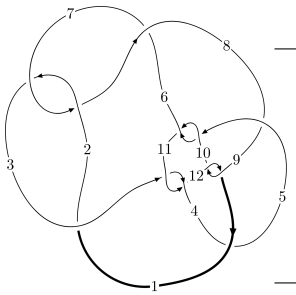
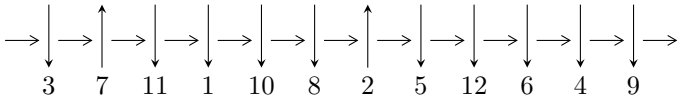
$12a_{0686}$ $(K12a_{0686})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3587u^{44} - 59411u^{43} + \cdots + 256b - 2894080,\ -1823u^{44} - 49813u^{43} + \cdots + 512a + 5447424,$$
$$u^{45} + 21u^{44} + \cdots - 9728u - 512\rangle$$
$$I_2^u = \langle -7.59604 \times 10^{31}a^{17}u^4 - 1.14352 \times 10^{32}a^{16}u^4 + \cdots + 1.79108 \times 10^{32}a - 3.77085 \times 10^{32},$$
$$-6a^{16}u^4 + a^{15}u^4 + \cdots - 180a + 371,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle$$
$$I_3^u = \langle -27u^{30} + 186u^{29} + \cdots + b + 53,\ -29u^{30} + 147u^{29} + \cdots + a - 64,\ u^{31} - 6u^{30} + \cdots + 5u^2 + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 166 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. $\boldsymbol{I_1^u = \langle -3587u^{44} - 59411u^{43} + \cdots + 256b - 2894080,\ -1823u^{44} - 49813u^{43} + \cdots + 512a + 5447424,\ u^{45} + 21u^{44} + \cdots - 9728u - 512\rangle}$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} 3.56055u^{44} + 97.2910u^{43} + \cdots - 191511.u - 10639.5 \\ 14.0117u^{44} + 232.074u^{43} + \cdots + 205133.u + 11305 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -22.0801u^{44} - 477.693u^{43} + \cdots + 185231.u + 9662.50 \\ 39.6523u^{44} + 807.059u^{43} + \cdots - 171609.u - 8997 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.439453u^{44} - 28.7363u^{43} + \cdots + 209228u + 11485.5 \\ 15.2461u^{44} + 383.090u^{43} + \cdots - 393095.u - 21261 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{529}{512}u^{44} - \frac{10591}{512}u^{43} + \cdots + \frac{1243}{2}u + 7 \\ \frac{135}{256}u^{44} + \frac{2441}{256}u^{43} + \cdots + 4656u + 259 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{253}{512}u^{44} + \frac{5043}{512}u^{43} + \cdots - \frac{8899}{2}u - 247 \\ \frac{3}{256}u^{44} + \frac{77}{256}u^{43} + \cdots - 317u - 17 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 44.9453u^{44} + 910.176u^{43} + \cdots - 198900.u - 10595.5 \\ -56.2461u^{44} - 1117.62u^{43} + \cdots + 82288.5u + 3722 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -4.48047u^{44} - 89.4336u^{43} + \cdots + 34007u + 1918 \\ \frac{129}{32}u^{44} + \frac{10127}{128}u^{43} + \cdots - 4053u - 180 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -50.0195u^{44} - 1013.30u^{43} + \cdots + 228759.u + 12212 \\ 60.0117u^{44} + 1189.50u^{43} + \cdots - 71845u - 3052 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{679}{64}u^{44} + \frac{17161}{64}u^{43} + \cdots - 240458u - 12510$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{45} + 15u^{44} + \cdots - 1536u - 1024$
c_2, c_7	$u^{45} + 11u^{44} + \cdots + 128u + 32$
c_3, c_5, c_{10} c_{11}	$u^{45} + u^{44} + \cdots + 4u + 1$
c_4, c_8	$u^{45} - u^{44} + \cdots - 5u + 1$
c_9, c_{12}	$u^{45} - 21u^{44} + \cdots - 9728u + 512$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{45} + 31y^{44} + \cdots + 9830400y - 1048576$
c_2, c_7	$y^{45} + 15y^{44} + \cdots - 1536y - 1024$
c_3, c_5, c_{10} c_{11}	$y^{45} - 25y^{44} + \cdots + 8y - 1$
c_4, c_8	$y^{45} + 29y^{44} + \cdots + 71y - 1$
c_9, c_{12}	$y^{45} + 17y^{44} + \cdots - 3407872y - 262144$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.208020+1.017770I$ $a=\ \ 0.518836-0.448183I$ $b=-1.46031-0.10701I$	$1.31767+2.83862I$	0
$u=-0.208020-1.017770I$ $a=\ \ 0.518836+0.448183I$ $b=-1.46031+0.10701I$	$1.31767-2.83862I$	0
$u=\ \ 0.946189$ $a=\ \ 0.633784$ $b=-0.410735$	-1.39480	0
$u=-1.063240+0.314250I$ $a=-0.886556-0.815280I$ $b=\ \ 0.350469-0.222476I$	$-0.95255-6.81200I$	0
