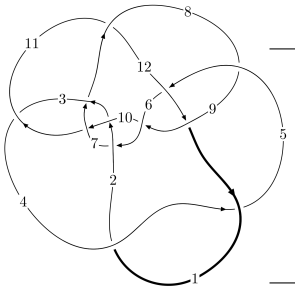
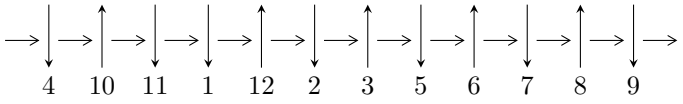
$12a_{1196}$ $(K12a_{1196})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 1.08642 \times 10^{59} u^{46} - 4.09896 \times 10^{60} u^{45} + \cdots + 9.38798 \times 10^{59} b - 4.54188 \times 10^{62}, \\
&\quad - 1.10886 \times 10^{59} u^{46} + 4.10726 \times 10^{60} u^{45} + \cdots + 1.87760 \times 10^{60} a + 2.91033 \times 10^{62}, \\
&\quad u^{47} - 39 u^{46} + \cdots - 102400 u + 8192 \rangle \\
I_2^u &= \langle -1.13339 \times 10^{29} u^{70} - 4.82195 \times 10^{30} u^{69} + \cdots + 4.88548 \times 10^{24} b + 2.41929 \times 10^{31}, \\
&\quad - 4.83859 \times 10^{30} a u^{70} - 8.29715 \times 10^{30} u^{70} + \cdots + 6.34635 \times 10^{31} a + 6.92021 \times 10^{31}, \\
&\quad u^{71} + 22 u^{70} + \cdots - 55 u - 5 \rangle \\
I_3^u &= \langle 2.16517 \times 10^{20} u^{30} + 3.26536 \times 10^{21} u^{29} + \cdots + 1.19902 \times 10^{21} b + 2.70066 \times 10^{20}, \\
&\quad 2.70066 \times 10^{20} u^{30} + 3.72737 \times 10^{21} u^{29} + \cdots + 1.19902 \times 10^{21} a + 4.45709 \times 10^{21}, \ u^{31} + 13 u^{30} + \cdots + u - 1 \rangle \\
I_4^u &= \langle 4 u^3 + 5 a u - 11 u^2 + 5 b + 17 u - 11, \ 11 u^3 a - 24 u^2 a - 6 u^3 + 25 a^2 + 33 a u + 29 u^2 - 14 a - 43 u + 44, \\
&\quad u^4 - 4 u^3 + 8 u^2 - 9 u + 5 \rangle \\
I_5^u &= \langle b - u + 2, \ 3a + 2u - 3, \ u^2 - 3u + 3 \rangle \\
I_6^u &= \langle a u + b - u, \ a^2 - a - u + 1, \ u^2 - u + 1 \rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 234 representations.

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

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

I. $\boldsymbol{I_1^u = \langle 1.09 \times 10^{59} u^{46} - 4.10 \times 10^{60} u^{45} + \cdots + 9.39 \times 10^{59} b - 4.54 \times 10^{62},\ -1.11 \times 10^{59} u^{46} + 4.11 \times 10^{60} u^{45} + \cdots + 1.88 \times 10^{60} a + 2.91 \times 10^{62},\ u^{47} - 39 u^{46} + \cdots - 102400 u + 8192 \rangle}$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} 0.0590573u^{46} - 2.18751u^{45} + \cdots + 1965.57u - 155.003 \\ -0.115724u^{46} + 4.36618u^{45} + \cdots - 5892.46u + 483.797 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0904063u^{46} - 3.49531u^{45} + \cdots + 7439.50u - 619.221 \\ 0.184438u^{46} - 6.83157u^{45} + \cdots + 3087.53u - 214.057 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0254493u^{46} - 0.964977u^{45} + \cdots + 1631.99u - 133.385 \\ -0.0275439u^{46} + 1.05235u^{45} + \cdots - 2471.62u + 208.480 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0448796u^{46} - 1.72346u^{45} + \cdots + 3562.00u - 289.190 \\ -0.00498553u^{46} + 0.226727u^{45} + \cdots - 1693.46u + 142.014 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0169903u^{46} + 0.589287u^{45} + \cdots + 1838.44u - 163.476 \\ 0.0629036u^{46} - 2.42072u^{45} + \cdots + 4884.80u - 405.666 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0566672u^{46} + 2.17867u^{45} + \cdots - 3926.89u + 328.794 \\ -0.115724u^{46} + 4.36618u^{45} + \cdots - 5892.46u + 483.797 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00777706u^{46} + 0.294739u^{45} + \cdots - 701.230u + 57.9358 \\ -0.00568240u^{46} + 0.207365u^{45} + \cdots + 140.398u - 17.1594 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0481510u^{46} + 1.87081u^{45} + \cdots - 3664.83u + 303.197 \\ -0.132055u^{46} + 4.93655u^{45} + \cdots - 4297.19u + 336.475 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0320196u^{46} - 1.33035u^{45} + \cdots + 7164.01u - 616.138 \\ 0.163583u^{46} - 6.19951u^{45} + \cdots + 8115.42u - 654.306 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0277438u^{46} + 0.925540u^{45} + \cdots - 1341.39u + 155.582$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{47} - 23u^{46} + \cdots - 13056u + 1024$
c_2, c_7	$u^{47} + 3u^{46} + \cdots + 2u + 1$
c_3, c_6	$u^{47} + 2u^{46} + \cdots - 5u + 2$
c_5	$u^{47} - 39u^{46} + \cdots - 102400u + 8192$
c_8, c_{12}	$u^{47} + 2u^{46} + \cdots + 12u + 1$
c_9, c_{11}	$u^{47} - u^{46} + \cdots - 1149u + 457$
c_{10}	$u^{47} + 27u^{46} + \cdots - 608u - 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{47} + 39y^{46} + \cdots - 19595264y - 1048576$
c_2, c_7	$y^{47} - 21y^{46} + \cdots + 40y - 1$
c_3, c_6	$y^{47} + 4y^{46} + \cdots - 67y - 4$
c_5	$y^{47} + y^{46} + \cdots - 2097152000y - 67108864$
c_8, c_{12}	$y^{47} + 16y^{46} + \cdots + 60y - 1$
c_9, c_{11}	$y^{47} - 27y^{46} + \cdots + 3980855y - 208849$
c_{10}	$y^{47} + y^{46} + \cdots + 18944y - 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.789858 + 0.572021I$ $a = 0.795254 + 0.602395I$ $b = -0.283556 - 0.930709I$	$3.17145 + 1.69281I$	0
$u = 0.789858 - 0.572021I$ $a = 0.795254 - 0.602395I$ $b = -0.283556 + 0.930709I$	$3.17145 - 1.69281I$	0
$u = 0.106416 + 1.060570I$ $a = -0.169028 - 0.771034I$ $b = -0.799746 + 0.261315I$	$-2.73254 - 6.81022I$	0
$u = 0.106416 - 1.060570I$ $a = -0.169028 + 0.771034I$ $b = -0.799746 - 0.261315I$	$-2.73254 + 6.81022I$	0
$u = 0.323409 + 1.054660I$ $a = 0.342192 + 0.658803I$ $b = 0.584148 - 0.573961I$	$-0.33944 + 1.43644I$	0
