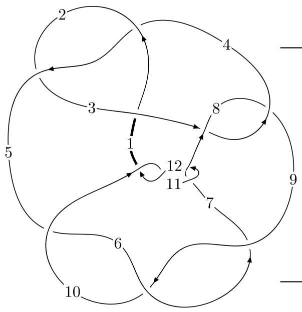
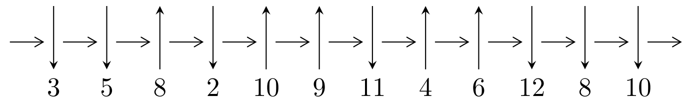
$12n_{0181}$ ($K12n_{0181}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -2.89597 \times 10^{103} u^{52} + 7.97404 \times 10^{103} u^{51} + \cdots + 3.42001 \times 10^{105} b - 2.68164 \times 10^{105}, \\
& -2.24253 \times 10^{103} u^{52} + 6.90313 \times 10^{103} u^{51} + \cdots + 1.36801 \times 10^{105} a - 2.45570 \times 10^{105}, \\
& u^{53} - 3u^{52} + \cdots - 49u + 49 \rangle \\
I_2^u = \langle & -1878a^5 u + 2600a^4 u + \cdots + 23830a - 8647, \\
& a^6 - 3a^5 u - 4a^5 + 7a^4 u - a^4 - a^3 u - 3a^3 + 9a^2 u + 5a^2 - 6au + 2a + u,\ u^2 + 1 \rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 65 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. $\boldsymbol{I_1^u = \langle -2.90\times 10^{103}u^{52} + 7.97\times 10^{103}u^{51} + \cdots + 3.42\times 10^{105}b - 2.68\times 10^{105},\ -2.24\times 10^{103}u^{52} + 6.90\times 10^{103}u^{51} + \cdots + 1.37\times 10^{105}a - 2.46\times 10^{105},\ u^{53} - 3u^{52} + \cdots - 49u + 49\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 0.0163927u^{52} - 0.0504613u^{51} + \cdots + 4.67289u + 1.79509 \\ 0.00846773u^{52} - 0.0233158u^{51} + \cdots + 3.33538u + 0.784101 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.0248604u^{52} - 0.0737771u^{51} + \cdots + 8.00826u + 2.57919 \\ 0.00846773u^{52} - 0.0233158u^{51} + \cdots + 3.33538u + 0.784101 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00350318u^{52} + 0.0151353u^{51} + \cdots - 5.53251u + 4.45074 \\ 0.00290112u^{52} - 0.00548627u^{51} + \cdots - 1.43147u + 1.55122 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0134120u^{52} + 0.0381751u^{51} + \cdots - 12.1908u + 0.357746 \\ -0.00827306u^{52} + 0.0265007u^{51} + \cdots - 4.74375u + 0.368964 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} 0.0238148u^{52} - 0.0757412u^{51} + \cdots + 15.3375u - 0.149255 \\ 0.0114699u^{52} - 0.0338179u^{51} + \cdots + 7.34993u - 0.181045 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.00350318u^{52} + 0.0151353u^{51} + \cdots - 5.53251u + 4.45074 \\ 0.00182181u^{52} - 0.00371679u^{51} + \cdots - 1.82979u + 1.77789 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0209597u^{52} + 0.0608672u^{51} + \cdots - 11.6241u - 1.93839 \\ -0.00957219u^{52} + 0.0293318u^{51} + \cdots - 5.11792u - 0.541740 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0668454u^{52} - 0.159654u^{51} + \cdots + 29.7015u + 4.20227$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{53} + 33u^{52} + \cdots - 47u + 1$
c_2, c_4	$u^{53} - 5u^{52} + \cdots - u + 1$
c_3, c_8	$u^{53} + u^{52} + \cdots - 3u + 1$
c_5, c_6, c_9	$u^{53} + 3u^{52} + \cdots - 49u - 49$
