600 - 0.564328I$ $a = -1.137020 + 0.087814I$ $b = -2.86197 + 0.20383I$	$-7.4189 - 13.7965I$	0
$u = -1.323420 + 0.286711I$ $a = -0.914417 - 0.024510I$ $b = -2.58390 + 0.00153I$	$-4.18081 + 2.37986I$	0
$u = -1.323420 - 0.286711I$ $a = -0.914417 + 0.024510I$ $b = -2.58390 - 0.00153I$	$-4.18081 - 2.37986I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.278700 + 0.503687I$ $a = -0.908905 + 0.010734I$ $b = -2.44601 + 0.82010I$	$-8.52536 - 6.22901I$	0
$u = 1.278700 - 0.503687I$ $a = -0.908905 - 0.010734I$ $b = -2.44601 - 0.82010I$	$-8.52536 + 6.22901I$	0
$u = -1.232670 + 0.616020I$ $a = 0.285190 - 0.632161I$ $b = 0.364306 - 0.134856I$	$-4.44227 + 7.78550I$	0
$u = -1.232670 - 0.616020I$ $a = 0.285190 + 0.632161I$ $b = 0.364306 + 0.134856I$	$-4.44227 - 7.78550I$	0
$u = 1.267260 + 0.549056I$ $a = 0.938331 - 0.109314I$ $b = 2.60437 - 0.08018I$	$-2.55413 - 8.13238I$	0
$u = 1.267260 - 0.549056I$ $a = 0.938331 + 0.109314I$ $b = 2.60437 + 0.08018I$	$-2.55413 + 8.13238I$	0
$u = -0.613234$ $a = 0.343678$ $b = -0.360765$	-0.940432	-9.73200
$u = -0.429164 + 1.329720I$ $a = -0.068472 - 0.921024I$ $b = -0.098161 + 0.749867I$	$-5.51395 - 5.51248I$	0
$u = -0.429164 - 1.329720I$ $a = -0.068472 + 0.921024I$ $b = -0.098161 - 0.749867I$	$-5.51395 + 5.51248I$	0
$u = -0.397402 + 0.438020I$ $a = 1.19302 + 1.61741I$ $b = 0.57156 + 4.09559I$	$-5.90093 - 0.77524I$	$-7.20009 - 8.79210I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.397402 - 0.438020I$ $a = 1.19302 - 1.61741I$ $b = 0.57156 - 4.09559I$	$-5.90093 + 0.77524I$	$-7.20009 + 8.79210I$
$u = 1.349340 + 0.415520I$ $a = -1.217360 + 0.693262I$ $b = -2.01551 + 0.42109I$	$-13.9537 - 2.9601I$	0
$u = 1.349340 - 0.415520I$ $a = -1.217360 - 0.693262I$ $b = -2.01551 - 0.42109I$	$-13.9537 + 2.9601I$	0
$u = 1.27824 + 0.62370I$ $a = -0.527044 - 0.887663I$ $b = -0.860085 - 0.585152I$	$-8.16809 - 11.50410I$	0
$u = 1.27824 - 0.62370I$ $a = -0.527044 + 0.887663I$ $b = -0.860085 + 0.585152I$	$-8.16809 + 11.50410I$	0
$u = -0.288463 + 0.497708I$ $a = 0.665687 - 0.559774I$ $b = -0.203916 + 0.598819I$	$-0.62747 + 1.89102I$	$-3.97049 - 2.88595I$
$u = -0.288463 - 0.497708I$ $a = 0.665687 + 0.559774I$ $b = -0.203916 - 0.598819I$	$-0.62747 - 1.89102I$	$-3.97049 + 2.88595I$
$u = -1.33200 + 0.52311I$ $a = 1.312210 - 0.185097I$ $b = 2.36998 + 0.15644I$	$-13.1732 + 7.9062I$	0
$u = -1.33200 - 0.52311I$ $a = 1.312210 + 0.185097I$ $b = 2.36998 - 0.15644I$	$-13.1732 - 7.9062I$	0
$u = 0.55234 + 1.32267I$ $a = 0.388265 - 0.819153I$ $b = 0.481113 + 0.580917I$	$-9.67010 - 1.15397I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.55234 - 1.32267I$ $a = 0.388265 + 0.819153I$ $b = 0.481113 - 0.580917I$	$-9.67010 + 1.15397I$	0
$u = -1.29769 + 0.65667I$ $a = -0.767810 - 0.380695I$ $b = -2.13616 - 0.22858I$	$-6.46600 + 1.47782I$	0
$u = -1.29769 - 0.65667I$ $a = -0.767810 + 0.380695I$ $b = -2.13616 + 0.22858I$	$-6.46600 - 1.47782I$	0