$u=-1.063240-0.314250I$ $a=-0.886556+0.815280I$ $b=\ \ 0.350469+0.222476I$	$-0.95255+6.81200I$	0
$u=-1.079690+0.283438I$ $a=\ \ 0.962572+0.810776I$ $b=-0.335797+0.200198I$	$-2.25231-12.86870I$	0
$u=-1.079690-0.283438I$ $a=\ \ 0.962572-0.810776I$ $b=-0.335797-0.200198I$	$-2.25231+12.86870I$	0
$u=-0.143066+1.150190I$ $a=-0.542252+0.522617I$ $b=\ \ 1.310810-0.279245I$	$3.41317-0.45131I$	0
$u=-0.143066-1.150190I$ $a=-0.542252-0.522617I$ $b=\ \ 1.310810+0.279245I$	$3.41317+0.45131I$	0
$u=-0.336154+1.112550I$ $a=\ \ 0.676007-0.377814I$ $b=-1.97704+0.16844I$	$8.08821+6.31292I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.336154-1.112550I$ $a=\ \ 0.676007+0.377814I$ $b=-1.97704-0.16844I$	$8.08821-6.31292I$	0
$u=-0.317978+1.137660I$ $a=-0.686649+0.428740I$ $b=\ \ 1.90789-0.27801I$	$8.41961+0.29227I$	0
$u=-0.317978-1.137660I$ $a=-0.686649-0.428740I$ $b=\ \ 1.90789+0.27801I$	$8.41961-0.29227I$	0
$u=-1.094150+0.527804I$ $a=-0.656726-0.627002I$ $b=\ \ 0.518635-0.238568I$	$-3.21307-2.60752I$	0
$u=-1.094150-0.527804I$ $a=-0.656726+0.627002I$ $b=\ \ 0.518635+0.238568I$	$-3.21307+2.60752I$	0
$u=-0.766388+0.963185I$ $a=-0.482755-0.428981I$ $b=\ \ 1.47163-0.30603I$	$5.84298-0.38109I$	0
$u=-0.766388-0.963185I$ $a=-0.482755+0.428981I$ $b=\ \ 1.47163+0.30603I$	$5.84298+0.38109I$	0
$u=-1.174520+0.378645I$ $a=\ \ 0.843485+0.605476I$ $b=-0.421155+0.168073I$	$-8.33701-5.85390I$	0
$u=-1.174520-0.378645I$ $a=\ \ 0.843485-0.605476I$ $b=-0.421155-0.168073I$	$-8.33701+5.85390I$	0
$u=-0.736297+1.018030I$ $a=\ \ 0.528992+0.406341I$ $b=-1.64434+0.15871I$	$6.06401+6.26641I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.736297-1.018030I$ $a=\ \ 0.528992-0.406341I$ $b=-1.64434-0.15871I$	$6.06401-6.26641I$	0
$u=\ \ 0.133405+1.254510I$ $a=\ \ 0.447547-0.505637I$ $b=-0.814640+0.321639I$	$-0.52886-2.12424I$	0
$u=\ \ 0.133405-1.254510I$ $a=\ \ 0.447547+0.505637I$ $b=-0.814640-0.321639I$	$-0.52886+2.12424I$	0
$u=-0.138187+1.365490I$ $a=-0.470658+0.644285I$ $b=\ \ 1.036310-0.731066I$	$5.34883-2.70325I$	0
$u=-0.138187-1.365490I$ $a=-0.470658-0.644285I$ $b=\ \ 1.036310+0.731066I$	$5.34883+2.70325I$	0
$u=-1.206150+0.670708I$ $a=\ \ 0.608172+0.509443I$ $b=-0.606059+0.130819I$	$-6.10066+2.59329I$	0
$u=-1.206150-0.670708I$ $a=\ \ 0.608172-0.509443I$ $b=-0.606059-0.130819I$	$-6.10066-2.59329I$	0
$u=-0.635659+1.245840I$ $a=\ \ 0.886702+0.620717I$ $b=-2.12868-0.87707I$	$1.98718+12.88950I$	0
$u=-0.635659-1.245840I$ $a=\ \ 0.886702-0.620717I$ $b=-2.12868+0.87707I$	$1.98718-12.88950I$	0
$u=-0.694335+1.218240I$ $a=\ \ 0.726779+0.567265I$ $b=-1.81930-0.63902I$	$-0.87266+9.07868I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.694335-1.218240I$ $a=\ \ 0.726779-0.567265I$ $b=-1.81930+0.63902I$	$-0.87266-9.07868I$	0
$u=-0.631447+1.256290I$ $a=-0.904289-0.657496I$ $b=\ \ 2.14391+0.96340I$	$0.8069+18.9599I$	0
$u=-0.631447-1.256290I$ $a=-0.904289+0.657496I$ $b=\ \ 2.14391-0.96340I$	$0.8069-18.9599I$	0
$u=-0.587391+0.037334I$ $a=-0.021046-1.328720I$ $b=\ \ 0.008378-0.428391I$	$5.05448-2.94618I$	$-3.07738+3.17176I$
$u=-0.587391-0.037334I$ $a=-0.021046+1.328720I$ $b=\ \ 0.008378+0.428391I$	$5.05448+2.94618I$	$-3.07738-3.17176I$
$u=-0.67285+1.26135I$ $a=-0.773811-0.664467I$ $b=\ \ 1.85557+0.90212I$	$-5.45040+12.36210I$	0
$u=-0.67285-1.26135I$ $a=-0.773811+0.664467I$ $b=\ \ 1.85557-0.90212I$	$-5.45040-12.36210I$	0
$u=-0.13532+1.43665I$ $a=\ \ 0.416738-0.663296I$ $b=-0.893009+0.802371I$	$4.09263-8.37531I$	0
$u=-0.13532-1.43665I$ $a=\ \ 0.416738+0.663296I$ $b=-0.893009-0.802371I$	$4.09263+8.37531I$	0
