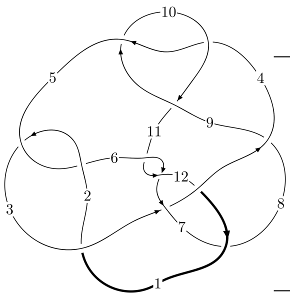
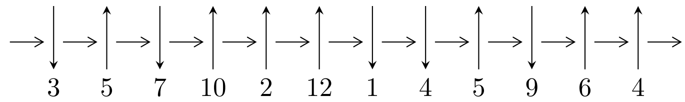
$12n_{0354}$ ($K12n_{0354}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 &= \langle -2802u^{15} + 14984u^{14} + \cdots + 11339b + 32255,\ a - 1,\\
&\quad u^{16} + 4u^{14} + 16u^{12} + u^{11} + 33u^{10} + 4u^9 + 45u^8 + 7u^7 + 38u^6 + 7u^5 + 21u^4 + 5u^3 + 7u^2 + u + 1\rangle\\
I^u_2 &= \langle -2u^4 - u^3 + b - 2u + 2,\ a + 1,\ u^5 + u^4 + u^3 + 2u^2 + u + 1\rangle\\
I^u_3 &= \langle b - 1,\ -2u^{13} - u^{12} - 6u^{11} - u^{10} - 10u^9 - u^8 - 10u^7 + 2u^6 - 7u^5 - u^4 - 4u^3 - u^2 + a + u - 1,\\
&\quad u^{14} + 4u^{12} - u^{11} + 9u^{10} - 3u^9 + 13u^8 - 6u^7 + 14u^6 - 6u^5 + 11u^4 - 4u^3 + 5u^2 - u + 1\rangle\\
I^u_4 &= \langle b + 1,\ -6956823038u^{13} - 6026687311u^{12} + \cdots + 24816265351a + 168071313931,\\
&\quad u^{14} - 4u^{12} + u^{11} + 15u^{10} - 3u^9 - 29u^8 + 8u^7 + 20u^6 - 14u^5 + u^4 + 14u^3 + 11u^2 - 39u + 19\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 49 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$$I_1^u = \langle -2802u^{15}+14984u^{14}+\cdots+11339b+32255,\ a-1,\ u^{16}+4u^{14}+\cdots+u+1\rangle$$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1 \\ 0.247112u^{15} - 1.32146u^{14} + \cdots - 4.78958u - 2.84461 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u \\ 1.32146u^{15} + 0.0903960u^{14} + \cdots + 4.09172u + 0.247112 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0.247112u^{15} - 1.32146u^{14} + \cdots - 4.78958u - 2.84461 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2+1 \\ 0.156716u^{15} - 0.695299u^{14} + \cdots - 3.71523u - 1.52315 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.232560u^{15} + 0.391393u^{14} + \cdots + 0.538584u + 1.69530 \\ -0.0796367u^{15} - 0.619102u^{14} + \cdots - 3.33548u - 1.21924 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.327807u^{15} + 0.339095u^{14} + \cdots + 2.63674u - 0.399859 \\ 0.233618u^{15} + 0.650057u^{14} + \cdots + 3.55225u + 1.53021 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^4 - u^2 - 1 \\ -0.0145515u^{15} + 0.930064u^{14} + \cdots + 4.25099u + 2.14931 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{20605}{11339}u^{15} + \frac{3850}{11339}u^{14} + \cdots + \frac{224602}{11339}u + \frac{37351}{11339}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{16} + 8u^{15} + \cdots + 13u + 1$
c_2, c_4, c_5 c_9	$u^{16} + 4u^{14} + \cdots - u + 1$
c_3	$u^{16} + 5u^{15} + \cdots + 8u + 3$
c_6, c_{11}, c_{12}	$u^{16} + u^{15} + \cdots + 2u + 1$
c_7	$u^{16} - u^{15} + \cdots + 14u + 17$
