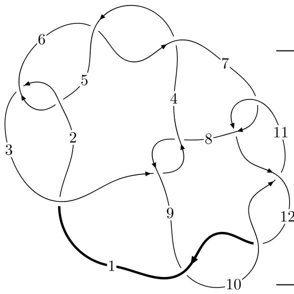
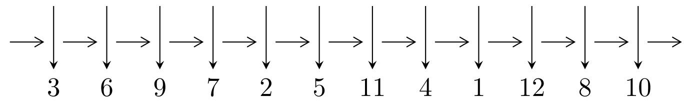
$12a_{0345}$ ($K12a_{0345}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -u^9+u^7-u^6-3u^5+2u^3+b-u,\ u^{12}-u^{10}+5u^8-4u^6+6u^4-3u^2+a-u+2,\\
&\quad u^{13}-u^{12}-u^{11}+2u^{10}+4u^9-5u^8-3u^7+6u^6+4u^5-6u^4-2u^3+2u^2+2u-1\rangle\\
I_2^u &= \langle -3u^{47}+17u^{46}+\cdots+2b+1,\ -11u^{47}+29u^{46}+\cdots+2a+3,\ u^{48}-3u^{47}+\cdots-2u+1\rangle\\
I_3^u &= \langle b+u,\ a+u,\ u^3+u^2-1\rangle\\
I_4^u &= \langle b-a,\ u^2a+a^2+u^2+2u+1,\ u^3+u^2-1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 70 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. $\boldsymbol{I_1^u = \langle -u^9 + u^7 - u^6 - 3u^5 + 2u^3 + b - u,\ u^{12} - u^{10} + 5u^8 - 4u^6 + 6u^4 - 3u^2 + a - u + 2,\ u^{13} - u^{12} + \cdots + 2u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^5 + u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{12} + u^{10} - 5u^8 + 4u^6 - 6u^4 + 3u^2 + u - 2 \\ u^9 - u^7 + u^6 + 3u^5 - 2u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{12} + u^{10} - 5u^8 + 4u^6 - 7u^4 + 4u^2 + u - 2 \\ u^9 - u^7 + 3u^5 - 2u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^8 + u^6 - u^5 - 3u^4 + 2u^2 - 1 \\ u^{12} - 2u^{10} + u^9 + 5u^8 - u^7 - 6u^6 + 2u^5 + 6u^4 - u^3 - 3u^2 + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{12} - u^{11} - u^{10} + u^9 + 4u^8 - 3u^7 - 4u^6 + 2u^5 + 5u^4 - u^3 - 3u^2 - u + 2 \\ -u^{11} + u^9 - u^8 - 3u^7 + 2u^5 - u^4 - u^3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{12} + u^{11} + u^{10} - 2u^9 - 4u^8 + 4u^7 + 3u^6 - 5u^5 - 5u^4 + 3u^3 + 3u^2 - 2 \\ u^{12} - u^{10} + 5u^8 - 4u^6 + 6u^4 - 2u^2 - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{12} - 2u^{10} + 18u^8 + 2u^7 - 6u^6 - 4u^5 + 20u^4 + 6u^3 - 2u^2 - 12u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_9, c_{10}, c_{12}	$u^{13} + 3u^{12} + \cdots + 8u + 1$
c_2, c_5, c_7 c_{11}	$u^{13} + u^{12} + \cdots + 2u + 1$
c_3, c_8	$u^{13} - 7u^{12} + \cdots - 24u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_9, c_{10}, c_{12}	$y^{13} + 17y^{12} + \cdots + 16y - 1$
c_2, c_5, c_7 c_{11}	$y^{13} - 3y^{12} + \cdots + 8y - 1$
c_3, c_8	$y^{13} + 7y^{12} + \cdots + 128y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.923828 + 0.421970I$ $a = 0.763252 + 0.399422I$ $b = 0.261288 - 0.366463I$	$-0.05055 + 6.40816I$	$-12.2349 - 10.2893I$
$u = -0.923828 - 0.421970I$ $a = 0.763252 - 0.399422I$ $b = 0.261288 + 0.366463I$	$-0.05055 - 6.40816I$	$-12.2349 + 10.2893I$