$u=-0.75657+1.23255I$ $a=-0.628948-0.591286I$ $b=\ \ 1.54134+0.61150I$	$-4.00755+4.49447I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.75657-1.23255I$ $a=-0.628948+0.591286I$ $b=\ \ 1.54134-0.61150I$	$-4.00755-4.49447I$	0
$u=\ \ 1.40518+0.43144I$ $a=-0.469825+0.097281I$ $b=\ \ 0.380597-0.039104I$	$-4.48294-3.96522I$	0
$u=\ \ 1.40518-0.43144I$ $a=-0.469825-0.097281I$ $b=\ \ 0.380597+0.039104I$	$-4.48294+3.96522I$	0
$u=-0.134253+0.255202I$ $a=\ \ 0.590793-1.189790I$ $b=-0.219829-0.348173I$	$-0.380823-0.987902I$	$-6.30490+6.80539I$
$u=-0.134253-0.255202I$ $a=\ \ 0.590793+1.189790I$ $b=-0.219829+0.348173I$	$-0.380823+0.987902I$	$-6.30490-6.80539I$

II. $\boldsymbol{I_2^u = \langle -7.60 \times 10^{31} a^{17} u^4 - 1.14 \times 10^{32} a^{16} u^4 + \cdots + 1.79 \times 10^{32} a - 3.77 \times 10^{32},\ -6a^{16}u^4 + a^{15}u^4 + \cdots - 180a + 371,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} a \\ 4.12624a^{17}u^4 + 6.21168a^{16}u^4 + \cdots - 9.72933a + 20.4836 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -4.60935a^{17}u^4 + 9.84481a^{16}u^4 + \cdots + 7.58983a - 12.3949 \\ 8.73559a^{17}u^4 - 3.63312a^{16}u^4 + \cdots - 16.3192a + 32.8786 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 9.19157a^{17}u^4 + 6.07892a^{16}u^4 + \cdots + 9.27627a - 17.7652 \\ -16.3897a^{17}u^4 - 9.68706a^{16}u^4 + \cdots - 11.3448a + 24.8604 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.209327a^{17}u^4 + 8.30382a^{16}u^4 + \cdots - 20.5251a - 19.9539 \\ 7.76784a^{17}u^4 - 5.15782a^{16}u^4 + \cdots + 15.0521a + 8.28362 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a^2u \\ 4.36914a^{17}u^4 + 4.09814a^{16}u^4 + \cdots - 37.3258a - 16.4733 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -a^3u^2 + a \\ 0.797957a^{17}u^4 + 3.82143a^{16}u^4 + \cdots + 6.45135a - 9.14231 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.43152a^{17}u^4 - 3.23675a^{16}u^4 + \cdots - 6.46817a + 9.45064 \\ 5.23364a^{17}u^4 + 2.07480a^{16}u^4 + \cdots - 22.9202a - 23.9576 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 8.03403a^{17}u^4 + 6.34108a^{16}u^4 + \cdots + 13.2142a - 53.5432 \\ -11.0746a^{17}u^4 - 5.17783a^{16}u^4 + \cdots - 7.91911a + 18.8410 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.46989a^{17}u^4 + 15.4911a^{16}u^4 + \cdots - 9.45003a - 119.435$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^{10}$
c_2, c_7	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^{10}$
c_3, c_5, c_{10} c_{11}	$u^{90}+u^{89}+\cdots+651136u+56443$
c_4, c_8	$u^{90}-5u^{89}+\cdots+14948u-2189$
c_9, c_{12}	$(u^5+u^4+2u^3+u^2+u+1)^{18}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^{10}$
c_2, c_7	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^{10}$
c_3, c_5, c_{10} c_{11}	$y^{90} - 65y^{89} + \cdots - 225222871104y + 3185812249$
c_4, c_8	$y^{90} - 13y^{89} + \cdots - 374991552y + 4791721$
c_9, c_{12}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^{18}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.339110+0.822375I$ $a=-0.159381-0.938115I$ $b=\ \ 2.20160+1.42249I$	$-1.00758-5.55435I$	$-9.90808+1.48270I$
$u=-0.339110+0.822375I$ $a=\ \ 0.241894+0.832836I$ $b=-2.08136-1.40087I$	$-0.234353+0.194409I$	$-8.20079-3.72890I$
$u=-0.339110+0.822375I$ $a=-0.433799-1.204420I$ $b=\ \ 2.20036+1.00411I$	$-6.38914-0.56279I$	$-15.9999-0.2678I$
$u=-0.339110+0.822375I$ $a=\ \ 0.826294+0.994064I$ $b=-1.83643-1.14645I$	$-3.40726+1.53058I$	$-6.83254-4.43065I$
$u=-0.339110+0.822375I$ $a=-0.675713-1.117790I$ $b=\ \ 0.491959-1.241640I$	$-0.23435+2.86675I$	$-8.20079-5.13240I$
