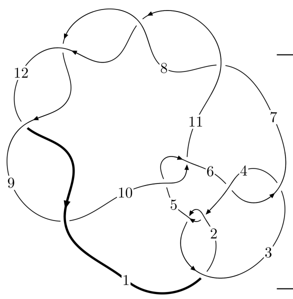
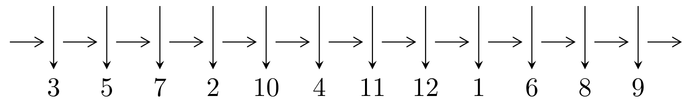
$12a_{0052}$ ($K12a_{0052}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle 1.62429 \times 10^{21} u^{62} + 5.48543 \times 10^{21} u^{61} + \cdots + 1.76821 \times 10^{20} b - 1.09318 \times 10^{21},$
$\quad 1.33327 \times 10^{20} u^{62} + 3.96132 \times 10^{20} u^{61} + \cdots + 1.76821 \times 10^{20} a + 5.67190 \times 10^{20},\ u^{63} + 5u^{62} + \cdots - 8u - 1$

$I_2^u = \langle 7a^2u - 4a^2 - 9au + 61b - 21a + 46u - 35,\ a^3 + a^2u + a^2 - au + 6a + 5u + 2,\ u^2 - u - 1 \rangle$

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

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 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.
$\boldsymbol{I_1^u = \langle 1.62\times10^{21}u^{62}+5.49\times10^{21}u^{61}+\cdots+1.77\times10^{20}b-1.09\times10^{21},\ 1.33\times10^{20}u^{62}+3.96\times10^{20}u^{61}+\cdots+1.77\times10^{20}a+5.67\times10^{20},\ u^{63}+5u^{62}+\cdots-8u-1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.754022u^{62}-2.24030u^{61}+\cdots-21.4495u-3.20771\\-9.18606u^{62}-31.0226u^{61}+\cdots+46.9211u+6.18243\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-23.4953u^{62}-77.2375u^{61}+\cdots+77.1418u+10.1702\\-31.9273u^{62}-106.020u^{61}+\cdots+145.512u+19.5604\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-10.7523u^{62}-35.7397u^{61}+\cdots+57.9187u+7.96787\\-2.43432u^{62}-7.52201u^{61}+\cdots+4.03934u+0.358011\end{pmatrix}$$
$$a_6 = \begin{pmatrix}24.0607u^{62}+78.4765u^{61}+\cdots-116.822u-16.4195\\20.0955u^{62}+65.6712u^{61}+\cdots-84.1906u-11.8348\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^3-2u\\u^5-3u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-13.0012u^{62}-42.0114u^{61}+\cdots+38.8447u+4.43096\\-21.3192u^{62}-70.2291u^{61}+\cdots+92.7241u+12.0408\end{pmatrix}$$

(ii) Obstruction class $=-1$

(iii) Cusp Shapes $= -\frac{9104047647593864050 11}{29470106428947974938}u^{62}-\frac{396018097235708967387 5}{29470106428947974938}u^{61}+\cdots+\frac{924614047646574932685 3}{29470106428947974938}u+\frac{119046918601050630851 1}{29470106428947974938}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{63} + 32u^{62} + \cdots + 328u + 1$
c_2, c_4	$u^{63} - 6u^{62} + \cdots + 12u + 1$
c_3, c_6	$u^{63} - 3u^{62} + \cdots - 20u + 8$
c_5, c_{10}	$u^{63} - 2u^{62} + \cdots - 224u - 64$
c_7, c_8, c_9 c_{11}, c_{12}	$u^{63} + 5u^{62} + \cdots - 8u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{63} + 4y^{62} + \cdots + 101996y - 1$
c_2, c_4	$y^{63} - 32y^{62} + \cdots + 328y - 1$
