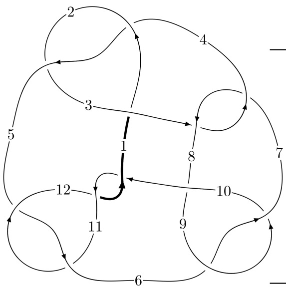
$12a_{0114}$ ($K12a_{0114}$)



A knot diagram[1]

Linearized knot diagam

$$\rightarrow \downarrow_{3} \rightarrow \downarrow_{5} \rightarrow \downarrow_{8} \rightarrow \downarrow_{2} \rightarrow \uparrow_{12} \rightarrow \downarrow_{9} \rightarrow \downarrow_{4} \rightarrow \downarrow_{10} \rightarrow \downarrow_{7} \rightarrow \downarrow_{1} \rightarrow \uparrow_{6} \rightarrow \downarrow_{11} \rightarrow$$

Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle &-2.04340 \times 10^{56} u^{42} - 4.44323 \times 10^{56} u^{41} + \cdots + 1.61592 \times 10^{58} d - 3.71857 \times 10^{57},\\
&- 7.08245 \times 10^{55} u^{42} + 2.18590 \times 10^{54} u^{41} + \cdots + 3.23183 \times 10^{58} c + 1.16938 \times 10^{58},\\
&5.36649 \times 10^{55} u^{42} + 5.08814 \times 10^{55} u^{41} + \cdots + 8.07958 \times 10^{57} b + 5.66596 \times 10^{56},\\
&1.77513 \times 10^{55} u^{42} + 8.50273 \times 10^{55} u^{41} + \cdots + 3.23183 \times 10^{58} a - 3.36911 \times 10^{58},\ u^{43} + 3u^{42} + \cdots + 64u +\\
I^u_2 = \langle &-7.30862 \times 10^{18} a u^{34} - 1.42018 \times 10^{19} u^{34} + \cdots - 3.97597 \times 10^{19} a + 1.41581 \times 10^{20},\\
&9.40640 \times 10^{18} a u^{34} - 1.54584 \times 10^{19} u^{34} + \cdots - 4.98901 \times 10^{18} a + 5.34053 \times 10^{19},\\
&- 4.96996 \times 10^{18} a u^{34} + 6.75491 \times 10^{18} u^{34} + \cdots + 1.88128 \times 10^{19} a + 4.81090 \times 10^{19},\\
&- 5.09108 \times 10^{19} a u^{34} - 2.42015 \times 10^{19} u^{34} + \cdots - 1.99866 \times 10^{19} a - 6.67500 \times 10^{19},\ u^{35} - u^{34} + \cdots - 8u -
\end{aligned}$$

$$\begin{aligned}
I^v_1 &= \langle a,\ d,\ c - v,\ b + 1,\ v^2 + v + 1\rangle\\
I^v_2 &= \langle c,\ d + v + 1,\ b,\ a - 1,\ v^2 + v + 1\rangle\\
I^v_3 &= \langle a,\ d + 1,\ c - a + 1,\ b + 1,\ v + 1\rangle\\
I^v_4 &= \langle a,\ a^2 d + c^2 v - 2da + 2ca + cv + d - 2c + a + v - 1,\ dv - 1,\\
&\quad c^2 v^2 + 2cav + v^2 c - 2cv + a^2 + av + v^2 - 2a - v + 1,\ b + 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 118 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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. $\boldsymbol{I^u_1 = \langle -2.04\times10^{56}u^{42} - 4.44\times10^{56}u^{41} + \cdots + 1.62\times10^{58}d - 3.72\times10^{57},\ -7.08\times10^{55}u^{42} + 2.19\times10^{54}u^{41} + \cdots + 3.23\times10^{58}c + 1.17\times10^{58},\ 5.37\times10^{55}u^{42} + 5.09\times10^{55}u^{41} + \cdots + 8.08\times10^{57}b + 5.67\times10^{56},\ 1.78\times10^{55}u^{42} + 8.50\times10^{55}u^{41} + \cdots + 3.23\times10^{58}a - 3.37\times10^{58},\ u^{43} + 3u^{42} + \cdots + 64u + 32\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix}-0.000549265u^{42} - 0.00263093u^{41} + \cdots - 0.260997u + 1.04248\\-0.00664203u^{42} - 0.00629753u^{41} + \cdots - 0.502086u - 0.0701269\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}-0.000549265u^{42} - 0.00263093u^{41} + \cdots - 0.260997u + 1.04248\\0.00262065u^{42} + 0.00310262u^{41} + \cdots + 0.582583u + 0.101587\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0.00219146u^{42} - 0.0000676365u^{41} + \cdots - 0.534860u - 0.361832\\0.0126454u^{42} + 0.0274966u^{41} + \cdots + 1.43259u + 0.230121\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.00256786u^{42} - 0.00870949u^{41} + \cdots - 0.600995u - 0.445693\\0.00192925u^{42} + 0.00197488u^{41} + \cdots + 1.15804u - 0.0340955\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-0.00719130u^{42} - 0.00892846u^{41} + \cdots - 0.763083u + 0.972348\\-0.00664203u^{42} - 0.00629753u^{41} + \cdots - 0.502086u - 0.0701269\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.0188325u^{42} - 0.0568409u^{41} + \cdots - 3.24630u - 0.805851\\0.00514539u^{42} + 0.0189191u^{41} + \cdots + 1.08816u + 0.00126900\end{pmatrix}$$