$u=-0.339110+0.822375I$ $a=\ \ 0.763638+1.143180I$ $b=-0.68839+1.36569I$	$-1.00758+8.61551I$	$-9.9081-10.3440I$
$u=-0.339110+0.822375I$ $a=-0.46396-1.45473I$ $b=\ \ 0.400574-0.166106I$	$-3.40726+1.53058I$	$-6.83254-4.43065I$
$u=-0.339110+0.822375I$ $a=\ \ 1.40909+0.63481I$ $b=-1.91051-1.30463I$	$-0.23435+2.86675I$	$-8.20079-5.13240I$
$u=-0.339110+0.822375I$ $a=\ \ 0.71153+1.38042I$ $b=-1.142030+0.739435I$	$-6.38914+3.62395I$	$-15.9999-8.5935I$
$u=-0.339110+0.822375I$ $a=-0.59104-1.51012I$ $b=\ \ 2.18086+0.22940I$	$-3.98876+3.98500I$	$-13.1570-7.3436I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.339110+0.822375I$ $a=\ \ 0.05470-1.65936I$ $b=-0.581698+0.216015I$	$-0.234353+0.194409I$	$-8.20079-3.72890I$
$u=-0.339110+0.822375I$ $a=\ \ 0.66566+1.53082I$ $b=-1.99721+0.11079I$	$-3.98876-0.92384I$	$-13.15696-1.51767I$
$u=-0.339110+0.822375I$ $a=-1.55709-0.70875I$ $b=\ \ 1.93149+1.36749I$	$-1.00758+8.61551I$	$-9.9081-10.3440I$
$u=-0.339110+0.822375I$ $a=-1.33525-1.17321I$ $b=\ \ 1.67468+1.37611I$	$-6.38914+3.62395I$	$-15.9999-8.5935I$
$u=-0.339110+0.822375I$ $a=-0.07589+1.81158I$ $b=\ \ 0.631901-0.429114I$	$-1.00758-5.55435I$	$-9.90808+1.48270I$
$u=-0.339110+0.822375I$ $a=\ \ 0.37937+1.85940I$ $b=-0.045624-0.663020I$	$-6.38914-0.56279I$	$-15.9999-0.2678I$
$u=-0.339110+0.822375I$ $a=-1.14028-1.77640I$ $b=\ \ 1.06771+1.39994I$	$-3.98876-0.92384I$	$-13.15696-1.51767I$
$u=-0.339110+0.822375I$ $a=\ \ 0.94152+1.91352I$ $b=-0.75943-1.29044I$	$-3.98876+3.98500I$	$-13.1570-7.3436I$
$u=-0.339110-0.822375I$ $a=-0.159381+0.938115I$ $b=\ \ 2.20160-1.42249I$	$-1.00758+5.55435I$	$-9.90808-1.48270I$
$u=-0.339110-0.822375I$ $a=\ \ 0.241894-0.832836I$ $b=-2.08136+1.40087I$	$-0.234353-0.194409I$	$-8.20079+3.72890I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.339110-0.822375I$ $a=-0.433799+1.204420I$ $b=\ \ 2.20036-1.00411I$	$-6.38914+0.56279I$	$-15.9999+0.2678I$
$u=-0.339110-0.822375I$ $a=\ \ 0.826294-0.994064I$ $b=-1.83643+1.14645I$	$-3.40726-1.53058I$	$-6.83254+4.43065I$
$u=-0.339110-0.822375I$ $a=-0.675713+1.117790I$ $b=\ \ 0.491959+1.241640I$	$-0.23435-2.86675I$	$-8.20079+5.13240I$
$u=-0.339110-0.822375I$ $a=\ \ 0.763638-1.143180I$ $b=-0.68839-1.36569I$	$-1.00758-8.61551I$	$-9.9081+10.3440I$
$u=-0.339110-0.822375I$ $a=-0.46396+1.45473I$ $b=\ \ 0.400574+0.166106I$	$-3.40726-1.53058I$	$-6.83254+4.43065I$
$u=-0.339110-0.822375I$ $a=\ \ 1.40909-0.63481I$ $b=-1.91051+1.30463I$	$-0.23435-2.86675I$	$-8.20079+5.13240I$
$u=-0.339110-0.822375I$ $a=\ \ 0.71153-1.38042I$ $b=-1.142030-0.739435I$	$-6.38914-3.62395I$	$-15.9999+8.5935I$
$u=-0.339110-0.822375I$ $a=-0.59104+1.51012I$ $b=\ \ 2.18086-0.22940I$	$-3.98876-3.98500I$	$-13.1570+7.3436I$
$u=-0.339110-0.822375I$ $a=\ \ 0.05470+1.65936I$ $b=-0.581698-0.216015I$	$-0.234353-0.194409I$	$-8.20079+3.72890I$
$u=-0.339110-0.822375I$ $a=\ \ 0.66566-1.53082I$ $b=-1.99721-0.11079I$	$-3.98876+0.92384I$	$-13.15696+1.51767I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.339110-0.822375I$ $a=-1.55709+0.70875I$ $b=\ \ 1.93149-1.36749I$	$-1.00758-8.61551I$	$-9.9081+10.3440I$
$u=-0.339110-0.822375I$ $a=-1.33525+1.17321I$ $b=\ \ 1.67468-1.37611I$	$-6.38914-3.62395I$	$-15.9999+8.5935I$
$u=-0.339110-0.822375I$ $a=-0.07589-1.81158I$ $b=\ \ 0.631901+0.429114I$	$-1.00758+5.55435I$	$-9.90808-1.48270I$
$u=-0.339110-0.822375I$ $a=\ \ 0.37937-1.85940I$ $b=-0.045624+0.663020I$	$-6.38914+0.56279I$	$-15.9999+0.2678I$
$u=-0.339110-0.822375I$ $a=-1.14028+1.77640I$ $b=\ \ 1.06771-1.39994I$	$-3.98876+0.92384I$	$-13.15696+1.51767I$
$u=-0.339110-0.822375I$ $a=\ \ 0.94152-1.91352I$ $b=-0.75943+1.29044I$	$-3.98876-3.98500I$	$-13.1570+7.3436I$
