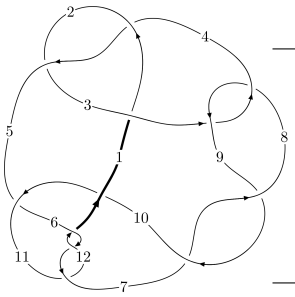
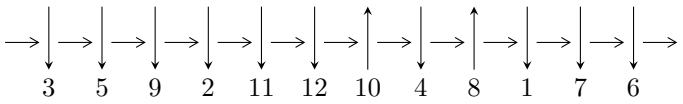
$12a_{0159}$ $(K12a_{0159})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{80} - 2u^{79} + \cdots + b - 1,\ -u^{45} - 20u^{43} + \cdots + a - 2,\ u^{81} - 2u^{80} + \cdots - u + 1 \rangle$$
$$I_2^u = \langle -2u^2 + b - 2u - 2,\ -u^2 + a - 1,\ u^3 + u^2 + 2u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 84 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.

$$\boldsymbol{I_1^u = \langle u^{80}-2u^{79}+\cdots+b-1,\ -u^{45}-20u^{43}+\cdots+a-2,\ u^{81}-2u^{80}+\cdots-u+1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} u^{45}+20u^{43}+\cdots-u+2 \\ -u^{80}+2u^{79}+\cdots-u+1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3+2u \\ u^3+u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{80}-u^{79}+\cdots-2u+1 \\ -u^{53}-23u^{51}+\cdots+4u^2-u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{80}-u^{79}+\cdots+3u-2 \\ 2u^{80}-4u^{79}+\cdots+2u-2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^6-3u^4-2u^2+1 \\ -u^8-4u^6-4u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{13}+6u^{11}+13u^9+10u^7-2u^5-4u^3+u \\ u^{15}+7u^{13}+18u^{11}+19u^9+4u^7-4u^5+u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{20}-9u^{18}+\cdots-u^2+1 \\ -u^{22}-10u^{20}+\cdots-6u^4+u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{80}-2u^{79}+\cdots+14u-13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{81}+46u^{80}+\cdots+24u+1$
c_2, c_4	$u^{81}-4u^{80}+\cdots-12u^2+1$
c_3, c_8	$u^{81}-u^{80}+\cdots+12u+8$
c_5	$u^{81}+2u^{80}+\cdots-43u+17$
c_6, c_{11}, c_{12}	$u^{81}-2u^{80}+\cdots-u+1$
c_7, c_9	$u^{81}-21u^{80}+\cdots-752u+64$
c_{10}	$u^{81}-20u^{80}+\cdots-343u+19$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{81} - 18y^{80} + \cdots + 460y - 1$
c_2, c_4	$y^{81} - 46y^{80} + \cdots + 24y - 1$
c_3, c_8	$y^{81} + 21y^{80} + \cdots - 752y - 64$
c_5	$y^{81} - 8y^{80} + \cdots - 1245y - 289$
c_6, c_{11}, c_{12}	$y^{81} + 72y^{80} + \cdots + 11y - 1$
c_7, c_9	$y^{81} + 73y^{80} + \cdots + 118016y - 4096$
c_{10}	$y^{81} + 4y^{80} + \cdots - 14021y - 361$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.303170+0.945098I$ $a=-0.25327-2.53154I$ $b=-0.672053+0.231950I$	$-5.77830+7.46778I$	0
$u=-0.303170-0.945098I$ $a=-0.25327+2.53154I$ $b=-0.672053-0.231950I$	$-5.77830-7.46778I$	0
$u=-0.247473+0.919700I$ $a=\ \ 0.535003-0.348621I$ $b=-0.604404-0.273353I$	$-2.29387+2.82287I$	0
$u=-0.247473-0.919700I$ $a=\ \ 0.535003+0.348621I$ $b=-0.604404+0.273353I$	$-2.29387-2.82287I$	0
