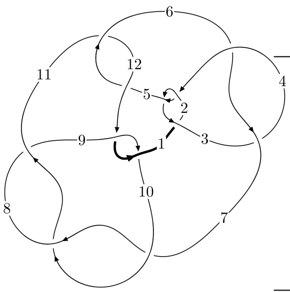
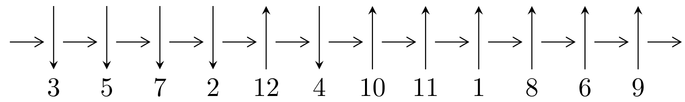
$12a_{0065}$ $(K12a_{0065})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -2.92249 \times 10^{169} u^{111} + 3.73944 \times 10^{170} u^{110} + \cdots + 1.17142 \times 10^{167} b - 2.38948 \times 10^{169}, \\
& - 4.45166 \times 10^{168} u^{111} + 5.26012 \times 10^{169} u^{110} + \cdots + 5.85711 \times 10^{166} a - 7.08065 \times 10^{168}, \\
& u^{112} - 14u^{111} + \cdots - 171u - 1 \rangle \\
I_2^u = \langle & 313a^8 + 2651a^7 - 1632a^6 + 9330a^5 - 4960a^4 + 9676a^3 - 3659a^2 + 145b + 3312a - 888, \\
& a^9 + 8a^8 - 9a^7 + 34a^6 - 30a^5 + 42a^4 - 26a^3 + 17a^2 - 7a + 1, \ u + 1 \rangle \\
I_3^u = \langle & b, \ 3u^7 - 5u^6 - 7u^5 + 11u^4 + 5u^3 - 3u^2 + a - 7, \ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1 \rangle \\
I_4^u = \langle & 3a^2u - a^2 + 10au + 11b - 7a + 9u - 3, \ a^3 - a^2u + 3a^2 - au + 4a - u + 5, \ u^2 - u - 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 135 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. $\boldsymbol{I_1^u = \langle -2.92 \times 10^{169} u^{111} + 3.74 \times 10^{170} u^{110} + \cdots + 1.17 \times 10^{167} b - 2.39 \times 10^{169},\ -4.45 \times 10^{168} u^{111} + 5.26 \times 10^{169} u^{110} + \cdots + 5.86 \times 10^{166} a - 7.08 \times 10^{168},\ u^{112} - 14u^{111} + \cdots - 171u - 1 \rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 76.0044u^{111} - 898.076u^{110} + \cdots + 4341.78u + 120.890 \\ 249.483u^{111} - 3192.23u^{110} + \cdots + 34958.2u + 203.982 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 325.487u^{111} - 4090.30u^{110} + \cdots + 39300.0u + 324.872 \\ 249.483u^{111} - 3192.23u^{110} + \cdots + 34958.2u + 203.982 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -323.912u^{111} + 4095.13u^{110} + \cdots - 41394.8u - 288.132 \\ 684.638u^{111} - 8698.30u^{110} + \cdots + 90947.7u + 529.205 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 17.9543u^{111} - 189.370u^{110} + \cdots - 880.998u - 18.0322 \\ 72.8595u^{111} - 925.927u^{110} + \cdots + 8953.79u + 52.0848 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 196.977u^{111} - 2493.83u^{110} + \cdots + 24770.7u + 131.202 \\ 311.051u^{111} - 3876.48u^{110} + \cdots + 33723.8u + 196.443 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -270.582u^{111} + 3459.45u^{110} + \cdots - 38028.8u - 272.024 \\ -248.530u^{111} + 3130.15u^{110} + \cdots - 30299.4u - 176.735 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 49.6326u^{111} - 561.615u^{110} + \cdots - 239.766u + 52.4969 \\ 248.530u^{111} - 3130.15u^{110} + \cdots + 30299.4u + 176.735 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -360.979u^{111} + 4669.85u^{110} + \cdots - 55646.3u - 332.781$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{112} + 52u^{111} + \cdots + 6550u + 1$