$u=\ \ 0.766826$ $a=\ \ 1.04231$ $b=-0.293152$	-1.33528	-5.86650
$u=\ \ 0.766826$ $a=\ \ 0.255139+0.891085I$ $b=\ \ 0.542272-0.127354I$	$-4.31716-2.09337I$	$-15.0338+4.1628I$
$u=\ \ 0.766826$ $a=\ \ 0.255139-0.891085I$ $b=\ \ 0.542272+0.127354I$	$-4.31716+2.09337I$	$-15.0338-4.1628I$
$u=\ \ 0.766826$ $a=\ \ 0.365127+1.178490I$ $b=-0.659727+0.010033I$	$1.83763+1.33617I$	$-7.23476-0.70175I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.766826$ $a = 0.365127 - 1.178490I$ $b = -0.659727 - 0.010033I$	$1.83763 - 1.33617I$	$-7.23476 + 0.70175I$
$u = 0.766826$ $a = 1.092700 + 0.680242I$ $b = 0.327016 - 0.317666I$	$-1.91678 + 2.45442I$	$-12.19093 - 2.91298I$
$u = 0.766826$ $a = 1.092700 - 0.680242I$ $b = 0.327016 + 0.317666I$	$-1.91678 - 2.45442I$	$-12.19093 + 2.91298I$
$u = 0.766826$ $a = -0.233462 + 1.297460I$ $b = 0.687490 - 0.032594I$	$1.06441 - 7.08493I$	$-8.94206 + 5.91335I$
$u = 0.766826$ $a = -0.233462 - 1.297460I$ $b = 0.687490 + 0.032594I$	$1.06441 + 7.08493I$	$-8.94206 - 5.91335I$
$u = 0.766826$ $a = -1.317380 + 0.494367I$ $b = -0.197748 - 0.358138I$	$-1.91678 + 2.45442I$	$-12.19093 - 2.91298I$
$u = 0.766826$ $a = -1.317380 - 0.494367I$ $b = -0.197748 + 0.358138I$	$-1.91678 - 2.45442I$	$-12.19093 + 2.91298I$
$u = 0.766826$ $a = -1.48255 + 0.08064I$ $b = 0.163914 + 0.338933I$	$-4.31716 + 2.09337I$	$-15.0338 - 4.1628I$
$u = 0.766826$ $a = -1.48255 - 0.08064I$ $b = 0.163914 - 0.338933I$	$-4.31716 - 2.09337I$	$-15.0338 + 4.1628I$
$u = 0.766826$ $a = 1.49907 + 0.55670I$ $b = -0.412827 + 0.367780I$	$1.83763 - 1.33617I$	$-7.23476 + 0.70175I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.766826$ $a = 1.49907 - 0.55670I$ $b = -0.412827 - 0.367780I$	$1.83763 + 1.33617I$	$-7.23476 - 0.70175I$
$u = 0.766826$ $a = -1.62845 + 0.50284I$ $b = 0.383751 + 0.424585I$	$1.06441 + 7.08493I$	$-8.94206 - 5.91335I$
$u = 0.766826$ $a = -1.62845 - 0.50284I$ $b = 0.383751 - 0.424585I$	$1.06441 - 7.08493I$	$-8.94206 + 5.91335I$
$u = 0.766826$ $a = 0.269285$ $b = -0.461468$	-1.33528	-5.86650
$u = 0.455697 + 1.200150I$ $a = 0.922977 - 0.396067I$ $b = -1.52506 + 0.89890I$	$1.55470 - 6.85525I$	$-8.92776 + 6.41156I$
$u = 0.455697 + 1.200150I$ $a = -0.988853 + 0.233381I$ $b = 1.66740 - 0.76733I$	$1.55470 - 1.94642I$	$-8.92776 + 0.58561I$
$u = 0.455697 + 1.200150I$ $a = -0.936941 - 0.257189I$ $b = 1.73242 - 0.16433I$	$-0.84567 - 6.49421I$	$-11.77068 + 7.66142I$
$u = 0.455697 + 1.200150I$ $a = -0.758221 + 0.755620I$ $b = 2.22928 - 1.03996I$	$5.30911 - 5.73700I$	$-3.97159 + 4.20034I$
$u = 0.455697 + 1.200150I$ $a = -0.829482 + 0.392070I$ $b = 1.79638 - 0.03051I$	$5.30911 - 3.06466I$	$-3.97159 + 2.79684I$
$u = 0.455697 + 1.200150I$ $a = 0.733482 - 0.805208I$ $b = -2.25349 + 1.17599I$	$4.53589 - 11.48580I$	$-5.67888 + 9.41193I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.455697 + 1.200150I$ $a = 0.558576 - 0.707002I$ $b = -1.78632 + 1.25144I$	$-0.84567 - 6.49421I$	$-11.77068 + 7.66142I$
$u = 0.455697 + 1.200150I$ $a = 0.913333 + 0.619535I$ $b = -1.78402 - 0.34445I$	$5.30911 - 5.73700I$	$-3.97159 + 4.20034I$
$u = 0.455697 + 1.200150I$ $a = 0.818787 - 0.325128I$ $b = -1.68972 - 0.15275I$	$4.53589 + 2.68409I$	$-5.67888 - 2.41476I$
$u = 0.455697 + 1.200150I$ $a = -0.694071 + 0.542414I$ $b = 1.71362 - 0.74170I$	$2.13621 - 4.40083I$	$-2.60334 + 3.49859I$
$u = 0.455697 + 1.200150I$ $a = 0.001379 - 0.840895I$ $b = 0.400446 + 0.915636I$	$4.53589 + 2.68409I$	$-5.67888 - 2.41476I$
$u = 0.455697 + 1.200150I$ $a = -1.007970 - 0.593699I$ $b = 1.91234 + 0.28273I$	$4.53589 - 11.48580I$	$-5.67888 + 9.41193I$