$u=\ \ 0.270652+0.876959I$ $a=\ \ 0.04945+2.65701I$ $b=-0.360007-0.114986I$	$-6.07844-1.32566I$	$-11.28844+0.I$
$u=\ \ 0.270652-0.876959I$ $a=\ \ 0.04945-2.65701I$ $b=-0.360007+0.114986I$	$-6.07844+1.32566I$	$-11.28844+0.I$
$u=-0.281291+0.845764I$ $a=\ \ 1.02701+2.86058I$ $b=\ \ 1.361880-0.185998I$	$-6.03068-1.59014I$	$-11.18638+0.I$
$u=-0.281291-0.845764I$ $a=\ \ 1.02701-2.86058I$ $b=\ \ 1.361880+0.185998I$	$-6.03068+1.59014I$	$-11.18638+0.I$
$u=\ \ 0.346370+0.811440I$ $a=\ \ 0.82935-2.96214I$ $b=\ \ 1.341850-0.112388I$	$-5.49518+7.85390I$	$-10.12792-4.44787I$
$u=\ \ 0.346370-0.811440I$ $a=\ \ 0.82935+2.96214I$ $b=\ \ 1.341850+0.112388I$	$-5.49518-7.85390I$	$-10.12792+4.44787I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.289974 + 0.797976I$ $a = 0.674590 + 0.182571I$ $b = -0.432715 + 0.241146I$	$-2.12042 + 3.02576I$	$-7.01113 - 1.60503I$
$u = 0.289974 - 0.797976I$ $a = 0.674590 - 0.182571I$ $b = -0.432715 - 0.241146I$	$-2.12042 - 3.02576I$	$-7.01113 + 1.60503I$
$u = 0.752560 + 0.251187I$ $a = -4.05489 + 0.08335I$ $b = -3.13602 - 0.13798I$	$-7.35624 - 11.91150I$	$-12.6732 + 9.0421I$
$u = 0.752560 - 0.251187I$ $a = -4.05489 - 0.08335I$ $b = -3.13602 + 0.13798I$	$-7.35624 + 11.91150I$	$-12.6732 - 9.0421I$
$u = -0.219870 + 1.189280I$ $a = -0.413984 - 1.123960I$ $b = -1.04512 + 1.25784I$	$1.12936 + 4.60878I$	0
$u = -0.219870 - 1.189280I$ $a = -0.413984 + 1.123960I$ $b = -1.04512 - 1.25784I$	$1.12936 - 4.60878I$	0
$u = -0.755022 + 0.193964I$ $a = 3.02006 - 0.86714I$ $b = 2.29261 - 0.23467I$	$-8.11616 - 3.50154I$	$-14.0566 + 2.3476I$
$u = -0.755022 - 0.193964I$ $a = 3.02006 + 0.86714I$ $b = 2.29261 + 0.23467I$	$-8.11616 + 3.50154I$	$-14.0566 - 2.3476I$
$u = 0.735753 + 0.244806I$ $a = 0.373365 + 0.673804I$ $b = 0.339700 + 0.852192I$	$-3.98935 - 6.91470I$	$-9.71071 + 6.26433I$
$u = 0.735753 - 0.244806I$ $a = 0.373365 - 0.673804I$ $b = 0.339700 - 0.852192I$	$-3.98935 + 6.91470I$	$-9.71071 - 6.26433I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.738922+0.231068I$ $a=-4.21182-0.51748I$ $b=-3.24525-0.13613I$	$-8.03409+5.47694I$	$-13.9444-4.7227I$
$u=-0.738922-0.231068I$ $a=-4.21182+0.51748I$ $b=-3.24525+0.13613I$	$-8.03409-5.47694I$	$-13.9444+4.7227I$
$u=0.737771+0.220516I$ $a=2.94150+1.15749I$ $b=2.23096+0.39996I$	$-8.17510-2.53314I$	$-14.1431+3.4480I$
$u=0.737771-0.220516I$ $a=2.94150-1.15749I$ $b=2.23096-0.39996I$	$-8.17510+2.53314I$	$-14.1431-3.4480I$
$u=-0.729425+0.205364I$ $a=0.667285-0.705734I$ $b=0.523998-0.848028I$	$-4.51674+0.94829I$	$-10.85953-1.20447I$