$$a_7 = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0.0104540u^{42} + 0.0275643u^{41} + \cdots + 1.96745u + 0.591953\\0.00681841u^{42} + 0.0190556u^{41} + \cdots + 1.34111u + 0.351645\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.0163213u^{42} - 0.0536714u^{41} + \cdots - 3.05533u - 0.306156\\-0.00108304u^{42} + 0.00839531u^{41} + \cdots + 0.726103u + 0.359337\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.141642u^{42} - 0.373966u^{41} + \cdots - 18.4912u - 10.3634$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{43} + 19u^{42} + \cdots + 11u + 1$
c_2, c_4, c_6 c_9	$u^{43} - 5u^{42} + \cdots - 5u + 1$
c_3, c_7	$u^{43} + 3u^{42} + \cdots + 64u + 32$
c_5, c_{11}	$u^{43} + u^{42} + \cdots + 8u + 4$
c_{10}, c_{12}	$u^{43} + 15u^{42} + \cdots + 88u - 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{43} + 21y^{42} + \cdots - 117y - 1$
c_2, c_4, c_6 c_9	$y^{43} - 19y^{42} + \cdots + 11y - 1$
c_3, c_7	$y^{43} + 15y^{42} + \cdots - 1024y - 1024$
c_5, c_{11}	$y^{43} + 15y^{42} + \cdots + 88y - 16$
c_{10}, c_{12}	$y^{43} + 27y^{42} + \cdots + 18208y - 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.083173 + 0.999400I$ $a = 0.72843 + 1.47481I$ $b = -0.236924 - 0.796663I$ $c = -0.811251 + 0.169551I$ $d = -0.636862 + 0.547617I$	$-0.05445 - 4.88438I$	$-6.23953 + 8.26907I$
$u = 0.083173 - 0.999400I$ $a = 0.72843 - 1.47481I$ $b = -0.236924 + 0.796663I$ $c = -0.811251 - 0.169551I$ $d = -0.636862 - 0.547617I$	$-0.05445 + 4.88438I$	$-6.23953 - 8.26907I$
$u = 0.853926 + 0.430623I$ $a = 0.481539 + 0.101502I$ $b = -0.801143 + 0.828451I$ $c = -0.357924 + 1.150660I$ $d = -0.673379 + 0.656482I$	$-2.38574 + 3.27178I$	$-9.17419 - 4.94523I$
$u = 0.853926 - 0.430623I$ $a = 0.481539 - 0.101502I$ $b = -0.801143 - 0.828451I$ $c = -0.357924 - 1.150660I$ $d = -0.673379 - 0.656482I$	$-2.38574 - 3.27178I$	$-9.17419 + 4.94523I$
$u = -1.033880 + 0.177916I$ $a = 0.555689 + 0.233546I$ $b = 0.132893 + 0.680601I$ $c = -0.014816 - 0.660848I$ $d = -0.874552 - 0.822608I$	$2.18783 - 1.46576I$	$-4.39540 - 0.53246I$
$u = -1.033880 - 0.177916I$ $a = 0.555689 - 0.233546I$ $b = 0.132893 - 0.680601I$ $c = -0.014816 + 0.660848I$ $d = -0.874552 + 0.822608I$	$2.18783 + 1.46576I$	$-4.39540 + 0.53246I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.073470 + 0.049653I$ $a = 0.530276 - 0.204737I$ $b = -0.009584 - 0.812539I$ $c = -0.043846 - 0.754897I$ $d = 0.609459 - 1.066160I$	$2.38615 - 4.03105I$	$-4.49490 + 6.55598I$
$u = 1.073470 - 0.049653I$ $a = 0.530276 + 0.204737I$ $b = -0.009584 + 0.812539I$ $c = -0.043846 + 0.754897I$ $d = 0.609459 + 1.066160I$	$2.38615 + 4.03105I$	$-4.49490 - 6.55598I$
$u = 0.118650 + 1.091750I$ $a = 0.665477 - 1.093120I$ $b = 0.093039 + 0.792480I$ $c = 0.726561 - 0.006259I$ $d = 0.418220 + 0.792440I$	$3.02575 + 1.21250I$	$-0.81942 - 2.86814I$
$u = 0.118650 - 1.091750I$ $a = 0.665477 + 1.093120I$ $b = 0.093039 - 0.792480I$ $c = 0.726561 + 0.006259I$ $d = 0.418220 - 0.792440I$	$3.02575 - 1.21250I$	$-0.81942 + 2.86814I$
$u = -0.359241 + 0.820253I$ $a = 0.870329 + 0.688965I$ $b = 0.226430 - 0.328392I$ $c = -0.437362 - 0.084500I$ $d = -0.689763 + 0.770087I$	$-0.40821 + 1.76300I$	$-5.68682 - 2.17312I$
$u = -0.359241 - 0.820253I$ $a = 0.870329 - 0.688965I$ $b = 0.226430 + 0.328392I$ $c = -0.437362 + 0.084500I$ $d = -0.689763 - 0.770087I$	$-0.40821 - 1.76300I$	$-5.68682 + 2.17312I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.910628+0.648287I$ $a=\ \ 0.449928-0.096871I$ $b=-1.05448-1.02817I$ $c=\ \ 0.235042+1.296410I$ $d=\ \ 1.27987+0.63257I$	$-6.78885-5.21532I$	$-15.4874+4.9651I$
$u=-0.910628-0.648287I$ $a=\ \ 0.449928+0.096871I$ $b=-1.05448+1.02817I$ $c=\ \ 0.235042-1.296410I$ $d=\ \ 1.27987-0.63257I$	$-6.78885+5.21532I$	$-15.4874-4.9651I$
$u=-0.653698+0.530431I$ $a=\ \ 0.474331-0.068978I$ $b=-1.043170-0.639245I$ $c=\ \ 0.48378+1.37044I$ $d=\ \ 0.747514+0.161233I$	$-4.07070+1.09789I$	$-13.44053-1.40134I$
