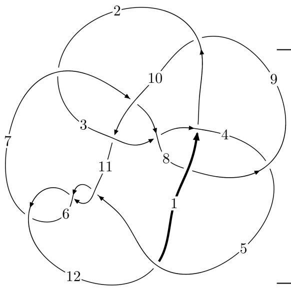
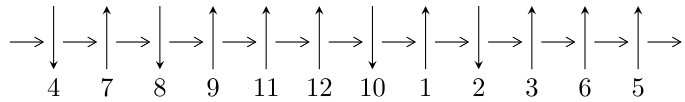
$12a_{1025}$ $(K12a_{1025})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -8u^{18} - 37u^{17} + \cdots + 2b + 46,\ 33u^{18} + 154u^{17} + \cdots + 8a - 196,\ u^{19} + 6u^{18} + \cdots + 4u - 8\rangle \\
I_2^u &= \langle -3u^{10}a - 7u^9a + 3u^8a + 8u^7a - 13u^6a - 6u^5a + 8u^4a - 18u^3a - 6u^2a + 9au + b - 8a, \\
&\qquad - 4u^9a - 7u^{10} + \cdots + 4a - 18,\ u^{11} + 4u^{10} + 3u^9 - 4u^8 + 9u^6 + u^5 + 2u^4 + 12u^3 + u^2 - 2u + 4\rangle \\
I_3^u &= \langle 19502u^7a^3 - 21027u^7a^2 + \cdots - 98205a + 12679,\ 2u^7a^3 - 3u^7a^2 + \cdots - 2a + 5, \\
&\qquad u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle \\
I_4^u &= \langle -7.80310 \times 10^{46}a^7u^7 + 1.01169 \times 10^{47}a^6u^7 + \cdots + 1.16866 \times 10^{48}a + 5.76531 \times 10^{47}, \\
&\qquad - 2a^7u^7 - 10u^7a^6 + \cdots + 388a - 283,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle \\
I_5^u &= \langle -3u^{31} - 13u^{30} + \cdots + 2b - 305,\ 631u^{31} + 546u^{30} + \cdots + 78a + 12324,\ u^{32} - 17u^{30} + \cdots + 17u^2 - 39\rangle \\
I_6^u &= \langle -u^7 + 3u^5 - 2u^3 + b - u,\ u^5 - 2u^3 + a + u,\ u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1\rangle \\
I_7^u &= \langle -u^7a + 2u^6a - 2u^7 + 2u^5a + 2u^6 - 4u^4a + 5u^5 - u^3a - 4u^4 + u^2a - 3u^3 + b + 2a - u + 3, \\
&\qquad - 2u^7a + 2u^6a - u^7 + 5u^5a - 4u^4a + 2u^5 - 4u^3a + 3u^4 + 2u^2a + a^2 - au - 5u^2 + 2a - 3u + 2, \\
&\qquad u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle
\end{aligned}
$$

$$I_1^v = \langle a,\ b^2 + b + 1,\ v + 1\rangle$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 195 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. $I^u_1 = \langle -8u^{18} - 37u^{17} + \cdots + 2b + 46,\ 33u^{18} + 154u^{17} + \cdots + 8a - 196,\ u^{19} + 6u^{18} + \cdots + 4u - 8\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{33}{8}u^{18} - \frac{77}{4}u^{17} + \cdots - 31u + \frac{49}{2} \\ 4u^{18} + \frac{37}{2}u^{17} + \cdots + 29u - 23 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{13}{8}u^{18} - 8u^{17} + \cdots - \frac{23}{2}u + \frac{21}{2} \\ -\frac{21}{4}u^{18} - 23u^{17} + \cdots - 26u + 25 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{5}{8}u^{18} + \frac{13}{4}u^{17} + \cdots + 5u - \frac{7}{2} \\ -\frac{7}{2}u^{18} - \frac{35}{2}u^{17} + \cdots - 33u + 25 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{25}{8}u^{18} - \frac{61}{4}u^{17} + \cdots - 27u + \frac{41}{2} \\ -\frac{1}{2}u^{18} - 3u^{17} + \cdots - 6u + 5 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{23}{8}u^{18} - \frac{53}{4}u^{17} + \cdots - 20u + \frac{35}{2} \\ -\frac{11}{2}u^{18} - \frac{51}{2}u^{17} + \cdots - 41u + 33 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -3.12500u^{18} - 13.5000u^{17} + \cdots - 15.5000u + 13.5000 \\ \frac{7}{4}u^{18} + 9u^{17} + \cdots + 17u - 13 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{19}{2}u^{18} + 36u^{17} + \frac{41}{2}u^{16} - 36u^{15} + \frac{97}{2}u^{14} + 132u^{13} - \frac{91}{2}u^{12} - 24u^{11} + 186u^{10} + 31u^9 + \frac{53}{2}u^8 + 182u^7 + \frac{61}{2}u^6 + 65u^5 + \frac{215}{2}u^4 + 16u^3 + 63u^2 + 4u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{19} - 17u^{18} + \cdots + 287u + 73$
c_2, c_4, c_8 c_{10}	$u^{19} + u^{18} + \cdots - u - 1$
c_3, c_9	$u^{19} - 2u^{18} + \cdots - u + 8$
c_5, c_6, c_{11}	$u^{19} + 6u^{18} + \cdots + 4u - 8$
c_{12}	$u^{19} - 18u^{18} + \cdots + 18468u - 2216$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{19} - 9y^{18} + \cdots + 666077y - 5329$
c_2, c_4, c_8 c_{10}	$y^{19} - y^{18} + \cdots + 13y - 1$
c_3, c_9	$y^{19} - 18y^{18} + \cdots + 1249y - 64$
c_5, c_6, c_{11}	$y^{19} - 14y^{18} + \cdots + 208y - 64$
c_{12}	$y^{19} - 8y^{18} + \cdots + 32723920y - 4910656$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.709745 + 0.730285I$ $a = -0.258506 - 0.953257I$ $b = -0.755251 - 0.717037I$	$-2.03197 + 8.96060I$	$2.84841 - 12.66101I$
$u = 0.709745 - 0.730285I$ $a = -0.258506 + 0.953257I$ $b = -0.755251 + 0.717037I$	$-2.03197 - 8.96060I$	$2.84841 + 12.66101I$
$u = 0.186145 + 0.879926I$ $a = 0.46153 + 2.33829I$ $b = 1.00566 + 1.25604I$	$-6.8086 + 15.8690I$	$0.12525 - 9.18098I$
$u = 0.186145 - 0.879926I$ $a = 0.46153 - 2.33829I$ $b = 1.00566 - 1.25604I$	$-6.8086 - 15.8690I$	$0.12525 + 9.18098I$
$u = 0.658306 + 0.912470I$ $a = 0.782879 - 0.112346I$ $b = 0.619935 - 0.425591I$	$-2.40898 - 3.25505I$	$6.9874 + 16.0679I$
$u = 0.658306 - 0.912470I$ $a = 0.782879 + 0.112346I$ $b = 0.619935 + 0.425591I$	$-2.40898 + 3.25505I$	$6.9874 - 16.0679I$
$u = 1.060720 + 0.501828I$ $a = -0.924368 + 0.574213I$ $b = -0.91352 + 1.17079I$	$-4.13541 - 10.97830I$	$2.41741 + 5.86474I$