$u=-0.729425-0.205364I$ $a=0.667285+0.705734I$ $b=0.523998+0.848028I$	$-4.51674-0.94829I$	$-10.85953+1.20447I$
$u=0.059550+1.270820I$ $a=0.365987+0.264958I$ $b=-0.87854-2.17817I$	$0.489163-1.113280I$	0
$u=0.059550-1.270820I$ $a=0.365987-0.264958I$ $b=-0.87854+2.17817I$	$0.489163+1.113280I$	0
$u=0.644664+0.307621I$ $a=-2.00622+0.71203I$ $b=-1.87711+0.34103I$	$0.80619-6.96807I$	$-7.43117+9.89323I$
$u=0.644664-0.307621I$ $a=-2.00622-0.71203I$ $b=-1.87711-0.34103I$	$0.80619+6.96807I$	$-7.43117-9.89323I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.686300+0.060020I$ $a=\ \ 2.02694-0.13374I$ $b=\ \ 1.69352+0.12385I$	$-2.25856-1.25913I$	$-10.34603+5.18490I$
$u=-0.686300-0.060020I$ $a=\ \ 2.02694+0.13374I$ $b=\ \ 1.69352-0.12385I$	$-2.25856+1.25913I$	$-10.34603-5.18490I$
$u=-0.261073+1.293880I$ $a=-0.731555-0.804325I$ $b=-1.88353+0.90574I$	$1.94624+2.16799I$	0
$u=-0.261073-1.293880I$ $a=-0.731555+0.804325I$ $b=-1.88353-0.90574I$	$1.94624-2.16799I$	0
$u=-0.139892+1.312790I$ $a=-0.595311-0.245748I$ $b=-0.507967+0.428038I$	$3.30113+2.08996I$	0
$u=-0.139892-1.312790I$ $a=-0.595311+0.245748I$ $b=-0.507967-0.428038I$	$3.30113-2.08996I$	0
$u=\ \ 0.580222+0.318959I$ $a=\ \ 0.515067-0.446557I$ $b=\ \ 0.337288+0.302817I$	$2.24419-2.41279I$	$-3.70773+4.77664I$
$u=\ \ 0.580222-0.318959I$ $a=\ \ 0.515067+0.446557I$ $b=\ \ 0.337288-0.302817I$	$2.24419+2.41279I$	$-3.70773-4.77664I$
$u=\ \ 0.389422+0.511342I$ $a=\ \ 0.74082-2.00362I$ $b=\ \ 0.637861-0.068396I$	$1.73888+3.42569I$	$-4.42143-3.64386I$
$u=\ \ 0.389422-0.511342I$ $a=\ \ 0.74082+2.00362I$ $b=\ \ 0.637861+0.068396I$	$1.73888-3.42569I$	$-4.42143+3.64386I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.026303+1.378390I$ $a=\ \ 0.535969-0.756911I$ $b=-0.79945-2.55508I$	$0.535961-1.295870I$	0
$u=-0.026303-1.378390I$ $a=\ \ 0.535969+0.756911I$ $b=-0.79945+2.55508I$	$0.535961+1.295870I$	0
$u=-0.570968+0.236387I$ $a=-1.18110-2.38772I$ $b=-1.46997-1.37738I$	$-1.74111+2.68316I$	$-11.58262-7.10742I$
$u=-0.570968-0.236387I$ $a=-1.18110+2.38772I$ $b=-1.46997+1.37738I$	$-1.74111-2.68316I$	$-11.58262+7.10742I$
$u=\ \ 0.214093+1.367380I$ $a=-0.964506+0.271292I$ $b=-2.25687-1.90809I$	$2.33114-3.63921I$	0
$u=\ \ 0.214093-1.367380I$ $a=-0.964506-0.271292I$ $b=-2.25687+1.90809I$	$2.33114+3.63921I$	0
$u=-0.184866+1.372520I$ $a=-0.150775-1.243160I$ $b=-1.290460-0.203550I$	$4.04253+2.04762I$	0
$u=-0.184866-1.372520I$ $a=-0.150775+1.243160I$ $b=-1.290460+0.203550I$	$4.04253-2.04762I$	0