$u = 1.31949 + 0.75319I$ $a = 1.044930 - 0.147670I$ $b = 2.73164 - 0.27623I$	$-13.2708 - 18.4610I$	0
$u = 1.31949 - 0.75319I$ $a = 1.044930 + 0.147670I$ $b = 2.73164 + 0.27623I$	$-13.2708 + 18.4610I$	0
$u = -1.34268 + 0.75552I$ $a = -0.894702 - 0.162317I$ $b = -2.54796 - 0.12017I$	$-8.5253 + 12.8531I$	0
$u = -1.34268 - 0.75552I$ $a = -0.894702 + 0.162317I$ $b = -2.54796 + 0.12017I$	$-8.5253 - 12.8531I$	0
$u = -0.399946 + 0.214162I$ $a = 1.30736 + 1.02540I$ $b = -0.415975 + 0.038938I$	$-1.063250 - 0.043134I$	$-7.94611 - 1.24147I$
$u = -0.399946 - 0.214162I$ $a = 1.30736 - 1.02540I$ $b = -0.415975 - 0.038938I$	$-1.063250 + 0.043134I$	$-7.94611 + 1.24147I$
$u = 0.149223 + 0.396575I$ $a = 0.01530 + 3.13817I$ $b = 0.294661 + 0.448912I$	$-4.49140 + 1.51008I$	$-9.81598 - 1.55694I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.149223 - 0.396575I$ $a = 0.01530 - 3.13817I$ $b = 0.294661 - 0.448912I$	$-4.49140 - 1.51008I$	$-9.81598 + 1.55694I$
$u = 1.35595 + 0.81241I$ $a = 0.749963 - 0.331925I$ $b = 2.15867 - 0.11610I$	$-12.32240 - 6.52710I$	0
$u = 1.35595 - 0.81241I$ $a = 0.749963 + 0.331925I$ $b = 2.15867 + 0.11610I$	$-12.32240 + 6.52710I$	0
$u = -1.61146 + 0.03604I$ $a = -0.948244 - 0.190754I$ $b = -2.56392 - 0.11689I$	$-18.4193 - 6.1353I$	0
$u = -1.61146 - 0.03604I$ $a = -0.948244 + 0.190754I$ $b = -2.56392 + 0.11689I$	$-18.4193 + 6.1353I$	0
$u = 1.65879$ $a = 0.839440$ $b = 2.53074$	-13.8071	0
$u = 0.315785$ $a = -2.96408$ $b = -4.94665$	-3.02083	-69.6120

II. $\boldsymbol{I_2^u = \langle 22u^2 + 17b + 2u + 40,\ u^2 + a - u + 2,\ u^3 - u^2 + 2u - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2 + u - 2 \\ -\frac{22}{17}u^2 - \frac{2}{17}u - \frac{40}{17} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + u - 2 \\ -\frac{22}{17}u^2 + \frac{15}{17}u - \frac{40}{17} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{14}{17}u^2 + \frac{8}{17}u - \frac{27}{17} \\ -\frac{19}{17}u^2 + \frac{6}{17}u - \frac{33}{17} \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{2667}{289}u^2 - \frac{10925}{289}u + \frac{2721}{289}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$u^3 + u^2 - 1$
c_3	$u^3 - u^2 + 2u - 1$
c_4	$u^3 - u^2 + 1$
c_5	u^3
c_6	$u^3 - 3u^2 + 2u + 1$
c_7	$u^3 + u^2 + 2u + 1$
c_8	$(u-1)^3$
c_9	$17(17u^3 + 10u^2 - u - 1)$
c_{10}	$17(17u^3 - 23u^2 + 8u - 1)$
c_{11}	$(u+1)^3$
c_{12}	$u^3 + 3u^2 + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^3 - y^2 + 2y - 1$
c_3, c_7	$y^3 + 3y^2 + 2y - 1$
c_5	y^3
c_6, c_{12}	$y^3 - 5y^2 + 10y - 1$
c_8, c_{11}	$(y-1)^3$
c_9	$289(289y^3 - 134y^2 + 21y - 1)$
c_{10}	$289(289y^3 - 257y^2 + 18y - 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.215080 + 1.307140I$ $a = -0.122561 + 0.744862I$ $b = -0.226957 - 0.881437I$	$1.37919 - 2.82812I$	$-14.0563 - 44.2246I$
$u = \quad 0.215080 - 1.307140I$ $a = -0.122561 - 0.744862I$ $b = -0.226957 + 0.881437I$	$1.37919 + 2.82812I$	$-14.0563 + 44.2246I$
$u = \quad 0.569840$ $a = -1.75488$ $b = -2.84020$	-2.75839	-9.12970

III.

