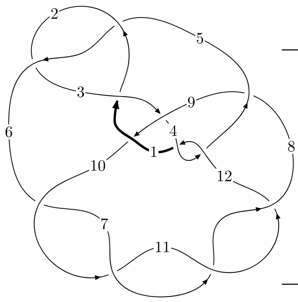
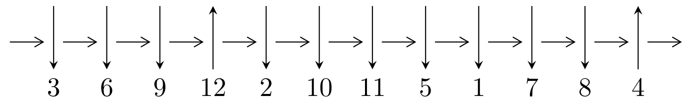
$12a_{0409}$ $(K12a_{0409})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1.36563 \times 10^{102} u^{76} - 6.07669 \times 10^{102} u^{75} + \cdots + 1.56636 \times 10^{101} b - 2.53112 \times 10^{102},$$
$$1.74520 \times 10^{103} u^{76} - 7.65702 \times 10^{103} u^{75} + \cdots + 7.83180 \times 10^{100} a - 2.71806 \times 10^{103},\ u^{77} - 5u^{76} + \cdots - 21u$$
$$I_2^u = \langle -a^2 + 2b,\ a^4 - 2a^3 + 2a^2 - 4a + 4,\ u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 81 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. $\boldsymbol{I_1^u = \langle 1.37 \times 10^{102}u^{76} - 6.08 \times 10^{102}u^{75} + \cdots + 1.57 \times 10^{101}b - 2.53 \times 10^{102},\ 1.75 \times 10^{103}u^{76} - 7.66 \times 10^{103}u^{75} + \cdots + 7.83 \times 10^{100}a - 2.72 \times 10^{103},\ u^{77} - 5u^{76} + \cdots - 21u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -222.835u^{76} + 977.683u^{75} + \cdots - 6806.53u + 347.055 \\ -8.71850u^{76} + 38.7950u^{75} + \cdots - 311.143u + 16.1592 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3 - 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -231.553u^{76} + 1016.48u^{75} + \cdots - 7117.67u + 363.214 \\ -8.71850u^{76} + 38.7950u^{75} + \cdots - 311.143u + 16.1592 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -347.436u^{76} + 1528.95u^{75} + \cdots - 11419.1u + 612.993 \\ 8.56092u^{76} - 38.6252u^{75} + \cdots + 321.987u - 18.8227 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 86.7977u^{76} - 385.491u^{75} + \cdots + 3342.73u - 188.896 \\ 15.5783u^{76} - 67.5759u^{75} + \cdots + 440.398u - 21.5051 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 67.6379u^{76} - 301.817u^{75} + \cdots + 2732.19u - 156.914 \\ 16.0006u^{76} - 69.5975u^{75} + \cdots + 461.286u - 22.7965 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1492.68u^{76} + 6577.28u^{75} + \cdots - 48928.0u + 2566.44 \\ -157.740u^{76} + 692.289u^{75} + \cdots - 4990.09u + 254.857 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 213.329u^{76} - 938.680u^{75} + \cdots + 6844.56u - 366.282$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{77} + 35u^{76} + \cdots + 129u + 4$
c_2, c_5	$u^{77} + 5u^{76} + \cdots + 23u + 2$
c_3	$u^{77} - u^{76} + \cdots + 11u - 1$
c_4, c_{12}	$u^{77} + 5u^{76} + \cdots + 13u + 1$
c_6, c_7, c_{10} c_{11}	$u^{77} + 5u^{76} + \cdots - 21u - 1$
c_8	$u^{77} + 19u^{76} + \cdots - 1017075u - 2694247$
c_9	$u^{77} + 11u^{76} + \cdots - 34199u - 5203$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{77} + 17y^{76} + \cdots + 16241y - 16$
c_2, c_5	$y^{77} - 35y^{76} + \cdots + 129y - 4$