$u = 1.060720 - 0.501828I$ $a = -0.924368 - 0.574213I$ $b = -0.91352 - 1.17079I$	$-4.13541 + 10.97830I$	$2.41741 - 5.86474I$
$u = -0.187090 + 0.762030I$ $a = -0.744207 - 0.660545I$ $b = -0.442488 - 0.196300I$	$-2.15136 + 1.44412I$	$5.18074 - 1.70147I$
$u = -0.187090 - 0.762030I$ $a = -0.744207 + 0.660545I$ $b = -0.442488 + 0.196300I$	$-2.15136 - 1.44412I$	$5.18074 + 1.70147I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.284930+0.407140I$ $a=-0.266492-0.998983I$ $b=\ \ 0.546134-0.399233I$	$1.40301-5.90085I$	$7.35606+8.38070I$
$u=-1.284930-0.407140I$ $a=-0.266492+0.998983I$ $b=\ \ 0.546134+0.399233I$	$1.40301+5.90085I$	$7.35606-8.38070I$
$u=-1.40516$ $a=\ \ 0.687894$ $b=-0.909327$	6.64749	13.3450
$u=-1.38924+0.37756I$ $a=\ \ 1.03923+1.64419I$ $b=-1.08787+1.28548I$	$-1.8311-20.3870I$	$4.18663+10.65697I$
$u=-1.38924-0.37756I$ $a=\ \ 1.03923-1.64419I$ $b=-1.08787-1.28548I$	$-1.8311+20.3870I$	$4.18663-10.65697I$
$u=-1.49857+0.13199I$ $a=-0.577538-0.299514I$ $b=\ \ 1.071510-0.799617I$	$5.36721-11.65510I$	$7.98385+9.40931I$
$u=-1.49857-0.13199I$ $a=-0.577538+0.299514I$ $b=\ \ 1.071510+0.799617I$	$5.36721+11.65510I$	$7.98385-9.40931I$
$u=\ \ 0.470871$ $a=-0.300004$ $b=\ \ 0.675904$	0.843314	11.7740
$u=-1.57590$ $a=\ \ 0.0870582$ $b=-0.854789$	6.18911	18.7100

II. $I_2^u = \langle -3u^{10}a - 7u^9a + \cdots + b - 8a,\ -4u^9a - 7u^{10} + \cdots + 4a - 18,\ u^{11} + 4u^{10} + \cdots - 2u + 4\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 16u^{10} + 39u^9 - 13u^8 - 44u^7 + 75u^6 + 39u^5 - 54u^4 + 109u^3 + 48u^2 - 64u + 58$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{22} - 24u^{21} + \cdots - 19393u + 1763$
c_2, c_4, c_8 c_{10}	$u^{22} + 2u^{19} + \cdots + 3u + 1$
c_3, c_9	$(u^{11} + u^{10} - u^6 + u^5 + 2u^4 + u^3 + u^2 - 1)^2$
c_5, c_6, c_{11}	$(u^{11} + 4u^{10} + 3u^9 - 4u^8 + 9u^6 + u^5 + 2u^4 + 12u^3 + u^2 - 2u + 4)^2$
c_{12}	$(u^{11} - 12u^{10} + \cdots + 670u - 124)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{22} - 14y^{21} + \cdots + 4402211y + 3108169$
c_2, c_4, c_8 c_{10}	$y^{22} + 16y^{20} + \cdots - 7y + 1$
c_3, c_9	$(y^{11} - y^{10} + 4y^8 - 2y^7 - 3y^6 + 7y^5 - 5y^3 + 3y^2 + 2y - 1)^2$
c_5, c_6, c_{11}	$(y^{11} - 10y^{10} + \cdots - 4y - 16)^2$
c_{12}	$(y^{11} - 2y^{10} + \cdots + 19612y - 15376)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.210854 + 0.924372I$ $a = -0.288859 + 1.113730I$ $b = 0.160583 + 0.786630I$	$-6.34106 + 7.03153I$	$-4.95033 - 7.71063I$
$u = 0.210854 + 0.924372I$ $a = -0.51363 - 2.12870I$ $b = -0.97487 - 1.17661I$	$-6.34106 + 7.03153I$	$-4.95033 - 7.71063I$
$u = 0.210854 - 0.924372I$ $a = -0.288859 - 1.113730I$ $b = 0.160583 - 0.786630I$	$-6.34106 - 7.03153I$	$-4.95033 + 7.71063I$
$u = 0.210854 - 0.924372I$ $a = -0.51363 + 2.12870I$ $b = -0.97487 + 1.17661I$	$-6.34106 - 7.03153I$	$-4.95033 + 7.71063I$
$u = 1.038000 + 0.605884I$ $a = 0.938719 - 0.487233I$ $b = 0.887750 - 1.011390I$	$-3.82481 - 1.73068I$	$-5.80090 + 0.49536I$
$u = 1.038000 + 0.605884I$ $a = -0.139780 + 0.544571I$ $b = 0.085916 + 0.710196I$	$-3.82481 - 1.73068I$	$-5.80090 + 0.49536I$
$u = 1.038000 - 0.605884I$ $a = 0.938719 + 0.487233I$ $b = 0.887750 + 1.011390I$	$-3.82481 + 1.73068I$	$-5.80090 - 0.49536I$
$u = 1.038000 - 0.605884I$ $a = -0.139780 - 0.544571I$ $b = 0.085916 - 0.710196I$	$-3.82481 + 1.73068I$	$-5.80090 - 0.49536I$
$u = 0.407098 + 0.511028I$ $a = -0.850397 - 0.404251I$ $b = -0.692471 + 0.395759I$	$2.05024 + 1.72126I$	$8.54110 - 3.80336I$
$u = 0.407098 + 0.511028I$ $a = -0.130348 + 1.238060I$ $b = 0.797814 + 0.689545I$	$2.05024 + 1.72126I$	$8.54110 - 3.80336I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.407098 - 0.511028I$ $a = -0.850397 + 0.404251I$ $b = -0.692471 - 0.395759I$	$2.05024 - 1.72126I$	$8.54110 + 3.80336I$
$u = 0.407098 - 0.511028I$ $a = -0.130348 - 1.238060I$ $b = 0.797814 - 0.689545I$	$2.05024 - 1.72126I$	$8.54110 + 3.80336I$
$u = -1.40649 + 0.16331I$ $a = 1.009700 + 0.511325I$ $b = -1.063190 + 0.736394I$	$7.81324 - 4.10222I$	$12.81849 + 4.00795I$
$u = -1.40649 + 0.16331I$ $a = -0.229507 - 0.746116I$ $b = 0.874612 + 0.175339I$	$7.81324 - 4.10222I$	$12.81849 + 4.00795I$
$u = -1.40649 - 0.16331I$ $a = 1.009700 - 0.511325I$ $b = -1.063190 - 0.736394I$	$7.81324 + 4.10222I$	$12.81849 - 4.00795I$
$u = -1.40649 - 0.16331I$ $a = -0.229507 + 0.746116I$ $b = 0.874612 - 0.175339I$	$7.81324 + 4.10222I$	$12.81849 - 4.00795I$
$u = -1.40354 + 0.39691I$ $a = 0.697877 + 0.666519I$ $b = -0.333033 + 0.789828I$	$-1.24688 - 11.76520I$	$0.95863 + 10.20992I$
$u = -1.40354 + 0.39691I$ $a = -0.87761 - 1.60371I$ $b = 1.05438 - 1.23493I$	$-1.24688 - 11.76520I$	$0.95863 + 10.20992I$
$u = -1.40354 - 0.39691I$ $a = 0.697877 - 0.666519I$ $b = -0.333033 - 0.789828I$	$-1.24688 + 11.76520I$	$0.95863 - 10.20992I$