c_2, c_4	$u^{112} - 12u^{111} + \cdots + 78u + 1$
c_3, c_6	$u^{112} - 4u^{111} + \cdots - 1664u + 256$
c_5, c_{11}	$u^{112} + 3u^{111} + \cdots - 224u - 64$
c_7, c_8, c_{10}	$u^{112} + 14u^{111} + \cdots + 171u - 1$
c_9, c_{12}	$u^{112} - 5u^{111} + \cdots - 5632u + 512$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{112} + 28y^{111} + \cdots - 43105022y + 1$
c_2, c_4	$y^{112} - 52y^{111} + \cdots - 6550y + 1$
c_3, c_6	$y^{112} + 60y^{111} + \cdots - 3784704y + 65536$
c_5, c_{11}	$y^{112} + 47y^{111} + \cdots - 185344y + 4096$
c_7, c_8, c_{10}	$y^{112} - 110y^{111} + \cdots - 28983y + 1$
c_9, c_{12}	$y^{112} - 69y^{111} + \cdots - 75235328y + 262144$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.432227 + 0.899551I$ $a = 0.863303 - 0.682893I$ $b = 0.503098 + 1.270930I$	$3.43374 - 7.46948I$	0
$u = -0.432227 - 0.899551I$ $a = 0.863303 + 0.682893I$ $b = 0.503098 - 1.270930I$	$3.43374 + 7.46948I$	0
$u = -0.994475$ $a = 10.9938$ $b = 0.530791$	0.460815	0
$u = -0.807871 + 0.613058I$ $a = -0.88505 + 1.10731I$ $b = -0.906023 - 0.341572I$	$-0.13349 + 1.76727I$	0
$u = -0.807871 - 0.613058I$ $a = -0.88505 - 1.10731I$ $b = -0.906023 + 0.341572I$	$-0.13349 - 1.76727I$	0
$u = -0.397239 + 0.960530I$ $a = -1.051620 + 0.624722I$ $b = -0.68926 - 1.24272I$	$1.11481 - 13.24070I$	0
$u = -0.397239 - 0.960530I$ $a = -1.051620 - 0.624722I$ $b = -0.68926 + 1.24272I$	$1.11481 + 13.24070I$	0
$u = -0.846216 + 0.417781I$ $a = 0.01284 - 2.09013I$ $b = -0.291691 + 0.590527I$	$-0.994600 - 0.244702I$	0
$u = -0.846216 - 0.417781I$ $a = 0.01284 + 2.09013I$ $b = -0.291691 - 0.590527I$	$-0.994600 + 0.244702I$	0
$u = -0.371874 + 0.847663I$ $a = -0.637100 + 0.223721I$ $b = -1.082290 + 0.424589I$	$-1.50046 - 6.83730I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.371874 - 0.847663I$ $a = -0.637100 - 0.223721I$ $b = -1.082290 - 0.424589I$	$-1.50046 + 6.83730I$	0
$u = -1.063340 + 0.200741I$ $a = -0.591192 - 0.953846I$ $b = 0.378594 + 0.254527I$	$1.19166 - 0.82959I$	0
$u = -1.063340 - 0.200741I$ $a = -0.591192 + 0.953846I$ $b = 0.378594 - 0.254527I$	$1.19166 + 0.82959I$	0
$u = -0.784572 + 0.755080I$ $a = -0.521418 + 0.547316I$ $b = 0.363354 - 1.200850I$	$4.50061 + 1.87825I$	0
$u = -0.784572 - 0.755080I$ $a = -0.521418 - 0.547316I$ $b = 0.363354 + 1.200850I$	$4.50061 - 1.87825I$	0
$u = -0.471032 + 0.748109I$ $a = -1.383900 + 0.286927I$ $b = -0.298324 - 1.206400I$	$4.78310 - 1.56650I$	0
$u = -0.471032 - 0.748109I$ $a = -1.383900 - 0.286927I$ $b = -0.298324 + 1.206400I$	$4.78310 + 1.56650I$	0
$u = -0.093207 + 0.873514I$ $a = -0.248094 + 0.265549I$ $b = -0.254334 + 0.724132I$	$-3.38522 - 1.66545I$	0
$u = -0.093207 - 0.873514I$ $a = -0.248094 - 0.265549I$ $b = -0.254334 - 0.724132I$	$-3.38522 + 1.66545I$	0
$u = -0.579121 + 0.638010I$ $a = 0.060953 - 0.323627I$ $b = -0.113562 + 1.348640I$	$5.22079 - 3.15983I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.579121 - 0.638010I$ $a = 0.060953 + 0.323627I$ $b = -0.113562 - 1.348640I$	$5.22079 + 3.15983I$	0