c_8	$u^{16} + 7u^{14} + \cdots + 13u + 5$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{16} + 32y^{15} + \cdots - 7y + 1$
c_2, c_4, c_5 c_9	$y^{16} + 8y^{15} + \cdots + 13y + 1$
c_3	$y^{16} + 3y^{15} + \cdots + 104y + 9$
c_6, c_{11}, c_{12}	$y^{16} - 23y^{15} + \cdots - 22y + 1$
c_7	$y^{16} + 27y^{15} + \cdots + 2796y + 289$
c_8	$y^{16} + 14y^{15} + \cdots + 471y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.530810 + 0.923327I$ $a = 1.00000$ $b = 0.789890 - 0.248067I$	$2.22282 - 4.13785I$	$5.34445 + 5.61520I$
$u = -0.530810 - 0.923327I$ $a = 1.00000$ $b = 0.789890 + 0.248067I$	$2.22282 + 4.13785I$	$5.34445 - 5.61520I$
$u = -0.176444 + 0.912663I$ $a = 1.00000$ $b = -0.297414 + 0.728074I$	$-1.53095 - 4.35219I$	$-2.44817 + 6.95568I$
$u = -0.176444 - 0.912663I$ $a = 1.00000$ $b = -0.297414 - 0.728074I$	$-1.53095 + 4.35219I$	$-2.44817 - 6.95568I$
$u = 0.525355 + 0.730919I$ $a = 1.00000$ $b = 1.71220 - 0.54617I$	$3.44631 + 4.47005I$	$6.86692 - 8.13679I$
$u = 0.525355 - 0.730919I$ $a = 1.00000$ $b = 1.71220 + 0.54617I$	$3.44631 - 4.47005I$	$6.86692 + 8.13679I$
$u = 0.462163 + 1.026620I$ $a = 1.00000$ $b = 2.11062 + 1.16455I$	$-2.50069 + 6.26666I$	$-4.16993 - 5.19035I$
$u = 0.462163 - 1.026620I$ $a = 1.00000$ $b = 2.11062 - 1.16455I$	$-2.50069 - 6.26666I$	$-4.16993 + 5.19035I$
$u = -0.370346 + 0.499709I$ $a = 1.00000$ $b = 0.423006 - 0.797373I$	$0.645184 - 1.116330I$	$5.05748 + 5.63154I$
$u = -0.370346 - 0.499709I$ $a = 1.00000$ $b = 0.423006 + 0.797373I$	$0.645184 + 1.116330I$	$5.05748 - 5.63154I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.031146 + 0.558234I$ $a = 1.00000$ $b = -0.50534 - 1.74362I$	$0.85013 - 1.38875I$	$2.96618 + 5.31348I$
$u = 0.031146 - 0.558234I$ $a = 1.00000$ $b = -0.50534 + 1.74362I$	$0.85013 + 1.38875I$	$2.96618 - 5.31348I$
$u = -1.04563 + 1.32610I$ $a = 1.00000$ $b = 2.17161 - 0.76132I$	$17.5809 - 5.0556I$	$3.38038 + 2.00245I$
$u = -1.04563 - 1.32610I$ $a = 1.00000$ $b = 2.17161 + 0.76132I$	$17.5809 + 5.0556I$	$3.38038 - 2.00245I$
$u = 1.10456 + 1.28859I$ $a = 1.00000$ $b = 2.09543 + 0.79872I$	$17.9422 + 13.0054I$	$3.50269 - 5.71450I$
$u = 1.10456 - 1.28859I$ $a = 1.00000$ $b = 2.09543 - 0.79872I$	$17.9422 - 13.0054I$	$3.50269 + 5.71450I$

II. $\boldsymbol{I_2^u = \langle -2u^4 - u^3 + b - 2u + 2,\ a + 1,\ u^5 + u^4 + u^3 + 2u^2 + u + 1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^5 - 3y^4 + 3y^3 - 8y^2 + y - 1$
c_2, c_4, c_5 c_9	$y^5 + y^4 - y^3 - 4y^2 - 3y - 1$
c_3	$y^5 + 4y^3 + 7y^2 + 18y - 1$
c_6, c_{11}, c_{12}	$y^5 - 6y^4 + 9y^3 - 8y^2 + 4y - 1$
c_7	$y^5 - 4y^3 - 5y^2 - 2y - 1$