$u = -1.40354 - 0.39691I$ $a = -0.87761 + 1.60371I$ $b = 1.05438 + 1.23493I$	$-1.24688 + 11.76520I$	$0.95863 - 10.20992I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.69185$ $a = -0.187966$ $b = -1.29033$	6.38838	69.8660
$u = -1.69185$ $a = -0.0443785$ $b = -0.304645$	6.38838	69.8660

III. $\boldsymbol{I_3^u = \langle 19502u^7a^3 - 21027u^7a^2 + \cdots - 98205a + 12679,\ 2u^7a^3 - 3u^7a^2 + \cdots - 2a + 5,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ -0.661062a^3u^7 + 0.712755a^2u^7 + \cdots + 3.32887a - 0.429782 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.437646a^3u^7 + 0.959357a^2u^7 + \cdots + 3.29813a - 1.00051 \\ 0.559574a^3u^7 + 1.72279a^2u^7 + \cdots + 3.69147a - 2.66235 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.661062a^3u^7 + 0.712755a^2u^7 + \cdots + 2.32887a - 0.429782 \\ 0.0260669a^3u^7 + 0.450256a^2u^7 + \cdots + 2.89658a - 0.561506 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.0615233a^3u^7 - 0.931358a^2u^7 + \cdots - 0.0497949a + 0.655571 \\ -0.894004a^3u^7 + 0.716450a^2u^7 + \cdots + 3.75631a - 0.0660995 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.634995a^3u^7 + 1.16301a^2u^7 + \cdots + 5.22545a - 0.991288 \\ 0.197485a^3u^7 - 0.484797a^2u^7 + \cdots + 1.41934a - 0.269618 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.467510a^3u^7 - 0.618894a^2u^7 + \cdots + 2.69489a + 1.85214 \\ -0.830379a^3u^7 + 1.29009a^2u^7 + \cdots + 4.67943a + 0.242161 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{49440}{29501}u^7a^3 - \frac{149640}{29501}u^7a^2 + \cdots - \frac{377448}{29501}a + \frac{369314}{29501}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^2+u+1)^{16}$
c_2, c_4, c_8 c_{10}	$u^{32}-u^{31}+\cdots+2u+1$
c_3, c_9	$u^{32}-3u^{31}+\cdots-426u+43$
c_5, c_6, c_{11}	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^4$
c_{12}	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^2 + y + 1)^{16}$
c_2, c_4, c_8 c_{10}	$y^{32} + 7y^{31} + \cdots + 4y + 1$
c_3, c_9	$y^{32} + 19y^{31} + \cdots - 51272y + 1849$
c_5, c_6, c_{11}	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^4$
c_{12}	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.180120+0.268597I$ $a=-0.066150-0.632667I$ $b=\ \ 0.395082+0.646442I$	$1.04066-5.19100I$	$7.41522+7.43899I$
$u=-1.180120+0.268597I$ $a=\ \ 0.427622-0.205756I$ $b=-0.848982-0.718464I$	$1.04066+2.92853I$	$7.41522-6.41741I$
$u=-1.180120+0.268597I$ $a=-0.16498-1.56786I$ $b=\ \ 0.523132-0.775492I$	$1.04066-5.19100I$	$7.41522+7.43899I$
$u=-1.180120+0.268597I$ $a=\ \ 1.59366+1.10585I$ $b=\ \ 0.50164+1.57819I$	$1.04066+2.92853I$	$7.41522-6.41741I$
$u=-1.180120-0.268597I$ $a=-0.066150+0.632667I$ $b=\ \ 0.395082-0.646442I$	$1.04066+5.19100I$	$7.41522-7.43899I$
$u=-1.180120-0.268597I$ $a=\ \ 0.427622+0.205756I$ $b=-0.848982+0.718464I$	$1.04066-2.92853I$	$7.41522+6.41741I$
$u=-1.180120-0.268597I$ $a=-0.16498+1.56786I$ $b=\ \ 0.523132+0.775492I$	$1.04066+5.19100I$	$7.41522-7.43899I$
$u=-1.180120-0.268597I$ $a=\ \ 1.59366-1.10585I$ $b=\ \ 0.50164-1.57819I$	$1.04066-2.92853I$	$7.41522+6.41741I$
$u=-0.108090+0.747508I$ $a=-0.868562-0.327518I$ $b=-0.684993-0.017263I$	$-2.15941+1.48127I$	$4.27708-3.36025I$
$u=-0.108090+0.747508I$ $a=-0.026951-1.315960I$ $b=\ \ 0.938515-0.577223I$	$-2.15941-6.63826I$	$4.27708+10.49616I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.108090+0.747508I$ $a=-0.678238-1.187640I$ $b=-0.319305-0.390448I$	$-2.15941+1.48127I$	$4.27708-3.36025I$
$u=-0.108090+0.747508I$ $a=-0.51181+3.41311I$ $b=-0.78945+1.65083I$	$-2.15941-6.63826I$	$4.27708+10.49616I$
$u=-0.108090-0.747508I$ $a=-0.868562+0.327518I$ $b=-0.684993+0.017263I$	$-2.15941-1.48127I$	$4.27708+3.36025I$
$u=-0.108090-0.747508I$ $a=-0.026951+1.315960I$ $b=0.938515+0.577223I$	$-2.15941+6.63826I$	$4.27708-10.49616I$
$u=-0.108090-0.747508I$ $a=-0.678238+1.187640I$ $b=-0.319305+0.390448I$	$-2.15941-1.48127I$	$4.27708+3.36025I$
$u=-0.108090-0.747508I$ $a=-0.51181-3.41311I$ $b=-0.78945-1.65083I$	$-2.15941+6.63826I$	$4.27708-10.49616I$
$u=1.37100$ $a=0.729330+0.242760I$ $b=-1.22631-1.06765I$	$6.50273+4.05977I$	$13.8640-6.9282I$
$u=1.37100$ $a=0.729330-0.242760I$ $b=-1.22631+1.06765I$	$6.50273-4.05977I$	$13.8640+6.9282I$
$u=1.37100$ $a=-1.10950+0.90124I$ $b=0.677222-0.116600I$	$6.50273-4.05977I$	$13.8640+6.9282I$
$u=1.37100$ $a=-1.10950-0.90124I$ $b=0.677222+0.116600I$	$6.50273+4.05977I$	$13.8640-6.9282I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.334530 + 0.318930I$ $a = 0.526075 - 0.967286I$ $b = -0.066786 - 0.430851I$	$2.37968 + 2.38377I$	$9.42845 + 1.63403I$
$u = 1.334530 + 0.318930I$ $a = 0.308397 + 0.685913I$ $b = 1.150340 - 0.134985I$	$2.37968 + 2.38377I$	$9.42845 + 1.63403I$
$u = 1.334530 + 0.318930I$ $a = 1.23271 - 1.03718I$ $b = -1.016490 - 0.493234I$	$2.37968 + 10.50330I$	$9.4284 - 12.2224I$