$u = 0.455697 + 1.200150I$ $a = 0.665928 - 0.482568I$ $b = -1.202420 + 0.542179I$	$-0.84567 - 2.30746I$	$-11.77068 - 0.66425I$
$u = 0.455697 + 1.200150I$ $a = 0.128019 + 0.800850I$ $b = -0.609202 - 0.809409I$	$5.30911 - 3.06466I$	$-3.97159 + 2.79684I$
$u = 0.455697 + 1.200150I$ $a = 0.501872 + 0.361001I$ $b = -1.139350 - 0.040792I$	$2.13621 - 4.40083I$	$-2.60334 + 3.49859I$
$u = 0.455697 + 1.200150I$ $a = 0.212720 - 0.560263I$ $b = -1.06501 + 1.41566I$	$1.55470 - 1.94642I$	$-8.92776 + 0.58561I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.455697 + 1.200150I$ $a = -0.080995 + 0.413435I$ $b = 0.72592 - 1.27915I$	$1.55470 - 6.85525I$	$-8.92776 + 6.41156I$
$u = 0.455697 + 1.200150I$ $a = 0.072163 - 0.244100I$ $b = 0.181505 - 0.164757I$	$-0.84567 - 2.30746I$	$-11.77068 - 0.66425I$
$u = 0.455697 - 1.200150I$ $a = 0.922977 + 0.396067I$ $b = -1.52506 - 0.89890I$	$1.55470 + 6.85525I$	$-8.92776 - 6.41156I$
$u = 0.455697 - 1.200150I$ $a = -0.988853 - 0.233381I$ $b = 1.66740 + 0.76733I$	$1.55470 + 1.94642I$	$-8.92776 - 0.58561I$
$u = 0.455697 - 1.200150I$ $a = -0.936941 + 0.257189I$ $b = 1.73242 + 0.16433I$	$-0.84567 + 6.49421I$	$-11.77068 - 7.66142I$
$u = 0.455697 - 1.200150I$ $a = -0.758221 - 0.755620I$ $b = 2.22928 + 1.03996I$	$5.30911 + 5.73700I$	$-3.97159 - 4.20034I$
$u = 0.455697 - 1.200150I$ $a = -0.829482 - 0.392070I$ $b = 1.79638 + 0.03051I$	$5.30911 + 3.06466I$	$-3.97159 - 2.79684I$
$u = 0.455697 - 1.200150I$ $a = 0.733482 + 0.805208I$ $b = -2.25349 - 1.17599I$	$4.53589 + 11.48580I$	$-5.67888 - 9.41193I$
$u = 0.455697 - 1.200150I$ $a = 0.558576 + 0.707002I$ $b = -1.78632 - 1.25144I$	$-0.84567 + 6.49421I$	$-11.77068 - 7.66142I$
$u = 0.455697 - 1.200150I$ $a = 0.913333 - 0.619535I$ $b = -1.78402 + 0.34445I$	$5.30911 + 5.73700I$	$-3.97159 - 4.20034I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.455697 - 1.200150I$ $a = 0.818787 + 0.325128I$ $b = -1.68972 + 0.15275I$	$4.53589 - 2.68409I$	$-5.67888 + 2.41476I$
$u = 0.455697 - 1.200150I$ $a = -0.694071 - 0.542414I$ $b = 1.71362 + 0.74170I$	$2.13621 + 4.40083I$	$-2.60334 - 3.49859I$
$u = 0.455697 - 1.200150I$ $a = 0.001379 + 0.840895I$ $b = 0.400446 - 0.915636I$	$4.53589 - 2.68409I$	$-5.67888 + 2.41476I$
$u = 0.455697 - 1.200150I$ $a = -1.007970 + 0.593699I$ $b = 1.91234 - 0.28273I$	$4.53589 + 11.48580I$	$-5.67888 - 9.41193I$
$u = 0.455697 - 1.200150I$ $a = 0.665928 + 0.482568I$ $b = -1.202420 - 0.542179I$	$-0.84567 + 2.30746I$	$-11.77068 + 0.66425I$
$u = 0.455697 - 1.200150I$ $a = 0.128019 - 0.800850I$ $b = -0.609202 + 0.809409I$	$5.30911 + 3.06466I$	$-3.97159 - 2.79684I$
$u = 0.455697 - 1.200150I$ $a = 0.501872 - 0.361001I$ $b = -1.139350 + 0.040792I$	$2.13621 + 4.40083I$	$-2.60334 - 3.49859I$
$u = 0.455697 - 1.200150I$ $a = 0.212720 + 0.560263I$ $b = -1.06501 - 1.41566I$	$1.55470 + 1.94642I$	$-8.92776 - 0.58561I$
$u = 0.455697 - 1.200150I$ $a = -0.080995 - 0.413435I$ $b = 0.72592 + 1.27915I$	$1.55470 + 6.85525I$	$-8.92776 - 6.41156I$
$u = 0.455697 - 1.200150I$ $a = 0.072163 + 0.244100I$ $b = 0.181505 + 0.164757I$	$-0.84567 + 2.30746I$	$-11.77068 + 0.66425I$

III. $I_3^u = \langle -27u^{30} + 186u^{29} + \cdots + b + 53,\ -29u^{30} + 147u^{29} + \cdots + a - 64,\ u^{31} - 6u^{30} + \cdots + 5u^2 + 1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} 29u^{30} - 147u^{29} + \cdots + 62u + 64 \\ 27u^{30} - 186u^{29} + \cdots + 67u - 53 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 53u^{30} - 291u^{29} + \cdots + 118u + 67 \\ 3u^{30} - 42u^{29} + \cdots + 11u - 56 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 26u^{30} - 115u^{29} + \cdots + 54u + 96 \\ 13u^{30} - 