c_3, c_6	$y^{63} + 27y^{62} + \cdots + 1872y - 64$
c_5, c_{10}	$y^{63} - 40y^{62} + \cdots + 160768y - 4096$
c_7, c_8, c_9 c_{11}, c_{12}	$y^{63} - 85y^{62} + \cdots - 52y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.028890 + 0.152703I$ $a = 0.905018 - 0.380951I$ $b = 0.0268490 + 0.0773734I$	$-4.77176 - 0.89078I$	0
$u = 1.028890 - 0.152703I$ $a = 0.905018 + 0.380951I$ $b = 0.0268490 - 0.0773734I$	$-4.77176 + 0.89078I$	0
$u = 0.999217 + 0.355880I$ $a = -0.49337 + 1.91103I$ $b = -1.42854 + 1.09253I$	$-2.32837 - 6.62955I$	0
$u = 0.999217 - 0.355880I$ $a = -0.49337 - 1.91103I$ $b = -1.42854 - 1.09253I$	$-2.32837 + 6.62955I$	0
$u = -0.896327 + 0.253744I$ $a = -0.749447 - 0.960775I$ $b = -1.295060 - 0.092213I$	$0.036006 + 1.082630I$	0
$u = -0.896327 - 0.253744I$ $a = -0.749447 + 0.960775I$ $b = -1.295060 + 0.092213I$	$0.036006 - 1.082630I$	0
$u = -1.055640 + 0.212243I$ $a = 0.668837 + 0.903910I$ $b = 1.341030 + 0.052198I$	$-1.79480 + 5.60016I$	0
$u = -1.055640 - 0.212243I$ $a = 0.668837 - 0.903910I$ $b = 1.341030 - 0.052198I$	$-1.79480 - 5.60016I$	0
$u = 1.044900 + 0.298813I$ $a = -0.829234 + 0.625125I$ $b = -0.059797 - 0.170377I$	$-6.88408 - 5.57625I$	0
$u = 1.044900 - 0.298813I$ $a = -0.829234 - 0.625125I$ $b = -0.059797 + 0.170377I$	$-6.88408 + 5.57625I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.063910 + 0.242269I$ $a = 0.77322 - 2.30918I$ $b = 1.43939 - 1.55305I$	$-7.53862 - 2.77757I$	0
$u = 1.063910 - 0.242269I$ $a = 0.77322 + 2.30918I$ $b = 1.43939 + 1.55305I$	$-7.53862 + 2.77757I$	0
$u = -0.886505 + 0.065475I$ $a = 0.866237 - 0.584689I$ $b = 1.55540 + 0.00724I$	$-3.50514 + 0.98775I$	0
$u = -0.886505 - 0.065475I$ $a = 0.866237 + 0.584689I$ $b = 1.55540 - 0.00724I$	$-3.50514 - 0.98775I$	0
$u = 1.048840 + 0.413504I$ $a = 0.60788 - 1.71015I$ $b = 1.60656 - 1.01476I$	$-5.14579 - 12.09490I$	0
$u = 1.048840 - 0.413504I$ $a = 0.60788 + 1.71015I$ $b = 1.60656 + 1.01476I$	$-5.14579 + 12.09490I$	0
$u = -0.559821 + 0.591306I$ $a = 0.608474 + 1.194700I$ $b = 0.988829 - 0.154158I$	$-2.11826 - 4.21827I$	$-12.00000 + 0.I$
$u = -0.559821 - 0.591306I$ $a = 0.608474 - 1.194700I$ $b = 0.988829 + 0.154158I$	$-2.11826 + 4.21827I$	$-12.00000 + 0.I$
$u = 0.801660 + 0.061483I$ $a = 0.08712 + 2.74634I$ $b = -0.240999 + 0.989685I$	$1.61353 - 3.07418I$	$-21.7450 + 6.3725I$
$u = 0.801660 - 0.061483I$ $a = 0.08712 - 2.74634I$ $b = -0.240999 - 0.989685I$	$1.61353 + 3.07418I$	$-21.7450 - 6.3725I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.626636+0.416140I$ $a=-0.724621-1.147740I$ $b=-1.018610-0.016299I$	$0.0003302+0.0283867I$	$-12.00000-1.58557I$
