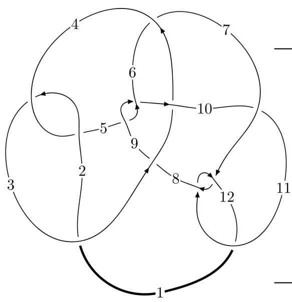
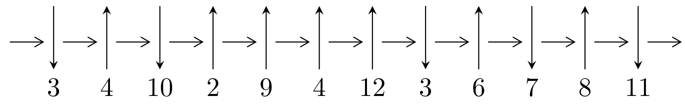
$12n_{0271}$ $(K12n_{0271})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.10894 \times 10^{29} u^{39} + 1.76613 \times 10^{30} u^{38} + \cdots + 3.90907 \times 10^{30} b + 1.29800 \times 10^{31},$$
$$- 5.78629 \times 10^{30} u^{39} - 1.35625 \times 10^{31} u^{38} + \cdots + 1.95453 \times 10^{30} a - 1.20066 \times 10^{30},\ u^{40} + 2u^{39} + \cdots - 2u -$$
$$I_2^u = \langle b^4 - 8b^3 u + 4b^3 + 2b^2 u - 18b^2 + 20bu - 4b - 4u + 7,\ a + u - 1,\ u^2 - u + 1\rangle$$
$$I_3^u = \langle b^3 + 6b^2 u + 3b^2 - 9b - 6u - 3,\ a - u - 1,\ u^2 + u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 54 representations.

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[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.

$\boldsymbol{I^u_1 = \langle 2.11\times10^{29}u^{39}+1.77\times10^{30}u^{38}+\cdots+3.91\times10^{30}b+1.30\times10^{31},\ -5.79\times10^{30}u^{39}-1.36\times10^{31}u^{38}+\cdots+1.95\times10^{30}a-1.20\times10^{30},\ u^{40}+2u^{39}+\cdots-2u+1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2.96044u^{39} + 6.93899u^{38} + \cdots + 26.8232u + 0.614297 \\ -0.0539500u^{39} - 0.451804u^{38} + \cdots - 0.947110u - 3.32050 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2.92788u^{39} + 6.66255u^{38} + \cdots + 26.8003u - 1.68810 \\ -0.0424279u^{39} - 0.410687u^{38} + \cdots - 1.33715u - 3.10919 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 3.86426u^{39} + 7.66563u^{38} + \cdots + 30.4928u - 10.5738 \\ 0.320422u^{39} + 0.529059u^{38} + \cdots - 0.339238u - 2.95540 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.97656u^{39} + 3.87161u^{38} + \cdots + 21.4803u - 4.58523 \\ 0.944726u^{39} + 1.94465u^{38} + \cdots + 5.22209u - 2.88878 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.92129u^{39} + 5.81625u^{38} + \cdots + 26.7024u - 7.47401 \\ 0.944726u^{39} + 1.94465u^{38} + \cdots + 5.22209u - 2.88878 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1.93457u^{39} + 2.86642u^{38} + \cdots + 4.61941u - 15.8609 \\ -0.942390u^{39} - 2.36759u^{38} + \cdots - 11.6667u - 2.35706 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3.91026u^{39} + 8.38086u^{38} + \cdots + 29.6027u + 1.57860$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{40} + 56u^{39} + \cdots + 84u + 1$
c_2, c_4	$u^{40} - 8u^{39} + \cdots - 28u + 1$
c_3	$u^{40} + 2u^{39} + \cdots - 2u + 1$