109u^{29} + \cdots + 38u - 70 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^{30} + 4u^{29} + \cdots + 2u^2 + 5u \\ 2u^{29} - 11u^{28} + \cdots + 10u^2 + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2u^{30} + 12u^{29} + \cdots - 6u - 1 \\ u^{30} - 5u^{29} + \cdots + u + 2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 39u^{30} - 250u^{29} + \cdots + 103u - 45 \\ -14u^{30} + 74u^{29} + \cdots - 52u - 20 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 5u^{30} - 5u^{29} + \cdots + 3u + 33 \\ 19u^{30} - 136u^{29} + \cdots + 29u - 28 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 99u^{30} - 631u^{29} + \cdots + 199u - 74 \\ -66u^{30} + 379u^{29} + \cdots - 125u - 38 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= 49u^{30} - 273u^{29} + 1084u^{28} - 3026u^{27} + 6936u^{26} - 13201u^{25} + 21850u^{24} - 31895u^{23} + 41936u^{22} - 50212u^{21} + 56147u^{20} - 58806u^{19} + 61042u^{18} - 60923u^{17} + 63755u^{16} - 63049u^{15} + 64699u^{14} - 59739u^{13} + 54253u^{12} - 43083u^{11} + 31547u^{10} - 19891u^9 + 10451u^8 - 4037u^7 + 951u^6 + 852u^5 - 239u^4 + 704u^3 + 112u^2 + 122u + 48$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{31} - 12u^{30} + \cdots - 11u + 1$
c_2	$u^{31} + 6u^{29} + \cdots - u - 1$
c_3, c_{10}	$u^{31} - u^{30} + \cdots - 12u^2 + 1$
c_4, c_8	$u^{31} + u^{30} + \cdots - 5u + 1$
c_5, c_{11}	$u^{31} + u^{30} + \cdots + 12u^2 - 1$
c_7	$u^{31} + 6u^{29} + \cdots - u + 1$
c_9	$u^{31} - 6u^{30} + \cdots + 5u^2 + 1$
c_{12}	$u^{31} + 6u^{30} + \cdots - 5u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{31} + 24y^{30} + \cdots - 7y - 1$
c_2, c_7	$y^{31} + 12y^{30} + \cdots - 11y - 1$
c_3, c_5, c_{10} c_{11}	$y^{31} - 31y^{30} + \cdots + 24y - 1$
c_4, c_8	$y^{31} - y^{30} + \cdots + 15y - 1$
c_9, c_{12}	$y^{31} + 14y^{30} + \cdots - 10y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.459042+0.885968I$ $a=\ \ 0.66742+1.28471I$ $b=-1.101300-0.666053I$	$-5.12765+0.63375I$	$-12.91314-3.32588I$
$u=-0.459042-0.885968I$ $a=\ \ 0.66742-1.28471I$ $b=-1.101300+0.666053I$	$-5.12765-0.63375I$	$-12.91314+3.32588I$
$u=-0.910027+0.469262I$ $a=-1.083780-0.561867I$ $b=\ \ 0.838410+0.209768I$	$-6.72856+3.62519I$	$-15.3022-5.1774I$
$u=-0.910027-0.469262I$ $a=-1.083780+0.561867I$ $b=\ \ 0.838410-0.209768I$	$-6.72856-3.62519I$	$-15.3022+5.1774I$
$u=-0.254395+0.921565I$ $a=\ \ 0.55786+1.67354I$ $b=-1.51644-0.94842I$	$-3.08305+3.62047I$	$-3.09630-3.18908I$
$u=-0.254395-0.921565I$ $a=\ \ 0.55786-1.67354I$ $b=-1.51644+0.94842I$	$-3.08305-3.62047I$	$-3.09630+3.18908I$
$u=-0.223360+0.892887I$ $a=-0.63773-1.74218I$ $b=\ \ 1.66500+0.86994I$	$-3.24957-1.50729I$	$-4.29080+4.53649I$
$u=-0.223360-0.892887I$ $a=-0.63773+1.74218I$ $b=\ \ 1.66500-0.86994I$	$-3.24957+1.50729I$	$-4.29080-4.53649I$
$u=\ \ 0.861990+0.256573I$ $a=-0.736061+0.232711I$ $b=-0.060451+0.234245I$	$-2.22256+0.26900I$	$-14.6220-0.6133I$
$u=\ \ 0.861990-0.256573I$ $a=-0.736061-0.232711I$ $b=-0.060451-0.234245I$	$-2.22256-0.26900I$	$-14.6220+0.6133I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.624295 + 1.009080I$ $a = 0.389479 - 0.202152I$ $b = -1.56560 - 0.16523I$	$6.54911 - 5.82818I$	$-2.29348 + 1.65957I$
$u = 0.624295 - 1.009080I$ $a = 0.389479 + 0.202152I$ $b = -1.56560 + 0.16523I$	$6.54911 + 5.82818I$	$-2.29348 - 1.65957I$
$u = 0.666516 + 0.984333I$ $a = -0.376732 + 0.224711I$ $b = 1.38836 + 0.33452I$	$6.39787 + 0.56133I$	$0. - 1.71473I$
$u = 0.666516 - 0.984333I$ $a = -0.376732 - 0.224711I$ $b = 1.38836 - 0.33452I$	$6.39787 - 0.56133I$	$0. + 1.71473I$