$u=-0.626636-0.416140I$ $a=-0.724621+1.147740I$ $b=-1.018610+0.016299I$	$0.0003302-0.0283867I$	$-12.00000+1.58557I$
$u=-0.240977+0.680886I$ $a=\quad 0.303437-0.160247I$ $b=-1.41332-0.53392I$	$-1.15974+8.39259I$	$-13.8921-7.9238I$
$u=-0.240977-0.680886I$ $a=\quad 0.303437+0.160247I$ $b=-1.41332+0.53392I$	$-1.15974-8.39259I$	$-13.8921+7.9238I$
$u=\quad 1.309330+0.213784I$ $a=-0.511554+0.626098I$ $b=-0.244470-0.005554I$	$-8.22487+1.35085I$	0
$u=\quad 1.309330-0.213784I$ $a=-0.511554-0.626098I$ $b=-0.244470+0.005554I$	$-8.22487-1.35085I$	0
$u=-0.181089+0.593484I$ $a=-0.476070+0.258477I$ $b=\quad 1.33722+0.54379I$	$1.31779+3.40957I$	$-9.77047-4.49596I$
$u=-0.181089-0.593484I$ $a=-0.476070-0.258477I$ $b=\quad 1.33722-0.54379I$	$1.31779-3.40957I$	$-9.77047+4.49596I$
$u=-0.275760+0.524784I$ $a=\quad 0.59469+1.49476I$ $b=\quad 0.752601-0.186307I$	$-2.78020+2.76904I$	$-15.9302-5.0017I$
$u=-0.275760-0.524784I$ $a=\quad 0.59469-1.49476I$ $b=\quad 0.752601+0.186307I$	$-2.78020-2.76904I$	$-15.9302+5.0017I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.362579 + 0.450678I$ $a = 0.062756 - 0.676284I$ $b = -1.43437 - 0.73425I$	$-3.12199 + 0.43767I$	$-16.9567 - 5.0899I$
$u = -0.362579 - 0.450678I$ $a = 0.062756 + 0.676284I$ $b = -1.43437 + 0.73425I$	$-3.12199 - 0.43767I$	$-16.9567 + 5.0899I$
$u = -0.546898$ $a = -3.12245$ $b = -3.56875$	-2.45024	-97.9560
$u = 0.127965 + 0.446646I$ $a = -1.274990 - 0.311863I$ $b = 1.060070 + 0.298515I$	$3.14642 + 1.35383I$	$-6.03722 - 2.02193I$
$u = 0.127965 - 0.446646I$ $a = -1.274990 + 0.311863I$ $b = 1.060070 - 0.298515I$	$3.14642 - 1.35383I$	$-6.03722 + 2.02193I$
$u = 0.300748 + 0.343620I$ $a = 1.44873 + 1.07671I$ $b = -0.909905 - 0.082810I$	$2.43021 - 3.64228I$	$-6.61693 + 6.48458I$
$u = 0.300748 - 0.343620I$ $a = 1.44873 - 1.07671I$ $b = -0.909905 + 0.082810I$	$2.43021 + 3.64228I$	$-6.61693 - 6.48458I$
$u = 1.55975 + 0.08766I$ $a = 0.524965 - 1.191820I$ $b = 0.600823 - 0.640135I$	$-7.43465 - 1.76582I$	0
$u = 1.55975 - 0.08766I$ $a = 0.524965 + 1.191820I$ $b = 0.600823 + 0.640135I$	$-7.43465 + 1.76582I$	0
$u = 1.61037$ $a = 3.62252$ $b = 3.92432$	-10.1147	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.381909$ $a = -1.00049$ $b = -0.382079$	-0.657964	-14.9870
$u = -1.68795 + 0.01367I$ $a = 0.14081 + 2.60287I$ $b = 0.23802 + 1.66652I$	$-7.35150 + 3.34536I$	0
$u = -1.68795 - 0.01367I$ $a = 0.14081 - 2.60287I$ $b = 0.23802 - 1.66652I$	$-7.35150 - 3.34536I$	0
$u = 1.69104 + 0.05015I$ $a = 1.24766 - 1.01147I$ $b = 1.58417 - 0.51110I$	$-9.10013 - 2.17742I$	0