$u = 0.323409 - 1.054660I$ $a = 0.342192 - 0.658803I$ $b = 0.584148 + 0.573961I$	$-0.33944 - 1.43644I$	0
$u = 0.674599 + 0.980557I$ $a = 0.362289 + 1.183380I$ $b = 0.91597 - 1.15355I$	$1.96072 + 3.71013I$	0
$u = 0.674599 - 0.980557I$ $a = 0.362289 - 1.183380I$ $b = 0.91597 + 1.15355I$	$1.96072 - 3.71013I$	0
$u = 0.624716 + 0.471470I$ $a = 0.373351 + 1.327370I$ $b = 0.392576 - 1.005250I$	$0.432423 + 1.337180I$	0
$u = 0.624716 - 0.471470I$ $a = 0.373351 - 1.327370I$ $b = 0.392576 + 1.005250I$	$0.432423 - 1.337180I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.020792 + 0.725962I$ $a = 0.450343 + 1.201190I$ $b = 0.862651 - 0.351907I$	$-3.02055 + 2.57813I$	$-8.49493 - 6.08362I$
$u = 0.020792 - 0.725962I$ $a = 0.450343 - 1.201190I$ $b = 0.862651 + 0.351907I$	$-3.02055 - 2.57813I$	$-8.49493 + 6.08362I$
$u = -1.30541$ $a = 0.0836022$ $b = 0.109135$	-2.49946	0
$u = 0.298531 + 0.575032I$ $a = -0.34160 - 1.76890I$ $b = -0.915194 + 0.724506I$	$-2.40724 - 2.07518I$	$-6.28983 + 0.97864I$
$u = 0.298531 - 0.575032I$ $a = -0.34160 + 1.76890I$ $b = -0.915194 - 0.724506I$	$-2.40724 + 2.07518I$	$-6.28983 - 0.97864I$
$u = 1.210210 + 0.716417I$ $a = -0.093445 + 1.110070I$ $b = 0.90836 - 1.27648I$	$10.14280 + 2.59316I$	0
$u = 1.210210 - 0.716417I$ $a = -0.093445 - 1.110070I$ $b = 0.90836 + 1.27648I$	$10.14280 - 2.59316I$	0
$u = 0.016785 + 0.585660I$ $a = 0.708909 + 0.408464I$ $b = 0.227322 - 0.422036I$	$-0.136287 + 1.304410I$	$-1.20224 - 5.79186I$
$u = 0.016785 - 0.585660I$ $a = 0.708909 - 0.408464I$ $b = 0.227322 + 0.422036I$	$-0.136287 - 1.304410I$	$-1.20224 + 5.79186I$
$u = 0.025935 + 0.489011I$ $a = 1.60407 + 2.15189I$ $b = 1.010700 - 0.840218I$	$0.30273 + 6.30888I$	$-2.19256 - 11.23940I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.025935 - 0.489011I$ $a = 1.60407 - 2.15189I$ $b = 1.010700 + 0.840218I$	$0.30273 - 6.30888I$	$-2.19256 + 11.23940I$
$u = 1.18191 + 0.97444I$ $a = -0.112442 - 1.005100I$ $b = -0.84651 + 1.29750I$	$8.05895 + 6.03050I$	0
$u = 1.18191 - 0.97444I$ $a = -0.112442 + 1.005100I$ $b = -0.84651 - 1.29750I$	$8.05895 - 6.03050I$	0
$u = 1.35978 + 0.81114I$ $a = 0.080566 - 0.958947I$ $b = -0.88739 + 1.23860I$	$8.74035 + 7.98020I$	0
$u = 1.35978 - 0.81114I$ $a = 0.080566 + 0.958947I$ $b = -0.88739 - 1.23860I$	$8.74035 - 7.98020I$	0
$u = 1.24199 + 1.08453I$ $a = 0.064228 + 0.996984I$ $b = 1.00149 - 1.30790I$	$8.2473 + 21.8470I$	0
$u = 1.24199 - 1.08453I$ $a = 0.064228 - 0.996984I$ $b = 1.00149 + 1.30790I$	$8.2473 - 21.8470I$	0
$u = 1.21311 + 1.14031I$ $a = -0.111952 - 0.975187I$ $b = -0.97621 + 1.31067I$	$9.1579 + 13.1525I$	0
$u = 1.21311 - 1.14031I$ $a = -0.111952 + 0.975187I$ $b = -0.97621 - 1.31067I$	$9.1579 - 13.1525I$	0
$u = -0.140578 + 0.193465I$ $a = 0.65556 - 4.39100I$ $b = -0.757348 - 0.744107I$	$5.01435 + 2.53794I$	$0.84043 - 2.77896I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.140578-0.193465I$ $a=\ \ 0.65556+4.39100I$ $b=-0.757348+0.744107I$	$5.01435-2.53794I$	$0.84043+2.77896I$
$u=\ \ 1.15618+1.33193I$ $a=-0.360678-0.340815I$ $b=-0.036934+0.874442I$	$7.12799+2.40033I$	0
$u=\ \ 1.15618-1.33193I$ $a=-0.360678+0.340815I$ $b=-0.036934-0.874442I$	$7.12799-2.40033I$	0
$u=\ \ 1.31536+1.18518I$ $a=-0.033298-0.670801I$ $b=-0.751219+0.921810I$	$4.06199+7.90337I$	0
$u=\ \ 1.31536-1.18518I$ $a=-0.033298+0.670801I$ $b=-0.751219-0.921810I$	$4.06199-7.90337I$	0
$u=\ \ 1.43565+1.13278I$ $a=-0.070763+0.656697I$ $b=\ \ 0.845485-0.862632I$	$2.4290+15.1963I$	0
$u=\ \ 1.43565-1.13278I$ $a=-0.070763-0.656697I$ $b=\ \ 0.845485+0.862632I$	$2.4290-15.1963I$	0
$u=\ \ 1.71474+0.65476I$ $a=-0.178004+0.533259I$ $b=\ \ 0.654385-0.797849I$	$3.38591-3.98691I$	0
$u=\ \ 1.71474-0.65476I$ $a=-0.178004-0.533259I$ $b=\ \ 0.654385+0.797849I$	$3.38591+3.98691I$	0
$u=\ \ 1.47478+1.21882I$ $a=-0.363781-0.353820I$ $b=\ \ 0.105251+0.965191I$	$9.18769-3.84376I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.47478 - 1.21882I$ $a = -0.363781 + 0.353820I$ $b = 0.105251 - 0.965191I$	$9.18769 + 3.84376I$	0
$u = 1.44593 + 1.42503I$ $a = 0.343723 + 0.269068I$ $b = -0.113569 - 0.878869I$	$7.6878 - 12.4770I$	0
$u = 1.44593 - 1.42503I$ $a = 0.343723 - 0.269068I$ $b = -0.113569 + 0.878869I$	$7.6878 + 12.4770I$	0
$u = 1.58102 + 1.61441I$ $a = -0.142057 - 0.292779I$ $b = -0.248071 + 0.692228I$	$6.42396 + 1.69767I$	0
$u = 1.58102 - 1.61441I$ $a = -0.142057 + 0.292779I$ $b = -0.248071 - 0.692228I$	$6.42396 - 1.69767I$	0
$u = 1.08159 + 2.43719I$ $a = 0.154769 + 0.090366I$ $b = 0.052843 - 0.474939I$	$6.46891 + 5.45398I$	0
$u = 1.08159 - 2.43719I$ $a = 0.154769 - 0.090366I$ $b = 0.052843 + 0.474939I$	$6.46891 - 5.45398I$	0