$u = -0.338089 + 0.790027I$ $a = -0.70076 + 1.26311I$ $b = -0.299060 - 0.968197I$	$-2.53810 - 4.23062I$	0
$u = -0.338089 - 0.790027I$ $a = -0.70076 - 1.26311I$ $b = -0.299060 + 0.968197I$	$-2.53810 + 4.23062I$	0
$u = -0.348530 + 0.771421I$ $a = 1.54506 + 0.01288I$ $b = 0.555550 + 1.207580I$	$3.05226 - 7.00346I$	0
$u = -0.348530 - 0.771421I$ $a = 1.54506 - 0.01288I$ $b = 0.555550 - 1.207580I$	$3.05226 + 7.00346I$	0
$u = -0.883638 + 0.781694I$ $a = 0.260199 - 0.410597I$ $b = -0.600067 + 1.206120I$	$2.55654 + 7.34989I$	0
$u = -0.883638 - 0.781694I$ $a = 0.260199 + 0.410597I$ $b = -0.600067 - 1.206120I$	$2.55654 - 7.34989I$	0
$u = -0.814759 + 0.093064I$ $a = -0.02851 - 1.73024I$ $b = 0.238206 - 1.260910I$	$4.16876 + 2.73247I$	0
$u = -0.814759 - 0.093064I$ $a = -0.02851 + 1.73024I$ $b = 0.238206 + 1.260910I$	$4.16876 - 2.73247I$	0
$u = 1.203460 + 0.136661I$ $a = -0.118558 - 0.685848I$ $b = -0.768668 + 0.874149I$	$-1.53487 + 7.70823I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.203460 - 0.136661I$ $a = -0.118558 + 0.685848I$ $b = -0.768668 - 0.874149I$	$-1.53487 - 7.70823I$	0
$u = -0.650565 + 0.441531I$ $a = 0.284990 - 0.250884I$ $b = 0.367652 - 1.313380I$	$4.29062 + 2.64667I$	0
$u = -0.650565 - 0.441531I$ $a = 0.284990 + 0.250884I$ $b = 0.367652 + 1.313380I$	$4.29062 - 2.64667I$	0
$u = 0.148882 + 0.769082I$ $a = 0.117990 - 0.378727I$ $b = -0.484574 - 0.863585I$	$-4.31644 - 4.47828I$	0
$u = 0.148882 - 0.769082I$ $a = 0.117990 + 0.378727I$ $b = -0.484574 + 0.863585I$	$-4.31644 + 4.47828I$	0
$u = -0.366452 + 0.688893I$ $a = 0.755204 + 0.032850I$ $b = 1.008880 - 0.064509I$	$-0.37121 - 2.19836I$	0
$u = -0.366452 - 0.688893I$ $a = 0.755204 - 0.032850I$ $b = 1.008880 + 0.064509I$	$-0.37121 + 2.19836I$	0
$u = -0.467466 + 0.563340I$ $a = 1.34388 - 1.22707I$ $b = 0.859945 - 0.262119I$	$0.14318 - 1.74876I$	0
$u = -0.467466 - 0.563340I$ $a = 1.34388 + 1.22707I$ $b = 0.859945 + 0.262119I$	$0.14318 + 1.74876I$	0
$u = 1.287240 + 0.022425I$ $a = -0.134483 + 1.059500I$ $b = -0.892729 - 0.916704I$	$-1.49378 + 1.54613I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.287240 - 0.022425I$ $a = -0.134483 - 1.059500I$ $b = -0.892729 + 0.916704I$	$-1.49378 - 1.54613I$	0
$u = -1.178420 + 0.543469I$ $a = -0.624869 + 0.730757I$ $b = -0.346082 - 0.915365I$	$-0.08758 - 3.32486I$	0
$u = -1.178420 - 0.543469I$ $a = -0.624869 - 0.730757I$ $b = -0.346082 + 0.915365I$	$-0.08758 + 3.32486I$	0
$u = 1.296080 + 0.090517I$ $a = -0.0707977 + 0.0027500I$ $b = 0.364916 + 0.715321I$	$4.85807 - 1.15903I$	0
$u = 1.296080 - 0.090517I$ $a = -0.0707977 - 0.0027500I$ $b = 0.364916 - 0.715321I$	$4.85807 + 1.15903I$	0
$u = -1.304980 + 0.052610I$ $a = -0.976280 + 0.233968I$ $b = 0.934649 + 0.088342I$	$1.95897 - 0.23517I$	0