$u = 1.334530 + 0.318930I$ $a = -1.40627 + 1.90054I$ $b = 0.96474 + 1.71454I$	$2.37968 + 10.50330I$	$9.4284 - 12.2224I$
$u = 1.334530 - 0.318930I$ $a = 0.526075 + 0.967286I$ $b = -0.066786 + 0.430851I$	$2.37968 - 2.38377I$	$9.42845 - 1.63403I$
$u = 1.334530 - 0.318930I$ $a = 0.308397 - 0.685913I$ $b = 1.150340 + 0.134985I$	$2.37968 - 2.38377I$	$9.42845 - 1.63403I$
$u = 1.334530 - 0.318930I$ $a = 1.23271 + 1.03718I$ $b = -1.016490 + 0.493234I$	$2.37968 - 10.50330I$	$9.4284 + 12.2224I$
$u = 1.334530 - 0.318930I$ $a = -1.40627 - 1.90054I$ $b = 0.96474 - 1.71454I$	$2.37968 - 10.50330I$	$9.4284 + 12.2224I$
$u = -0.463640$ $a = 0.461453 + 0.953605I$ $b = 0.775560 + 1.017420I$	$0.84504 + 4.05977I$	$11.89446 - 6.92820I$
$u = -0.463640$ $a = 0.461453 - 0.953605I$ $b = 0.775560 - 1.017420I$	$0.84504 - 4.05977I$	$11.89446 + 6.92820I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.463640$ $a=\quad 1.05322+1.66989I$ $b=-0.473908-0.494946I$	$0.84504+4.05977I$	$11.89446-6.92820I$
$u=-0.463640$ $a=\quad 1.05322-1.66989I$ $b=-0.473908+0.494946I$	$0.84504-4.05977I$	$11.89446+6.92820I$

IV. $\boldsymbol{I^u_4 = \langle -7.80 \times 10^{46} a^7 u^7 + 1.01 \times 10^{47} a^6 u^7 + \cdots + 1.17 \times 10^{48} a + 5.77 \times 10^{47},\ -2a^7u^7 - 10u^7a^6 + \cdots + 388a - 283,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ 0.560431a^7u^7 - 0.726615a^6u^7 + \cdots - 8.39349a - 4.14074 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.398353a^7u^7 + 0.437759a^6u^7 + \cdots + 4.59100a + 3.94324 \\ 0.150019a^7u^7 - 0.711664a^6u^7 + \cdots - 7.88417a - 5.18997 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.210776a^7u^7 + 0.0814284a^6u^7 + \cdots + 9.65613a + 8.47478 \\ 0.0439712a^7u^7 + 0.297620a^6u^7 + \cdots - 20.3953a - 6.11248 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0110440a^7u^7 + 0.00600824a^6u^7 + \cdots + 7.53628a + 2.78572 \\ 0.701062a^7u^7 - 0.836421a^6u^7 + \cdots - 5.63674a - 3.07530 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.167792a^7u^7 + 0.285874a^6u^7 + \cdots + 1.56554a + 3.06816 \\ 0.0319172a^7u^7 + 0.306598a^6u^7 + \cdots - 15.4302a - 5.98076 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0717695a^7u^7 - 0.420316a^6u^7 + \cdots - 15.6597a - 9.66648 \\ 0.624793a^7u^7 - 0.888235a^6u^7 + \cdots + 10.4453a + 4.87187 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.878386a^7u^7 - 1.54194a^6u^7 + \cdots + 59.8466a + 21.7637$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^4 + u^3 - 2u + 1)^{16}$
c_2, c_4, c_8 c_{10}	$u^{64} + u^{63} + \cdots - 27708u + 17623$
c_3, c_9	$(u^{32} + u^{31} + \cdots + 2738u + 1369)^2$
c_5, c_6, c_{11}	$(u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1)^8$
c_{12}	$(u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^4 - y^3 + 6y^2 - 4y + 1)^{16}$
c_2, c_4, c_8 c_{10}	$y^{64} + 25y^{63} + \cdots + 16352870252y + 310570129$
c_3, c_9	$(y^{32} - 33y^{31} + \cdots - 29148748y + 1874161)^2$
c_5, c_6, c_{11}	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^8$
c_{12}	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = -0.557498 - 0.750065I$ $b = 0.076022 - 1.368170I$	$-2.24921 - 5.19100I$	$-4.58478 + 7.43899I$
$u = -1.180120 + 0.268597I$ $a = -0.375594 + 0.789251I$ $b = -0.106109 + 0.977961I$	$-2.24921 - 5.19100I$	$-4.58478 + 7.43899I$
$u = -1.180120 + 0.268597I$ $a = -0.793981 - 0.339728I$ $b = -0.89684 - 1.40532I$	$-2.24921 + 2.92853I$	$-4.58478 - 6.41741I$
$u = -1.180120 + 0.268597I$ $a = 0.468251 + 1.215000I$ $b = 0.525494 + 1.281730I$	$-2.24921 + 2.92853I$	$-4.58478 - 6.41741I$
$u = -1.180120 + 0.268597I$ $a = -1.19699 - 2.19170I$ $b = 1.57698 - 0.84563I$	$-2.24921 - 5.19100I$	$-4.58478 + 7.43899I$
$u = -1.180120 + 0.268597I$ $a = 0.81930 + 2.49677I$ $b = -1.86154 + 0.87114I$	$-2.24921 + 2.92853I$	$-4.58478 - 6.41741I$
$u = -1.180120 + 0.268597I$ $a = 1.98998 + 1.92913I$ $b = 0.049106 + 0.370276I$	$-2.24921 + 2.92853I$	$-4.58478 - 6.41741I$
$u = -1.180120 + 0.268597I$ $a = -2.14361 - 1.84821I$ $b = 0.066014 - 0.612653I$	$-2.24921 - 5.19100I$	$-4.58478 + 7.43899I$
$u = -1.180120 - 0.268597I$ $a = -0.557498 + 0.750065I$ $b = 0.076022 + 1.368170I$	$-2.24921 + 5.19100I$	$-4.58478 - 7.43899I$
$u = -1.180120 - 0.268597I$ $a = -0.375594 - 0.789251I$ $b = -0.106109 - 0.977961I$	$-2.24921 + 5.19100I$	$-4.58478 - 7.43899I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.180120-0.268597I$ $a=-0.793981+0.339728I$ $b=-0.89684+1.40532I$	$-2.24921-2.92853I$	$-4.58478+6.41741I$
$u=-1.180120-0.268597I$ $a=0.468251-1.215000I$ $b=0.525494-1.281730I$	$-2.24921-2.92853I$	$-4.58478+6.41741I$
$u=-1.180120-0.268597I$ $a=-1.19699+2.19170I$ $b=1.57698+0.84563I$	$-2.24921+5.19100I$	$-4.58478-7.43899I$
$u=-1.180120-0.268597I$ $a=0.81930-2.49677I$ $b=-1.86154-0.87114I$	$-2.24921-2.92853I$	$-4.58478+6.41741I$