II. $I_2^u = \langle -1.13 \times 10^{29} u^{70} - 4.82 \times 10^{30} u^{69} + \cdots + 4.89 \times 10^{24} b + 2.42 \times 10^{31},\ -4.84 \times 10^{30} a u^{70} - 8.30 \times 10^{30} u^{70} + \cdots + 6.35 \times 10^{31} a + 6.92 \times 10^{31},\ u^{71} + 22 u^{70} + \cdots - 55u - 5 \rangle$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} a \\ 23199.1u^{70} + 986996.u^{69} + \cdots - 4.14818 \times 10^7 u - 4.95200 \times 10^6 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 23199.1u^{70} + 986996.u^{69} + \cdots + a - 4.95200 \times 10^6 \\ 687394.u^{70} + 1.49354 \times 10^7 u^{69} + \cdots - 6.78117 \times 10^7 u - 7.33508 \times 10^6 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 23199.1au^{70} + 867570.u^{70} + \cdots - 4.95200 \times 10^6 a - 8.49164 \times 10^6 \\ -302197.u^{70} - 6.69779 \times 10^6 u^{69} + \cdots + 3.92247 \times 10^7 u + 4.33785 \times 10^6 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -239938.au^{70} - 2.17987 \times 10^6 u^{70} + \cdots - 374469.a + 1.84264 \times 10^7 \\ 1.15630 \times 10^6 u^{70} + 2.48006 \times 10^7 u^{69} + \cdots - 8.91836 \times 10^7 u - 9.38837 \times 10^6 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.31944 \times 10^6 au^{70} + 3.07476 \times 10^6 u^{70} + \cdots + 1.54147 \times 10^7 a - 2.27294 \times 10^7 \\ -1.34228 \times 10^6 u^{70} - 2.84842 \times 10^7 u^{69} + \cdots + 7.98915 \times 10^7 u + 8.08133 \times 10^6 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 23199.1u^{70} + 986996.u^{69} + \cdots + a - 4.95200 \times 10^6 \\ 23199.1u^{70} + 986996.u^{69} + \cdots - 4.14818 \times 10^7 u - 4.95200 \times 10^6 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 687394.au^{70} + 676175.u^{70} + \cdots - 7.33508 \times 10^6 a - 6.73339 \times 10^6 \\ 664195.au^{70} + 110802.u^{70} + \cdots - 2.38308 \times 10^6 a - 2.57961 \times 10^6 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 373244.au^{70} - 2.32863 \times 10^6 u^{70} + \cdots + 1.90152 \times 10^6 a + 9.68437 \times 10^6 \\ -152067.au^{70} - 1.85415 \times 10^6 u^{70} + \cdots + 2.01714 \times 10^6 a + 1.32832 \times 10^7 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 288778.au^{70} + 1.33982 \times 10^6 u^{70} + \cdots - 528893.a - 6.61449 \times 10^6 \\ -909066.au^{70} + 877015.u^{70} + \cdots + 5.32274 \times 10^6 a - 4.34410 \times 10^6 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= \frac{667250034250064514582752101881 1}{122137103801013582996992 0} u^{70} + \frac{707128712672808144060904940606 11}{610685519005067914984960} u^{69} + \cdots - \frac{382511550256794372990851752886051}{122137103801013582996992 0} u - \frac{119784397586000680545676883339}{3816784493781674468656}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{71}+14u^{70}+\cdots+566u+148)^2$
c_2	$5u^{142}+30u^{141}+\cdots+167385u-47185$
c_3	$5u^{142}+30u^{141}+\cdots+6145u+1339$
c_4	$(u^{71}-14u^{70}+\cdots+566u-148)^2$
c_5	$(u^{71}+22u^{70}+\cdots-55u-5)^2$
c_6	$5u^{142}-30u^{141}+\cdots-6145u+1339$
c_7	$-5u^{142}+30u^{141}+\cdots+167385u+47185$
c_8, c_{12}	$-5u^{142}+20u^{141}+\cdots+4314935u+821335$
c_9, c_{11}	$-5u^{142}+10u^{141}+\cdots-271556615523u+71833666691$
c_{10}	$(u^{71}+15u^{70}+\cdots+65u+5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{71} + 62y^{70} + \cdots + 341964y - 21904)^2$
c_2, c_7	$25y^{142} - 410y^{141} + \cdots - 130716079465y + 2226424225$
c_3, c_6	$25y^{142} - 60y^{141} + \cdots - 31957799y + 1792921$
c_5	$(y^{71} - 12y^{70} + \cdots + 1515y - 25)^2$
c_8, c_{12}	$25y^{142} + 510y^{141} + \cdots + 15566082199365y + 674591182225$
c_9, c_{11}	$25y^{142} - 2240y^{141} + \cdots - 3.06 \times 10^{23}y + 5.16 \times 10^{21}$
c_{10}	$(y^{71} - 7y^{70} + \cdots + 1665y - 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.824672+0.570478I$ $a=-0.187954-1.090550I$ $b=\ \ 0.984144+0.902469I$	$-1.74041-5.49672I$	0
$u=-0.824672+0.570478I$ $a=\ \ 0.295125+1.298490I$ $b=-0.777137-0.792124I$	$-1.74041-5.49672I$	0
$u=-0.824672-0.570478I$ $a=-0.187954+1.090550I$ $b=\ \ 0.984144-0.902469I$	$-1.74041+5.49672I$	0
$u=-0.824672-0.570478I$ $a=\ \ 0.295125-1.298490I$ $b=-0.777137+0.792124I$	$-1.74041+5.49672I$	0
$u=-0.653521+0.738689I$ $a=\ \ 1.138200+0.225871I$ $b=-0.017427+0.499635I$	$0.87960+2.11142I$	0
$u=-0.653521+0.738689I$ $a=-0.391121+0.322434I$ $b=\ \ 0.910684-0.693164I$	$0.87960+2.11142I$	0
$u=-0.653521-0.738689I$ $a=\ \ 1.138200-0.225871I$ $b=-0.017427-0.499635I$	$0.87960-2.11142I$	0
$u=-0.653521-0.738689I$ $a=-0.391121-0.322434I$ $b=\ \ 0.910684+0.693164I$	$0.87960-2.11142I$	0
$u=-0.659920+0.791144I$ $a=\ \ 0.243572+0.702275I$ $b=-0.464563-0.227238I$	$-2.77623+0.61894I$	0
$u=-0.659920+0.791144I$ $a=-0.119461-0.487558I$ $b=\ \ 0.716339+0.270745I$	$-2.77623+0.61894I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.659920-0.791144I$ $a=\ \ 0.243572-0.702275I$ $b=-0.464563+0.227238I$	$-2.77623-0.61894I$	0
$u=-0.659920-0.791144I$ $a=-0.119461+0.487558I$ $b=\ \ 0.716339-0.270745I$	$-2.77623-0.61894I$	0
$u=\ \ 0.965142+0.087688I$ $a=\ \ 0.185351-0.854460I$ $b=-1.27250+1.58375I$	$8.87060-1.96256I$	0
$u=\ \ 0.965142+0.087688I$ $a=\ \ 1.15979-1.74633I$ $b=-0.253816+0.808422I$	$8.87060-1.96256I$	0
$u=\ \ 0.965142-0.087688I$ $a=\ \ 0.185351+0.854460I$ $b=-1.27250-1.58375I$	$8.87060+1.96256I$	0
$u=\ \ 0.965142-0.087688I$ $a=\ \ 1.15979+1.74633I$ $b=-0.253816-0.808422I$	$8.87060+1.96256I$	0
$u=-0.306428+0.912839I$ $a=\ \ 1.051020-0.593590I$ $b=\ \ 0.535534+0.082446I$	$0.005444+0.532261I$	0
$u=-0.306428+0.912839I$ $a=\ \ 0.095820+0.554503I$ $b=-0.219791-1.141300I$	$0.005444+0.532261I$	0
$u=-0.306428-0.912839I$ $a=\ \ 1.051020+0.593590I$ $b=\ \ 0.535534-0.082446I$	$0.005444-0.532261I$	0