$u=-0.653698-0.530431I$ $a=\ \ 0.474331+0.068978I$ $b=-1.043170+0.639245I$ $c=\ \ 0.48378-1.37044I$ $d=\ \ 0.747514-0.161233I$	$-4.07070-1.09789I$	$-13.44053+1.40134I$
$u=-0.576447+1.031310I$ $a=-0.28667-1.83591I$ $b=-0.89021+1.15174I$ $c=\ \ 1.218550+0.182083I$ $d=\ \ 1.38400-0.81935I$	$-2.58520+3.71825I$	$-9.87585-4.37570I$
$u=-0.576447-1.031310I$ $a=-0.28667+1.83591I$ $b=-0.89021-1.15174I$ $c=\ \ 1.218550-0.182083I$ $d=\ \ 1.38400+0.81935I$	$-2.58520-3.71825I$	$-9.87585+4.37570I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.098260 + 0.588414I$ $a = 0.444497 + 0.121481I$ $b = -0.86814 + 1.25108I$ $c = -0.139972 + 1.214140I$ $d = -1.27290 + 1.25814I$	$-0.56681 + 5.57701I$	$-7.91552 - 3.90122I$
$u = 1.098260 - 0.588414I$ $a = 0.444497 - 0.121481I$ $b = -0.86814 - 1.25108I$ $c = -0.139972 - 1.214140I$ $d = -1.27290 - 1.25814I$	$-0.56681 - 5.57701I$	$-7.91552 + 3.90122I$
$u = 0.614898 + 1.118930I$ $a = -0.31373 + 1.65536I$ $b = -0.89319 - 1.29520I$ $c = -1.225970 + 0.124533I$ $d = -1.14513 - 1.12900I$	$-0.28043 - 8.69625I$	$-6.61034 + 7.94559I$
$u = 0.614898 - 1.118930I$ $a = -0.31373 - 1.65536I$ $b = -0.89319 + 1.29520I$ $c = -1.225970 - 0.124533I$ $d = -1.14513 + 1.12900I$	$-0.28043 + 8.69625I$	$-6.61034 - 7.94559I$
$u = -1.109210 + 0.657844I$ $a = 0.436604 - 0.117557I$ $b = -0.95891 - 1.30595I$ $c = 0.122977 + 1.250300I$ $d = 1.51579 + 1.23538I$	$-1.67059 - 11.25340I$	$-9.77881 + 8.46956I$
$u = -1.109210 - 0.657844I$ $a = 0.436604 + 0.117557I$ $b = -0.95891 + 1.30595I$ $c = 0.122977 - 1.250300I$ $d = 1.51579 - 1.23538I$	$-1.67059 + 11.25340I$	$-9.77881 - 8.46956I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.724262 + 1.081360I$ $a = -0.51124 - 1.64089I$ $b = -1.06752 + 1.30329I$ $c = \quad 1.288450 + 0.124239I$ $d = \quad 1.50850 - 1.46270I$	$-5.40682 + 11.27400I$	$-13.1483 - 8.7166I$
$u = -0.724262 - 1.081360I$ $a = -0.51124 + 1.64089I$ $b = -1.06752 - 1.30329I$ $c = \quad 1.288450 - 0.124239I$ $d = \quad 1.50850 + 1.46270I$	$-5.40682 - 11.27400I$	$-13.1483 + 8.7166I$
$u = \quad 0.460216 + 1.229810I$ $a = \quad 0.522317 - 0.781774I$ $b = \quad 0.614727 + 0.723655I$ $c = \quad 0.680228 - 0.245304I$ $d = \quad 0.59476 + 1.37160I$	$6.33622 - 1.07199I$	$-1.20689 - 1.13710I$
$u = \quad 0.460216 - 1.229810I$ $a = \quad 0.522317 + 0.781774I$ $b = \quad 0.614727 - 0.723655I$ $c = \quad 0.680228 + 0.245304I$ $d = \quad 0.59476 - 1.37160I$	$6.33622 + 1.07199I$	$-1.20689 + 1.13710I$
$u = -0.548223 + 1.211710I$ $a = \quad 0.521334 + 0.726495I$ $b = \quad 0.704438 - 0.632367I$ $c = -0.651538 - 0.286578I$ $d = -0.78605 + 1.43368I$	$5.47474 + 6.91618I$	$-2.74163 - 4.17963I$
$u = -0.548223 - 1.211710I$ $a = \quad 0.521334 - 0.726495I$ $b = \quad 0.704438 + 0.632367I$ $c = -0.651538 + 0.286578I$ $d = -0.78605 - 1.43368I$	$5.47474 - 6.91618I$	$-2.74163 + 4.17963I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.168268 + 1.366960I$ $a = 0.219555 - 1.223470I$ $b = -0.108972 + 1.358650I$ $c = 0.988755 - 0.041994I$ $d = -0.203397 + 0.128416I$	$7.94604 + 2.88039I$	$-2.40290 - 2.87135I$
$u = -0.168268 - 1.366960I$ $a = 0.219555 + 1.223470I$ $b = -0.108972 - 1.358650I$ $c = 0.988755 + 0.041994I$ $d = -0.203397 - 0.128416I$	$7.94604 - 2.88039I$	$-2.40290 + 2.87135I$
$u = -0.620383$ $a = 0.635515$ $b = -0.328934$ $c = 0.530212$ $d = -0.190197$	-1.07886	-8.06050
$u = 0.256404 + 1.367180I$ $a = 0.141032 + 1.272300I$ $b = -0.23242 - 1.41922I$ $c = -1.033590 - 0.023839I$ $d = 0.177430 - 0.162620I$	$7.59831 - 8.92002I$	$-3.37196 + 8.11870I$
$u = 0.256404 - 1.367180I$ $a = 0.141032 - 1.272300I$ $b = -0.23242 + 1.41922I$ $c = -1.033590 + 0.023839I$ $d = 0.177430 + 0.162620I$	$7.59831 + 8.92002I$	$-3.37196 - 8.11870I$