c_8	$y^5 - 13y^4 + 8y^3 - 7y^2 - 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.428550 + 1.039280I$ $a = -1.00000$ $b = -2.43253 - 1.66541I$	$-1.91329 + 6.77491I$	$3.63648 - 11.54818I$
$u = \ \ 0.428550 - 1.039280I$ $a = -1.00000$ $b = -2.43253 + 1.66541I$	$-1.91329 - 6.77491I$	$3.63648 + 11.54818I$
$u = -0.276511 + 0.728237I$ $a = -1.00000$ $b = -2.04663 + 1.96846I$	$0.789751 + 0.607163I$	$2.03451 + 3.43880I$
$u = -0.276511 - 0.728237I$ $a = -1.00000$ $b = -2.04663 - 1.96846I$	$0.789751 - 0.607163I$	$2.03451 - 3.43880I$
$u = -1.30408$ $a = -1.00000$ $b = -1.04169$	5.53695	7.65800

III. $\boldsymbol{I_3^u = \langle b-1,\ -2u^{13}-u^{12}+\cdots+a-1,\ u^{14}+4u^{12}+\cdots-u+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}2u^{13}+u^{12}+\cdots-u+1\\1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-3u^{13}-u^{12}+\cdots-5u-1\\-u^{13}+2u^{12}+\cdots-2u+2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}2u^{13}+u^{12}+\cdots-u+1\\-2u^{13}-u^{12}+\cdots-2u^2-u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}4u^{13}+u^{12}+\cdots+6u+2\\u^{13}+3u^{11}+\cdots+2u-2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}4u^{13}+u^{12}+\cdots+6u+3\\u^{13}+3u^{11}+\cdots+2u-1\end{pmatrix}$$
$$a_7 = \begin{pmatrix}2u^{13}-2u^{12}+\cdots+9u-5\\-u^{13}-3u^{11}+u^{10}-5u^9+2u^8-5u^7+3u^6-4u^5+u^4-2u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^{13}-2u^{12}+\cdots+5u-4\\-u^{13}-u^{12}+\cdots+3u-1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 3u^{13}+5u^{12}+13u^{11}+17u^{10}+25u^9+35u^8+30u^7+40u^6+19u^5+38u^4+10u^3+25u^2+14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 8u^{13} + \cdots - 9u + 1$
c_2, c_4	$u^{14} + 4u^{12} + \cdots - u + 1$
c_3	$(u^7 - 2u^6 + 2u^5 - u^3 + 2u^2 - 2u + 1)^2$
c_5, c_9	$u^{14} + 4u^{12} + \cdots + u + 1$
c_6, c_{12}	$u^{14} - u^{13} + \cdots + 2u + 1$
c_7	$u^{14} - 3u^{13} + \cdots - 2u + 1$
c_8	$u^{14} + 3u^{13} + \cdots + 3u + 1$
c_{10}	$u^{14} + 8u^{13} + \cdots + 9u + 1$
c_{11}	$u^{14} + u^{13} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{14} + 4y^{13} + \cdots - 3y + 1$
c_2, c_4, c_5 c_9	$y^{14} + 8y^{13} + \cdots + 9y + 1$
c_3	$(y^7 + 2y^5 - 3y^3 - 1)^2$
c_6, c_{11}, c_{12}	$y^{14} - 11y^{13} + \cdots - 6y + 1$
c_7	$y^{14} + 11y^{13} + \cdots + 2y + 1$
c_8	$y^{14} + 3y^{13} + \cdots + 17y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.716205 + 0.619830I$ $a = 1.162750 + 0.669843I$ $b = 1.00000$	$0.78568 + 5.00992I$	$1.33595 - 7.33845I$
$u = 0.716205 - 0.619830I$ $a = 1.162750 - 0.669843I$ $b = 1.00000$	$0.78568 - 5.00992I$	$1.33595 + 7.33845I$
$u = -0.369492 + 1.060950I$ $a = -0.460474 + 0.495574I$ $b = 1.00000$	$-0.54326 - 3.38801I$	$4.33219 + 2.61481I$