c_5, c_9	$u^{40} - 3u^{39} + \cdots + 43u + 13$
c_6	$u^{40} + 4u^{39} + \cdots + 18344u + 4339$
c_7, c_{11}	$u^{40} - u^{39} + \cdots - 12u + 4$
c_8	$u^{40} - 44u^{38} + \cdots - 2449090u + 232661$
c_{10}	$u^{40} + u^{39} + \cdots - 36u + 4$
c_{12}	$u^{40} + 25u^{39} + \cdots + 80u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{40} - 136y^{39} + \cdots + 23220y + 1$
c_2, c_4	$y^{40} + 56y^{39} + \cdots + 84y + 1$
c_3	$y^{40} + 8y^{39} + \cdots + 28y + 1$
c_5, c_9	$y^{40} - 5y^{39} + \cdots + 2779y + 169$
c_6	$y^{40} + 40y^{39} + \cdots - 166465604y + 18826921$
c_7, c_{11}	$y^{40} + 25y^{39} + \cdots + 80y + 16$
c_8	$y^{40} - 88y^{39} + \cdots - 1066872899128y + 54131140921$
c_{10}	$y^{40} - 55y^{39} + \cdots - 112y + 16$
c_{12}	$y^{40} - 15y^{39} + \cdots - 2816y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.764187+0.653787I$ $a=\ \ 0.315530-0.761484I$ $b=\ \ 0.186332+0.279615I$	$-1.47509+2.25056I$	$0.06495-2.95440I$
$u=-0.764187-0.653787I$ $a=\ \ 0.315530+0.761484I$ $b=\ \ 0.186332-0.279615I$	$-1.47509-2.25056I$	$0.06495+2.95440I$
$u=-0.213036+0.949581I$ $a=-0.140457+1.057230I$ $b=-0.04726-2.29506I$	$1.94553+4.51368I$	$6.38970-7.82355I$
$u=-0.213036-0.949581I$ $a=-0.140457-1.057230I$ $b=-0.04726+2.29506I$	$1.94553-4.51368I$	$6.38970+7.82355I$
$u=\ \ 0.955003+0.516879I$ $a=\ \ 0.487517+0.951136I$ $b=-0.146437+0.072845I$	$-6.22578+0.90518I$	$-4.74646-0.36762I$
$u=\ \ 0.955003-0.516879I$ $a=\ \ 0.487517-0.951136I$ $b=-0.146437-0.072845I$	$-6.22578-0.90518I$	$-4.74646+0.36762I$
$u=-0.444049+0.991733I$ $a=\ \ 0.526547+0.513973I$ $b=-0.30344-1.55709I$	$0.55266+1.44737I$	$-0.667154+0.069332I$
$u=-0.444049-0.991733I$ $a=\ \ 0.526547-0.513973I$ $b=-0.30344+1.55709I$	$0.55266-1.44737I$	$-0.667154-0.069332I$
$u=\ \ 0.670524+0.887860I$ $a=\ \ 0.748302-0.870483I$ $b=\ \ 0.20959+1.99021I$	$0.22448-2.62080I$	$-1.03330+3.61519I$
$u=\ \ 0.670524-0.887860I$ $a=\ \ 0.748302+0.870483I$ $b=\ \ 0.20959-1.99021I$	$0.22448+2.62080I$	$-1.03330-3.61519I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.808131 + 0.773706I$		
$a = 0.177775 + 0.864533I$	$-3.58036 - 7.21978I$	$-1.70984 + 7.47042I$
$b = 0.140485 - 0.763458I$		
$u = 0.808131 - 0.773706I$		
$a = 0.177775 - 0.864533I$	$-3.58036 + 7.21978I$	$-1.70984 - 7.47042I$
$b = 0.140485 + 0.763458I$		
$u = -0.500435 + 1.020290I$		
$a = -0.288714 + 0.431513I$	$-0.11396 + 2.62702I$	$1.21166 - 3.80016I$
$b = 0.79094 - 1.35172I$		
$u = -0.500435 - 1.020290I$		