$u = -0.170237 + 0.574659I$ $a = 1.248050 + 0.407611I$ $b = -0.0202482 - 0.1305180I$ $c = -0.199203 + 0.094247I$ $d = -0.368251 + 0.658395I$	$-0.37797 + 1.66748I$	$-2.59196 - 2.78569I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.170237 - 0.574659I$ $a = 1.248050 - 0.407611I$ $b = -0.0202482 + 0.1305180I$ $c = -0.199203 - 0.094247I$ $d = -0.368251 - 0.658395I$	$-0.37797 - 1.66748I$	$-2.59196 + 2.78569I$
$u = 0.766704 + 1.185140I$ $a = -0.48729 + 1.47075I$ $b = -1.07182 - 1.47408I$ $c = -1.289280 + 0.070307I$ $d = -1.19144 - 1.85032I$	$1.37987 - 12.30340I$	$-8.00000 + 6.92563I$
$u = 0.766704 - 1.185140I$ $a = -0.48729 - 1.47075I$ $b = -1.07182 + 1.47408I$ $c = -1.289280 - 0.070307I$ $d = -1.19144 + 1.85032I$	$1.37987 + 12.30340I$	$-8.00000 - 6.92563I$
$u = -0.80758 + 1.17123I$ $a = -0.54459 - 1.45657I$ $b = -1.13832 + 1.47599I$ $c = 1.308330 + 0.069788I$ $d = 1.33632 - 1.98675I$	$0.0200 + 18.1731I$	$-8.00000 - 11.31467I$
$u = -0.80758 - 1.17123I$ $a = -0.54459 + 1.45657I$ $b = -1.13832 - 1.47599I$ $c = 1.308330 - 0.069788I$ $d = 1.33632 + 1.98675I$	$0.0200 - 18.1731I$	$-8.00000 + 11.31467I$
$u = 0.546169 + 0.144967I$ $a = 0.536373 + 0.039062I$ $b = -0.711997 + 0.230827I$ $c = -1.113030 + 0.718056I$ $d = -0.135046 + 0.121945I$	$-2.99504 + 2.52590I$	$-15.3721 - 4.9240I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.546169 - 0.144967I$		
$a = 0.536373 - 0.039062I$		
$b = -0.711997 - 0.230827I$	$-2.99504 - 2.52590I$	$-15.3721 + 4.9240I$
$c = -1.113030 - 0.718056I$		
$d = -0.135046 - 0.121945I$		

II. $\boldsymbol{I_2^u = \langle -7.31 \times 10^{18} au^{34} - 1.42 \times 10^{19} u^{34} + \cdots - 3.98 \times 10^{19} a + 1.42 \times 10^{20},\ 9.41 \times 10^{18} au^{34} - 1.55 \times 10^{19} u^{34} + \cdots - 4.99 \times 10^{18} a + 5.34 \times 10^{19},\ -4.97 \times 10^{18} au^{34} + 6.75 \times 10^{18} u^{34} + \cdots + 1.88 \times 10^{19} a + 4.81 \times 10^{19},\ -5.09 \times 10^{19} au^{34} - 2.42 \times 10^{19} u^{34} + \cdots - 2.00 \times 10^{19} a - 6.67 \times 10^{19},\ u^{35} - u^{34} + \cdots - 8u + 4 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ 0.410603au^{34} - 0.558070u^{34} + \cdots - 1.55425a - 3.97461 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a \\ -0.410603au^{34} + 0.558070u^{34} + \cdots + 1.55425a + 3.97461 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.388564au^{34} + 0.638564u^{34} + \cdots + 0.206088a - 2.20609 \\ 0.301908au^{34} + 0.586656u^{34} + \cdots + 1.64241a - 5.84850 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.690471au^{34} + 0.638564u^{34} + \cdots - 1.43632a - 2.20609 \\ -0.238077au^{34} + 0.586656u^{34} + \cdots + 3.02481a - 5.84850 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.410603au^{34} - 0.558070u^{34} + \cdots - 0.554254a - 3.97461 \\ 0.410603au^{34} - 0.558070u^{34} + \cdots - 1.55425a - 3.97461 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.683790au^{34} + 0.400487u^{34} + \cdots - 6.75397a + 0.818722 \\ -0.546198au^{34} + 0.348579u^{34} + \cdots - 0.00923237a - 2.82369 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.690471au^{34} - 0.0519078u^{34} + \cdots + 1.43632a - 3.64241 \\ 0.238077au^{34} + 0.348579u^{34} + \cdots - 3.02481a - 2.82369 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1.36731au^{34} + 0.710589u^{34} + \cdots + 1.55907a - 3.21365 \\ 0.360100au^{34} - 0.905750u^{34} + \cdots + 0.00164563a - 1.70543 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{2267237276771889525 1}{6052032860907500938}u^{34} - \frac{26762652226596727431}{6052032860907500938}u^{33} + \cdots + \frac{27051041690088998397 5}{6052032860907500938}u - \frac{7865440603256926756 6}{3026016430453750469}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{70} + 39u^{69} + \cdots + 2336u + 256$
c_2, c_6	$u^{70} - 3u^{69} + \cdots - 56u + 16$
c_3	$(u^{35} - u^{34} + \cdots - 8u + 4)^2$
c_4, c_9	$u^{70} + 3u^{69} + \cdots + 56u + 16$
c_5	$(u^{35} + 2u^{34} + \cdots - 2u^2 + 1)^2$
c_7	$(u^{35} + u^{34} + \cdots - 8u - 4)^2$
c_{10}, c_{12}	$(u^{35} - 12u^{34} + \cdots + 4u + 1)^2$