$u=-1.180120-0.268597I$ $a=1.98998-1.92913I$ $b=0.049106-0.370276I$	$-2.24921-2.92853I$	$-4.58478+6.41741I$
$u=-1.180120-0.268597I$ $a=-2.14361+1.84821I$ $b=0.066014+0.612653I$	$-2.24921+5.19100I$	$-4.58478-7.43899I$
$u=-0.108090+0.747508I$ $a=1.04622+1.05153I$ $b=0.010366+0.720950I$	$-5.44928+1.48127I$	$-7.72292-3.36025I$
$u=-0.108090+0.747508I$ $a=-0.44885-1.74318I$ $b=0.134832-1.154790I$	$-5.44928+1.48127I$	$-7.72292-3.36025I$
$u=-0.108090+0.747508I$ $a=0.58177-2.43120I$ $b=1.10937-1.26574I$	$-5.44928-6.63826I$	$-7.72292+10.49616I$
$u=-0.108090+0.747508I$ $a=-1.52809-2.24345I$ $b=-1.30778-1.23908I$	$-5.44928+1.48127I$	$-7.72292-3.36025I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.108090 + 0.747508I$ $a = 0.28742 + 2.71361I$ $b = -0.653169 + 1.231330I$	$-5.44928 - 6.63826I$	$-7.72292 + 10.49616I$
$u = -0.108090 + 0.747508I$ $a = 0.46144 - 2.77434I$ $b = -0.139839 - 0.881992I$	$-5.44928 + 1.48127I$	$-7.72292 - 3.36025I$
$u = -0.108090 + 0.747508I$ $a = -0.80607 + 2.71119I$ $b = -0.069757 + 0.589599I$	$-5.44928 - 6.63826I$	$-7.72292 + 10.49616I$
$u = -0.108090 + 0.747508I$ $a = 2.49172 + 2.13386I$ $b = 1.77121 + 1.33383I$	$-5.44928 - 6.63826I$	$-7.72292 + 10.49616I$
$u = -0.108090 - 0.747508I$ $a = 1.04622 - 1.05153I$ $b = 0.010366 - 0.720950I$	$-5.44928 - 1.48127I$	$-7.72292 + 3.36025I$
$u = -0.108090 - 0.747508I$ $a = -0.44885 + 1.74318I$ $b = 0.134832 + 1.154790I$	$-5.44928 - 1.48127I$	$-7.72292 + 3.36025I$
$u = -0.108090 - 0.747508I$ $a = 0.58177 + 2.43120I$ $b = 1.10937 + 1.26574I$	$-5.44928 + 6.63826I$	$-7.72292 - 10.49616I$
$u = -0.108090 - 0.747508I$ $a = -1.52809 + 2.24345I$ $b = -1.30778 + 1.23908I$	$-5.44928 - 1.48127I$	$-7.72292 + 3.36025I$
$u = -0.108090 - 0.747508I$ $a = 0.28742 - 2.71361I$ $b = -0.653169 - 1.231330I$	$-5.44928 + 6.63826I$	$-7.72292 - 10.49616I$
$u = -0.108090 - 0.747508I$ $a = 0.46144 + 2.77434I$ $b = -0.139839 + 0.881992I$	$-5.44928 - 1.48127I$	$-7.72292 + 3.36025I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.108090-0.747508I$ $a=-0.80607-2.71119I$ $b=-0.069757-0.589599I$	$-5.44928+6.63826I$	$-7.72292-10.49616I$
$u=-0.108090-0.747508I$ $a=2.49172-2.13386I$ $b=1.77121-1.33383I$	$-5.44928+6.63826I$	$-7.72292-10.49616I$
$u=1.37100$ $a=0.854808+0.560981I$ $b=-0.553456-0.800848I$	$3.21286+4.05977I$	$1.86404-6.92820I$
$u=1.37100$ $a=0.854808-0.560981I$ $b=-0.553456+0.800848I$	$3.21286-4.05977I$	$1.86404+6.92820I$
$u=1.37100$ $a=-0.587473+0.738539I$ $b=0.939573-0.544398I$	$3.21286-4.05977I$	$1.86404+6.92820I$
$u=1.37100$ $a=-0.587473-0.738539I$ $b=0.939573+0.544398I$	$3.21286+4.05977I$	$1.86404-6.92820I$
$u=1.37100$ $a=-0.461575+0.539242I$ $b=0.61771+1.67070I$	$3.21286-4.05977I$	$1.86404+6.92820I$
$u=1.37100$ $a=-0.461575-0.539242I$ $b=0.61771-1.67070I$	$3.21286+4.05977I$	$1.86404-6.92820I$
$u=1.37100$ $a=0.574413+1.258640I$ $b=-0.454734+0.925998I$	$3.21286-4.05977I$	$1.86404+6.92820I$
$u=1.37100$ $a=0.574413-1.258640I$ $b=-0.454734-0.925998I$	$3.21286+4.05977I$	$1.86404-6.92820I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.334530 + 0.318930I$ $a = -1.026690 + 0.231419I$ $b = 0.123131 + 0.528178I$	$-0.91019 + 2.38377I$	$-2.57155 + 1.63403I$
$u = 1.334530 + 0.318930I$ $a = 1.044130 - 0.266668I$ $b = 1.14771 - 1.52608I$	$-0.91019 + 2.38377I$	$-2.57155 + 1.63403I$
$u = 1.334530 + 0.318930I$ $a = 0.930223 - 0.590383I$ $b = -0.332844 - 0.999590I$	$-0.91019 + 2.38377I$	$-2.57155 + 1.63403I$
$u = 1.334530 + 0.318930I$ $a = 0.233928 - 1.382460I$ $b = 0.249060 - 1.010950I$	$-0.91019 + 2.38377I$	$-2.57155 + 1.63403I$
$u = 1.334530 + 0.318930I$ $a = -1.47286 - 0.39492I$ $b = -1.75709 + 1.62937I$	$-0.91019 + 10.50330I$	$-2.57155 - 12.22237I$
$u = 1.334530 + 0.318930I$ $a = -0.00136 + 1.87131I$ $b = 0.054075 + 0.713119I$	$-0.91019 + 10.50330I$	$-2.57155 - 12.22237I$
$u = 1.334530 + 0.318930I$ $a = 1.25518 - 1.52608I$ $b = -1.26284 - 1.19072I$	$-0.91019 + 10.50330I$	$-2.57155 - 12.22237I$
$u = 1.334530 + 0.318930I$ $a = -1.62346 + 1.47579I$ $b = 0.74699 + 1.20121I$	$-0.91019 + 10.50330I$	$-2.57155 - 12.22237I$
$u = 1.334530 - 0.318930I$ $a = -1.026690 - 0.231419I$ $b = 0.123131 - 0.528178I$	$-0.91019 - 2.38377I$	$-2.57155 - 1.63403I$
$u = 1.334530 - 0.318930I$ $a = 1.044130 + 0.266668I$ $b = 1.14771 + 1.52608I$	$-0.91019 - 2.38377I$	$-2.57155 - 1.63403I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.334530 - 0.318930I$ $a = 0.930223 + 0.590383I$ $b = -0.332844 + 0.999590I$	$-0.91019 - 2.38377I$	$-2.57155 - 1.63403I$
$u = 1.334530 - 0.318930I$ $a = 0.233928 + 1.382460I$ $b = 0.249060 + 1.010950I$	$-0.91019 - 2.38377I$	$-2.57155 - 1.63403I$
$u = 1.334530 - 0.318930I$ $a = -1.47286 + 0.39492I$ $b = -1.75709 - 1.62937I$	$-0.91019 - 10.50330I$	$-2.57155 + 12.22237I$
$u = 1.334530 - 0.318930I$ $a = -0.00136 - 1.87131I$ $b = 0.054075 - 0.713119I$	$-0.91019 - 10.50330I$	$-2.57155 + 12.22237I$