c_3	$y^{77} - y^{76} + \cdots + 113y - 1$
c_4, c_{12}	$y^{77} + 63y^{76} + \cdots + y - 1$
c_6, c_7, c_{10} c_{11}	$y^{77} - 93y^{76} + \cdots + 161y - 1$
c_8	$y^{77} - 315y^{76} + \cdots + 223681910731807y - 7258966897009$
c_9	$y^{77} + 241y^{76} + \cdots + 1048539415y - 27071209$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.871635 + 0.521957I$ $a = 0.806284 + 0.772806I$ $b = -0.423802 - 0.855380I$	$-3.37937 + 7.74744I$	0
$u = -0.871635 - 0.521957I$ $a = 0.806284 - 0.772806I$ $b = -0.423802 + 0.855380I$	$-3.37937 - 7.74744I$	0
$u = 0.849846 + 0.434640I$ $a = -0.359051 + 1.128330I$ $b = -0.074629 - 0.367441I$	$-3.72246 - 0.44807I$	0
$u = 0.849846 - 0.434640I$ $a = -0.359051 - 1.128330I$ $b = -0.074629 + 0.367441I$	$-3.72246 + 0.44807I$	0
$u = -1.008120 + 0.363672I$ $a = 0.329054 + 0.212618I$ $b = 1.196760 + 0.069492I$	$-9.11045 + 5.28746I$	0
$u = -1.008120 - 0.363672I$ $a = 0.329054 - 0.212618I$ $b = 1.196760 - 0.069492I$	$-9.11045 - 5.28746I$	0
$u = 0.788462 + 0.754022I$ $a = -0.04992 - 1.69456I$ $b = 1.045250 + 0.397646I$	$-6.31504 - 3.48175I$	0
$u = 0.788462 - 0.754022I$ $a = -0.04992 + 1.69456I$ $b = 1.045250 - 0.397646I$	$-6.31504 + 3.48175I$	0
$u = 0.889138 + 0.185542I$ $a = 0.481935 - 0.278927I$ $b = 0.910187 - 0.481008I$	$-1.73035 + 1.95114I$	0
$u = 0.889138 - 0.185542I$ $a = 0.481935 + 0.278927I$ $b = 0.910187 + 0.481008I$	$-1.73035 - 1.95114I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.924156 + 0.594199I$ $a = -0.33784 - 1.89395I$ $b = -1.124630 + 0.628045I$	$-5.4921 + 13.2430I$	0
$u = -0.924156 - 0.594199I$ $a = -0.33784 + 1.89395I$ $b = -1.124630 - 0.628045I$	$-5.4921 - 13.2430I$	0
$u = -0.788058 + 0.431200I$ $a = 0.57941 + 1.85354I$ $b = 1.125230 - 0.619677I$	$-0.72268 + 8.28581I$	0
$u = -0.788058 - 0.431200I$ $a = 0.57941 - 1.85354I$ $b = 1.125230 + 0.619677I$	$-0.72268 - 8.28581I$	0
$u = -0.003925 + 0.882924I$ $a = 0.80702 + 1.44156I$ $b = -1.073580 - 0.572372I$	$-2.67980 - 8.37636I$	0
$u = -0.003925 - 0.882924I$ $a = 0.80702 - 1.44156I$ $b = -1.073580 + 0.572372I$	$-2.67980 + 8.37636I$	0
$u = 0.297530 + 0.762269I$ $a = -0.783831 + 0.708395I$ $b = 1.009260 - 0.219949I$	$-4.99404 - 1.67489I$	0
$u = 0.297530 - 0.762269I$ $a = -0.783831 - 0.708395I$ $b = 1.009260 + 0.219949I$	$-4.99404 + 1.67489I$	0
$u = -0.817383$ $a = -0.614795$ $b = -1.27028$	-4.46353	0
$u = 1.143130 + 0.308998I$ $a = -0.393897 + 1.339210I$ $b = -0.667233 - 0.206047I$	$-4.00145 - 0.28027I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.143130 - 0.308998I$ $a = -0.393897 - 1.339210I$ $b = -0.667233 + 0.206047I$	$-4.00145 + 0.28027I$	0
$u = 1.226660 + 0.068946I$ $a = 0.424240 - 0.795406I$ $b = 0.793103 + 0.587761I$	$-1.57293 - 2.28596I$	0