c_7, c_{11}	$u^{53} + 3u^{52} + \cdots - 55u - 17$
c_{10}, c_{12}	$u^{53} + 31u^{52} + \cdots - 613u + 289$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{53} - 21y^{52} + \cdots + 1053y - 1$
c_2, c_4	$y^{53} - 33y^{52} + \cdots - 47y - 1$
c_3, c_8	$y^{53} - 9y^{52} + \cdots + 25y - 1$
c_5, c_6, c_9	$y^{53} + 63y^{52} + \cdots - 67963y - 2401$
c_7, c_{11}	$y^{53} - 31y^{52} + \cdots - 613y - 289$
c_{10}, c_{12}	$y^{53} - 11y^{52} + \cdots + 7632559y - 83521$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.595173 + 0.790194I$ $a = 0.44043 + 1.93505I$ $b = -1.210360 - 0.280896I$	$-4.60939 - 3.81170I$	$-6.73528 + 3.84171I$
$u = -0.595173 - 0.790194I$ $a = 0.44043 - 1.93505I$ $b = -1.210360 + 0.280896I$	$-4.60939 + 3.81170I$	$-6.73528 - 3.84171I$
$u = -0.065051 + 1.017050I$ $a = -3.30036 + 7.32048I$ $b = -1.027960 + 0.007177I$	$-3.35538 + 2.03910I$	$49.7365 + 13.7735I$
$u = -0.065051 - 1.017050I$ $a = -3.30036 - 7.32048I$ $b = -1.027960 - 0.007177I$	$-3.35538 - 2.03910I$	$49.7365 - 13.7735I$
$u = 0.416693 + 0.950759I$ $a = 1.024360 + 0.862942I$ $b = -0.965495 - 0.409417I$	$-4.11133 + 1.46427I$	$-9.04772 - 2.35631I$
$u = 0.416693 - 0.950759I$ $a = 1.024360 - 0.862942I$ $b = -0.965495 + 0.409417I$	$-4.11133 - 1.46427I$	$-9.04772 + 2.35631I$
$u = 0.729736 + 0.532396I$ $a = 0.16697 - 1.52278I$ $b = -0.010061 + 0.720357I$	$-1.31363 + 5.14831I$	$-1.33330 - 6.61182I$
$u = 0.729736 - 0.532396I$ $a = 0.16697 + 1.52278I$ $b = -0.010061 - 0.720357I$	$-1.31363 - 5.14831I$	$-1.33330 + 6.61182I$
$u = -0.215243 + 1.119870I$ $a = 0.188281 - 1.006360I$ $b = 0.752530 + 0.810688I$	$0.48114 - 2.27755I$	0
$u = -0.215243 - 1.119870I$ $a = 0.188281 + 1.006360I$ $b = 0.752530 - 0.810688I$	$0.48114 + 2.27755I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.103946 + 1.148880I$ $a = 0.680955 - 0.103748I$ $b = 0.041239 - 0.173602I$	$-1.46943 - 2.21311I$	0
$u = -0.103946 - 1.148880I$ $a = 0.680955 + 0.103748I$ $b = 0.041239 + 0.173602I$	$-1.46943 + 2.21311I$	0
$u = -0.212301 + 1.239690I$ $a = -0.226559 + 0.777926I$ $b = 1.017950 - 0.818402I$	$-0.28600 + 3.82525I$	0
$u = -0.212301 - 1.239690I$ $a = -0.226559 - 0.777926I$ $b = 1.017950 + 0.818402I$	$-0.28600 - 3.82525I$	0
$u = -0.614853 + 0.330857I$ $a = 0.124371 + 0.894782I$ $b = 0.214005 - 0.481317I$	$1.20368 - 0.96438I$	$4.48379 + 2.13228I$
$u = -0.614853 - 0.330857I$ $a = 0.124371 - 0.894782I$ $b = 0.214005 + 0.481317I$	$1.20368 + 0.96438I$	$4.48379 - 2.13228I$
$u = -0.973061 + 0.866281I$ $a = -0.168964 - 0.836441I$ $b = 1.065960 + 0.284444I$	$-1.16177 - 4.11245I$	0
$u = -0.973061 - 0.866281I$ $a = -0.168964 + 0.836441I$ $b = 1.065960 - 0.284444I$	$-1.16177 + 4.11245I$	0