$u = -1.304980 - 0.052610I$ $a = -0.976280 - 0.233968I$ $b = 0.934649 - 0.088342I$	$1.95897 + 0.23517I$	0
$u = 0.516798 + 0.445951I$ $a = -0.83569 - 1.42900I$ $b = -0.661411 + 1.072790I$	$-2.60168 + 8.03413I$	0
$u = 0.516798 - 0.445951I$ $a = -0.83569 + 1.42900I$ $b = -0.661411 - 1.072790I$	$-2.60168 - 8.03413I$	0
$u = 1.318190 + 0.079343I$ $a = -0.074820 + 0.852835I$ $b = 0.957554 - 0.819023I$	$2.30876 + 3.35064I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.318190 - 0.079343I$ $a = -0.074820 - 0.852835I$ $b = 0.957554 + 0.819023I$	$2.30876 - 3.35064I$	0
$u = -1.341310 + 0.124775I$ $a = 0.95425 - 2.35835I$ $b = 0.491216 + 1.266830I$	$5.66523 - 4.88950I$	0
$u = -1.341310 - 0.124775I$ $a = 0.95425 + 2.35835I$ $b = 0.491216 - 1.266830I$	$5.66523 + 4.88950I$	0
$u = -1.342130 + 0.149243I$ $a = -0.31891 + 3.02941I$ $b = -0.215869 - 0.853947I$	$0.16000 - 2.10599I$	0
$u = -1.342130 - 0.149243I$ $a = -0.31891 - 3.02941I$ $b = -0.215869 + 0.853947I$	$0.16000 + 2.10599I$	0
$u = 1.325740 + 0.358457I$ $a = 0.271013 + 0.129202I$ $b = -0.171276 - 0.567977I$	$1.05711 + 6.04270I$	0
$u = 1.325740 - 0.358457I$ $a = 0.271013 - 0.129202I$ $b = -0.171276 + 0.567977I$	$1.05711 - 6.04270I$	0
$u = -1.318820 + 0.401872I$ $a = 0.622621 - 0.489176I$ $b = -0.254340 + 0.852722I$	$0.256128 + 0.215496I$	0
$u = -1.318820 - 0.401872I$ $a = 0.622621 + 0.489176I$ $b = -0.254340 - 0.852722I$	$0.256128 - 0.215496I$	0
$u = -1.386810 + 0.046390I$ $a = -0.62492 + 2.46511I$ $b = -0.223078 - 1.291580I$	$7.06933 + 0.77487I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.386810 - 0.046390I$ $a = -0.62492 - 2.46511I$ $b = -0.223078 + 1.291580I$	$7.06933 - 0.77487I$	0
$u = -1.40902 + 0.15485I$ $a = 0.830660 - 0.311139I$ $b = -1.020340 + 0.360384I$	$1.24304 - 4.46857I$	0
$u = -1.40902 - 0.15485I$ $a = 0.830660 + 0.311139I$ $b = -1.020340 - 0.360384I$	$1.24304 + 4.46857I$	0
$u = -0.483043 + 0.215736I$ $a = 3.86051 - 3.37738I$ $b = 0.156984 + 0.351295I$	$-0.844006 - 0.123701I$	$16.1538 + 18.4285I$
$u = -0.483043 - 0.215736I$ $a = 3.86051 + 3.37738I$ $b = 0.156984 - 0.351295I$	$-0.844006 + 0.123701I$	$16.1538 - 18.4285I$
$u = 1.46970 + 0.15723I$ $a = 0.98247 + 1.92963I$ $b = 0.359600 - 0.910132I$	$5.51452 + 2.03742I$	0
$u = 1.46970 - 0.15723I$ $a = 0.98247 - 1.92963I$ $b = 0.359600 + 0.910132I$	$5.51452 - 2.03742I$	0
$u = -1.47825 + 0.13277I$ $a = 0.13052 - 2.27825I$ $b = 0.429061 + 1.257640I$	$6.13010 - 4.83002I$	0
$u = -1.47825 - 0.13277I$ $a = 0.13052 + 2.27825I$ $b = 0.429061 - 1.257640I$	$6.13010 + 4.83002I$	0
$u = 1.46140 + 0.26442I$ $a = -0.511606 + 0.344188I$ $b = 1.227310 + 0.081127I$	$5.53294 + 5.70610I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.46140 - 0.26442I$ $a = -0.511606 - 0.344188I$ $b = 1.227310 - 0.081127I$	$5.53294 - 5.70610I$	0
$u = 1.47525 + 0.20602I$ $a = -0.098033 + 0.267874I$ $b = 1.041090 + 0.451281I$	$6.42012 + 4.59902I$	0