$u=-0.306428-0.912839I$ $a=\ \ 0.095820-0.554503I$ $b=-0.219791+1.141300I$	$0.005444-0.532261I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.856259 + 0.418034I$ $a = 0.199182 + 1.016330I$ $b = -0.591258 - 0.801688I$	$3.10625 + 2.38586I$	0
$u = 0.856259 + 0.418034I$ $a = 0.926724 + 0.483832I$ $b = 0.254309 - 0.953507I$	$3.10625 + 2.38586I$	0
$u = 0.856259 - 0.418034I$ $a = 0.199182 - 1.016330I$ $b = -0.591258 + 0.801688I$	$3.10625 - 2.38586I$	0
$u = 0.856259 - 0.418034I$ $a = 0.926724 - 0.483832I$ $b = 0.254309 + 0.953507I$	$3.10625 - 2.38586I$	0
$u = -0.668333 + 0.630821I$ $a = 0.244078 + 1.244820I$ $b = -0.467567 - 0.406289I$	$-2.52859 - 2.05067I$	0
$u = -0.668333 + 0.630821I$ $a = -0.066534 - 0.670714I$ $b = 0.948385 + 0.677987I$	$-2.52859 - 2.05067I$	0
$u = -0.668333 - 0.630821I$ $a = 0.244078 - 1.244820I$ $b = -0.467567 + 0.406289I$	$-2.52859 + 2.05067I$	0
$u = -0.668333 - 0.630821I$ $a = -0.066534 + 0.670714I$ $b = 0.948385 - 0.677987I$	$-2.52859 + 2.05067I$	0
$u = -0.734328 + 0.551761I$ $a = -0.190018 - 1.142270I$ $b = 0.95657 + 1.47779I$	$1.68399 - 6.46953I$	0
$u = -0.734328 + 0.551761I$ $a = -0.13388 + 1.91184I$ $b = -0.769797 - 0.733958I$	$1.68399 - 6.46953I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.734328-0.551761I$ $a=-0.190018+1.142270I$ $b=\ \ 0.95657-1.47779I$	$1.68399+6.46953I$	0
$u=-0.734328-0.551761I$ $a=-0.13388-1.91184I$ $b=-0.769797+0.733958I$	$1.68399+6.46953I$	0
$u=-0.602775+0.959248I$ $a=\ \ 0.079718+1.096290I$ $b=-0.46599-1.72736I$	$2.80463-0.98712I$	0
$u=-0.602775+0.959248I$ $a=\ \ 1.07214-1.15950I$ $b=\ \ 1.099670+0.584349I$	$2.80463-0.98712I$	0
$u=-0.602775-0.959248I$ $a=\ \ 0.079718-1.096290I$ $b=-0.46599+1.72736I$	$2.80463+0.98712I$	0
$u=-0.602775-0.959248I$ $a=\ \ 1.07214+1.15950I$ $b=\ \ 1.099670-0.584349I$	$2.80463+0.98712I$	0
$u=\ \ 0.626316+0.977766I$ $a=-0.070814-1.063810I$ $b=-0.87454+1.62900I$	$2.24238+12.49280I$	0
$u=\ \ 0.626316+0.977766I$ $a=-0.77508-1.39091I$ $b=-0.995807+0.735522I$	$2.24238+12.49280I$	0
$u=\ \ 0.626316-0.977766I$ $a=-0.070814+1.063810I$ $b=-0.87454-1.62900I$	$2.24238-12.49280I$	0
$u=\ \ 0.626316-0.977766I$ $a=-0.77508+1.39091I$ $b=-0.995807-0.735522I$	$2.24238-12.49280I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.766108+0.227199I$ $a=\ \ 0.146877-0.712508I$ $b=-1.83837+1.33856I$	$7.41218-3.70027I$	0
$u=-0.766108+0.227199I$ $a=-2.68191+0.95186I$ $b=-0.049357-0.579228I$	$7.41218-3.70027I$	0
$u=-0.766108-0.227199I$ $a=\ \ 0.146877+0.712508I$ $b=-1.83837-1.33856I$	$7.41218+3.70027I$	0
$u=-0.766108-0.227199I$ $a=-2.68191-0.95186I$ $b=-0.049357+0.579228I$	$7.41218+3.70027I$	0
$u=-0.727284+0.202634I$ $a=\ \ 0.717941+1.218260I$ $b=\ \ 0.680119-1.113870I$	$3.12602-9.03029I$	0
$u=-0.727284+0.202634I$ $a=\ \ 1.26376-1.17944I$ $b=\ \ 0.769008+0.740539I$	$3.12602-9.03029I$	0
$u=-0.727284-0.202634I$ $a=\ \ 0.717941-1.218260I$ $b=\ \ 0.680119+1.113870I$	$3.12602+9.03029I$	0
$u=-0.727284-0.202634I$ $a=\ \ 1.26376+1.17944I$ $b=\ \ 0.769008-0.740539I$	$3.12602+9.03029I$	0
$u=\ \ 0.652637+1.074260I$ $a=-0.300909-1.021020I$ $b=-0.575617+0.453549I$	$-1.57416+8.84284I$	0
$u=\ \ 0.652637+1.074260I$ $a=-0.070610-0.578722I$ $b=-0.900458+0.989609I$	$-1.57416+8.84284I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.652637 - 1.074260I$ $a = -0.300909 + 1.021020I$ $b = -0.575617 - 0.453549I$	$-1.57416 - 8.84284I$	0
$u = 0.652637 - 1.074260I$ $a = -0.070610 + 0.578722I$ $b = -0.900458 - 0.989609I$	$-1.57416 - 8.84284I$	0
$u = -0.715680 + 0.181290I$ $a = -0.103054 + 0.864086I$ $b = 1.85725 - 1.31818I$	$6.62178 - 12.35120I$	0
$u = -0.715680 + 0.181290I$ $a = 2.87704 - 1.11307I$ $b = 0.082896 + 0.637092I$	$6.62178 - 12.35120I$	0
$u = -0.715680 - 0.181290I$ $a = -0.103054 - 0.864086I$ $b = 1.85725 + 1.31818I$	$6.62178 + 12.35120I$	0
$u = -0.715680 - 0.181290I$ $a = 2.87704 + 1.11307I$ $b = 0.082896 - 0.637092I$	$6.62178 + 12.35120I$	0
$u = -0.692516 + 0.244640I$ $a = 0.069672 - 1.247530I$ $b = 1.49740 + 1.34373I$	$8.49212 - 6.49188I$	0
$u = -0.692516 + 0.244640I$ $a = 1.31296 + 2.40418I$ $b = -0.256946 - 0.880976I$	$8.49212 - 6.49188I$	0
$u = -0.692516 - 0.244640I$ $a = 0.069672 + 1.247530I$ $b = 1.49740 - 1.34373I$	$8.49212 + 6.49188I$	0
$u = -0.692516 - 0.244640I$ $a = 1.31296 - 2.40418I$ $b = -0.256946 + 0.880976I$	$8.49212 + 6.49188I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.223570 + 0.329001I$ $a = 0.529081 + 0.503867I$ $b = 0.174577 - 0.870418I$	$3.21058 + 2.53684I$	0
$u = 1.223570 + 0.329001I$ $a = 0.045323 + 0.699188I$ $b = -0.481595 - 0.790585I$	$3.21058 + 2.53684I$	0
$u = 1.223570 - 0.329001I$ $a = 0.529081 - 0.503867I$ $b = 0.174577 + 0.870418I$	$3.21058 - 2.53684I$	0
$u = 1.223570 - 0.329001I$ $a = 0.045323 - 0.699188I$ $b = -0.481595 + 0.790585I$	$3.21058 - 2.53684I$	0
$u = -0.693365 + 0.221244I$ $a = -0.751332 - 1.019720I$ $b = -0.772686 + 0.813888I$	$3.75246 - 2.19021I$	0
$u = -0.693365 + 0.221244I$ $a = -1.35136 + 0.74262I$ $b = -0.746553 - 0.540808I$	$3.75246 - 2.19021I$	0
$u = -0.693365 - 0.221244I$ $a = -0.751332 + 1.019720I$ $b = -0.772686 - 0.813888I$	$3.75246 + 2.19021I$	0