$u = 1.226660 - 0.068946I$ $a = 0.424240 + 0.795406I$ $b = 0.793103 - 0.587761I$	$-1.57293 + 2.28596I$	0
$u = -0.765979 + 0.060037I$ $a = -0.505222 - 1.217440I$ $b = -1.165500 + 0.677513I$	$-4.10595 + 2.48021I$	0
$u = -0.765979 - 0.060037I$ $a = -0.505222 + 1.217440I$ $b = -1.165500 - 0.677513I$	$-4.10595 - 2.48021I$	0
$u = 1.065830 + 0.645154I$ $a = 0.282851 - 0.390245I$ $b = -1.048050 + 0.473536I$	$-5.82204 + 3.18193I$	0
$u = 1.065830 - 0.645154I$ $a = 0.282851 + 0.390245I$ $b = -1.048050 - 0.473536I$	$-5.82204 - 3.18193I$	0
$u = -0.654081 + 0.366173I$ $a = -0.800157 - 0.489010I$ $b = 0.384980 + 0.843441I$	$1.46897 + 2.86772I$	0
$u = -0.654081 - 0.366173I$ $a = -0.800157 + 0.489010I$ $b = 0.384980 - 0.843441I$	$1.46897 - 2.86772I$	0
$u = -0.028223 + 0.746166I$ $a = 0.40028 - 1.68284I$ $b = -0.431130 + 0.682340I$	$-0.80801 - 3.51202I$	$-8.00000 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.028223-0.746166I$ $a=\ \ 0.40028+1.68284I$ $b=-0.431130-0.682340I$	$-0.80801+3.51202I$	$-8.00000+0.I$
$u=-0.701002+0.185836I$ $a=\ \ 0.127831-0.967471I$ $b=-0.614469+0.908672I$	$-2.32786+3.73049I$	$-13.7491-12.8450I$
$u=-0.701002-0.185836I$ $a=\ \ 0.127831+0.967471I$ $b=-0.614469-0.908672I$	$-2.32786-3.73049I$	$-13.7491+12.8450I$
$u=\ \ 0.618969+0.344051I$ $a=-0.51111+2.87161I$ $b=-0.944612-0.463574I$	$-1.67002-3.05655I$	$-8.00000+6.69690I$
$u=\ \ 0.618969-0.344051I$ $a=-0.51111-2.87161I$ $b=-0.944612+0.463574I$	$-1.67002+3.05655I$	$-8.00000-6.69690I$
$u=-0.083013+0.598652I$ $a=-1.12653-1.23667I$ $b=\ \ 1.022510+0.594189I$	$1.39951-4.78176I$	$-4.95226+4.64563I$
$u=-0.083013-0.598652I$ $a=-1.12653+1.23667I$ $b=\ \ 1.022510-0.594189I$	$1.39951+4.78176I$	$-4.95226-4.64563I$
$u=\ \ 0.601180+0.002263I$ $a=-14.1881+11.7877I$ $b=\ \ 0.851370+0.493083I$	$-2.60411-2.03169I$	$-136.2940-14.6490I$
$u=\ \ 0.601180-0.002263I$ $a=-14.1881-11.7877I$ $b=\ \ 0.851370-0.493083I$	$-2.60411+2.03169I$	$-136.2940+14.6490I$
$u=-0.212039+0.506396I$ $a=-0.10650+1.80456I$ $b=\ \ 0.564116-0.692422I$	$2.77376+0.18726I$	$-1.78780-2.14448I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.212039 - 0.506396I$ $a = -0.10650 - 1.80456I$ $b = 0.564116 + 0.692422I$	$2.77376 - 0.18726I$	$-1.78780 + 2.14448I$
$u = 0.348984 + 0.348224I$ $a = 1.94963 - 0.62772I$ $b = -0.814043 + 0.325199I$	$-0.965555 + 0.405754I$	$-7.83651 + 1.83330I$
$u = 0.348984 - 0.348224I$ $a = 1.94963 + 0.62772I$ $b = -0.814043 - 0.325199I$	$-0.965555 - 0.405754I$	$-7.83651 - 1.83330I$
$u = 0.479840$ $a = 0.890816$ $b = -0.179116$	-0.737088	-13.2280
$u = -1.57486 + 0.04270I$ $a = 0.597648 + 0.370331I$ $b = -0.420518 - 0.504083I$	$-7.73145 + 0.41162I$	0