$u = 0.801388 + 0.281223I$ $a = 0.268761 - 0.576127I$ $b = -0.168515 + 0.695868I$	$-2.04094 - 2.18131I$	$-16.1482 + 7.3921I$
$u = 0.801388 - 0.281223I$ $a = 0.268761 + 0.576127I$ $b = -0.168515 - 0.695868I$	$-2.04094 + 2.18131I$	$-16.1482 - 7.3921I$
$u = -0.537404 + 0.591513I$ $a = -0.786204 - 0.602557I$ $b = -0.632206 - 0.390230I$	$2.68260 + 1.42666I$	$-3.83184 - 3.78939I$
$u = -0.537404 - 0.591513I$ $a = -0.786204 + 0.602557I$ $b = -0.632206 + 0.390230I$	$2.68260 - 1.42666I$	$-3.83184 + 3.78939I$
$u = 0.855993 + 0.936945I$ $a = -3.04281 - 0.69376I$ $b = -1.58297 - 3.59981I$	$18.0409 + 0.9847I$	$-4.10351 + 1.46024I$
$u = 0.855993 - 0.936945I$ $a = -3.04281 + 0.69376I$ $b = -1.58297 + 3.59981I$	$18.0409 - 0.9847I$	$-4.10351 - 1.46024I$
$u = -0.928636 + 0.877531I$ $a = -3.22583 + 2.14654I$ $b = -0.92820 + 5.06333I$	$12.42090 + 6.50749I$	$-5.85522 - 4.78409I$
$u = -0.928636 - 0.877531I$ $a = -3.22583 - 2.14654I$ $b = -0.92820 - 5.06333I$	$12.42090 - 6.50749I$	$-5.85522 + 4.78409I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.002580 + 0.857613I$ $a = -1.90418 - 2.60319I$ $b = 0.38407 - 4.60433I$	$17.0728 - 14.2174I$	$-5.54739 + 7.80237I$
$u = 1.002580 - 0.857613I$ $a = -1.90418 + 2.60319I$ $b = 0.38407 + 4.60433I$	$17.0728 + 14.2174I$	$-5.54739 - 7.80237I$
$u = 0.459806$ $a = -1.14598$ $b = 0.333063$	-0.845259	-10.5580

II. $\boldsymbol{I_2^u = \langle -3u^{47} + 17u^{46} + \cdots + 2b + 1,\ -11u^{47} + 29u^{46} + \cdots + 2a + 3,\ u^{48} - 3u^{47} + \cdots - 2u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_7 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^5 + u \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{11}{2}u^{47} - \frac{29}{2}u^{46} + \cdots - \frac{17}{2}u - \frac{3}{2} \\ \frac{3}{2}u^{47} - \frac{17}{2}u^{46} + \cdots - \frac{7}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{17}{2}u^{47} - 23u^{46} + \cdots - 9u - \frac{5}{2} \\ 2u^{47} - \frac{27}{2}u^{46} + \cdots - \frac{1}{2}u - \frac{7}{2} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{1}{2}u^{47} + 9u^{45} + \cdots - 19u + \frac{9}{2} \\ -2u^{47} + \frac{13}{2}u^{46} + \cdots - \frac{19}{2}u + \frac{11}{2} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{45} + u^{44} + \cdots + \frac{7}{2}u^2 + \frac{3}{2} \\ -\frac{1}{2}u^{45} + u^{44} + \cdots + \frac{15}{2}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{1}{2}u^{47} + 3u^{46} + \cdots + 7u - 5 \\ -\frac{1}{2}u^{46} - u^{45} + \cdots + \frac{13}{2}u - 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{47} + \frac{23}{2}u^{46} + \cdots - \frac{77}{2}u + \frac{11}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_6 c_9, c_{10}, c_{12}	$u^{48} + 11u^{47} + \cdots + 28u + 1$