$u = -0.693365 - 0.221244I$ $a = -1.35136 - 0.74262I$ $b = -0.746553 + 0.540808I$	$3.75246 + 2.19021I$	0
$u = -0.712454 + 0.139207I$ $a = -0.253723 + 1.055420I$ $b = -1.67128 - 1.02980I$	$6.78398 - 0.48459I$	0
$u = -0.712454 + 0.139207I$ $a = -1.98751 - 1.83376I$ $b = -0.033845 + 0.787256I$	$6.78398 - 0.48459I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.712454-0.139207I$ $a=-0.253723-1.055420I$ $b=-1.67128+1.02980I$	$6.78398+0.48459I$	0
$u=-0.712454-0.139207I$ $a=-1.98751+1.83376I$ $b=-0.033845-0.787256I$	$6.78398+0.48459I$	0
$u=0.813544+0.992183I$ $a=0.240114+0.946235I$ $b=1.09301-1.40163I$	$1.80284+3.80266I$	0
$u=0.813544+0.992183I$ $a=0.304604+1.351380I$ $b=0.743495-1.008040I$	$1.80284+3.80266I$	0
$u=0.813544-0.992183I$ $a=0.240114-0.946235I$ $b=1.09301+1.40163I$	$1.80284-3.80266I$	0
$u=0.813544-0.992183I$ $a=0.304604-1.351380I$ $b=0.743495+1.008040I$	$1.80284-3.80266I$	0
$u=0.635897+0.171453I$ $a=0.331692+1.154750I$ $b=-1.43344-1.19785I$	$5.12448+4.20015I$	0
$u=0.635897+0.171453I$ $a=2.57491+1.18946I$ $b=-0.012937-0.791170I$	$5.12448+4.20015I$	0
$u=0.635897-0.171453I$ $a=0.331692-1.154750I$ $b=-1.43344+1.19785I$	$5.12448-4.20015I$	0
$u=0.635897-0.171453I$ $a=2.57491-1.18946I$ $b=-0.012937+0.791170I$	$5.12448-4.20015I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.034531+1.350330I$ $a=-0.481786-0.168176I$ $b=\ \ 0.487421-0.177522I$	$4.54386+4.92588I$	0
$u=-0.034531+1.350330I$ $a=\ \ 0.140605+0.357370I$ $b=-0.243728+0.644760I$	$4.54386+4.92588I$	0
$u=-0.034531-1.350330I$ $a=-0.481786+0.168176I$ $b=\ \ 0.487421+0.177522I$	$4.54386-4.92588I$	0
$u=-0.034531-1.350330I$ $a=\ \ 0.140605-0.357370I$ $b=-0.243728-0.644760I$	$4.54386-4.92588I$	0
$u=-1.18052+0.80437I$ $a=-0.894808+0.690321I$ $b=\ \ 0.004442-0.698249I$	$4.57981-5.54284I$	0
$u=-1.18052+0.80437I$ $a=\ \ 0.277802-0.402191I$ $b=-0.50107+1.53469I$	$4.57981-5.54284I$	0
$u=-1.18052-0.80437I$ $a=-0.894808-0.690321I$ $b=\ \ 0.004442+0.698249I$	$4.57981+5.54284I$	0
$u=-1.18052-0.80437I$ $a=\ \ 0.277802+0.402191I$ $b=-0.50107-1.53469I$	$4.57981+5.54284I$	0
$u=\ \ 0.57433+1.30998I$ $a=\ \ 0.170075+0.735004I$ $b=\ \ 0.392930-0.770957I$	$-0.587285+1.165290I$	0
$u=\ \ 0.57433+1.30998I$ $a=\ \ 0.383336+0.468015I$ $b=\ \ 0.865161-0.644929I$	$-0.587285+1.165290I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.57433 - 1.30998I$ $a = 0.170075 - 0.735004I$ $b = 0.392930 + 0.770957I$	$-0.587285 - 1.165290I$	0
$u = 0.57433 - 1.30998I$ $a = 0.383336 - 0.468015I$ $b = 0.865161 + 0.644929I$	$-0.587285 - 1.165290I$	0
$u = 0.543618 + 0.148501I$ $a = 1.01318 + 1.18573I$ $b = 0.665976 - 1.208700I$	$0.717238 + 0.672079I$	0
$u = 0.543618 + 0.148501I$ $a = -0.57481 + 2.38046I$ $b = -0.374699 - 0.795043I$	$0.717238 + 0.672079I$	0
$u = 0.543618 - 0.148501I$ $a = 1.01318 - 1.18573I$ $b = 0.665976 + 1.208700I$	$0.717238 - 0.672079I$	0
$u = 0.543618 - 0.148501I$ $a = -0.57481 - 2.38046I$ $b = -0.374699 + 0.795043I$	$0.717238 - 0.672079I$	0
$u = 1.42648 + 0.21629I$ $a = -0.678572 - 0.884616I$ $b = 0.220761 + 0.870153I$	$5.35046 - 6.50468I$	0
$u = 1.42648 + 0.21629I$ $a = -0.241696 - 0.573352I$ $b = 0.77663 + 1.40866I$	$5.35046 - 6.50468I$	0
$u = 1.42648 - 0.21629I$ $a = -0.678572 + 0.884616I$ $b = 0.220761 - 0.870153I$	$5.35046 + 6.50468I$	0
$u = 1.42648 - 0.21629I$ $a = -0.241696 + 0.573352I$ $b = 0.77663 - 1.40866I$	$5.35046 + 6.50468I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.16414+0.91773I$ $a=-0.018946-1.050230I$ $b=\ \ 0.99063+1.33831I$	$6.1667-12.8286I$	0
$u=-1.16414+0.91773I$ $a=-0.034120+1.122720I$ $b=-0.98588-1.20522I$	$6.1667-12.8286I$	0
$u=-1.16414-0.91773I$ $a=-0.018946+1.050230I$ $b=\ \ 0.99063-1.33831I$	$6.1667+12.8286I$	0
$u=-1.16414-0.91773I$ $a=-0.034120-1.122720I$ $b=-0.98588+1.20522I$	$6.1667+12.8286I$	0
$u=\ \ 0.433087+0.214106I$ $a=-0.002764+1.161030I$ $b=\ \ 1.83827-2.26474I$	$4.45638-2.54610I$	0
$u=\ \ 0.433087+0.214106I$ $a=-1.33345+5.88852I$ $b=\ \ 0.249781-0.502236I$	$4.45638-2.54610I$	0
$u=\ \ 0.433087-0.214106I$ $a=-0.002764-1.161030I$ $b=\ \ 1.83827+2.26474I$	$4.45638+2.54610I$	0
$u=\ \ 0.433087-0.214106I$ $a=-1.33345-5.88852I$ $b=\ \ 0.249781+0.502236I$	$4.45638+2.54610I$	0
$u=-1.17470+0.97295I$ $a=-0.144083+0.994891I$ $b=-1.08922-1.29993I$	$9.3164-11.7603I$	0
$u=-1.17470+0.97295I$ $a=-0.006337-1.111860I$ $b=\ \ 0.79872+1.30888I$	$9.3164-11.7603I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.17470-0.97295I$ $a=-0.144083-0.994891I$ $b=-1.08922+1.29993I$	$9.3164+11.7603I$	0
$u=-1.17470-0.97295I$ $a=-0.006337+1.111860I$ $b=\ \ 0.79872-1.30888I$	$9.3164+11.7603I$	0
$u=-1.33183+0.75303I$ $a=-0.100650+1.189680I$ $b=-0.638117-0.904818I$	$3.30590-7.28382I$	0
$u=-1.33183+0.75303I$ $a=-0.071987-0.720081I$ $b=\ \ 0.76182+1.66025I$	$3.30590-7.28382I$	0
$u=-1.33183-0.75303I$ $a=-0.100650-1.189680I$ $b=-0.638117+0.904818I$	$3.30590+7.28382I$	0
$u=-1.33183-0.75303I$ $a=-0.071987+0.720081I$ $b=\ \ 0.76182-1.66025I$	$3.30590+7.28382I$	0
$u=-1.26244+0.92732I$ $a=-0.123085+0.840091I$ $b=-0.776545-0.871804I$	$2.97338-7.62690I$	0
$u=-1.26244+0.92732I$ $a=-0.070056-0.742032I$ $b=\ \ 0.623650+1.174700I$	$2.97338-7.62690I$	0