$u = 1.47525 - 0.20602I$ $a = -0.098033 - 0.267874I$ $b = 1.041090 - 0.451281I$	$6.42012 - 4.59902I$	0
$u = 1.46114 + 0.29673I$ $a = 0.97779 + 1.46570I$ $b = 0.687327 - 1.222770I$	$8.88079 + 10.89320I$	0
$u = 1.46114 - 0.29673I$ $a = 0.97779 - 1.46570I$ $b = 0.687327 + 1.222770I$	$8.88079 - 10.89320I$	0
$u = 1.46088 + 0.30172I$ $a = -0.64951 - 2.15697I$ $b = -0.281381 + 1.150490I$	$3.26019 + 8.19420I$	0
$u = 1.46088 - 0.30172I$ $a = -0.64951 + 2.15697I$ $b = -0.281381 - 1.150490I$	$3.26019 - 8.19420I$	0
$u = 1.48570 + 0.15943I$ $a = -0.30881 - 1.81829I$ $b = 0.42621 + 1.53738I$	$10.99310 - 0.43900I$	0
$u = 1.48570 - 0.15943I$ $a = -0.30881 + 1.81829I$ $b = 0.42621 - 1.53738I$	$10.99310 + 0.43900I$	0
$u = 0.171131 + 0.474447I$ $a = -1.69736 - 1.98067I$ $b = -0.576856 + 0.782368I$	$-4.57208 - 0.19764I$	$-4.59945 - 1.06567I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.171131 - 0.474447I$ $a = -1.69736 + 1.98067I$ $b = -0.576856 - 0.782368I$	$-4.57208 + 0.19764I$	$-4.59945 + 1.06567I$
$u = 0.273040 + 0.418122I$ $a = 0.425909 - 0.260771I$ $b = -0.879000 - 0.584327I$	$-4.17219 + 2.32119I$	$-4.98033 - 2.46632I$
$u = 0.273040 - 0.418122I$ $a = 0.425909 + 0.260771I$ $b = -0.879000 + 0.584327I$	$-4.17219 - 2.32119I$	$-4.98033 + 2.46632I$
$u = 0.393025 + 0.303535I$ $a = 0.67790 + 1.99368I$ $b = 0.531389 - 0.999667I$	$-0.07044 + 3.09882I$	$-0.02283 - 3.67348I$
$u = 0.393025 - 0.303535I$ $a = 0.67790 - 1.99368I$ $b = 0.531389 + 0.999667I$	$-0.07044 - 3.09882I$	$-0.02283 + 3.67348I$
$u = -0.490972$ $a = -1.14637$ $b = -0.111084$	0.859712	11.9150
$u = -0.016936 + 0.487875I$ $a = 0.004227 + 0.732028I$ $b = 0.711801 + 0.445043I$	$-1.65451 - 1.50529I$	$-0.79984 + 4.45690I$
$u = -0.016936 - 0.487875I$ $a = 0.004227 - 0.732028I$ $b = 0.711801 - 0.445043I$	$-1.65451 + 1.50529I$	$-0.79984 - 4.45690I$
$u = 1.48029 + 0.32341I$ $a = 0.568474 - 0.204571I$ $b = -1.217120 - 0.434440I$	$4.46415 + 11.08430I$	0
$u = 1.48029 - 0.32341I$ $a = 0.568474 + 0.204571I$ $b = -1.217120 + 0.434440I$	$4.46415 - 11.08430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.50724+0.18614I$ $a=-0.27955+2.10507I$ $b=-0.641575-1.239850I$	$4.02685-10.51750I$	0
$u=-1.50724-0.18614I$ $a=-0.27955-2.10507I$ $b=-0.641575+1.239850I$	$4.02685+10.51750I$	0
$u=1.50523+0.20911I$ $a=0.38047+1.91365I$ $b=-0.12611-1.56432I$	$11.96300+6.19123I$	0
$u=1.50523-0.20911I$ $a=0.38047-1.91365I$ $b=-0.12611+1.56432I$	$11.96300-6.19123I$	0
$u=1.52333+0.09341I$ $a=-0.142206-0.261687I$ $b=-0.866573-0.108863I$	$7.77601+0.27066I$	0
$u=1.52333-0.09341I$ $a=-0.142206+0.261687I$ $b=-0.866573+0.108863I$	$7.77601-0.27066I$	0
$u=1.50428+0.25893I$ $a=-0.88930-1.55607I$ $b=-0.499688+1.234710I$	$11.21670+5.22488I$	0
$u=1.50428-0.25893I$ $a=-0.88930+1.55607I$ $b=-0.499688-1.234710I$	$11.21670-5.22488I$	0