$u = 1.334530 - 0.318930I$ $a = 1.25518 + 1.52608I$ $b = -1.26284 + 1.19072I$	$-0.91019 - 10.50330I$	$-2.57155 + 12.22237I$
$u = 1.334530 - 0.318930I$ $a = -1.62346 - 1.47579I$ $b = 0.74699 - 1.20121I$	$-0.91019 - 10.50330I$	$-2.57155 + 12.22237I$
$u = -0.463640$ $a = -0.288618 + 0.831332I$ $b = -0.621112 - 0.938012I$	$-2.44483 + 4.05977I$	$-0.10554 - 6.92820I$
$u = -0.463640$ $a = -0.288618 - 0.831332I$ $b = -0.621112 + 0.938012I$	$-2.44483 - 4.05977I$	$-0.10554 + 6.92820I$
$u = -0.463640$ $a = -0.776492 + 0.123909I$ $b = 0.408992 - 1.078900I$	$-2.44483 - 4.05977I$	$-0.10554 + 6.92820I$
$u = -0.463640$ $a = -0.776492 - 0.123909I$ $b = 0.408992 + 1.078900I$	$-2.44483 + 4.05977I$	$-0.10554 - 6.92820I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.463640$ $a=\quad 0.11351+3.49812I$ $b=-0.759051+0.889385I$	$-2.44483+4.05977I$	$-0.10554-6.92820I$
$u=-0.463640$ $a=\quad 0.11351-3.49812I$ $b=-0.759051-0.889385I$	$-2.44483-4.05977I$	$-0.10554+6.92820I$
$u=-0.463640$ $a=-0.56308+3.66494I$ $b=\quad 0.669519+0.537158I$	$-2.44483+4.05977I$	$-0.10554-6.92820I$
$u=-0.463640$ $a=-0.56308-3.66494I$ $b=\quad 0.669519-0.537158I$	$-2.44483-4.05977I$	$-0.10554+6.92820I$

V. $I^u_5 = \langle -3u^{31} - 13u^{30} + \cdots + 2b - 305,\ 631u^{31} + 546u^{30} + \cdots + 78a + 12324,\ u^{32} - 17u^{30} + \cdots + 17u^2 - 39\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{631}{78}u^{31} - 7u^{30} + \cdots - \frac{6085}{39}u - 158 \\ \frac{3}{2}u^{31} + \frac{13}{2}u^{30} + \cdots + \frac{127}{2}u + \frac{305}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{463}{78}u^{31} - \frac{3}{2}u^{30} + \cdots - \frac{5788}{39}u - 68 \\ -\frac{3}{2}u^{31} + 6u^{30} + \cdots - \frac{31}{2}u + \frac{239}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{383}{78}u^{31} - 3u^{30} + \cdots - \frac{3743}{39}u - \frac{75}{2} \\ -4u^{31} + \frac{23}{2}u^{30} + \cdots - \frac{121}{2}u + \frac{475}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{475}{78}u^{31} - 4u^{30} + \cdots - \frac{8153}{78}u - \frac{121}{2} \\ -3u^{31} + 9u^{30} + \cdots - \frac{75}{2}u + \frac{383}{2} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -3.91026u^{31} + 1.50000u^{30} + \cdots - 90.9744u + 63.5000 \\ -7u^{31} + \frac{29}{2}u^{30} + \cdots - 158u + \frac{631}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -3.06410u^{31} - 1.50000u^{30} + \cdots - 55.5897u - 15.5000 \\ -\frac{3}{2}u^{31} + 9u^{30} + \cdots - 68u + \frac{463}{2} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -41u^{30} + 618u^{28} - 4128u^{26} + 15994u^{24} - 39319u^{22} + 62512u^{20} - 61321u^{18} + 29367u^{16} + 5630u^{14} - 17324u^{12} + 10795u^{10} - 1247u^8 - 4569u^6 + 3660u^4 + 92u^2 - 726$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{32} - 11u^{31} + \cdots - u - 1$
c_2, c_4, c_8 c_{10}	$u^{32} - u^{31} + \cdots - 3u - 1$
c_3, c_9	$(u^{16} - 5u^{14} + \cdots - u - 1)^2$
c_5, c_6, c_{11}	$u^{32} - 17u^{30} + \cdots + 17u^2 - 39$
c_{12}	$u^{32} - 6u^{30} + \cdots - 217u^2 - 39$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{32} - 23y^{31} + \cdots - 19y + 1$
c_2, c_4, c_8 c_{10}	$y^{32} + 11y^{31} + \cdots - 49y + 1$
c_3, c_9	$(y^{16} - 10y^{15} + \cdots - 15y + 1)^2$
c_5, c_6, c_{11}	$(y^{16} - 17y^{15} + \cdots + 17y - 39)^2$
c_{12}	$(y^{16} - 6y^{15} + \cdots - 217y - 39)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.629647 + 0.624776I$ $a = 1.087040 + 0.364560I$ $b = 0.446274 + 0.076076I$	$-2.92940 - 2.54300I$	$-1.89886 + 3.79711I$
$u = 0.629647 - 0.624776I$ $a = 1.087040 - 0.364560I$ $b = 0.446274 - 0.076076I$	$-2.92940 + 2.54300I$	$-1.89886 - 3.79711I$
$u = -0.629647 + 0.624776I$ $a = -0.876629 - 0.237763I$ $b = -0.568453 - 0.779279I$	$-2.92940 + 2.54300I$	$-1.89886 - 3.79711I$
$u = -0.629647 - 0.624776I$ $a = -0.876629 + 0.237763I$ $b = -0.568453 + 0.779279I$	$-2.92940 - 2.54300I$	$-1.89886 + 3.79711I$
$u = -1.155620 + 0.193870I$ $a = 0.026191 - 0.747935I$ $b = 0.231443 - 1.171860I$	$-1.25945 - 5.31731I$	$5.75169 + 8.91890I$
$u = -1.155620 - 0.193870I$ $a = 0.026191 + 0.747935I$ $b = 0.231443 + 1.171860I$	$-1.25945 + 5.31731I$	$5.75169 - 8.91890I$
$u = 1.155620 + 0.193870I$ $a = 0.89998 - 2.52353I$ $b = -0.866062 - 0.104892I$	$-1.25945 + 5.31731I$	$5.75169 - 8.91890I$
$u = 1.155620 - 0.193870I$ $a = 0.89998 + 2.52353I$ $b = -0.866062 + 0.104892I$	$-1.25945 - 5.31731I$	$5.75169 + 8.91890I$
$u = -1.186450 + 0.242984I$ $a = -0.578544 - 0.781239I$ $b = -0.66039 - 1.33386I$	$-1.64172 + 2.45344I$	$5.90890 + 1.74732I$
$u = -1.186450 - 0.242984I$ $a = -0.578544 + 0.781239I$ $b = -0.66039 + 1.33386I$	$-1.64172 - 2.45344I$	$5.90890 - 1.74732I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.186450 + 0.242984I$ $a = -1.13678 + 2.20772I$ $b = 0.939979 + 0.399562I$	$-1.64172 - 2.45344I$	$5.90890 - 1.74732I$