c_{11}	$(u^{35} - 2u^{34} + \cdots + 2u^2 - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{70} - 19y^{69} + \cdots - 1270272y + 65536$
c_2, c_4, c_6 c_9	$y^{70} - 39y^{69} + \cdots - 2336y + 256$
c_3, c_7	$(y^{35} + 15y^{34} + \cdots - 72y - 16)^2$
c_5, c_{11}	$(y^{35} + 12y^{34} + \cdots + 4y - 1)^2$
c_{10}, c_{12}	$(y^{35} + 24y^{34} + \cdots + 40y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.207372 + 0.975503I$ $a = 0.810975 + 0.957053I$ $b = 0.135002 - 0.589507I$ $c = 0.10620 + 1.73197I$ $d = 0.532443 - 1.191670I$	$0.32534 - 1.86508I$	$-3.98051 + 2.70414I$
$u = -0.207372 + 0.975503I$ $a = 0.431780 - 0.018192I$ $b = -1.71157 - 0.25557I$ $c = -0.606330 - 0.009498I$ $d = -0.554711 + 0.846584I$	$0.32534 - 1.86508I$	$-3.98051 + 2.70414I$
$u = -0.207372 - 0.975503I$ $a = 0.810975 - 0.957053I$ $b = 0.135002 + 0.589507I$ $c = 0.10620 - 1.73197I$ $d = 0.532443 + 1.191670I$	$0.32534 + 1.86508I$	$-3.98051 - 2.70414I$
$u = -0.207372 - 0.975503I$ $a = 0.431780 + 0.018192I$ $b = -1.71157 + 0.25557I$ $c = -0.606330 + 0.009498I$ $d = -0.554711 - 0.846584I$	$0.32534 + 1.86508I$	$-3.98051 - 2.70414I$
$u = 0.325740 + 0.904391I$ $a = 0.825073 - 0.782270I$ $b = 0.235348 + 0.437813I$ $c = -1.032100 + 0.325792I$ $d = -1.254530 + 0.220950I$	$-0.525136 + 0.811264I$	$-5.97406 + 0.21615I$
$u = 0.325740 + 0.904391I$ $a = 0.40485 + 2.13305I$ $b = -0.630839 - 0.827296I$ $c = 0.511473 - 0.076007I$ $d = 0.656946 + 0.846832I$	$-0.525136 + 0.811264I$	$-5.97406 + 0.21615I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.325740 - 0.904391I$ $a = 0.825073 + 0.782270I$ $b = 0.235348 - 0.437813I$ $c = -1.032100 - 0.325792I$ $d = -1.254530 - 0.220950I$	$-0.525136 - 0.811264I$	$-5.97406 - 0.21615I$
$u = 0.325740 - 0.904391I$ $a = 0.40485 - 2.13305I$ $b = -0.630839 + 0.827296I$ $c = 0.511473 + 0.076007I$ $d = 0.656946 - 0.846832I$	$-0.525136 - 0.811264I$	$-5.97406 - 0.21615I$
$u = 0.365087 + 0.973537I$ $a = 0.740296 - 0.786236I$ $b = 0.321145 + 0.492436I$ $c = -0.16022 + 1.66799I$ $d = -0.929376 - 1.041310I$	$-0.19294 - 3.49535I$	$-5.62111 + 3.75014I$
$u = 0.365087 + 0.973537I$ $a = 0.430751 + 0.032296I$ $b = -1.68235 + 0.45298I$ $c = 0.551911 - 0.122902I$ $d = 0.673544 + 0.926090I$	$-0.19294 - 3.49535I$	$-5.62111 + 3.75014I$
$u = 0.365087 - 0.973537I$ $a = 0.740296 + 0.786236I$ $b = 0.321145 - 0.492436I$ $c = -0.16022 - 1.66799I$ $d = -0.929376 + 1.041310I$	$-0.19294 + 3.49535I$	$-5.62111 - 3.75014I$
$u = 0.365087 - 0.973537I$ $a = 0.430751 - 0.032296I$ $b = -1.68235 - 0.45298I$ $c = 0.551911 + 0.122902I$ $d = 0.673544 - 0.926090I$	$-0.19294 + 3.49535I$	$-5.62111 - 3.75014I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.655999 + 0.827108I$ $a = 0.439925 - 0.062584I$ $b = -1.40758 - 0.77847I$ $c = 1.336620 + 0.280068I$ $d = 2.26895 - 0.64367I$	$-7.12278 + 2.53588I$	$-15.8469 - 3.8333I$
$u = -0.655999 + 0.827108I$ $a = -0.70483 - 2.22687I$ $b = -1.10847 + 0.92180I$ $c = 0.25079 + 1.50290I$ $d = 1.330420 - 0.248626I$	$-7.12278 + 2.53588I$	$-15.8469 - 3.8333I$
$u = -0.655999 - 0.827108I$ $a = 0.439925 + 0.062584I$ $b = -1.40758 + 0.77847I$ $c = 1.336620 - 0.280068I$ $d = 2.26895 + 0.64367I$	$-7.12278 - 2.53588I$	$-15.8469 + 3.8333I$
$u = -0.655999 - 0.827108I$ $a = -0.70483 + 2.22687I$ $b = -1.10847 - 0.92180I$ $c = 0.25079 - 1.50290I$ $d = 1.330420 + 0.248626I$	$-7.12278 - 2.53588I$	$-15.8469 + 3.8333I$
$u = 0.705852 + 0.611410I$ $a = 0.700829 - 0.414305I$ $b = 0.387427 - 0.071708I$ $c = -0.37932 + 1.38368I$ $d = -0.960020 + 0.179730I$	$-3.90189 + 1.16771I$	$-12.59463 - 0.48242I$
$u = 0.705852 + 0.611410I$ $a = 0.462699 + 0.073809I$ $b = -1.113740 + 0.744755I$ $c = 0.263314 - 0.329674I$ $d = 1.065300 + 0.322317I$	$-3.90189 + 1.16771I$	$-12.59463 - 0.48242I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.705852 - 0.611410I$ $a = 0.700829 + 0.414305I$ $b = 0.387427 + 0.071708I$ $c = -0.37932 - 1.38368I$ $d = -0.960020 - 0.179730I$	$-3.90189 - 1.16771I$	$-12.59463 + 0.48242I$