$u=-1.26244-0.92732I$ $a=-0.123085-0.840091I$ $b=-0.776545+0.871804I$	$2.97338+7.62690I$	0
$u=-1.26244-0.92732I$ $a=-0.070056+0.742032I$ $b=\ \ 0.623650-1.174700I$	$2.97338+7.62690I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.270040+0.302532I$ $a=\ \ 0.712840-1.005080I$ $b=-2.05898-0.38627I$	$4.83661+2.72129I$	0
$u=-0.270040+0.302532I$ $a=-2.67044-4.42219I$ $b=-0.111574-0.487069I$	$4.83661+2.72129I$	0
$u=-0.270040-0.302532I$ $a=\ \ 0.712840+1.005080I$ $b=-2.05898+0.38627I$	$4.83661-2.72129I$	0
$u=-0.270040-0.302532I$ $a=-2.67044+4.42219I$ $b=-0.111574+0.487069I$	$4.83661-2.72129I$	0
$u=-1.45105+0.77820I$ $a=\ \ 0.253984+0.683827I$ $b=-0.833337-0.742961I$	$-0.47055-5.73622I$	0
$u=-1.45105+0.77820I$ $a=-0.232759-0.636845I$ $b=\ \ 0.900697+0.794616I$	$-0.47055-5.73622I$	0
$u=-1.45105-0.77820I$ $a=\ \ 0.253984-0.683827I$ $b=-0.833337+0.742961I$	$-0.47055+5.73622I$	0
$u=-1.45105-0.77820I$ $a=-0.232759+0.636845I$ $b=\ \ 0.900697-0.794616I$	$-0.47055+5.73622I$	0
$u=-0.63513+1.54911I$ $a=-0.401653+0.050472I$ $b=\ \ 0.334457-0.513948I$	$4.55977+5.02603I$	0
$u=-0.63513+1.54911I$ $a=\ \ 0.359807+0.068383I$ $b=-0.176914+0.654261I$	$4.55977+5.02603I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.63513-1.54911I$ $a=-0.401653-0.050472I$ $b=\ \ 0.334457+0.513948I$	$4.55977-5.02603I$	0
$u=-0.63513-1.54911I$ $a=\ \ 0.359807-0.068383I$ $b=-0.176914-0.654261I$	$4.55977-5.02603I$	0
$u=-1.10401+1.33286I$ $a=\ \ 0.527800-0.300292I$ $b=-0.078937+0.702075I$	$8.37637+3.43596I$	0
$u=-1.10401+1.33286I$ $a=-0.341501+0.223641I$ $b=\ \ 0.182448-1.035010I$	$8.37637+3.43596I$	0
$u=-1.10401-1.33286I$ $a=\ \ 0.527800+0.300292I$ $b=-0.078937-0.702075I$	$8.37637-3.43596I$	0
$u=-1.10401-1.33286I$ $a=-0.341501-0.223641I$ $b=\ \ 0.182448+1.035010I$	$8.37637-3.43596I$	0
$u=\ \ 0.192549$ $a=\ \ 0.922979$ $b=\ \ 4.41369$	0.543729	-407.280
$u=\ \ 0.192549$ $a=-22.9224$ $b=-0.177719$	0.543729	-407.280
$u=-1.48139+1.21474I$ $a=-0.006383+0.538148I$ $b=-0.347151-0.788128I$	$1.91594-1.91493I$	0
$u=-1.48139+1.21474I$ $a=\ \ 0.120732-0.433018I$ $b=\ \ 0.644251+0.804962I$	$1.91594-1.91493I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.48139-1.21474I$		
$a=-0.006383-0.538148I$	$1.91594+1.91493I$	0
$b=-0.347151+0.788128I$		
$u=-1.48139-1.21474I$		
$a=\quad 0.120732+0.433018I$	$1.91594+1.91493I$	0
$b=\quad 0.644251-0.804962I$		

III.

$\boldsymbol{I_3^u = \langle 2.17\times 10^{20}u^{30}+3.27\times 10^{21}u^{29}+\cdots+1.20\times 10^{21}b+2.70\times 10^{20},\ 2.70\times 10^{20}u^{30}+3.73\times 10^{21}u^{29}+\cdots+1.20\times 10^{21}a+4.46\times 10^{21},\ u^{31}+13u^{30}+\cdots+u-1\rangle}$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix}-0.225238u^{30}-3.10867u^{29}+\cdots+0.538512u-3.71726\\-0.180578u^{30}-2.72335u^{29}+\cdots-3.49203u-0.225238\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.781653u^{30}-10.1366u^{29}+\cdots-2.99817u-4.12308\\0.0315950u^{30}-0.127605u^{29}+\cdots-2.73014u-0.430711\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-2.47668u^{30}-31.7407u^{29}+\cdots-3.64079u-0.442984\\0.456172u^{30}+5.98489u^{29}+\cdots+3.03370u-2.47668\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-2.62471u^{30}-32.6768u^{29}+\cdots+2.72113u+1.46548\\1.38973u^{30}+18.1347u^{29}+\cdots+6.02304u-3.08088\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-3.58151u^{30}-44.0380u^{29}+\cdots-6.08463u+2.51316\\2.50817u^{30}+33.1108u^{29}+\cdots+8.63243u-4.51507\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.405816u^{30}-5.83202u^{29}+\cdots-2.95351u-3.94250\\-0.180578u^{30}-2.72335u^{29}+\cdots-3.49203u-0.225238\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-1.50969u^{30}-20.0486u^{29}+\cdots-2.50625u-4.94017\\0.510821u^{30}+5.70716u^{29}+\cdots+0.100844u-2.02051\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-2.84271u^{30}-35.9753u^{29}+\cdots-7.85276u+0.379035\\1.61788u^{30}+21.6931u^{29}+\cdots+7.04440u-3.82265\end{pmatrix}$$

$$a_7 = \begin{pmatrix}4.69639u^{30}+58.7635u^{29}+\cdots+9.91752u+1.88902\\-4.19037u^{30}-51.3479u^{29}+\cdots-9.59810u+6.61015\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{6057336151202140089817}{1199024621665907001733}u^{30}+\frac{8597731320933172110148 4}{1199024621665907001733}u^{29}+\cdots+\frac{4260340317520635225730 1}{1199024621665907001733}u-\frac{1874016402280855235734 0}{1199024621665907001733}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{31} - 10u^{30} + \cdots + 164u - 13$
c_2, c_7	$u^{31} - u^{30} + \cdots - 2u + 1$
c_3, c_6	$u^{31} - u^{30} + \cdots - 5u + 1$
c_4	$u^{31} + 10u^{30} + \cdots + 164u + 13$
c_5	$u^{31} + 13u^{30} + \cdots + u - 1$
c_8, c_{12}	$u^{31} - u^{30} + \cdots - 3u - 1$
c_9, c_{11}	$u^{31} - u^{30} + \cdots + 5u - 1$
c_{10}	$u^{31} - 17u^{30} + \cdots - 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{31} + 26y^{30} + \cdots - 7632y - 169$
c_2, c_7	$y^{31} - y^{30} + \cdots + 24y - 1$
c_3, c_6	$y^{31} + 3y^{30} + \cdots - 25y - 1$
c_5	$y^{31} - y^{30} + \cdots + 15y - 1$
c_8, c_{12}	$y^{31} + 3y^{30} + \cdots + 5y - 1$
c_9, c_{11}	$y^{31} - 15y^{30} + \cdots - 17y - 1$