$u = 1.186450 - 0.242984I$ $a = -1.13678 - 2.20772I$ $b = 0.939979 - 0.399562I$	$-1.64172 + 2.45344I$	$5.90890 + 1.74732I$
$u = 0.132917 + 0.749514I$ $a = -0.86511 + 1.69692I$ $b = -0.699135 + 0.630594I$	$-4.69890 + 6.03416I$	$0.76733 - 4.01841I$
$u = 0.132917 - 0.749514I$ $a = -0.86511 - 1.69692I$ $b = -0.699135 - 0.630594I$	$-4.69890 - 6.03416I$	$0.76733 + 4.01841I$
$u = -0.132917 + 0.749514I$ $a = 0.12614 - 2.42491I$ $b = 0.86022 - 1.20009I$	$-4.69890 - 6.03416I$	$0.76733 + 4.01841I$
$u = -0.132917 - 0.749514I$ $a = 0.12614 + 2.42491I$ $b = 0.86022 + 1.20009I$	$-4.69890 + 6.03416I$	$0.76733 - 4.01841I$
$u = -1.330500 + 0.012725I$ $a = 0.181503 + 0.796558I$ $b = 0.259461 + 1.177500I$	$4.40410 + 3.95061I$	$10.52838 - 5.72470I$
$u = -1.330500 - 0.012725I$ $a = 0.181503 - 0.796558I$ $b = 0.259461 - 1.177500I$	$4.40410 - 3.95061I$	$10.52838 + 5.72470I$
$u = 1.330500 + 0.012725I$ $a = -0.944495 + 0.876787I$ $b = 0.797351 - 0.622026I$	$4.40410 - 3.95061I$	$10.52838 + 5.72470I$
$u = 1.330500 - 0.012725I$ $a = -0.944495 - 0.876787I$ $b = 0.797351 + 0.622026I$	$4.40410 + 3.95061I$	$10.52838 - 5.72470I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.322590 + 0.271417I$ $a = 1.099260 - 0.461970I$ $b = -0.385356 - 0.772550I$	$-0.41737 + 3.31971I$	$2.07879 - 6.21557I$
$u = 1.322590 - 0.271417I$ $a = 1.099260 + 0.461970I$ $b = -0.385356 + 0.772550I$	$-0.41737 - 3.31971I$	$2.07879 + 6.21557I$
$u = -1.322590 + 0.271417I$ $a = -0.388950 - 0.825612I$ $b = -0.380975 - 1.234850I$	$-0.41737 - 3.31971I$	$2.07879 + 6.21557I$
$u = -1.322590 - 0.271417I$ $a = -0.388950 + 0.825612I$ $b = -0.380975 + 1.234850I$	$-0.41737 + 3.31971I$	$2.07879 - 6.21557I$
$u = 0.647214I$ $a = -0.56816 - 2.03623I$ $b = 0.305163 - 0.999497I$	-4.63655	-4.61210
$u = -0.647214I$ $a = -0.56816 + 2.03623I$ $b = 0.305163 + 0.999497I$	-4.63655	-4.61210
$u = 1.341580 + 0.324582I$ $a = 1.33926 - 1.48068I$ $b = -0.99699 - 1.16492I$	$-0.06232 + 9.94150I$	$5.86760 - 6.47381I$
$u = 1.341580 - 0.324582I$ $a = 1.33926 + 1.48068I$ $b = -0.99699 + 1.16492I$	$-0.06232 - 9.94150I$	$5.86760 + 6.47381I$
$u = -1.341580 + 0.324582I$ $a = 0.541338 + 0.541357I$ $b = 0.622958 + 0.855164I$	$-0.06232 - 9.94150I$	$5.86760 + 6.47381I$
$u = -1.341580 - 0.324582I$ $a = 0.541338 - 0.541357I$ $b = 0.622958 - 0.855164I$	$-0.06232 + 9.94150I$	$5.86760 - 6.47381I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.70928$ $a=-0.118891$ $b=-0.151635$	6.33211	-72.3960
$u=\ \ 1.70928$ $a=\ \ 0.234821$ $b=\ \ 1.34066$	6.33211	-72.3960

VI.

$$\boldsymbol{I^u_6 = \langle -u^7+3u^5-2u^3+b-u,\ u^5-2u^3+a+u,\ u^8+u^7-3u^6-2u^5+3u^4+2u-1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3+2u \\ -u^3+u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5+2u^3-u \\ u^7-3u^5+2u^3+u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3+2u \\ -u^3+u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3+2u \\ -u^3+u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2-1 \\ -u^4+2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^6-3u^4+2u^2+1 \\ u^6-2u^4+u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^2-1 \\ -u^4+2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^6-12u^4+4u^3+8u^2-8u+14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = 0.462196 - 0.399257I$ $b = 0.570868 - 0.730671I$	$1.04066 + 1.13123I$	$7.41522 - 0.51079I$
$u = 1.180120 - 0.268597I$ $a = 0.462196 + 0.399257I$ $b = 0.570868 + 0.730671I$	$1.04066 - 1.13123I$	$7.41522 + 0.51079I$
$u = 0.108090 + 0.747508I$ $a = -0.62965 - 1.71558I$ $b = -0.855237 - 0.665892I$	$-2.15941 + 2.57849I$	$4.27708 - 3.56796I$
$u = 0.108090 - 0.747508I$ $a = -0.62965 + 1.71558I$ $b = -0.855237 + 0.665892I$	$-2.15941 - 2.57849I$	$4.27708 + 3.56796I$
$u = -1.37100$ $a = 1.06085$ $b = -1.09818$	6.50273	13.8640
$u = -1.334530 + 0.318930I$ $a = -0.72011 - 1.45930I$ $b = 1.031810 - 0.655470I$	$2.37968 - 6.44354I$	$9.42845 + 5.29417I$
$u = -1.334530 - 0.318930I$ $a = -0.72011 + 1.45930I$ $b = 1.031810 + 0.655470I$	$2.37968 + 6.44354I$	$9.42845 - 5.29417I$
$u = 0.463640$ $a = -0.285734$ $b = 0.603304$	0.845036	11.8940

VII. $\boldsymbol{I^u_7 = \langle -u^7a - 2u^7 + \cdots + 2a + 3,\ -2u^7a - u^7 + \cdots + 2a + 2,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^6 - 12u^4 - 4u^3 + 8u^2 + 8u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u+1)^{16}$
c_2, c_4, c_8 c_{10}	$u^{16} + u^{15} + \cdots - 6u - 1$
c_3, c_9	$(u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1)^2$
c_5, c_6, c_{11}	$(u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1)^2$
c_{12}	$(u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y-1)^{16}$
c_2, c_4, c_8 c_{10}	$y^{16}+7y^{15}+\cdots-28y+1$
c_3, c_9	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^2$