$u=0.087033+0.443804I$ $a=2.27863-0.28531I$ $b=0.368295-1.046920I$	$1.18207+2.86004I$	$1.78475-2.80266I$
$u=0.087033-0.443804I$ $a=2.27863+0.28531I$ $b=0.368295+1.046920I$	$1.18207-2.86004I$	$1.78475+2.80266I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.51407 + 0.33881I$ $a = 0.70174 + 1.88299I$ $b = 0.57280 - 1.36973I$	$9.7116 + 11.9730I$	0
$u = 1.51407 - 0.33881I$ $a = 0.70174 - 1.88299I$ $b = 0.57280 + 1.36973I$	$9.7116 - 11.9730I$	0
$u = 1.51034 + 0.37348I$ $a = -0.78717 - 1.80264I$ $b = -0.74549 + 1.29575I$	$7.2346 + 18.0734I$	0
$u = 1.51034 - 0.37348I$ $a = -0.78717 + 1.80264I$ $b = -0.74549 - 1.29575I$	$7.2346 - 18.0734I$	0
$u = 1.60190$ $a = -1.05384$ $b = -0.608469$	7.84469	0
$u = 1.64421 + 0.15299I$ $a = -0.43138 - 1.55932I$ $b = 0.135262 + 1.266720I$	$12.87440 + 1.42369I$	0
$u = 1.64421 - 0.15299I$ $a = -0.43138 + 1.55932I$ $b = 0.135262 - 1.266720I$	$12.87440 - 1.42369I$	0
$u = 1.69416 + 0.10741I$ $a = 0.27300 + 1.43131I$ $b = -0.429463 - 1.232960I$	$11.74710 - 4.07589I$	0
$u = 1.69416 - 0.10741I$ $a = 0.27300 - 1.43131I$ $b = -0.429463 + 1.232960I$	$11.74710 + 4.07589I$	0
$u = 0.217235 + 0.209677I$ $a = -2.69618 - 1.26446I$ $b = 0.007921 + 1.027490I$	$1.99985 - 1.66123I$	$2.31051 + 3.78283I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.217235 - 0.209677I$ $a = -2.69618 + 1.26446I$ $b = 0.007921 - 1.027490I$	$1.99985 + 1.66123I$	$2.31051 - 3.78283I$
$u = -0.00587426$ $a = 95.4733$ $b = 0.503878$	-1.20372	-8.99900

II. $\boldsymbol{I_2^u = \langle 313a^8 + 145b + \cdots + 3312a - 888,\ a^9 + 8a^8 + \cdots - 7a + 1,\ u + 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ -2.15862a^8 - 18.2828a^7 + \cdots - 22.8414a + 6.12414 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2.15862a^8 - 18.2828a^7 + \cdots - 21.8414a + 6.12414 \\ -2.15862a^8 - 18.2828a^7 + \cdots - 22.8414a + 6.12414 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.01379a^8 + 8.17241a^7 + \cdots + 8.98621a - 1.15862 \\ -1.38621a^8 - 10.8276a^7 + \cdots - 12.6138a + 3.44138 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ -1.64828a^8 - 12.9034a^7 + \cdots - 21.3517a + 5.25517 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -1.64828a^8 - 12.9034a^7 + \cdots - 21.3517a + 5.25517 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.01379a^8 + 8.17241a^7 + \cdots + 8.98621a - 1.15862 \\ -1.90345a^8 - 15.5931a^7 + \cdots - 30.0966a + 8.68966 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.365517a^8 - 3.26897a^7 + \cdots - 3.63448a + 1.90345 \\ -1.90345a^8 - 15.5931a^7 + \cdots - 30.0966a + 8.68966 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{1338}{145}a^8 + \frac{11273}{145}a^7 - \frac{1505}{29}a^6 + \frac{7978}{29}a^5 - \frac{4404}{29}a^4 + \frac{40626}{145}a^3 - \frac{2938}{29}a^2 + \frac{12727}{145}a - \frac{479}{29}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=\ \ 0.223063+0.988364I$ $b=-0.628449-0.875112I$	$1.02799-2.45442I$	$5.04100+1.69416I$