$u = 0.705852 - 0.611410I$ $a = 0.462699 - 0.073809I$ $b = -1.113740 - 0.744755I$ $c = 0.263314 + 0.329674I$ $d = 1.065300 - 0.322317I$	$-3.90189 - 1.16771I$	$-12.59463 + 0.48242I$
$u = -1.045080 + 0.368116I$ $a = 0.564228 + 0.293694I$ $b = 0.371258 + 0.572713I$ $c = 0.195454 + 1.068160I$ $d = 0.561597 + 1.186680I$	$1.47991 - 0.62379I$	$-5.11442 - 0.32782I$
$u = -1.045080 + 0.368116I$ $a = 0.475227 - 0.134196I$ $b = -0.597470 - 1.044360I$ $c = -0.144309 - 0.598841I$ $d = -1.296590 - 0.561094I$	$1.47991 - 0.62379I$	$-5.11442 - 0.32782I$
$u = -1.045080 - 0.368116I$ $a = 0.564228 - 0.293694I$ $b = 0.371258 - 0.572713I$ $c = 0.195454 - 1.068160I$ $d = 0.561597 - 1.186680I$	$1.47991 + 0.62379I$	$-5.11442 + 0.32782I$
$u = -1.045080 - 0.368116I$ $a = 0.475227 + 0.134196I$ $b = -0.597470 + 1.044360I$ $c = -0.144309 + 0.598841I$ $d = -1.296590 + 0.561094I$	$1.47991 + 0.62379I$	$-5.11442 + 0.32782I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.713294 + 0.504864I$		
$a = 0.476506 - 0.077725I$		
$b = -0.979215 - 0.696369I$	$-3.98776 - 3.19845I$	$-13.06265 + 3.08489I$
$c = 1.60039 + 0.36375I$		
$d = 3.52020 - 0.13811I$		
$u = -0.713294 + 0.504864I$		
$a = -2.05407 - 2.74671I$		
$b = -1.32519 + 0.54852I$	$-3.98776 - 3.19845I$	$-13.06265 + 3.08489I$
$c = 0.454246 + 1.297780I$		
$d = 0.749391 + 0.298357I$		
$u = -0.713294 - 0.504864I$		
$a = 0.476506 + 0.077725I$		
$b = -0.979215 + 0.696369I$	$-3.98776 + 3.19845I$	$-13.06265 - 3.08489I$
$c = 1.60039 - 0.36375I$		
$d = 3.52020 + 0.13811I$		
$u = -0.713294 - 0.504864I$		
$a = -2.05407 + 2.74671I$		
$b = -1.32519 - 0.54852I$	$-3.98776 + 3.19845I$	$-13.06265 - 3.08489I$
$c = 0.454246 - 1.297780I$		
$d = 0.749391 - 0.298357I$		
$u = -0.413724 + 1.080130I$		
$a = 0.635679 + 0.786411I$		
$b = 0.448358 - 0.581931I$	$1.87781 + 3.59908I$	$-3.00767 - 3.96847I$
$c = 1.102290 + 0.168328I$		
$d = 0.919931 - 0.368351I$		
$u = -0.413724 + 1.080130I$		
$a = 0.05598 - 1.74978I$		
$b = -0.637860 + 1.120970I$	$1.87781 + 3.59908I$	$-3.00767 - 3.96847I$
$c = -0.608484 - 0.182028I$		
$d = -0.669357 + 1.086300I$		

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.413724 - 1.080130I$ $a = 0.635679 - 0.786411I$ $b = 0.448358 + 0.581931I$ $c = 1.102290 - 0.168328I$ $d = 0.919931 + 0.368351I$	$1.87781 - 3.59908I$	$-3.00767 + 3.96847I$
$u = -0.413724 - 1.080130I$ $a = 0.05598 + 1.74978I$ $b = -0.637860 - 1.120970I$ $c = -0.608484 + 0.182028I$ $d = -0.669357 - 1.086300I$	$1.87781 - 3.59908I$	$-3.00767 + 3.96847I$
$u = 0.511698 + 1.037850I$ $a = 0.422963 + 0.044547I$ $b = -1.73049 + 0.65920I$ $c = -1.175210 + 0.189303I$ $d = -1.233950 - 0.610623I$	$-1.31903 - 2.68874I$	$-7.41111 + 2.89622I$
$u = 0.511698 + 1.037850I$ $a = -0.14705 + 1.84591I$ $b = -0.797818 - 1.122820I$ $c = -0.15037 + 1.59324I$ $d = -1.39944 - 0.99690I$	$-1.31903 - 2.68874I$	$-7.41111 + 2.89622I$
$u = 0.511698 - 1.037850I$ $a = 0.422963 - 0.044547I$ $b = -1.73049 - 0.65920I$ $c = -1.175210 - 0.189303I$ $d = -1.233950 + 0.610623I$	$-1.31903 + 2.68874I$	$-7.41111 - 2.89622I$
$u = 0.511698 - 1.037850I$ $a = -0.14705 - 1.84591I$ $b = -0.797818 + 1.122820I$ $c = -0.15037 - 1.59324I$ $d = -1.39944 + 0.99690I$	$-1.31903 + 2.68874I$	$-7.41111 - 2.89622I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.060110 + 0.482223I$ $a = 0.558487 - 0.331278I$ $b = 0.511960 - 0.509925I$ $c = -0.177857 + 1.152110I$ $d = -0.91001 + 1.19977I$	$0.71766 + 6.15318I$	$-6.72324 - 5.00692I$
$u = 1.060110 + 0.482223I$ $a = 0.459428 + 0.125654I$ $b = -0.744123 + 1.135600I$ $c = 0.218845 - 0.580562I$ $d = 1.54044 - 0.37557I$	$0.71766 + 6.15318I$	$-6.72324 - 5.00692I$
$u = 1.060110 - 0.482223I$ $a = 0.558487 + 0.331278I$ $b = 0.511960 + 0.509925I$ $c = -0.177857 - 1.152110I$ $d = -0.91001 - 1.19977I$	$0.71766 - 6.15318I$	$-6.72324 + 5.00692I$