$u = -0.369492 - 1.060950I$ $a = -0.460474 - 0.495574I$ $b = 1.00000$	$-0.54326 + 3.38801I$	$4.33219 - 2.61481I$
$u = -0.764704 + 0.855799I$ $a = 0.405506 - 0.437590I$ $b = 1.00000$	$3.53615 - 2.90027I$	$8.22879 + 2.19158I$
$u = -0.764704 - 0.855799I$ $a = 0.405506 + 0.437590I$ $b = 1.00000$	$3.53615 + 2.90027I$	$8.22879 - 2.19158I$
$u = 0.544331 + 1.111970I$ $a = 0.613385 + 0.789784I$ $b = 1.00000$	-0.977413	$-61.206125 + 0.10I$
$u = 0.544331 - 1.111970I$ $a = 0.613385 - 0.789784I$ $b = 1.00000$	-0.977413	$-61.206125 + 0.10I$
$u = 0.355639 + 0.671652I$ $a = -1.00622 - 1.08291I$ $b = 1.00000$	$-0.54326 - 3.38801I$	$4.33219 + 2.61481I$
$u = 0.355639 - 0.671652I$ $a = -1.00622 + 1.08291I$ $b = 1.00000$	$-0.54326 + 3.38801I$	$4.33219 - 2.61481I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.417581 + 1.200450I$ $a = \quad 0.645728 + 0.371994I$ $b = \quad 1.00000$	$0.78568 - 5.00992I$	$1.33595 + 7.33845I$
$u = -0.417581 - 1.200450I$ $a = \quad 0.645728 - 0.371994I$ $b = \quad 1.00000$	$0.78568 + 5.00992I$	$1.33595 - 7.33845I$
$u = -0.064397 + 0.681658I$ $a = \quad 1.13932 - 1.22946I$ $b = \quad 1.00000$	$3.53615 + 2.90027I$	$8.22879 - 2.19158I$
$u = -0.064397 - 0.681658I$ $a = \quad 1.13932 + 1.22946I$ $b = \quad 1.00000$	$3.53615 - 2.90027I$	$8.22879 + 2.19158I$

IV. $I^u_4 = \langle b+1,\ -6.96\times10^{9}u^{13} - 6.03\times10^{9}u^{12} + \cdots + 2.48\times10^{10}a + 1.68\times10^{11},\ u^{14} - 4u^{12} + \cdots - 39u + 19\rangle$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 0.280333u^{13} + 0.242852u^{12} + \cdots + 5.54317u - 6.77263 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.478511u^{13} + 0.441369u^{12} + \cdots + 9.82537u - 9.15179 \\ 0.242852u^{13} + 0.188871u^{12} + \cdots + 5.16037u - 5.32633 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.280333u^{13} + 0.242852u^{12} + \cdots + 5.54317u - 6.77263 \\ 0.188871u^{13} + 0.159671u^{12} + \cdots + 4.14491u - 5.61419 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.763211u^{13} + 0.779348u^{12} + \cdots + 15.9697u - 14.4864 \\ 1.00101u^{13} + 1.01426u^{12} + \cdots + 21.2588u - 20.2851 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.258216u^{13} + 0.268552u^{12} + \cdots + 5.23924u - 4.53134 \\ 0.00898172u^{13} + 0.00732707u^{12} + \cdots + 0.202185u - 0.624964 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.120478u^{13} - 0.0275435u^{12} + \cdots + 3.40920u - 4.59752 \\ 0.201962u^{13} + 0.166300u^{12} + \cdots + 4.28888u - 4.08455 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.945722u^{13} - 1.19104u^{12} + \cdots - 19.0444u + 13.6134 \\ -0.375642u^{13} - 0.447550u^{12} + \cdots - 7.86413u + 6.35879 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{210581923}{1306119229}u^{13} - \frac{357801343}{1306119229}u^{12} + \cdots - \frac{6208012118}{1306119229}u + \frac{4609135372}{1306119229}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{14} - 8u^{13} + \cdots - 1103u + 361$