$$\boldsymbol{I_1^v = \langle a,\ 14536v^8 + 40690v^7 + \cdots + 11959b + 36034,\ v^9 + 3v^8 + \cdots + 3v + 1\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -1.21549v^8 - 3.40246v^7 + \cdots - 0.204281v - 3.01313 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} v \\ -0.917468v^8 - 2.75040v^7 + \cdots - 1.68777v - 2.76913 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.298018v^8 + 0.652061v^7 + \cdots - 0.483485v + 0.244000 \\ -0.705410v^8 - 1.67138v^7 + \cdots + 2.87842v - 0.490008 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 0.109374v^8 + 0.367255v^7 + \cdots + 0.0885526v + 0.00200686 \\ -0.917468v^8 - 2.75040v^7 + \cdots - 1.68777v - 2.76913 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.120495v^8 - 0.294506v^7 + \cdots + 0.670792v + 0.0803579 \\ 0.198846v^8 + 0.759428v^7 + \cdots + 1.00962v - 0.427544 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.244000v^8 - 0.433983v^7 + \cdots - 0.633331v - 0.215486 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.244000v^8 + 0.433983v^7 + \cdots + 0.633331v + 0.215486 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.244000v^8 - 0.433983v^7 + \cdots - 0.633331v + 0.784514 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= \tfrac{30669}{11959}v^8 + \tfrac{76868}{11959}v^7 - \tfrac{100871}{11959}v^6 - \tfrac{237835}{11959}v^5 + \tfrac{437462}{11959}v^4 + \tfrac{579948}{11959}v^3 - \tfrac{66654}{11959}v^2 - \tfrac{147944}{11959}v - \tfrac{72837}{11959}$$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_7	y^9
c_5, c_{10}	$y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1$
c_6, c_{12}	$y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1$
c_8, c_{11}	$y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1$
c_9	$y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.924205+0.223068I$ $a=0$ $b=-0.037875+0.791187I$	$-2.26187+2.45442I$	$-8.53903-2.82066I$
$v=-0.924205-0.223068I$ $a=0$ $b=-0.037875-0.791187I$	$-2.26187-2.45442I$	$-8.53903+2.82066I$
$v=0.295822+0.390531I$ $a=0$ $b=0.80973-2.39258I$	$-6.01628+1.33617I$	$-16.4774-4.4812I$
$v=0.295822-0.390531I$ $a=0$ $b=0.80973+2.39258I$	$-6.01628-1.33617I$	$-16.4774+4.4812I$
$v=-0.280601$ $a=0$ $b=-2.94345$	-2.84338	-3.87310
$v=1.47927+0.93319I$ $a=0$ $b=-0.218072+0.482572I$	$0.13850+2.09337I$	$-6.02684-1.69698I$
$v=1.47927-0.93319I$ $a=0$ $b=-0.218072-0.482572I$	$0.13850-2.09337I$	$-6.02684+1.69698I$
$v=-2.21059+0.69487I$ $a=0$ $b=0.417942+0.357732I$	$-5.24306-7.08493I$	$-9.02021+2.94778I$
$v=-2.21059-0.69487I$ $a=0$ $b=0.417942-0.357732I$	$-5.24306+7.08493I$	$-9.02021-2.94778I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^9)(u^3+u^2-1)(u^{107}-11u^{106}+\cdots-u-1)$
c_3	$u^9(u^3-u^2+2u-1)(u^{107}-2u^{106}+\cdots-512u+512)$
c_4	$((u+1)^9)(u^3-u^2+1)(u^{107}-11u^{106}+\cdots-u-1)$
c_5	$u^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{107}+2u^{106}+\cdots-10404u+2312)$
c_6	(u^3-3u^2+2u+1) $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{107}+3u^{106}+\cdots-3u-1)$
c_7	$u^9(u^3+u^2+2u+1)(u^{107}-2u^{106}+\cdots-512u+512)$
c_8	$(u-1)^3(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{107}-5u^{106}+\cdots-5466u-289)$
c_9	$289(17u^3+10u^2-u-1)$ $\cdot(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(17u^{107}+96u^{106}+\cdots-267194040u+43532959)$
c_{10}	$289(17u^3-23u^2+8u-1)(u^9+u^8+\cdots+u-1)$ $\cdot(17u^{107}+61u^{106}+\cdots+49840983u-2813417)$
c_{11}	$(u+1)^3(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{107}-5u^{106}+\cdots-5466u-289)$
c_{12}	(u^3+3u^2+2u-1) $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{107}+3u^{106}+\cdots-3u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^9)(y^3-y^2+2y-1)(y^{107}-99y^{106}+\cdots-29y-1)$
c_3, c_7	$y^9(y^3+3y^2+2y-1)(y^{107}-54y^{106}+\cdots+7340032y-262144)$
c_5	$y^3(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot\,(y^{107}-18y^{106}+\cdots+277740560y-5345344)$
c_6, c_{12}	$(y^3-5y^2+10y-1)$ $\cdot\,(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot\,(y^{107}+73y^{106}+\cdots+55y-1)$
c_8, c_{11}	$(y-1)^3(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot\,(y^{107}-81y^{106}+\cdots+6093612y-83521)$
c_9	$83521(289y^3-134y^2+21y-1)$ $\cdot\,(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot\,(289y^{107}-1.91\times 10^4y^{106}+\cdots+8.77\times 10^{16}y-1.90\times 10^{15})$
c_{10}	$83521(289y^3-257y^2+18y-1)$ $\cdot\,(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot\,(289y^{107}-7971y^{106}+\cdots+1153422073109755y-7915315215889)$