c_2, c_5, c_7 c_{11}	$u^{48} + 3u^{47} + \cdots + 2u + 1$
c_3, c_8	$(u^{24} + 3u^{23} + \cdots + 20u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_9, c_{10}, c_{12}	$y^{48} + 53y^{47} + \cdots - 188y + 1$
c_2, c_5, c_7 c_{11}	$y^{48} - 11y^{47} + \cdots - 28y + 1$
c_3, c_8	$(y^{24} + 21y^{23} + \cdots + 496y + 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.841794+0.516230I$ $a=-0.724878-0.760407I$ $b=-0.543660-0.322602I$	$1.74731+2.75249I$	$-5.85663-4.25990I$
$u=-0.841794-0.516230I$ $a=-0.724878+0.760407I$ $b=-0.543660+0.322602I$	$1.74731-2.75249I$	$-5.85663+4.25990I$
$u=\ \ 0.930322+0.093737I$ $a=\ \ 0.274062-0.684145I$ $b=\ \ 0.528392-0.143631I$	$-1.87399+1.33150I$	$-14.6087-4.8388I$
$u=\ \ 0.930322-0.093737I$ $a=\ \ 0.274062+0.684145I$ $b=\ \ 0.528392+0.143631I$	$-1.87399-1.33150I$	$-14.6087+4.8388I$
$u=\ \ 1.074940+0.011887I$ $a=\ \ 0.08400-1.42217I$ $b=\ \ 0.24511-2.16612I$	$5.18079+3.17559I$	$-10.00740-2.50769I$
$u=\ \ 1.074940-0.011887I$ $a=\ \ 0.08400+1.42217I$ $b=\ \ 0.24511+2.16612I$	$5.18079-3.17559I$	$-10.00740+2.50769I$
$u=\ \ 0.746614+0.498009I$ $a=-0.183156-1.279540I$ $b=-1.014170+0.309519I$	$4.20175-4.96532I$	$-9.50591+5.64619I$
$u=\ \ 0.746614-0.498009I$ $a=-0.183156+1.279540I$ $b=-1.014170-0.309519I$	$4.20175+4.96532I$	$-9.50591-5.64619I$
$u=-0.366415+0.805565I$ $a=-1.17167+1.18416I$ $b=\ \ 0.184920-0.596372I$	$10.50330+1.42992I$	$-3.65523-2.00550I$
$u=-0.366415-0.805565I$ $a=-1.17167-1.18416I$ $b=\ \ 0.184920+0.596372I$	$10.50330-1.42992I$	$-3.65523+2.00550I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.336222 + 0.803215I$ $a = 0.87556 - 1.36537I$ $b = -0.137852 + 0.789514I$	$10.34730 - 5.08751I$	$-3.92984 + 2.90656I$
$u = -0.336222 - 0.803215I$ $a = 0.87556 + 1.36537I$ $b = -0.137852 - 0.789514I$	$10.34730 + 5.08751I$	$-3.92984 - 2.90656I$
$u = -0.880758 + 0.714367I$ $a = -0.556508 - 0.593812I$ $b = -0.762556 - 0.329885I$	$2.31973 + 2.73395I$	$-60.10 - 0.676902I$
$u = -0.880758 - 0.714367I$ $a = -0.556508 + 0.593812I$ $b = -0.762556 + 0.329885I$	$2.31973 - 2.73395I$	$-60.10 + 0.676902I$
$u = 0.696228 + 0.511765I$ $a = -0.02775 + 1.48585I$ $b = 0.840769 - 0.158612I$	$4.36673 + 1.08082I$	$-8.65197 + 0.09587I$