$u = 1.060110 - 0.482223I$ $a = 0.459428 - 0.125654I$ $b = -0.744123 - 1.135600I$ $c = 0.218845 + 0.580562I$ $d = 1.54044 + 0.37557I$	$0.71766 - 6.15318I$	$-6.72324 + 5.00692I$
$u = 0.600323 + 1.020000I$ $a = 0.612638 - 0.649478I$ $b = 0.610249 + 0.377168I$ $c = -1.235580 + 0.183942I$ $d = -1.47241 - 0.87989I$	$-2.63440 - 6.20108I$	$-10.04876 + 5.89177I$
$u = 0.600323 + 1.020000I$ $a = -0.34236 + 1.84493I$ $b = -0.92937 - 1.14986I$ $c = 0.536169 - 0.282721I$ $d = 1.01188 + 1.08387I$	$-2.63440 - 6.20108I$	$-10.04876 + 5.89177I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.600323 - 1.020000I$ $a = 0.612638 + 0.649478I$ $b = 0.610249 - 0.377168I$ $c = -1.235580 - 0.183942I$ $d = -1.47241 + 0.87989I$	$-2.63440 + 6.20108I$	$-10.04876 - 5.89177I$
$u = 0.600323 - 1.020000I$ $a = -0.34236 - 1.84493I$ $b = -0.92937 + 1.14986I$ $c = 0.536169 + 0.282721I$ $d = 1.01188 - 1.08387I$	$-2.63440 + 6.20108I$	$-10.04876 - 5.89177I$
$u = -0.597289 + 1.062760I$ $a = 0.419111 - 0.051606I$ $b = -1.73974 - 0.78162I$ $c = 1.225120 + 0.159128I$ $d = 1.31473 - 0.95581I$	$-2.31683 + 8.24742I$	$-9.43055 - 7.59916I$
$u = -0.597289 + 1.062760I$ $a = -0.31098 - 1.76298I$ $b = -0.90087 + 1.20697I$ $c = 0.14026 + 1.55817I$ $d = 1.67431 - 0.90584I$	$-2.31683 + 8.24742I$	$-9.43055 - 7.59916I$
$u = -0.597289 - 1.062760I$ $a = 0.419111 + 0.051606I$ $b = -1.73974 + 0.78162I$ $c = 1.225120 - 0.159128I$ $d = 1.31473 + 0.95581I$	$-2.31683 - 8.24742I$	$-9.43055 + 7.59916I$
$u = -0.597289 - 1.062760I$ $a = -0.31098 + 1.76298I$ $b = -0.90087 - 1.20697I$ $c = 0.14026 - 1.55817I$ $d = 1.67431 + 0.90584I$	$-2.31683 - 8.24742I$	$-9.43055 + 7.59916I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.329730 + 0.664757I$ $a = 0.460522 + 0.030841I$ $b = -1.328710 + 0.336382I$ $c = -1.115640 + 0.653338I$ $d = -1.93080 + 0.91172I$	$-3.05354 - 1.15463I$	$-8.48725 + 5.51426I$
$u = 0.329730 + 0.664757I$ $a = 0.74666 + 3.40319I$ $b = -0.802172 - 0.526207I$ $c = -0.38956 + 1.80556I$ $d = -0.530382 - 0.456050I$	$-3.05354 - 1.15463I$	$-8.48725 + 5.51426I$
$u = 0.329730 - 0.664757I$ $a = 0.460522 - 0.030841I$ $b = -1.328710 - 0.336382I$ $c = -1.115640 - 0.653338I$ $d = -1.93080 - 0.91172I$	$-3.05354 + 1.15463I$	$-8.48725 - 5.51426I$
$u = 0.329730 - 0.664757I$ $a = 0.74666 - 3.40319I$ $b = -0.802172 + 0.526207I$ $c = -0.38956 - 1.80556I$ $d = -0.530382 + 0.456050I$	$-3.05354 + 1.15463I$	$-8.48725 - 5.51426I$
$u = -0.047497 + 1.362920I$ $a = 0.362035 + 1.073040I$ $b = 0.184947 - 1.201000I$ $c = 0.928348 - 0.073039I$ $d = -0.187009 + 0.492551I$	$8.17684 + 3.01120I$	$-1.89563 - 2.75790I$
$u = -0.047497 + 1.362920I$ $a = 0.310277 - 1.144270I$ $b = 0.055453 + 1.268740I$ $c = -0.884845 - 0.104862I$ $d = 0.148418 + 0.751573I$	$8.17684 + 3.01120I$	$-1.89563 - 2.75790I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.047497 - 1.362920I$ $a = 0.362035 - 1.073040I$ $b = 0.184947 + 1.201000I$ $c = 0.928348 + 0.073039I$ $d = -0.187009 - 0.492551I$	$8.17684 - 3.01120I$	$-1.89563 + 2.75790I$
$u = -0.047497 - 1.362920I$ $a = 0.310277 + 1.144270I$ $b = 0.055453 - 1.268740I$ $c = -0.884845 + 0.104862I$ $d = 0.148418 - 0.751573I$	$8.17684 - 3.01120I$	$-1.89563 + 2.75790I$
$u = -0.642257 + 1.206250I$ $a = 0.508332 + 0.676520I$ $b = 0.808390 - 0.548182I$ $c = 1.229650 + 0.076088I$ $d = 0.86410 - 1.39481I$	$4.15268 + 6.65019I$	$-3.95665 - 3.46663I$
$u = -0.642257 + 1.206250I$ $a = -0.31655 - 1.51284I$ $b = -0.88153 + 1.43440I$ $c = -0.632084 - 0.333620I$ $d = -1.00048 + 1.50587I$	$4.15268 + 6.65019I$	$-3.95665 - 3.46663I$
$u = -0.642257 - 1.206250I$ $a = 0.508332 - 0.676520I$ $b = 0.808390 + 0.548182I$ $c = 1.229650 - 0.076088I$ $d = 0.86410 + 1.39481I$	$4.15268 - 6.65019I$	$-3.95665 + 3.46663I$