$u=\ \ 0.454129+0.406277I$ $a=\ \ 0.140115+0.400135I$ $b=-0.588763+0.305661I$	$2.70212-0.89217I$	$-1.88644+3.94554I$
$u=\ \ 0.454129-0.406277I$ $a=\ \ 0.140115-0.400135I$ $b=-0.588763-0.305661I$	$2.70212+0.89217I$	$-1.88644-3.94554I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.227268+1.384710I$ $a=-0.70564+1.36224I$ $b=\ \ 2.31741+1.20265I$	$3.41623+5.63034I$	0
$u=-0.227268-1.384710I$ $a=-0.70564-1.36224I$ $b=\ \ 2.31741-1.20265I$	$3.41623-5.63034I$	0
$u=\ \ 0.058949+1.403140I$ $a=-0.564202+0.061085I$ $b=-0.362720+0.064411I$	$4.40636+2.36000I$	0
$u=\ \ 0.058949-1.403140I$ $a=-0.564202-0.061085I$ $b=-0.362720-0.064411I$	$4.40636-2.36000I$	0
$u=-0.307736+1.371980I$ $a=-1.41322-0.94843I$ $b=-3.11493+1.01818I$	$-3.16321+0.34097I$	0
$u=-0.307736-1.371980I$ $a=-1.41322+0.94843I$ $b=-3.11493-1.01818I$	$-3.16321-0.34097I$	0
$u=-0.291935+1.378820I$ $a=-0.583757-0.184539I$ $b=-0.322980+1.150050I$	$0.50629+4.64622I$	0
$u=-0.291935-1.378820I$ $a=-0.583757+0.184539I$ $b=-0.322980-1.150050I$	$0.50629-4.64622I$	0
$u=\ \ 0.29661+1.38705I$ $a=-1.50990+0.79089I$ $b=-3.18883-1.28149I$	$-3.07190-6.28041I$	0
$u=\ \ 0.29661-1.38705I$ $a=-1.50990-0.79089I$ $b=-3.18883+1.28149I$	$-3.07190+6.28041I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.29687+1.39267I$ $a=\ \ 1.23387+2.17578I$ $b=\ \ 4.30478-0.47648I$	$-2.87452+9.23128I$	0
$u=-0.29687-1.39267I$ $a=\ \ 1.23387-2.17578I$ $b=\ \ 4.30478+0.47648I$	$-2.87452-9.23128I$	0
$u=\ \ 0.14620+1.41735I$ $a=\ \ 0.468326+1.016910I$ $b=-0.419905+1.289510I$	$7.71851+1.51368I$	0
$u=\ \ 0.14620-1.41735I$ $a=\ \ 0.468326-1.016910I$ $b=-0.419905-1.289510I$	$7.71851-1.51368I$	0
$u=\ \ 0.17731+1.41424I$ $a=-0.448378-0.259715I$ $b=\ \ 0.811395-0.078619I$	$8.43425-3.23109I$	0
$u=\ \ 0.17731-1.41424I$ $a=-0.448378+0.259715I$ $b=\ \ 0.811395+0.078619I$	$8.43425+3.23109I$	0
$u=\ \ 0.22643+1.41073I$ $a=-0.036185+0.526813I$ $b=-0.153015-0.205765I$	$7.75107-5.38299I$	0
$u=\ \ 0.22643-1.41073I$ $a=-0.036185-0.526813I$ $b=-0.153015+0.205765I$	$7.75107+5.38299I$	0
$u=\ \ 0.29459+1.39947I$ $a=-0.466152+0.047964I$ $b=-0.080806-1.167720I$	$1.24235-10.65260I$	0
$u=\ \ 0.29459-1.39947I$ $a=-0.466152-0.047964I$ $b=-0.080806+1.167720I$	$1.24235+10.65260I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.04309 + 1.43084I$ $a = 0.481844 + 1.023950I$ $b = -0.45938 + 2.60498I$	$1.40847 + 7.12491I$	0
$u = 0.04309 - 1.43084I$ $a = 0.481844 - 1.023950I$ $b = -0.45938 - 2.60498I$	$1.40847 - 7.12491I$	0
$u = 0.24843 + 1.41440I$ $a = 0.278489 - 1.225380I$ $b = 2.76694 + 0.12099I$	$6.30245 - 10.22720I$	0