$a = -0.288714 - 0.431513I$	$-0.11396 - 2.62702I$	$1.21166 + 3.80016I$
$b = 0.79094 + 1.35172I$		
$u = 0.601637 + 0.967840I$		
$a = -0.452431 - 0.174923I$	$-2.80937 + 1.79823I$	$-2.49074 - 1.24106I$
$b = 0.779446 + 0.975335I$		
$u = 0.601637 - 0.967840I$		
$a = -0.452431 + 0.174923I$	$-2.80937 - 1.79823I$	$-2.49074 + 1.24106I$
$b = 0.779446 - 0.975335I$		
$u = -0.737881 + 0.290228I$		
$a = 0.95910 + 1.11896I$	$-1.82966 + 2.58669I$	$-3.19003 - 3.49376I$
$b = 0.508089 - 0.650289I$		
$u = -0.737881 - 0.290228I$		
$a = 0.95910 - 1.11896I$	$-1.82966 - 2.58669I$	$-3.19003 + 3.49376I$
$b = 0.508089 + 0.650289I$		
$u = 0.178235 + 0.755403I$		
$a = -0.004535 - 1.355120I$	$2.74915 - 0.87130I$	$9.38374 - 0.76428I$
$b = -0.53972 + 1.87193I$		
$u = 0.178235 - 0.755403I$		
$a = -0.004535 + 1.355120I$	$2.74915 + 0.87130I$	$9.38374 + 0.76428I$
$b = -0.53972 - 1.87193I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.526875 + 1.146360I$ $a = -0.507182 - 0.577873I$ $b = 1.35004 + 1.47812I$	$-3.91478 - 6.46553I$	$-1.90714 + 6.14891I$
$u = 0.526875 - 1.146360I$ $a = -0.507182 + 0.577873I$ $b = 1.35004 - 1.47812I$	$-3.91478 + 6.46553I$	$-1.90714 - 6.14891I$
$u = -0.332002 + 0.640935I$ $a = 0.522256 - 0.170528I$ $b = 0.045479 - 0.256841I$	$-0.02195 + 1.48740I$	$0.17371 - 4.94146I$
$u = -0.332002 - 0.640935I$ $a = 0.522256 + 0.170528I$ $b = 0.045479 + 0.256841I$	$-0.02195 - 1.48740I$	$0.17371 + 4.94146I$
$u = 1.030620 + 0.897013I$ $a = -1.173260 - 0.172864I$ $b = 0.179150 - 1.015860I$	$-11.47200 + 0.66922I$	0
$u = 1.030620 - 0.897013I$ $a = -1.173260 + 0.172864I$ $b = 0.179150 + 1.015860I$	$-11.47200 - 0.66922I$	0
$u = -1.073240 + 0.852439I$ $a = -1.229830 + 0.153303I$ $b = -0.092752 + 1.188350I$	$-15.3931 - 6.0460I$	0
$u = -1.073240 - 0.852439I$ $a = -1.229830 - 0.153303I$ $b = -0.092752 - 1.188350I$	$-15.3931 + 6.0460I$	0
$u = 0.926096 + 1.056710I$ $a = 0.023831 + 1.156260I$ $b = -1.21185 - 2.24051I$	$-10.92760 - 7.82692I$	0
$u = 0.926096 - 1.056710I$ $a = 0.023831 - 1.156260I$ $b = -1.21185 + 2.24051I$	$-10.92760 + 7.82692I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.04261 + 0.96199I$ $a = -1.160190 + 0.237458I$ $b = 0.515590 + 1.140420I$	$-15.7491 + 4.5181I$	0
$u = -1.04261 - 0.96199I$ $a = -1.160190 - 0.237458I$ $b = 0.515590 - 1.140420I$	$-15.7491 - 4.5181I$	0
$u = -0.90713 + 1.09807I$ $a = -0.010802 - 1.172610I$ $b = -1.27643 + 2.56164I$	$-14.5518 + 13.2615I$	0