$u = 1.156780 + 0.633760I$ $a = -0.556768 + 1.051180I$ $b = 1.251690 - 0.389157I$	$-5.12630 + 9.25985I$	0
$u = 1.156780 - 0.633760I$ $a = -0.556768 - 1.051180I$ $b = 1.251690 + 0.389157I$	$-5.12630 - 9.25985I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.200767 + 0.612944I$ $a = 1.72350 - 1.16204I$ $b = -0.266010 + 0.219165I$	$-1.61832 - 1.52147I$	$-1.349487 - 0.343641I$
$u = 0.200767 - 0.612944I$ $a = 1.72350 + 1.16204I$ $b = -0.266010 - 0.219165I$	$-1.61832 + 1.52147I$	$-1.349487 + 0.343641I$
$u = 0.215983 + 0.479163I$ $a = 0.36339 - 2.19939I$ $b = -1.001170 + 0.213875I$	$-1.87227 + 0.78178I$	$-5.10778 + 0.42163I$
$u = 0.215983 - 0.479163I$ $a = 0.36339 + 2.19939I$ $b = -1.001170 - 0.213875I$	$-1.87227 - 0.78178I$	$-5.10778 - 0.42163I$
$u = -0.520458$ $a = 0.390996$ $b = -1.18658$	-2.71524	0.0344960
$u = -0.358766 + 0.278704I$ $a = -0.700349 - 0.576141I$ $b = 0.792821 - 0.657219I$	$3.09917 + 0.31720I$	$4.50890 + 0.69651I$
$u = -0.358766 - 0.278704I$ $a = -0.700349 + 0.576141I$ $b = 0.792821 + 0.657219I$	$3.09917 - 0.31720I$	$4.50890 - 0.69651I$
$u = -0.17201 + 1.54745I$ $a = -0.061046 + 0.762953I$ $b = 0.008072 - 1.011800I$	$-5.20565 - 3.69410I$	0
$u = -0.17201 - 1.54745I$ $a = -0.061046 - 0.762953I$ $b = 0.008072 + 1.011800I$	$-5.20565 + 3.69410I$	0
$u = 1.28535 + 0.92715I$ $a = -0.443268 + 0.275722I$ $b = 1.172440 + 0.025439I$	$-5.51056 - 1.44071I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.28535 - 0.92715I$ $a = -0.443268 - 0.275722I$ $b = 1.172440 - 0.025439I$	$-5.51056 + 1.44071I$	0
$u = 0.372202 + 0.136798I$ $a = 1.90070 + 2.55797I$ $b = -0.643573 - 0.317372I$	$-1.22108 - 1.50910I$	$-1.59355 + 4.23824I$
$u = 0.372202 - 0.136798I$ $a = 1.90070 - 2.55797I$ $b = -0.643573 + 0.317372I$	$-1.22108 + 1.50910I$	$-1.59355 - 4.23824I$
$u = 0.05090 + 1.61029I$ $a = -0.299743 - 0.901123I$ $b = -1.32748 + 0.50601I$	$-9.35172 + 1.68194I$	0
$u = 0.05090 - 1.61029I$ $a = -0.299743 + 0.901123I$ $b = -1.32748 - 0.50601I$	$-9.35172 - 1.68194I$	0
$u = 0.27323 + 1.60285I$ $a = -0.259024 - 0.912712I$ $b = 0.100537 + 1.137500I$	$-8.46780 + 9.00006I$	0
$u = 0.27323 - 1.60285I$ $a = -0.259024 + 0.912712I$ $b = 0.100537 - 1.137500I$	$-8.46780 - 9.00006I$	0
$u = 0.03952 + 1.64660I$ $a = 0.182459 - 0.963991I$ $b = -0.203341 + 1.088210I$	$-9.72111 - 0.68351I$	0
$u = 0.03952 - 1.64660I$ $a = 0.182459 + 0.963991I$ $b = -0.203341 - 1.088210I$	$-9.72111 + 0.68351I$	0
$u = -0.17859 + 1.67997I$ $a = -0.076726 + 1.173520I$ $b = -1.31892 - 0.63562I$	$-13.1597 - 6.8790I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.17859 - 1.67997I$ $a = -0.076726 - 1.173520I$ $b = -1.31892 + 0.63562I$	$-13.1597 + 6.8790I$	0