$u=-1.00000$ $a=\ \ 0.223063-0.988364I$ $b=-0.628449+0.875112I$	$1.02799+2.45442I$	$5.04100-1.69416I$
$u=-1.00000$ $a=-0.026651+0.835796I$ $b=\ \ 0.728966-0.986295I$	$-1.95319+7.08493I$	$0.45449-1.34000I$
$u=-1.00000$ $a=-0.026651-0.835796I$ $b=\ \ 0.728966+0.986295I$	$-1.95319-7.08493I$	$0.45449+1.34000I$
$u=-1.00000$ $a=\ \ 0.194585+1.248300I$ $b=\ \ 0.796005-0.733148I$	$-2.72642-1.33617I$	$-1.56769+0.26615I$
$u=-1.00000$ $a=\ \ 0.194585-1.248300I$ $b=\ \ 0.796005+0.733148I$	$-2.72642+1.33617I$	$-1.56769-0.26615I$
$u=-1.00000$ $a=\ \ 0.302374+0.039314I$ $b=-0.140343-0.966856I$	$3.42837-2.09337I$	$7.68972+3.82038I$
$u=-1.00000$ $a=\ \ 0.302374-0.039314I$ $b=-0.140343+0.966856I$	$3.42837+2.09337I$	$7.68972-3.82038I$
$u=-1.00000$ $a=-9.38674$ $b=-0.512358$	0.446489	−211.240

III. $\boldsymbol{I^u_3 =}$
$\boldsymbol{\langle b,\ 3u^7-5u^6-7u^5+11u^4+5u^3-3u^2+a-7,\ u^8-u^7-3u^6+2u^5+3u^4-2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -21u^7+38u^6+48u^5-85u^4-39u^3+27u^2+5u+58$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_6	y^8
c_5, c_{11}	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_7, c_8, c_{10}	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_9, c_{12}	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = -1.194470 + 0.635084I$ $b = 0$	$-0.604279 - 1.131230I$	$0.744211 - 0.553382I$
$u = -1.180120 - 0.268597I$ $a = -1.194470 - 0.635084I$ $b = 0$	$-0.604279 + 1.131230I$	$0.744211 + 0.553382I$
$u = -0.108090 + 0.747508I$ $a = -0.637416 + 0.344390I$ $b = 0$	$-3.80435 - 2.57849I$	$-2.39106 + 4.72239I$
$u = -0.108090 - 0.747508I$ $a = -0.637416 - 0.344390I$ $b = 0$	$-3.80435 + 2.57849I$	$-2.39106 - 4.72239I$
$u = 1.37100$ $a = 0.687555$ $b = 0$	4.85780	8.45210
$u = 1.334530 + 0.318930I$ $a = -0.286111 - 0.344558I$ $b = 0$	$0.73474 + 6.44354I$	$0.47538 - 9.99765I$
$u = 1.334530 - 0.318930I$ $a = -0.286111 + 0.344558I$ $b = 0$	$0.73474 - 6.44354I$	$0.47538 + 9.99765I$
$u = -0.463640$ $a = 7.54843$ $b = 0$	-0.799899	60.8910

IV. $I^u_4 = \langle 3a^2u - a^2 + 10au + 11b - 7a + 9u - 3,\ a^3 - a^2u + 3a^2 - au + 4a - u + 5,\ u^2 - u - 1\rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u - 1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} a \\ -0.272727a^2u - 0.909091au + \cdots + 0.636364a + 0.272727 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -0.272727a^2u - 0.909091au + \cdots + 1.63636a + 0.272727 \\ -0.272727a^2u - 0.909091au + \cdots + 0.636364a + 0.272727 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.272727a^2u - 0.0909091au + \cdots + 0.363636a + 1.72727 \\ -0.181818a^2u - 0.272727au + \cdots + 0.0909091a + 1.18182 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} 0.272727a^2u - 0.0909091au + \cdots + 0.363636a + 1.72727 \\ -0.181818a^2u - 0.272727au + \cdots + 0.0909091a + 1.18182 