c_5, c_6, c_{11}	$(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)^2$
c_{12}	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = -1.328740 - 0.071969I$ $b = -0.71876 - 1.56857I$	$-2.24921 - 1.13123I$	$-4.58478 + 0.51079I$
$u = -1.180120 + 0.268597I$ $a = -0.46141 + 1.37240I$ $b = \quad 0.147896 + 0.837895I$	$-2.24921 - 1.13123I$	$-4.58478 + 0.51079I$
$u = -1.180120 - 0.268597I$ $a = -1.328740 + 0.071969I$ $b = -0.71876 + 1.56857I$	$-2.24921 + 1.13123I$	$-4.58478 - 0.51079I$
$u = -1.180120 - 0.268597I$ $a = -0.46141 - 1.37240I$ $b = \quad 0.147896 - 0.837895I$	$-2.24921 + 1.13123I$	$-4.58478 - 0.51079I$
$u = -0.108090 + 0.747508I$ $a = \quad 1.00762 + 1.81519I$ $b = -0.250978 + 0.716087I$	$-5.44928 - 2.57849I$	$-7.72292 + 3.56796I$
$u = -0.108090 + 0.747508I$ $a = \quad 1.07794 - 2.39718I$ $b = \quad 1.10622 - 1.38198I$	$-5.44928 - 2.57849I$	$-7.72292 + 3.56796I$
$u = -0.108090 - 0.747508I$ $a = \quad 1.00762 - 1.81519I$ $b = -0.250978 - 0.716087I$	$-5.44928 + 2.57849I$	$-7.72292 - 3.56796I$
$u = -0.108090 - 0.747508I$ $a = \quad 1.07794 + 2.39718I$ $b = \quad 1.10622 + 1.38198I$	$-5.44928 + 2.57849I$	$-7.72292 - 3.56796I$
$u = \quad 1.37100$ $a = \quad 1.06835$ $b = -0.163298$	3.21286	1.86400
$u = \quad 1.37100$ $a = -0.308001$ $b = \quad 1.26148$	3.21286	1.86400

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.334530 + 0.318930I$ $a = 0.83920 - 1.57571I$ $b = -1.38108 - 1.30487I$	$-0.91019 + 6.44354I$	$-2.57155 - 5.29417I$
$u = 1.334530 + 0.318930I$ $a = -1.50012 + 0.99373I$ $b = 0.349274 + 0.649404I$	$-0.91019 + 6.44354I$	$-2.57155 - 5.29417I$
$u = 1.334530 - 0.318930I$ $a = 0.83920 + 1.57571I$ $b = -1.38108 + 1.30487I$	$-0.91019 - 6.44354I$	$-2.57155 + 5.29417I$
$u = 1.334530 - 0.318930I$ $a = -1.50012 - 0.99373I$ $b = 0.349274 - 0.649404I$	$-0.91019 - 6.44354I$	$-2.57155 + 5.29417I$
$u = -0.463640$ $a = -1.51467 + 0.34965I$ $b = -0.301652 - 0.738262I$	-2.44483	-0.105540
$u = -0.463640$ $a = -1.51467 - 0.34965I$ $b = -0.301652 + 0.738262I$	-2.44483	-0.105540

VIII. $I_1^v = \langle a,\ b^2 + b + 1,\ v + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8b + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = -0.500000 + 0.866025I$	$-4.05977I$	$0. + 6.92820I$
$v = -1.00000$ $a = 0$ $b = -0.500000 - 0.866025I$	$4.05977I$	$0. - 6.92820I$

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^8(u+1)^{16}(u^2-u+1)(u^2+u+1)^{16}(u^4+u^3-2u+1)^{16}$ $\cdot(u^{19}-17u^{18}+\cdots+287u+73)(u^{22}-24u^{21}+\cdots-19393u+1763)$ $\cdot(u^{32}-11u^{31}+\cdots-u-1)$
c_2, c_4, c_8 c_{10}	$(u^2+u+1)(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{16}+u^{15}+\cdots-6u-1)(u^{19}+u^{18}+\cdots-u-1)$ $\cdot(u^{22}+2u^{19}+\cdots+3u+1)(u^{32}-u^{31}+\cdots+2u+1)$ $\cdot(u^{32}-u^{31}+\cdots-3u-1)(u^{64}+u^{63}+\cdots-27708u+17623)$
c_3, c_9	$(u^2-u+1)(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)^2$ $\cdot((u^{11}+u^{10}+\cdots+u^2-1)^2)(u^{16}-5u^{14}+\cdots-u-1)^2$ $\cdot(u^{19}-2u^{18}+\cdots-u+8)(u^{32}-3u^{31}+\cdots-426u+43)$ $\cdot(u^{32}+u^{31}+\cdots+2738u+1369)^2$
c_5, c_6, c_{11}	$u^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^{14}$ $\cdot(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{11}+4u^{10}+3u^9-4u^8+9u^6+u^5+2u^4+12u^3+u^2-2u+4)^2$ $\cdot(u^{19}+6u^{18}+\cdots+4u-8)(u^{32}-17u^{30}+\cdots+17u^2-39)$
c_{12}	$u^2(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^{14}$ $\cdot(u^{11}-12u^{10}+\cdots+670u-124)^2$ $\cdot(u^{19}-18u^{18}+\cdots+18468u-2216)(u^{32}-6u^{30}+\cdots-217u^2-39)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^8(y-1)^{16}(y^2+y+1)^{17}(y^4-y^3+6y^2-4y+1)^{16}$ $\cdot(y^{19}-9y^{18}+\cdots+666077y-5329)$ $\cdot(y^{22}-14y^{21}+\cdots+4402211y+3108169)$ $\cdot(y^{32}-23y^{31}+\cdots-19y+1)$
c_2, c_4, c_8 c_{10}	$(y^2+y+1)(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{16}+7y^{15}+\cdots-28y+1)(y^{19}-y^{18}+\cdots+13y-1)$ $\cdot(y^{22}+16y^{20}+\cdots-7y+1)(y^{32}+7y^{31}+\cdots+4y+1)$ $\cdot(y^{32}+11y^{31}+\cdots-49y+1)$ $\cdot(y^{64}+25y^{63}+\cdots+16352870252y+310570129)$
c_3, c_9	$(y^2+y+1)(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^3$ $\cdot(y^{11}-y^{10}+4y^8-2y^7-3y^6+7y^5-5y^3+3y^2+2y-1)^2$ $\cdot((y^{16}-10y^{15}+\cdots-15y+1)^2)(y^{19}-18y^{18}+\cdots+1249y-64)$ $\cdot(y^{32}-33y^{31}+\cdots-29148748y+1874161)^2$ $\cdot(y^{32}+19y^{31}+\cdots-51272y+1849)$
c_5, c_6, c_{11}	$y^2(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)^{15}$ $\cdot((y^{11}-10y^{10}+\cdots-4y-16)^2)(y^{16}-17y^{15}+\cdots+17y-39)^2$ $\cdot(y^{19}-14y^{18}+\cdots+208y-64)$
c_{12}	$y^2(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^{15}$ $\cdot(y^{11}-2y^{10}+\cdots+19612y-15376)^2$ $\cdot(y^{16}-6y^{15}+\cdots-217y-39)^2$ $\cdot(y^{19}-8y^{18}+\cdots+32723920y-4910656)$