$u = 0.08259 + 1.69794I$ $a = -0.054404 + 0.572818I$ $b = -1.45600 - 0.45286I$	$-13.53370 + 3.26626I$	0
$u = 0.08259 - 1.69794I$ $a = -0.054404 - 0.572818I$ $b = -1.45600 + 0.45286I$	$-13.53370 - 3.26626I$	0
$u = 0.42803 + 1.65107I$ $a = 0.184242 + 1.247230I$ $b = 1.35580 - 0.58825I$	$-12.4103 + 15.1230I$	0
$u = 0.42803 - 1.65107I$ $a = 0.184242 - 1.247230I$ $b = 1.35580 + 0.58825I$	$-12.4103 - 15.1230I$	0
$u = -0.33416 + 1.67478I$ $a = 0.281652 - 1.015890I$ $b = 1.33173 + 0.51061I$	$-9.32017 - 9.12278I$	0
$u = -0.33416 - 1.67478I$ $a = 0.281652 + 1.015890I$ $b = 1.33173 - 0.51061I$	$-9.32017 + 9.12278I$	0
$u = -0.014001 + 0.282926I$ $a = 2.23005 + 0.68964I$ $b = 0.877923 + 0.687381I$	$2.87265 - 4.91482I$	$4.21582 + 6.57376I$
$u = -0.014001 - 0.282926I$ $a = 2.23005 - 0.68964I$ $b = 0.877923 - 0.687381I$	$2.87265 + 4.91482I$	$4.21582 - 6.57376I$
$u = 0.07007 + 1.82145I$ $a = 0.350617 - 0.045144I$ $b = 1.120840 + 0.120521I$	$-4.27518 - 3.61779I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.07007-1.82145I$		
$a=$	$0.350617+0.045144I$	$-4.27518+3.61779I$	0
$b=$	$1.120840-0.120521I$		
$u=$	$0.27553+1.82009I$		
$a=$	$0.038306+0.719874I$	$-15.0358+4.4925I$	0
$b=$	$1.42013-0.39452I$		
$u=$	$0.27553-1.82009I$		
$a=$	$0.038306-0.719874I$	$-15.0358-4.4925I$	0
$b=$	$1.42013+0.39452I$		

II. $\boldsymbol{I_2^u = \langle -1878a^5u + 2600a^4u + \cdots + 23830a - 8647,\ -3a^5u + 7a^4u + \cdots + 5a^2 + 2a,\ u^2 + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ 0.313575a^5u - 0.434129a^4u + \cdots - 3.97896a + 1.44381 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.313575a^5u - 0.434129a^4u + \cdots - 2.97896a + 1.44381 \\ 0.313575a^5u - 0.434129a^4u + \cdots - 3.97896a + 1.44381 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.230422a^5u - 0.782267a^4u + \cdots - 1.18901a + 0.965103 \\ -0.165136a^5u + 0.977292a^4u + \cdots + 0.0687928a + 1.64168 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.183336a^5u - 0.225413a^4u + \cdots + 3.74169a - 0.115712 \\ -0.478711a^5u + 1.41142a^4u + \cdots + 4.04775a - 0.802137 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.0719653a^5u + 0.813157a^4u + \cdots - 0.816330a - 0.315913 \\ -0.231758a^5u + 0.583904a^4u + \cdots + 0.201703a + 0.493071 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.230422a^5u - 0.782267a^4u + \cdots - 1.18901a + 0.965103 \\ 0.0652864a^5u + 0.195024a^4u + \cdots - 1.12022a + 2.60678 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.230422a^5u - 0.782267a^4u + \cdots - 1.18901a + 0.965103 \\ 0.00250459a^5u - 0.128068a^4u + \cdots + 0.476206a + 1.14093 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{9236}{5989}a^5u - \frac{3388}{5989}a^5 - \frac{29880}{5989}a^4u + \frac{35892}{5989}a^4 - \frac{2204}{5989}a^3u - \frac{43908}{5989}a^3 - \frac{72924}{5989}a^2u + \frac{25744}{5989}a^2 + \frac{27704}{5989}au - \frac{75764}{5989}a - \frac{12196}{5989}u - \frac{5756}{5989}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.450984 - 1.062990I$ $b = 0.877439 + 0.744862I$	$1.37919 - 4.85801I$	$-2.49024 + 6.44355I$