$u = -0.642257 - 1.206250I$ $a = -0.31655 + 1.51284I$ $b = -0.88153 - 1.43440I$ $c = -0.632084 + 0.333620I$ $d = -1.00048 - 1.50587I$	$4.15268 - 6.65019I$	$-3.95665 + 3.46663I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.626561$ $a=\ \ 0.632339+0.026645I$ $b=-0.330383+0.076980I$ $c=\ \ 0.527297+0.122861I$ $d=-0.189194+0.064927I$	-1.07873	-7.97520
$u=-0.626561$ $a=\ \ 0.632339-0.026645I$ $b=-0.330383-0.076980I$ $c=\ \ 0.527297-0.122861I$ $d=-0.189194-0.064927I$	-1.07873	-7.97520
$u=\ \ 0.532829+0.309500I$ $a=\ \ 0.506148+0.049944I$ $b=-0.877913+0.369405I$ $c=-1.91148+0.59223I$ $d=-4.11672+0.79704I$	$-3.17896-1.46996I$	$-12.94917+3.34118I$
$u=\ \ 0.532829+0.309500I$ $a=-3.92552+4.75017I$ $b=-1.201790-0.276044I$ $c=-0.93087+1.23399I$ $d=-0.327876+0.108379I$	$-3.17896-1.46996I$	$-12.94917+3.34118I$
$u=\ \ 0.532829-0.309500I$ $a=\ \ 0.506148-0.049944I$ $b=-0.877913-0.369405I$ $c=-1.91148-0.59223I$ $d=-4.11672-0.79704I$	$-3.17896+1.46996I$	$-12.94917-3.34118I$
$u=\ \ 0.532829-0.309500I$ $a=-3.92552-4.75017I$ $b=-1.201790+0.276044I$ $c=-0.93087-1.23399I$ $d=-0.327876-0.108379I$	$-3.17896+1.46996I$	$-12.94917-3.34118I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.704423 + 1.193170I$ $a = 0.502880 - 0.645463I$ $b = 0.867511 + 0.479891I$ $c = -1.260670 + 0.075283I$ $d = -1.03264 - 1.61588I$	$2.99525 - 12.51090I$	$-5.90812 + 8.16035I$
$u = 0.704423 + 1.193170I$ $a = -0.40526 + 1.50005I$ $b = -0.97787 - 1.45117I$ $c = 0.616545 - 0.363068I$ $d = 1.16289 + 1.51848I$	$2.99525 - 12.51090I$	$-5.90812 + 8.16035I$
$u = 0.704423 - 1.193170I$ $a = 0.502880 + 0.645463I$ $b = 0.867511 - 0.479891I$ $c = -1.260670 - 0.075283I$ $d = -1.03264 + 1.61588I$	$2.99525 + 12.51090I$	$-5.90812 - 8.16035I$
$u = 0.704423 - 1.193170I$ $a = -0.40526 - 1.50005I$ $b = -0.97787 + 1.45117I$ $c = 0.616545 + 0.363068I$ $d = 1.16289 - 1.51848I$	$2.99525 + 12.51090I$	$-5.90812 - 8.16035I$

III. $I_1^v = \langle a,\ d,\ c - v,\ b + 1,\ v^2 + v + 1 \rangle$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 2v \\ v \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} 2v + 1 \\ v \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v - 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -1.00000$ $c = -0.500000 + 0.866025I$ $d = 0$	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -1.00000$ $c = -0.500000 - 0.866025I$ $d = 0$	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$

IV. $I_2^v = \langle c,\ d+v+1,\ b,\ a-1,\ v^2+v+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 1.00000$ $b = 0$ $c = 0$ $d = -0.500000 - 0.866025I$	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 1.00000$ $b = 0$ $c = 0$ $d = -0.500000 + 0.866025I$	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$

V. $\boldsymbol{I_3^v = \langle a,\ d+1,\ c-a+1,\ b+1,\ v+1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$		
$a = \quad 0$		
$b = -1.00000$	-3.28987	-12.0000
$c = -1.00000$		
$d = -1.00000$		

VI. $\boldsymbol{I_4^v = \langle a,\ c^2v + cv + \cdots + a - 1,\ dv - 1,\ c^2v^2 + v^2c + \cdots - 2a + 1,\ b + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2c^3v - 7c^2v + 3c^2 - 7cv + v^2 + 7c - 5v - 12$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	$-3.28987 - 2.02988I$	$-12.47435 + 3.07723I$
$c = \cdots$		
$d = \cdots$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^2(u-1)^3(u^{43}+19u^{42}+\cdots+11u+1)$
c_2, c_6	$u^2(u-1)^3(u^{43}-5u^{42}+\cdots-5u+1)$
c_3, c_7	$u^5(u^{43}+3u^{42}+\cdots+64u+32)$
c_4, c_9	$u^2(u+1)^3(u^{43}-5u^{42}+\cdots-5u+1)$
c_5, c_{11}	$u(u^2-u+1)(u^2+u+1)(u^{43}+u^{42}+\cdots+8u+4)$
c_{10}	$u(u^2-u+1)^2(u^{43}+15u^{42}+\cdots+88u-16)$
c_{12}	$u(u^2+u+1)^2(u^{43}+15u^{42}+\cdots+88u-16)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^2(y-1)^3(y^{43}+21y^{42}+\cdots-117y-1)$
c_2, c_4, c_6 c_9	$y^2(y-1)^3(y^{43}-19y^{42}+\cdots+11y-1)$
c_3, c_7	$y^5(y^{43}+15y^{42}+\cdots-1024y-1024)$
c_5, c_{11}	$y(y^2+y+1)^2(y^{43}+15y^{42}+\cdots+88y-16)$
c_{10}, c_{12}	$y(y^2+y+1)^2(y^{43}+27y^{42}+\cdots+18208y-256)$