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0909091a^2u - 0.363636au + \cdots + 0.454545a + 0.909091 \\ -0.181818a^2u - 0.272727au + \cdots + 0.0909091a + 1.18182 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{63}{11}a^2u - \frac{67}{11}a^2 + \frac{76}{11}au - \frac{106}{11}a - \frac{57}{11}u - \frac{234}{11}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.618034$ $a=-0.47057+1.37014I$ $b=-0.215080+1.307140I$	$4.01109+2.82812I$	$-7.3018-15.7639I$
$u=-0.618034$ $a=-0.47057-1.37014I$ $b=-0.215080-1.307140I$	$4.01109-2.82812I$	$-7.3018+15.7639I$
$u=-0.618034$ $a=-2.67690$ $b=-0.569840$	-0.126494	0.874100
$u=1.61803$ $a=-1.40270$ $b=-0.569840$	7.76919	-62.0390
$u=1.61803$ $a=0.01037+1.55272I$ $b=-0.215080-1.307140I$	$11.90680-2.82812I$	$7.38403+1.90115I$
$u=1.61803$ $a=0.01037-1.55272I$ $b=-0.215080+1.307140I$	$11.90680+2.82812I$	$7.38403-1.90115I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^8(u^3-u^2+2u-1)^2$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{112}+52u^{111}+\cdots+6550u+1)$
c_2	$(u-1)^8(u^3+u^2-1)^2(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{112}-12u^{111}+\cdots+78u+1)$
c_3	$u^8(u^3-u^2+2u-1)^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{112}-4u^{111}+\cdots-1664u+256)$
c_4	$(u+1)^8(u^3-u^2+1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{112}-12u^{111}+\cdots+78u+1)$
c_5	$u^6(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{112}+3u^{111}+\cdots-224u-64)$
c_6	$u^8(u^3+u^2+2u+1)^2(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{112}-4u^{111}+\cdots-1664u+256)$
c_7, c_8	$(u+1)^9(u^2-u-1)^3(u^8-u^7-3u^6+2u^5+3u^4-2u-1)$ $\cdot(u^{112}+14u^{111}+\cdots+171u-1)$
c_9	$u^9(u^2-u-1)^3(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)$ $\cdot(u^{112}-5u^{111}+\cdots-5632u+512)$
c_{10}	$(u-1)^9(u^2+u-1)^3(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{112}+14u^{111}+\cdots+171u-1)$
c_{11}	$u^6(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{112}+3u^{111}+\cdots-224u-64)$
c_{12}	$u^9(u^2+u-1)^3(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{112}-5u^{111}+\cdots-5632u+512)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^8(y^3+3y^2+2y-1)^2$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{112}+28y^{111}+\cdots-43105022y+1)$
c_2, c_4	$(y-1)^8(y^3-y^2+2y-1)^2$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{112}-52y^{111}+\cdots-6550y+1)$
c_3, c_6	$y^8(y^3+3y^2+2y-1)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{112}+60y^{111}+\cdots-3784704y+65536)$
c_5, c_{11}	$y^6(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{112}+47y^{111}+\cdots-185344y+4096)$
c_7, c_8, c_{10}	$(y-1)^9(y^2-3y+1)^3$ $\cdot(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{112}-110y^{111}+\cdots-28983y+1)$
c_9, c_{12}	$y^9(y^2-3y+1)^3(y^8-3y^7+\cdots-4y+1)$ $\cdot(y^{112}-69y^{111}+\cdots-75235328y+262144)$