$u = -1.57486 - 0.04270I$ $a = 0.597648 - 0.370331I$ $b = -0.420518 + 0.504083I$	$-7.73145 - 0.41162I$	0
$u = -1.60958 + 0.01197I$ $a = -2.62680 - 0.11024I$ $b = 0.753976 - 0.522222I$	$-10.36160 + 2.12144I$	0
$u = -1.60958 - 0.01197I$ $a = -2.62680 + 0.11024I$ $b = 0.753976 + 0.522222I$	$-10.36160 - 2.12144I$	0
$u = 1.61089 + 0.07581I$ $a = -0.267958 + 0.344213I$ $b = 0.304142 - 1.035400I$	$-6.33159 - 4.36200I$	0
$u = 1.61089 - 0.07581I$ $a = -0.267958 - 0.344213I$ $b = 0.304142 + 1.035400I$	$-6.33159 + 4.36200I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.61710+0.08976I$ $a=-1.02416-1.56228I$ $b=-1.037440+0.506606I$	$-9.47283+4.60615I$	0
$u=-1.61710-0.08976I$ $a=-1.02416+1.56228I$ $b=-1.037440-0.506606I$	$-9.47283-4.60615I$	0
$u=\quad 1.63407+0.03802I$ $a=\quad 0.003139+0.666872I$ $b=-0.669565-1.103280I$	$-10.52050-4.48505I$	0
$u=\quad 1.63407-0.03802I$ $a=\quad 0.003139-0.666872I$ $b=-0.669565+1.103280I$	$-10.52050+4.48505I$	0
$u=-1.64816+0.01239I$ $a=\quad 1.51628+0.07749I$ $b=\quad 0.960623+0.388315I$	$-10.42720-1.45912I$	0
$u=-1.64816-0.01239I$ $a=\quad 1.51628-0.07749I$ $b=\quad 0.960623-0.388315I$	$-10.42720+1.45912I$	0
$u=\quad 1.64827+0.01455I$ $a=-0.559053+0.775844I$ $b=-1.30014-0.75889I$	$-12.59660-2.75325I$	0
$u=\quad 1.64827-0.01455I$ $a=-0.559053-0.775844I$ $b=-1.30014+0.75889I$	$-12.59660+2.75325I$	0
$u=\quad 1.64464+0.11365I$ $a=\quad 0.85856-1.15813I$ $b=\quad 1.210340+0.641926I$	$-9.11064-10.32360I$	0
$u=\quad 1.64464-0.11365I$ $a=\quad 0.85856+1.15813I$ $b=\quad 1.210340-0.641926I$	$-9.11064+10.32360I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.095003 + 0.332687I$ $a = 2.10515 - 0.52416I$ $b = -0.435064 - 0.531419I$	$-0.66814 - 1.87825I$	$-4.74322 + 2.54988I$
$u = -0.095003 - 0.332687I$ $a = 2.10515 + 0.52416I$ $b = -0.435064 + 0.531419I$	$-0.66814 + 1.87825I$	$-4.74322 - 2.54988I$
$u = 1.65568$ $a = -0.782927$ $b = -1.47869$	-13.1360	0
$u = -1.65750 + 0.14801I$ $a = -0.335612 - 0.692340I$ $b = 0.230603 + 0.666767I$	$-12.26620 + 2.82177I$	0
$u = -1.65750 - 0.14801I$ $a = -0.335612 + 0.692340I$ $b = 0.230603 - 0.666767I$	$-12.26620 - 2.82177I$	0
$u = 1.67002 + 0.14858I$ $a = 0.473642 - 0.470437I$ $b = -0.414424 + 0.964985I$	$-12.1217 - 10.3513I$	0
$u = 1.67002 - 0.14858I$ $a = 0.473642 + 0.470437I$ $b = -0.414424 - 0.964985I$	$-12.1217 + 10.3513I$	0
$u = 1.68810 + 0.17252I$ $a = -0.73378 + 1.40207I$ $b = -1.170620 - 0.661665I$	$-14.4500 - 16.2652I$	0
$u = 1.68810 - 0.17252I$ $a = -0.73378 - 1.40207I$ $b = -1.170620 + 0.661665I$	$-14.4500 + 16.2652I$	0
$u = -1.68571 + 0.22627I$ $a = 0.53610 + 1.31327I$ $b = 1.111390 - 0.508532I$	$-14.7554 + 7.3067I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.68571 - 0.22627I$ $a = 0.53610 - 1.31327I$ $b = 1.111390 + 0.508532I$	$-14.7554 - 7.3067I$	0