c_{10}	$y^{31} + 3y^{30} + \cdots + 33y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.802181 + 0.655317I$ $a = -0.349659 + 0.581209I$ $b = -0.661366 + 0.237097I$	$5.34150 + 1.09383I$	$4.03751 - 1.72481I$
$u = 0.802181 - 0.655317I$ $a = -0.349659 - 0.581209I$ $b = -0.661366 - 0.237097I$	$5.34150 - 1.09383I$	$4.03751 + 1.72481I$
$u = -1.019730 + 0.427277I$ $a = -0.289931 - 0.356558I$ $b = 0.448001 + 0.239712I$	$-2.68713 - 0.07444I$	$-14.9045 + 13.7988I$
$u = -1.019730 - 0.427277I$ $a = -0.289931 + 0.356558I$ $b = 0.448001 - 0.239712I$	$-2.68713 + 0.07444I$	$-14.9045 - 13.7988I$
$u = -1.084920 + 0.461034I$ $a = -0.354893 - 0.897821I$ $b = 0.798957 + 0.810444I$	$-1.56708 - 4.47599I$	$-5.79900 + 1.58426I$
$u = -1.084920 - 0.461034I$ $a = -0.354893 + 0.897821I$ $b = 0.798957 - 0.810444I$	$-1.56708 + 4.47599I$	$-5.79900 - 1.58426I$
$u = -1.000620 + 0.629369I$ $a = -0.715706 + 0.518410I$ $b = 0.389879 - 0.969174I$	$6.97246 + 4.94250I$	$5.80804 - 6.30898I$
$u = -1.000620 - 0.629369I$ $a = -0.715706 - 0.518410I$ $b = 0.389879 + 0.969174I$	$6.97246 - 4.94250I$	$5.80804 + 6.30898I$
$u = -0.635261 + 1.019810I$ $a = -0.412974 + 0.860006I$ $b = -0.614699 - 0.967484I$	$-0.06619 - 9.23511I$	$0. + 9.63622I$
$u = -0.635261 - 1.019810I$ $a = -0.412974 - 0.860006I$ $b = -0.614699 + 0.967484I$	$-0.06619 + 9.23511I$	$0. - 9.63622I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.696791+1.097990I$ $a=\ 0.379316-1.101360I$ $b=\ 0.94497+1.18390I$	$1.96931-3.31975I$	$3.33536-10.13133I$
$u=-0.696791-1.097990I$ $a=\ 0.379316+1.101360I$ $b=\ 0.94497-1.18390I$	$1.96931+3.31975I$	$3.33536+10.13133I$
$u=\ 0.572633+0.293060I$ $a=\ 0.62907-1.39615I$ $b=\ 0.769384-0.615126I$	$5.71965-11.63410I$	$0.60190+5.79448I$
$u=\ 0.572633-0.293060I$ $a=\ 0.62907+1.39615I$ $b=\ 0.769384+0.615126I$	$5.71965+11.63410I$	$0.60190-5.79448I$
$u=-0.462841+1.278390I$ $a=\ 0.297399-0.598990I$ $b=\ 0.628094+0.657429I$	$-0.173121-0.947660I$	$6.59549-5.94866I$
$u=-0.462841-1.278390I$ $a=\ 0.297399+0.598990I$ $b=\ 0.628094-0.657429I$	$-0.173121+0.947660I$	$6.59549+5.94866I$
$u=-1.356760+0.247339I$ $a=\ 0.345259-0.759369I$ $b=-0.280613+1.115680I$	$4.81875-3.09633I$	$6.94503+0.I$
$u=-1.356760-0.247339I$ $a=\ 0.345259+0.759369I$ $b=-0.280613-1.115680I$	$4.81875+3.09633I$	$6.94503+0.I$
$u=\ 0.567426+0.103550I$ $a=-1.33204+1.29486I$ $b=-0.889919+0.596803I$	$6.52346-3.01769I$	$6.37648+3.90400I$
$u=\ 0.567426-0.103550I$ $a=-1.33204-1.29486I$ $b=-0.889919-0.596803I$	$6.52346+3.01769I$	$6.37648-3.90400I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.378456+0.376128I$ $a=-0.04346-2.36021I$ $b=\ \ 0.904188+0.876888I$	$0.54217-5.24068I$	$-2.27502+4.94275I$
$u=-0.378456-0.376128I$ $a=-0.04346+2.36021I$ $b=\ \ 0.904188-0.876888I$	$0.54217+5.24068I$	$-2.27502-4.94275I$
$u=-1.12172+0.95779I$ $a=-0.065642+1.090890I$ $b=-0.97121-1.28655I$	$7.3437-12.1227I$	0
$u=-1.12172-0.95779I$ $a=-0.065642-1.090890I$ $b=-0.97121+1.28655I$	$7.3437+12.1227I$	0
$u=\ \ 0.379341$ $a=-2.67394$ $b=-1.01433$	0.669105	-2.58600
$u=\ \ 0.231174+0.276345I$ $a=-0.34972+2.92117I$ $b=-0.888099+0.578655I$	$4.66589+3.12670I$	$3.38653-2.87642I$
$u=\ \ 0.231174-0.276345I$ $a=-0.34972-2.92117I$ $b=-0.888099-0.578655I$	$4.66589-3.12670I$	$3.38653+2.87642I$
$u=-1.47519+0.75450I$ $a=\ \ 0.253134+0.667574I$ $b=-0.877108-0.793809I$	$0.17612-5.82869I$	0
$u=-1.47519-0.75450I$ $a=\ \ 0.253134-0.667574I$ $b=-0.877108+0.793809I$	$0.17612+5.82869I$	0
$u=\ \ 0.36921+1.95761I$ $a=-0.153181-0.185566I$ $b=\ \ 0.306708-0.368382I$	$6.14411+5.62850I$	0

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.36921-1.95761I$		
$a=$	$-0.153181+0.185566I$	$6.14411-5.62850I$	0
$b=$	$0.306708+0.368382I$		

IV. $I_4^u = \langle 4u^3 + 5au - 11u^2 + 5b + 17u - 11,\ 11u^3a - 6u^3 + \cdots - 14a + 44,\ u^4 - 4u^3 + 8u^2 - 9u + 5\rangle$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} a \\ -\frac{4}{5}u^3 + \frac{11}{5}u^2 + \cdots - \frac{17}{5}u + \frac{11}{5} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^2a - \frac{4}{5}u^3 + \cdots + a + \frac{11}{5} \\ -3u^3a + \frac{1}{5}u^3 + \cdots + 5a - \frac{14}{5} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{4}{5}u^3a + \frac{1}{5}u^3 + \cdots - \frac{11}{5}a + \frac{6}{5} \\ -u^3 + 2u^2 - 2u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{5}u^3a + \frac{4}{5}u^3 + \cdots - \frac{4}{5}a - \frac{11}{5} \\ u^3 - 3u^2 + 4u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{2}{5}u^3a + \frac{2}{5}u^3 + \cdots + \frac{8}{5}a + \frac{2}{5} \\ u^2 - 3u + 2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{4}{5}u^3 + \frac{11}{5}u^2 + \cdots + a + \frac{11}{5} \\ -\frac{4}{5}u^3 + \frac{11}{5}u^2 + \cdots - \frac{17}{5}u + \frac{11}{5} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{5}u^3a + \frac{2}{5}u^3 + \cdots + \frac{14}{5}a - \frac{3}{5} \\ -u^3a + \frac{6}{5}u^3 + \cdots + 5a - \frac{14}{5} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.400000au^3 + 0.720000u^3 + \cdots - 0.400000a - 2.28000 \\ 2u^3a + \frac{43}{25}u^3 + \cdots - 7a - \frac{57}{25} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.160000au^3 - 0.640000u^3 + \cdots + 0.840000a + 2.36000 \\ -2u^3a + 7u^2a - u^3 - 10au + 3u^2 + 5a - 6u + 4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{1972}{125}u^3 + \frac{4998}{125}u^2 - \frac{7766}{125}u + \frac{5953}{125}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4+u^3+4u^2+2u+3)^2$