$u = 1.69104 - 0.05015I$ $a = 1.24766 + 1.01147I$ $b = 1.58417 + 0.51110I$	$-9.10013 + 2.17742I$	0
$u = 1.70113 + 0.01268I$ $a = -1.57689 - 0.79292I$ $b = -2.02027 - 0.39058I$	$-12.78410 - 1.26409I$	0
$u = 1.70113 - 0.01268I$ $a = -1.57689 + 0.79292I$ $b = -2.02027 + 0.39058I$	$-12.78410 + 1.26409I$	0
$u = -1.72001 + 0.09428I$ $a = 1.03143 + 2.22415I$ $b = 1.49512 + 1.52284I$	$-11.9480 + 8.4481I$	0
$u = -1.72001 - 0.09428I$ $a = 1.03143 - 2.22415I$ $b = 1.49512 - 1.52284I$	$-11.9480 - 8.4481I$	0
$u = -1.72905 + 0.04304I$ $a = -0.288124 - 0.148815I$ $b = 0.389884 + 0.095224I$	$-14.6550 + 1.7190I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.72905 - 0.04304I$ $a = -0.288124 + 0.148815I$ $b = 0.389884 - 0.095224I$	$-14.6550 - 1.7190I$	0
$u = -1.73268 + 0.07792I$ $a = 0.239402 + 0.232586I$ $b = -0.419372 - 0.168398I$	$-16.7785 + 7.1236I$	0
$u = -1.73268 - 0.07792I$ $a = 0.239402 - 0.232586I$ $b = -0.419372 + 0.168398I$	$-16.7785 - 7.1236I$	0
$u = -1.73373 + 0.11357I$ $a = -1.20066 - 2.06097I$ $b = -1.72265 - 1.40659I$	$-14.9724 + 14.2765I$	0
$u = -1.73373 - 0.11357I$ $a = -1.20066 + 2.06097I$ $b = -1.72265 + 1.40659I$	$-14.9724 - 14.2765I$	0
$u = -1.73663 + 0.06289I$ $a = -1.09099 - 2.68531I$ $b = -1.42955 - 2.04344I$	$-17.5514 + 4.0414I$	0
$u = -1.73663 - 0.06289I$ $a = -1.09099 + 2.68531I$ $b = -1.42955 + 2.04344I$	$-17.5514 - 4.0414I$	0
$u = 1.73782 + 0.05723I$ $a = -1.19559 + 0.80808I$ $b = -1.60415 + 0.24819I$	$-11.81270 - 6.72860I$	0
$u = 1.73782 - 0.05723I$ $a = -1.19559 - 0.80808I$ $b = -1.60415 - 0.24819I$	$-11.81270 + 6.72860I$	0
$u = -1.80049 + 0.02971I$ $a = 0.095999 + 0.111650I$ $b = -0.178594 - 0.166882I$	$-19.6506 - 0.4097I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.80049-0.02971I$ $a=\ \ 0.095999-0.111650I$ $b=-0.178594+0.166882I$	$-19.6506+0.4097I$	0
$u=-0.030116+0.163245I$ $a=-1.54490-3.56904I$ $b=-0.483050+0.114818I$	$-0.977525-0.103718I$	$-10.13328-1.14919I$
$u=-0.030116-0.163245I$ $a=-1.54490+3.56904I$ $b=-0.483050-0.114818I$	$-0.977525+0.103718I$	$-10.13328+1.14919I$

II. $I_2^u =$
$\langle 7a^2u-4a^2-9au+61b-21a+46u-35,\ a^3+a^2u+a^2-au+6a+5u+2,\ u^2-u-1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ -0.114754a^2u + 0.147541au + \cdots + 0.344262a + 0.573770 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.163934a^2u - 0.360656au + \cdots + 0.491803a - 0.180328 \\ -0.278689a^2u - 0.213115au + \cdots - 0.163934a + 0.393443 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0163934a^2u - 0.163934au + \cdots - 0.0491803a - 0.0819672 \\ -0.278689a^2u - 0.213115au + \cdots - 0.163934a + 0.393443 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.295082a^2u + 0.0491803au + \cdots + 0.114754a - 0.475410 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.295082a^2u + 0.0491803au + \cdots + 0.114754a - 0.475410 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{93}{61}a^2u - \frac{27}{61}a^2 + \frac{46}{61}au + \frac{26}{61}a + \frac{341}{61}u - \frac{831}{61}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = 0.162553$ $b = 1.08457$	-2.10041	-17.1210
$u = -0.618034$ $a = -0.27226 + 2.57535I$ $b = 0.075747 + 0.460350I$	$2.03717 + 2.82812I$	$-7.98462 + 1.83947I$
$u = -0.618034$ $a = -0.27226 - 2.57535I$ $b = 0.075747 - 0.460350I$	$2.03717 - 2.82812I$	$-7.98462 - 1.83947I$
$u = 1.61803$ $a = -0.06538 + 2.01307I$ $b = -0.198308 + 1.205210I$	$-5.85852 - 2.82812I$	$-12.87990 + 2.78145I$
$u = 1.61803$ $a = -0.06538 - 2.01307I$ $b = -0.198308 - 1.205210I$	$-5.85852 + 2.82812I$	$-12.87990 - 2.78145I$
$u = 1.61803$ $a = -2.48727$ $b = -2.83945$	-9.99610	3.85000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^2-7u+2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^3$
c_3, c_6	u^3
c_4	$(u+1)^3$
c_5, c_7, c_8 c_9	$u^3 - u^2 - 2u + 1$
c_{10}, 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_6	y^3
c_5, c_7, c_8 c_9, c_{10}, c_{11} c_{12}	$y^3 - 5y^2 + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.24698$ $a = -0.801938$ $b = -0.801938$	-7.98968	-19.1690
$u = -0.445042$ $a = 2.24698$ $b = 2.24698$	-2.34991	3.53080
$u = -1.80194$ $a = 0.554958$ $b = 0.554958$	-19.2692	-11.3620

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^3-u^2+2u-1)^2(u^{63}+32u^{62}+\cdots+328u+1)$
c_2	$((u-1)^3)(u^3+u^2-1)^2(u^{63}-6u^{62}+\cdots+12u+1)$
c_3	$u^3(u^3-u^2+2u-1)^2(u^{63}-3u^{62}+\cdots-20u+8)$
c_4	$((u+1)^3)(u^3-u^2+1)^2(u^{63}-6u^{62}+\cdots+12u+1)$
c_5	$u^6(u^3-u^2-2u+1)(u^{63}-2u^{62}+\cdots-224u-64)$
c_6	$u^3(u^3+u^2+2u+1)^2(u^{63}-3u^{62}+\cdots-20u+8)$
c_7, c_8, c_9	$((u^2+u-1)^3)(u^3-u^2-2u+1)(u^{63}+5u^{62}+\cdots-8u-1)$
c_{10}	$u^6(u^3+u^2-2u-1)(u^{63}-2u^{62}+\cdots-224u-64)$
c_{11}, c_{12}	$((u^2-u-1)^3)(u^3+u^2-2u-1)(u^{63}+5u^{62}+\cdots-8u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^3)(y^3+3y^2+2y-1)^2(y^{63}+4y^{62}+\cdots+101996y-1)$
c_2, c_4	$((y-1)^3)(y^3-y^2+2y-1)^2(y^{63}-32y^{62}+\cdots+328y-1)$
c_3, c_6	$y^3(y^3+3y^2+2y-1)^2(y^{63}+27y^{62}+\cdots+1872y-64)$
c_5, c_{10}	$y^6(y^3-5y^2+6y-1)(y^{63}-40y^{62}+\cdots+160768y-4096)$
c_7, c_8, c_9 c_{11}, c_{12}	$((y^2-3y+1)^3)(y^3-5y^2+6y-1)(y^{63}-85y^{62}+\cdots-52y-1)$