$u = -0.196339 + 0.748104I$ $a = -0.88657 - 1.70534I$ $b = 1.65086 + 0.35906I$	$-6.16160 + 2.57607I$	$-13.79197 - 0.41948I$
$u = -0.196339 - 0.748104I$ $a = -0.88657 + 1.70534I$ $b = 1.65086 - 0.35906I$	$-6.16160 - 2.57607I$	$-13.79197 + 0.41948I$
$u = 0.465869 + 1.145850I$ $a = 0.547252 - 0.215334I$ $b = -1.45049 + 0.72438I$	$0.49691 - 4.90600I$	$-10.08446 + 4.73623I$
$u = 0.465869 - 1.145850I$ $a = 0.547252 + 0.215334I$ $b = -1.45049 - 0.72438I$	$0.49691 + 4.90600I$	$-10.08446 - 4.73623I$
$u = 0.333943 + 1.214950I$ $a = 0.675048 - 0.339836I$ $b = -1.18894 + 1.12319I$	$2.74395 - 3.01097I$	$-3.73651 + 4.44126I$
$u = 0.333943 - 1.214950I$ $a = 0.675048 + 0.339836I$ $b = -1.18894 - 1.12319I$	$2.74395 + 3.01097I$	$-3.73651 - 4.44126I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.010200+0.692049I$ $a=-0.84194-1.68217I$ $b=\ \ 1.79006-0.22353I$	$-0.71851+7.06631I$	$-7.40121-5.99406I$
$u=-0.010200-0.692049I$ $a=-0.84194+1.68217I$ $b=\ \ 1.79006+0.22353I$	$-0.71851-7.06631I$	$-7.40121+5.99406I$
$u=\ \ 0.310933+1.272960I$ $a=-0.644596+0.419130I$ $b=\ \ 1.00682-1.13016I$	$2.15172-8.27104I$	$-6.85296+10.55351I$
$u=\ \ 0.310933-1.272960I$ $a=-0.644596-0.419130I$ $b=\ \ 1.00682+1.13016I$	$2.15172+8.27104I$	$-6.85296-10.55351I$
$u=\ \ 0.016871+0.640170I$ $a=\ \ 0.73258+1.71602I$ $b=-1.63369+0.30390I$	$-0.065094+1.253440I$	$-6.70977-1.20907I$
$u=\ \ 0.016871-0.640170I$ $a=\ \ 0.73258-1.71602I$ $b=-1.63369-0.30390I$	$-0.065094-1.253440I$	$-6.70977+1.20907I$
$u=\ \ 0.55032+1.33102I$ $a=-0.464049+0.326781I$ $b=\ \ 0.953107-0.583162I$	$-0.92392-3.22479I$	0
$u=\ \ 0.55032-1.33102I$ $a=-0.464049-0.326781I$ $b=\ \ 0.953107+0.583162I$	$-0.92392+3.22479I$	0
$u=\ \ 1.39919+0.42826I$ $a=\ \ 0.478721-0.120013I$ $b=-0.250928-0.094841I$	$-4.58206-3.79705I$	$-23.1475+0.I$
$u=\ \ 1.39919-0.42826I$ $a=\ \ 0.478721+0.120013I$ $b=-0.250928+0.094841I$	$-4.58206+3.79705I$	$-23.1475+0.I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.353120$		
$a=\ \ 3.24616$	-3.85267	-9.93580
$b=-1.04956$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^{10}$ $\cdot(u^{31}-12u^{30}+\cdots-11u+1)(u^{45}+15u^{44}+\cdots-1536u-1024)$
c_2	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^{10}$ $\cdot(u^{31}+6u^{29}+\cdots-u-1)(u^{45}+11u^{44}+\cdots+128u+32)$
c_3, c_{10}	$(u^{31}-u^{30}+\cdots-12u^2+1)(u^{45}+u^{44}+\cdots+4u+1)$ $\cdot(u^{90}+u^{89}+\cdots+651136u+56443)$
c_4, c_8	$(u^{31}+u^{30}+\cdots-5u+1)(u^{45}-u^{44}+\cdots-5u+1)$ $\cdot(u^{90}-5u^{89}+\cdots+14948u-2189)$
c_5, c_{11}	$(u^{31}+u^{30}+\cdots+12u^2-1)(u^{45}+u^{44}+\cdots+4u+1)$ $\cdot(u^{90}+u^{89}+\cdots+651136u+56443)$
c_7	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^{10}$ $\cdot(u^{31}+6u^{29}+\cdots-u+1)(u^{45}+11u^{44}+\cdots+128u+32)$
c_9	$((u^5+u^4+2u^3+u^2+u+1)^{18})(u^{31}-6u^{30}+\cdots+5u^2+1)$ $\cdot(u^{45}-21u^{44}+\cdots-9728u+512)$
c_{12}	$((u^5+u^4+2u^3+u^2+u+1)^{18})(u^{31}+6u^{30}+\cdots-5u^2-1)$ $\cdot(u^{45}-21u^{44}+\cdots-9728u+512)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^{10}$ $\cdot(y^{31}+24y^{30}+\cdots-7y-1)$ $\cdot(y^{45}+31y^{44}+\cdots+9830400y-1048576)$
c_2, c_7	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^{10}$ $\cdot(y^{31}+12y^{30}+\cdots-11y-1)(y^{45}+15y^{44}+\cdots-1536y-1024)$
c_3, c_5, c_{10} c_{11}	$(y^{31}-31y^{30}+\cdots+24y-1)(y^{45}-25y^{44}+\cdots+8y-1)$ $\cdot(y^{90}-65y^{89}+\cdots-225222871104y+3185812249)$
c_4, c_8	$(y^{31}-y^{30}+\cdots+15y-1)(y^{45}+29y^{44}+\cdots+71y-1)$ $\cdot(y^{90}-13y^{89}+\cdots-374991552y+4791721)$
c_9, c_{12}	$((y^5+3y^4+4y^3+y^2-y-1)^{18})(y^{31}+14y^{30}+\cdots-10y-1)$ $\cdot(y^{45}+17y^{44}+\cdots-3407872y-262144)$