$u = -0.90713 - 1.09807I$ $a = -0.010802 + 1.172610I$ $b = -1.27643 - 2.56164I$	$-14.5518 - 13.2615I$	0
$u = -0.98478 + 1.04683I$ $a = 0.065240 - 1.184100I$ $b = -1.50476 + 1.94665I$	$-15.4588 + 2.8896I$	0
$u = -0.98478 - 1.04683I$ $a = 0.065240 + 1.184100I$ $b = -1.50476 - 1.94665I$	$-15.4588 - 2.8896I$	0
$u = 0.162466 + 0.376483I$ $a = 0.55787 - 2.40002I$ $b = -0.720369 + 0.864698I$	$1.74484 - 0.37727I$	$6.34033 + 0.02713I$
$u = 0.162466 - 0.376483I$ $a = 0.55787 + 2.40002I$ $b = -0.720369 - 0.864698I$	$1.74484 + 0.37727I$	$6.34033 - 0.02713I$
$u = 0.139759 + 0.272112I$ $a = -1.91657 + 2.94354I$ $b = -1.36214 - 0.47472I$	$-0.74436 - 3.76425I$	$2.15171 + 3.16942I$
$u = 0.139759 - 0.272112I$ $a = -1.91657 - 2.94354I$ $b = -1.36214 + 0.47472I$	$-0.74436 + 3.76425I$	$2.15171 - 3.16942I$

II. $\boldsymbol{I_2^u = \langle -8b^3u + 2b^2u + \cdots - 4b + 7,\ a + u - 1,\ u^2 - u + 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u + 1 \\ b \end{pmatrix}$$

$$a_7 = \begin{pmatrix} b - 2u + 1 \\ bu + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -b^2u + 2bu - 4b + 3u \\ -b^2u + b^2 - 2bu - b + 2u - 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u - 1 \\ -b + u \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} -2b^2u + 4bu - 8b + 4u + 2 \\ b^3u - b^3 + b^2u + 4b^2 - 9bu + 3b + 2u - 4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4b^2u - 4b^2 + 8bu + 8b - 8u + 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4	$(y^2 + y + 1)^4$
c_5, c_9	$(y - 1)^8$
c_6, c_8	$y^8 + 8y^7 + 46y^6 + 160y^5 + 387y^4 - 160y^3 + 46y^2 - 8y + 1$
c_7, c_{11}	$(y^2 + 2y + 2)^4$
c_{10}	$(y^2 - 2y + 2)^4$
c_{12}	$(y^2 + 4)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.500000 - 0.866025I$ $b = 0.943461 + 1.008110I$	$-0.82247 - 5.69375I$	$2.00000 + 7.46410I$
$u = 0.500000 + 0.866025I$ $a = 0.500000 - 0.866025I$ $b = 0.155223 + 0.553018I$	$-0.82247 + 1.63398I$	$2.00000 - 0.53590I$
$u = 0.500000 + 0.866025I$ $a = 0.500000 - 0.866025I$ $b = -0.94346 + 2.45599I$	$-0.82247 - 5.69375I$	$2.00000 + 7.46410I$
$u = 0.500000 + 0.866025I$ $a = 0.500000 - 0.866025I$ $b = -0.15522 + 2.91108I$	$-0.82247 + 1.63398I$	$2.00000 - 0.53590I$
$u = 0.500000 - 0.866025I$ $a = 0.500000 + 0.866025I$ $b = 0.943461 - 1.008110I$	$-0.82247 + 5.69375I$	$2.00000 - 7.46410I$
$u = 0.500000 - 0.866025I$ $a = 0.500000 + 0.866025I$ $b = 0.155223 - 0.553018I$	$-0.82247 - 1.63398I$	$2.00000 + 0.53590I$
$u = 0.500000 - 0.866025I$ $a = 0.500000 + 0.866025I$ $b = -0.94346 - 2.45599I$	$-0.82247 + 5.69375I$	$2.00000 - 7.46410I$