$u = 1.70007 + 0.09625I$ $a = 0.737615 - 0.162232I$ $b = 1.337770 - 0.063513I$	$-18.5664 - 7.1193I$	0
$u = 1.70007 - 0.09625I$ $a = 0.737615 + 0.162232I$ $b = 1.337770 + 0.063513I$	$-18.5664 + 7.1193I$	0
$u = -1.75832 + 0.10945I$ $a = -0.528353 + 0.351806I$ $b = -1.099490 - 0.317079I$	$-16.0277 - 0.1764I$	0
$u = -1.75832 - 0.10945I$ $a = -0.528353 - 0.351806I$ $b = -1.099490 + 0.317079I$	$-16.0277 + 0.1764I$	0
$u = 0.1016190 + 0.0298609I$ $a = 9.47466 + 7.93380I$ $b = -0.918640 - 0.537767I$	$-1.80001 - 2.05748I$	$-8.74387 + 2.56472I$
$u = 0.1016190 - 0.0298609I$ $a = 9.47466 - 7.93380I$ $b = -0.918640 + 0.537767I$	$-1.80001 + 2.05748I$	$-8.74387 - 2.56472I$

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

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ \frac{1}{2}a^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -\frac{1}{2}a^3 + \frac{1}{2}a^2 + 2 \\ -\frac{1}{2}a^3 + \frac{1}{2}a^2 + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -a^3 + \frac{1}{2}a^2 - a + 2 \\ -\frac{1}{2}a^3 + \frac{1}{2}a^2 - a + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{3}{2}a^3 + \frac{1}{2}a^2 - a + 3 \\ -a^3 + \frac{1}{2}a^2 - a + 2 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2a^3 - 2a^2 + 4a - 20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.36603 + 0.36603I$ $b = 0.866025 + 0.500000I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = 1.00000$ $a = 1.36603 - 0.36603I$ $b = 0.866025 - 0.500000I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = 1.00000$ $a = -0.36603 + 1.36603I$ $b = -0.866025 - 0.500000I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = 1.00000$ $a = -0.36603 - 1.36603I$ $b = -0.866025 + 0.500000I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^{77}+35u^{76}+\cdots+129u+4)$
c_2, c_5	$(u^4-u^2+1)(u^{77}+5u^{76}+\cdots+23u+2)$
c_3	$((u^2+1)^2)(u^{77}-u^{76}+\cdots+11u-1)$
c_4, c_{12}	$((u^2+1)^2)(u^{77}+5u^{76}+\cdots+13u+1)$
c_6, c_7	$((u-1)^4)(u^{77}+5u^{76}+\cdots-21u-1)$
c_8	$(u^4-2u^3+5u^2-4u+1)(u^{77}+19u^{76}+\cdots-1017075u-2694247)$
c_9	$(u^4+4u^3+5u^2+2u+1)(u^{77}+11u^{76}+\cdots-34199u-5203)$
c_{10}, c_{11}	$((u+1)^4)(u^{77}+5u^{76}+\cdots-21u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^2)(y^{77}+17y^{76}+\cdots+16241y-16)$
c_2, c_5	$((y^2-y+1)^2)(y^{77}-35y^{76}+\cdots+129y-4)$
c_3	$((y+1)^4)(y^{77}-y^{76}+\cdots+113y-1)$
c_4, c_{12}	$((y+1)^4)(y^{77}+63y^{76}+\cdots+y-1)$
c_6, c_7, c_{10} c_{11}	$((y-1)^4)(y^{77}-93y^{76}+\cdots+161y-1)$
c_8	$(y^4+6y^3+11y^2-6y+1)$ $\cdot(y^{77}-315y^{76}+\cdots+223681910731807y-7258966897009)$
c_9	$(y^4-6y^3+11y^2+6y+1)$ $\cdot(y^{77}+241y^{76}+\cdots+1048539415y-27071209)$