c_2, c_7	$5(5u^8-2u^7-4u^6+3u^5+8u^4+6u^3+2u^2-7u+5)$
c_3, c_6	$5(5u^8+3u^7-11u^6+6u^5+49u^4-42u^3+24u^2-6u+1)$
c_4	$(u^4-u^3+4u^2-2u+3)^2$
c_5	$(u^4-4u^3+8u^2-9u+5)^2$
c_8, c_{12}	$5(5u^8-4u^7+20u^6-30u^5+51u^4-40u^3+31u^2-11u+5)$
c_9, c_{11}	$5(5u^8+u^7-9u^6-10u^5+31u^4-20u^3-18u^2+18u+27)$
c_{10}	$(u^4+5u^3+11u^2+11u+5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^4 + 7y^3 + 18y^2 + 20y + 9)^2$
c_2, c_7	$25(25y^8 - 44y^7 + 108y^6 - 29y^5 + 34y^4 - 2y^3 + 168y^2 - 29y + 25)$
c_3, c_6	$25(25y^8 - 119y^7 + \cdots + 12y + 1)$
c_5	$(y^4 + 2y^2 - y + 25)^2$
c_8, c_{12}	$25(25y^8 + 184y^7 + \cdots + 189y + 25)$
c_9, c_{11}	$25(25y^8 - 91y^7 + \cdots - 1296y + 729)$
c_{10}	$(y^4 - 3y^3 + 21y^2 - 11y + 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.34381 + 0.62536I$ $a = -0.088708 - 1.278200I$ $b = -0.616713 + 0.829872I$	$3.49532 + 7.54387I$	$7.2919 - 21.2390I$
$u = 1.34381 + 0.62536I$ $a = -0.141007 + 0.683169I$ $b = 0.68013 - 1.77314I$	$3.49532 + 7.54387I$	$7.2919 - 21.2390I$
$u = 1.34381 - 0.62536I$ $a = -0.088708 + 1.278200I$ $b = -0.616713 - 0.829872I$	$3.49532 - 7.54387I$	$7.2919 + 21.2390I$
$u = 1.34381 - 0.62536I$ $a = -0.141007 - 0.683169I$ $b = 0.68013 + 1.77314I$	$3.49532 - 7.54387I$	$7.2919 + 21.2390I$
$u = 0.65619 + 1.35843I$ $a = -0.547159 + 0.053493I$ $b = -0.031711 + 0.613225I$	$4.72935 + 4.22398I$	$3.14010 - 1.25039I$
$u = 0.65619 + 1.35843I$ $a = 0.356874 + 0.195730I$ $b = -0.431704 - 0.708178I$	$4.72935 + 4.22398I$	$3.14010 - 1.25039I$
$u = 0.65619 - 1.35843I$ $a = -0.547159 - 0.053493I$ $b = -0.031711 - 0.613225I$	$4.72935 - 4.22398I$	$3.14010 + 1.25039I$
$u = 0.65619 - 1.35843I$ $a = 0.356874 - 0.195730I$ $b = -0.431704 + 0.708178I$	$4.72935 - 4.22398I$	$3.14010 + 1.25039I$

V. $I_5^u = \langle b-u+2,\ 3a+2u-3,\ u^2-3u+3\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u+12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_7, c_9, c_{11}	$(y-1)^2$
c_3, c_6, c_8 c_{10}, c_{12}	y^2+y+1
c_5	y^2-3y+9

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50000 + 0.86603I$ $a = -0.577350I$ $b = -0.500000 + 0.866025I$	$4.93480 + 2.02988I$	$6.00000 - 3.46410I$
$u = 1.50000 - 0.86603I$ $a = 0.577350I$ $b = -0.500000 - 0.866025I$	$4.93480 - 2.02988I$	$6.00000 + 3.46410I$

VI. $I_6^u = \langle au + b - u,\ a^2 - a - u + 1,\ u^2 - u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.070696 - 0.758745I$ $b = -0.121744 + 1.306620I$	0	$-2.50000 - 2.59808I$
$u = 0.500000 + 0.866025I$ $a = 1.070700 + 0.758745I$ $b = 0.621744 - 0.440597I$	0	$-2.50000 - 2.59808I$
$u = 0.500000 - 0.866025I$ $a = -0.070696 + 0.758745I$ $b = -0.121744 - 1.306620I$	0	$-2.50000 + 2.59808I$
$u = 0.500000 - 0.866025I$ $a = 1.070700 - 0.758745I$ $b = 0.621744 + 0.440597I$	0	$-2.50000 + 2.59808I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^4(u-1)^2(u^4+u^3+\cdots+2u+3)^2(u^{31}-10u^{30}+\cdots+164u-13)$ $\cdot(u^{47}-23u^{46}+\cdots-13056u+1024)$
c_2, c_7	$5(u-1)^2(u^4-u^3+2u^2-2u+1)$ $\cdot(5u^8-2u^7-4u^6+3u^5+8u^4+6u^3+2u^2-7u+5)$ $\cdot(u^{31}-u^{30}+\cdots-2u+1)(u^{47}+3u^{46}+\cdots+2u+1)$
c_3, c_6	$5(u^2-u+1)(u^4+2u^2+3u+1)$ $\cdot(5u^8+3u^7-11u^6+6u^5+49u^4-42u^3+24u^2-6u+1)$ $\cdot(u^{31}-u^{30}+\cdots-5u+1)(u^{47}+2u^{46}+\cdots-5u+2)$
c_4	$u^4(u-1)^2(u^4-u^3+\cdots-2u+3)^2(u^{31}+10u^{30}+\cdots+164u+13)$ $\cdot(u^{47}-23u^{46}+\cdots-13056u+1024)$
c_5	$(u^2-3u+3)(u^2-u+1)^2(u^4-4u^3+8u^2-9u+5)^2$ $\cdot(u^{31}+13u^{30}+\cdots+u-1)(u^{47}-39u^{46}+\cdots-102400u+8192)$
c_8, c_{12}	$5(u^2-u+1)(u^4+u^3+2u^2+2u+1)$ $\cdot(5u^8-4u^7+20u^6-30u^5+51u^4-40u^3+31u^2-11u+5)$ $\cdot(u^{31}-u^{30}+\cdots-3u-1)(u^{47}+2u^{46}+\cdots+12u+1)$
c_9, c_{11}	$5(u+1)^2(u^4+2u^2-3u+1)$ $\cdot(5u^8+u^7-9u^6-10u^5+31u^4-20u^3-18u^2+18u+27)$ $\cdot(u^{31}-u^{30}+\cdots+5u-1)(u^{47}-u^{46}+\cdots-1149u+457)$
c_{10}	$(u^2+u+1)^3(u^4+5u^3+11u^2+11u+5)^2$ $\cdot(u^{31}-17u^{30}+\cdots-3u+1)(u^{47}+27u^{46}+\cdots-608u-32)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^4(y-1)^2(y^4+7y^3+18y^2+20y+9)^2$ $\cdot(y^{31}+26y^{30}+\cdots-7632y-169)$ $\cdot(y^{47}+39y^{46}+\cdots-19595264y-1048576)$
c_2, c_7	$25(y-1)^2(y^4+3y^3+2y^2+1)$ $\cdot(25y^8-44y^7+108y^6-29y^5+34y^4-2y^3+168y^2-29y+25)$ $\cdot(y^{31}-y^{30}+\cdots+24y-1)(y^{47}-21y^{46}+\cdots+40y-1)$
c_3, c_6	$25(y^2+y+1)(y^4+4y^3+\cdots-5y+1)(25y^8-119y^7+\cdots+12y+1)$ $\cdot(y^{31}+3y^{30}+\cdots-25y-1)(y^{47}+4y^{46}+\cdots-67y-4)$
c_5	$(y^2-3y+9)(y^2+y+1)^2(y^4+2y^2-y+25)^2$ $\cdot(y^{31}-y^{30}+\cdots+15y-1)$ $\cdot(y^{47}+y^{46}+\cdots-2097152000y-67108864)$
c_8, c_{12}	$25(y^2+y+1)(y^4+3y^3+2y^2+1)(25y^8+184y^7+\cdots+189y+25)$ $\cdot(y^{31}+3y^{30}+\cdots+5y-1)(y^{47}+16y^{46}+\cdots+60y-1)$
c_9, c_{11}	$25(y-1)^2(y^4+4y^3+6y^2-5y+1)$ $\cdot(25y^8-91y^7+\cdots-1296y+729)(y^{31}-15y^{30}+\cdots-17y-1)$ $\cdot(y^{47}-27y^{46}+\cdots+3980855y-208849)$
c_{10}	$(y^2+y+1)^3(y^4-3y^3+21y^2-11y+25)^2$ $\cdot(y^{31}+3y^{30}+\cdots+33y-1)(y^{47}+y^{46}+\cdots+18944y-1024)$