c_2, c_4, c_5 c_9	$u^{14} - 4u^{12} + \cdots + 39u + 19$
c_3	$(u^7 - 2u^6 + 2u^5 + u^3 - 2u^2 + 2u - 1)^2$
c_6, c_{11}, c_{12}	$u^{14} - u^{13} + \cdots + 724u + 253$
c_7	$u^{14} - 3u^{13} + \cdots + 350u + 67$
c_8	$u^{14} - 3u^{13} + \cdots - 210483u + 186979$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{14} + 28y^{13} + \cdots - 313387y + 130321$
c_2, c_4, c_5 c_9	$y^{14} - 8y^{13} + \cdots - 1103y + 361$
c_3	$(y^7 + 6y^5 + 5y^3 - 1)^2$
c_6, c_{11}, c_{12}	$y^{14} - 35y^{13} + \cdots + 300098y + 64009$
c_7	$y^{14} + 31y^{13} + \cdots + 16994y + 4489$
c_8	$y^{14} + 103y^{13} + \cdots - 64089585027y + 34961146441$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.264475 + 0.932556I$ $a = -0.851114 - 0.524981I$ $b = -1.00000$	-3.35276	$-6.16157 + 0.I$
$u = \quad 0.264475 - 0.932556I$ $a = -0.851114 + 0.524981I$ $b = -1.00000$	-3.35276	$-6.16157 + 0.I$
$u = -0.700991 + 0.805619I$ $a = -0.335282 - 0.709899I$ $b = -1.00000$	$0.20654 - 2.41511I$	$3.04885 + 3.06912I$
$u = -0.700991 - 0.805619I$ $a = -0.335282 + 0.709899I$ $b = -1.00000$	$0.20654 + 2.41511I$	$3.04885 - 3.06912I$
$u = \quad 1.081060 + 0.175049I$ $a = -1.261400 + 0.473225I$ $b = -1.00000$	$5.81224 - 1.32363I$	$10.31577 + 4.85297I$
$u = \quad 1.081060 - 0.175049I$ $a = -1.261400 - 0.473225I$ $b = -1.00000$	$5.81224 + 1.32363I$	$10.31577 - 4.85297I$
$u = \quad 0.806938 + 0.227524I$ $a = -0.543961 + 1.151740I$ $b = -1.00000$	$0.20654 - 2.41511I$	$3.04885 + 3.06912I$
$u = \quad 0.806938 - 0.227524I$ $a = -0.543961 - 1.151740I$ $b = -1.00000$	$0.20654 + 2.41511I$	$3.04885 - 3.06912I$
$u = -1.44648 + 0.29078I$ $a = -0.694959 - 0.260721I$ $b = -1.00000$	$5.81224 - 1.32363I$	$10.31577 + 4.85297I$
$u = -1.44648 - 0.29078I$ $a = -0.694959 + 0.260721I$ $b = -1.00000$	$5.81224 + 1.32363I$	$10.31577 - 4.85297I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.36551+1.07736I$ $a=-0.201428-1.007520I$ $b=-1.00000$	$18.6867-3.8928I$	$4.21617+1.99955I$
$u=-1.36551-1.07736I$ $a=-0.201428+1.007520I$ $b=-1.00000$	$18.6867+3.8928I$	$4.21617-1.99955I$
$u=\quad 1.36052+1.15877I$ $a=-0.190806+0.954389I$ $b=-1.00000$	$18.6867-3.8928I$	$4.21617+1.99955I$