$u = 0.500000 - 0.866025I$ $a = 0.500000 + 0.866025I$ $b = -0.15522 - 2.91108I$	$-0.82247 - 1.63398I$	$2.00000 + 0.53590I$

III. $I_3^u = \langle b^3 + 6b^2u + 3b^2 - 9b - 6u - 3,\ a - u - 1,\ u^2 + u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2b^2u + 2b^2 + 4bu - 4b - 10u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0.500000 + 0.866025I$ $b = -1.73205I$	$1.64493 + 2.02988I$	$6.00000 - 3.46410I$
$u = -0.500000 + 0.866025I$ $a = 0.500000 + 0.866025I$ $b = -1.73205I$	$1.64493 + 2.02988I$	$6.00000 - 3.46410I$
$u = -0.500000 + 0.866025I$ $a = 0.500000 + 0.866025I$ $b = -1.73205I$	$1.64493 + 2.02988I$	$6.00000 - 3.46410I$
$u = -0.500000 - 0.866025I$ $a = 0.500000 - 0.866025I$ $b = 1.73205I$	$1.64493 - 2.02988I$	$6.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = 0.500000 - 0.866025I$ $b = 1.73205I$	$1.64493 - 2.02988I$	$6.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = 0.500000 - 0.866025I$ $b = 1.73205I$	$1.64493 - 2.02988I$	$6.00000 + 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^7)(u^{40}+56u^{39}+\cdots+84u+1)$
c_2	$((u^2+u+1)^7)(u^{40}-8u^{39}+\cdots-28u+1)$
c_3	$((u^2-u+1)^4)(u^2+u+1)^3(u^{40}+2u^{39}+\cdots-2u+1)$
c_4	$((u^2-u+1)^7)(u^{40}-8u^{39}+\cdots-28u+1)$
c_5	$((u-1)^8)(u+1)^6(u^{40}-3u^{39}+\cdots+43u+13)$
c_6	$(u^2-u+1)^3(u^8-4u^7+12u^6-16u^5+15u^4+8u^3-4u^2+1)$ $\cdot(u^{40}+4u^{39}+\cdots+18344u+4339)$
c_7, c_{11}	$u^6(u^4+2u^2+2)^2(u^{40}-u^{39}+\cdots-12u+4)$
c_8	$(u^2-u+1)^3(u^8+4u^7+12u^6+16u^5+15u^4-8u^3-4u^2+1)$ $\cdot(u^{40}-44u^{38}+\cdots-2449090u+232661)$
c_9	$((u-1)^6)(u+1)^8(u^{40}-3u^{39}+\cdots+43u+13)$
c_{10}	$u^6(u^4-2u^2+2)^2(u^{40}+u^{39}+\cdots-36u+4)$
c_{12}	$u^6(u^2+2u+2)^4(u^{40}+25u^{39}+\cdots+80u+16)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^7)(y^{40}-136y^{39}+\cdots+23220y+1)$
c_2, c_4	$((y^2+y+1)^7)(y^{40}+56y^{39}+\cdots+84y+1)$
c_3	$((y^2+y+1)^7)(y^{40}+8y^{39}+\cdots+28y+1)$
c_5, c_9	$((y-1)^{14})(y^{40}-5y^{39}+\cdots+2779y+169)$
c_6	$(y^2+y+1)^3$ $\cdot(y^8+8y^7+46y^6+160y^5+387y^4-160y^3+46y^2-8y+1)$ $\cdot(y^{40}+40y^{39}+\cdots-166465604y+18826921)$
c_7, c_{11}	$y^6(y^2+2y+2)^4(y^{40}+25y^{39}+\cdots+80y+16)$
c_8	$(y^2+y+1)^3$ $\cdot(y^8+8y^7+46y^6+160y^5+387y^4-160y^3+46y^2-8y+1)$ $\cdot(y^{40}-88y^{39}+\cdots-1066872899128y+54131140921)$
c_{10}	$y^6(y^2-2y+2)^4(y^{40}-55y^{39}+\cdots-112y+16)$
c_{12}	$y^6(y^2+4)^4(y^{40}-15y^{39}+\cdots-2816y+256)$