$u = 0.24843 - 1.41440I$ $a = 0.278489 + 1.225380I$ $b = 2.76694 - 0.12099I$	$6.30245 + 10.22720I$	0
$u = 0.30236 + 1.40391I$ $a = 1.41089 - 1.92508I$ $b = 4.19154 + 0.76251I$	$-2.0894 - 15.7358I$	0
$u = 0.30236 - 1.40391I$ $a = 1.41089 + 1.92508I$ $b = 4.19154 - 0.76251I$	$-2.0894 + 15.7358I$	0
$u = 0.535981 + 0.166151I$ $a = 1.29238 + 1.15292I$ $b = 1.48920 + 0.28452I$	$-2.56849 - 0.86668I$	$-9.60348 + 7.99695I$
$u = 0.535981 - 0.166151I$ $a = 1.29238 - 1.15292I$ $b = 1.48920 - 0.28452I$	$-2.56849 + 0.86668I$	$-9.60348 - 7.99695I$
$u = -0.450084$ $a = 1.27417$ $b = 0.474666$	-0.785177	-12.4930
$u = -0.311691 + 0.237796I$ $a = 2.54548 + 1.18039I$ $b = 0.772534 - 0.284479I$	$-0.982567 - 0.143355I$	$-9.20077 - 1.52940I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.311691-0.237796I$		
$a=\ 2.54548-1.18039I$	$-0.982567+0.143355I$	$-9.20077+1.52940I$
$b=\ 0.772534+0.284479I$		

II. $I_2^u = \langle -2u^2 + b - 2u - 2,\ -u^2 + a - 1,\ u^3 + u^2 + 2u + 1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

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

$$a_5 = \begin{pmatrix} -u^2 - 1 \\ -u^2 - u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ u^2 + u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ u^2 + u + 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^2 - 4u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=-0.662359-0.562280I$ $b=-1.75488+1.48972I$	$1.37919+2.82812I$	$-10.15260-3.54173I$
$u=-0.215080-1.307140I$ $a=-0.662359+0.562280I$ $b=-1.75488-1.48972I$	$1.37919-2.82812I$	$-10.15260+3.54173I$
$u=-0.569840$ $a=\ \ 1.32472$ $b=\ \ 1.50976$	-2.75839	-14.6950

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{81}+46u^{80}+\cdots+24u+1)$
c_2	$((u-1)^3)(u^{81}-4u^{80}+\cdots-12u^2+1)$
c_3, c_8	$u^3(u^{81}-u^{80}+\cdots+12u+8)$
c_4	$((u+1)^3)(u^{81}-4u^{80}+\cdots-12u^2+1)$
c_5	$(u^3+u^2-1)(u^{81}+2u^{80}+\cdots-43u+17)$
c_6	$(u^3-u^2+2u-1)(u^{81}-2u^{80}+\cdots-u+1)$
c_7, c_9	$u^3(u^{81}-21u^{80}+\cdots-752u+64)$
c_{10}	$(u^3+u^2-1)(u^{81}-20u^{80}+\cdots-343u+19)$
c_{11}, c_{12}	$(u^3+u^2+2u+1)(u^{81}-2u^{80}+\cdots-u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^3)(y^{81}-18y^{80}+\cdots+460y-1)$
c_2, c_4	$((y-1)^3)(y^{81}-46y^{80}+\cdots+24y-1)$
c_3, c_8	$y^3(y^{81}+21y^{80}+\cdots-752y-64)$
c_5	$(y^3-y^2+2y-1)(y^{81}-8y^{80}+\cdots-1245y-289)$
c_6, c_{11}, c_{12}	$(y^3+3y^2+2y-1)(y^{81}+72y^{80}+\cdots+11y-1)$
c_7, c_9	$y^3(y^{81}+73y^{80}+\cdots+118016y-4096)$
c_{10}	$(y^3-y^2+2y-1)(y^{81}+4y^{80}+\cdots-14021y-361)$