$u=\quad 1.36052-1.15877I$ $a=-0.190806-0.954389I$ $b=-1.00000$	$18.6867+3.8928I$	$4.21617-1.99955I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^5 - u^4 - u^3 + 4u^2 - 3u + 1)(u^{14} - 8u^{13} + \cdots - 9u + 1)$ $\cdot (u^{14} - 8u^{13} + \cdots - 1103u + 361)(u^{16} + 8u^{15} + \cdots + 13u + 1)$
c_2, c_4	$(u^5 + u^4 + u^3 + 2u^2 + u + 1)(u^{14} - 4u^{12} + \cdots + 39u + 19)$ $\cdot (u^{14} + 4u^{12} + \cdots - u + 1)(u^{16} + 4u^{14} + \cdots - u + 1)$
c_3	$(u^5 + 4u^4 + 8u^3 + 9u^2 + 6u + 1)(u^7 - 2u^6 + 2u^5 - u^3 + 2u^2 - 2u + 1)^2$ $\cdot ((u^7 - 2u^6 + 2u^5 + u^3 - 2u^2 + 2u - 1)^2)(u^{16} + 5u^{15} + \cdots + 8u + 3)$
c_5, c_9	$(u^5 - u^4 + u^3 - 2u^2 + u - 1)(u^{14} - 4u^{12} + \cdots + 39u + 19)$ $\cdot (u^{14} + 4u^{12} + \cdots + u + 1)(u^{16} + 4u^{14} + \cdots - u + 1)$
c_6, c_{12}	$(u^5 + 2u^4 - u^3 - 2u^2 + 1)(u^{14} - u^{13} + \cdots + 724u + 253)$ $\cdot (u^{14} - u^{13} + \cdots + 2u + 1)(u^{16} + u^{15} + \cdots + 2u + 1)$
c_7	$(u^5 + 2u^4 + 2u^3 + 3u^2 + 2u + 1)(u^{14} - 3u^{13} + \cdots - 2u + 1)$ $\cdot (u^{14} - 3u^{13} + \cdots + 350u + 67)(u^{16} - u^{15} + \cdots + 14u + 17)$
c_8	$(u^5 - 5u^4 + 6u^3 - 3u^2 + u - 1)(u^{14} - 3u^{13} + \cdots - 210483u + 186979)$ $\cdot (u^{14} + 3u^{13} + \cdots + 3u + 1)(u^{16} + 7u^{14} + \cdots + 13u + 5)$
c_{10}	$(u^5 + u^4 - u^3 - 4u^2 - 3u - 1)(u^{14} - 8u^{13} + \cdots - 1103u + 361)$ $\cdot (u^{14} + 8u^{13} + \cdots + 9u + 1)(u^{16} + 8u^{15} + \cdots + 13u + 1)$
c_{11}	$(u^5 - 2u^4 - u^3 + 2u^2 - 1)(u^{14} - u^{13} + \cdots + 724u + 253)$ $\cdot (u^{14} + u^{13} + \cdots - 2u + 1)(u^{16} + u^{15} + \cdots + 2u + 1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^5 - 3y^4 + 3y^3 - 8y^2 + y - 1)(y^{14} + 4y^{13} + \cdots - 3y + 1)$ $\cdot (y^{14} + 28y^{13} + \cdots - 313387y + 130321)(y^{16} + 32y^{15} + \cdots - 7y + 1)$
c_2, c_4, c_5 c_9	$(y^5 + y^4 - y^3 - 4y^2 - 3y - 1)(y^{14} - 8y^{13} + \cdots - 1103y + 361)$ $\cdot (y^{14} + 8y^{13} + \cdots + 9y + 1)(y^{16} + 8y^{15} + \cdots + 13y + 1)$
c_3	$(y^5 + 4y^3 + \cdots + 18y - 1)(y^7 + 2y^5 - 3y^3 - 1)^2(y^7 + 6y^5 + 5y^3 - 1)^2$ $\cdot (y^{16} + 3y^{15} + \cdots + 104y + 9)$
c_6, c_{11}, c_{12}	$(y^5 - 6y^4 + 9y^3 - 8y^2 + 4y - 1)(y^{14} - 35y^{13} + \cdots + 300098y + 64009)$ $\cdot (y^{14} - 11y^{13} + \cdots - 6y + 1)(y^{16} - 23y^{15} + \cdots - 22y + 1)$
c_7	$(y^5 - 4y^3 - 5y^2 - 2y - 1)(y^{14} + 11y^{13} + \cdots + 2y + 1)$ $\cdot (y^{14} + 31y^{13} + \cdots + 16994y + 4489)$ $\cdot (y^{16} + 27y^{15} + \cdots + 2796y + 289)$
c_8	$(y^5 - 13y^4 + 8y^3 - 7y^2 - 5y - 1)(y^{14} + 3y^{13} + \cdots + 17y + 1)$ $\cdot (y^{14} + 103y^{13} + \cdots - 64089585027y + 34961146441)$ $\cdot (y^{16} + 14y^{15} + \cdots + 471y + 25)$