$u = 1.000000I$ $a = 0.696107 + 0.426734I$ $b = 0.877439 - 0.744862I$	$1.37919 + 4.85801I$	$-2.49024 - 6.44355I$
$u = 1.000000I$ $a = -0.258387 + 1.162360I$ $b = -0.754878$	$-2.75839 - 2.02988I$	$-9.01951 + 3.46410I$
$u = 1.000000I$ $a = 0.111295 + 1.400630I$ $b = 0.877439 - 0.744862I$	$1.37919 + 0.79824I$	$-2.49024 + 0.48465I$
$u = 1.000000I$ $a = 0.133827 - 0.089093I$ $b = 0.877439 + 0.744862I$	$1.37919 - 0.79824I$	$-2.49024 - 0.48465I$
$u = 1.000000I$ $a = 3.76814 + 1.16236I$ $b = -0.754878$	$-2.75839 + 2.02988I$	$-9.01951 - 3.46410I$
$u = -1.000000I$ $a = -0.450984 + 1.062990I$ $b = 0.877439 - 0.744862I$	$1.37919 + 4.85801I$	$-2.49024 - 6.44355I$
$u = -1.000000I$ $a = 0.696107 - 0.426734I$ $b = 0.877439 + 0.744862I$	$1.37919 - 4.85801I$	$-2.49024 + 6.44355I$
$u = -1.000000I$ $a = -0.258387 - 1.162360I$ $b = -0.754878$	$-2.75839 + 2.02988I$	$-9.01951 - 3.46410I$
$u = -1.000000I$ $a = 0.111295 - 1.400630I$ $b = 0.877439 + 0.744862I$	$1.37919 - 0.79824I$	$-2.49024 - 0.48465I$

Solutions to I_2^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$-1.000000I$		
$a =$	$0.133827 + 0.089093I$	$1.37919 + 0.79824I$	$-2.49024 + 0.48465I$
$b =$	$0.877439 - 0.744862I$		
$u =$	$-1.000000I$		
$a =$	$3.76814 - 1.16236I$	$-2.75839 - 2.02988I$	$-9.01951 + 3.46410I$
$b =$	-0.754878		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^3 - u^2 + 2u - 1)^4)(u^{53} + 33u^{52} + \cdots - 47u + 1)$
c_2	$((u^3 + u^2 - 1)^4)(u^{53} - 5u^{52} + \cdots - u + 1)$
c_3, c_8	$((u^6 - 3u^4 + 2u^2 + 1)^2)(u^{53} + u^{52} + \cdots - 3u + 1)$
c_4	$((u^3 - u^2 + 1)^4)(u^{53} - 5u^{52} + \cdots - u + 1)$
c_5, c_6, c_9	$((u^2 + 1)^6)(u^{53} + 3u^{52} + \cdots - 49u - 49)$
c_7, c_{11}	$((u^4 - u^2 + 1)^3)(u^{53} + 3u^{52} + \cdots - 55u - 17)$
c_{10}	$((u^2 - u + 1)^6)(u^{53} + 31u^{52} + \cdots - 613u + 289)$
c_{12}	$((u^2 + u + 1)^6)(u^{53} + 31u^{52} + \cdots - 613u + 289)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^3+3y^2+2y-1)^4)(y^{53}-21y^{52}+\cdots+1053y-1)$
c_2, c_4	$((y^3-y^2+2y-1)^4)(y^{53}-33y^{52}+\cdots-47y-1)$
c_3, c_8	$((y^3-3y^2+2y+1)^4)(y^{53}-9y^{52}+\cdots+25y-1)$
c_5, c_6, c_9	$((y+1)^{12})(y^{53}+63y^{52}+\cdots-67963y-2401)$
c_7, c_{11}	$((y^2-y+1)^6)(y^{53}-31y^{52}+\cdots-613y-289)$
c_{10}, c_{12}	$((y^2+y+1)^6)(y^{53}-11y^{52}+\cdots+7632559y-83521)$