$u = 0.696228 - 0.511765I$ $a = -0.02775 - 1.48585I$ $b = 0.840769 + 0.158612I$	$4.36673 - 1.08082I$	$-8.65197 - 0.09587I$
$u = -1.040760 + 0.477829I$ $a = -0.022096 + 0.260934I$ $b = -1.60902 + 0.01527I$	$8.01455 + 9.71739I$	$-7.98988 - 8.06760I$
$u = -1.040760 - 0.477829I$ $a = -0.022096 - 0.260934I$ $b = -1.60902 - 0.01527I$	$8.01455 - 9.71739I$	$-7.98988 + 8.06760I$
$u = -1.035350 + 0.498737I$ $a = 0.036384 - 0.448348I$ $b = 1.46608 - 0.47696I$	$8.29415 + 3.29720I$	$-7.24610 - 3.17160I$
$u = -1.035350 - 0.498737I$ $a = 0.036384 + 0.448348I$ $b = 1.46608 + 0.47696I$	$8.29415 - 3.29720I$	$-7.24610 + 3.17160I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.751107 + 0.340936I$ $a = 1.07827 + 0.93654I$ $b = 1.136920 + 0.261943I$	$-1.87399 + 1.33150I$	$-14.6087 - 4.8388I$
$u = -0.751107 - 0.340936I$ $a = 1.07827 - 0.93654I$ $b = 1.136920 - 0.261943I$	$-1.87399 - 1.33150I$	$-14.6087 + 4.8388I$
$u = -0.864737 + 0.816422I$ $a = 1.00270 - 1.60989I$ $b = -0.28591 - 2.01649I$	$4.36673 + 1.08082I$	$-8.65197 + 0.I$
$u = -0.864737 - 0.816422I$ $a = 1.00270 + 1.60989I$ $b = -0.28591 + 2.01649I$	$4.36673 - 1.08082I$	$-8.65197 + 0.I$
$u = -0.917877 + 0.800067I$ $a = -1.77023 + 0.64969I$ $b = -1.31308 + 1.88984I$	$4.20175 + 4.96532I$	$-12.00000 - 5.64619I$
$u = -0.917877 - 0.800067I$ $a = -1.77023 - 0.64969I$ $b = -1.31308 - 1.88984I$	$4.20175 - 4.96532I$	$-12.00000 + 5.64619I$
$u = 0.871124 + 0.885192I$ $a = 1.28643 + 0.63717I$ $b = 0.88470 + 1.89792I$	$8.29415 + 3.29720I$	$-12.00000 + 0.I$
$u = 0.871124 - 0.885192I$ $a = 1.28643 - 0.63717I$ $b = 0.88470 - 1.89792I$	$8.29415 - 3.29720I$	$-12.00000 + 0.I$
$u = 0.913300 + 0.855274I$ $a = -0.195582 - 0.163086I$ $b = 0.346423 + 0.202860I$	$5.18079 - 3.17559I$	$-12.00000 + 0.I$
$u = 0.913300 - 0.855274I$ $a = -0.195582 + 0.163086I$ $b = 0.346423 - 0.202860I$	$5.18079 + 3.17559I$	$-12.00000 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.845587 + 0.935523I$ $a = 3.03496 + 1.05311I$ $b = 1.18613 + 3.70268I$	$17.5794 + 7.6165I$	$-12.00000 + 0.I$
$u = 0.845587 - 0.935523I$ $a = 3.03496 - 1.05311I$ $b = 1.18613 - 3.70268I$	$17.5794 - 7.6165I$	$-12.00000 + 0.I$
$u = 0.898811 + 0.892925I$ $a = -1.169680 + 0.302901I$ $b = -1.61570 - 1.19571I$	$10.50330 - 1.42992I$	$-12.00000 + 0.I$
$u = 0.898811 - 0.892925I$ $a = -1.169680 - 0.302901I$ $b = -1.61570 + 1.19571I$	$10.50330 + 1.42992I$	$-12.00000 + 0.I$
$u = -0.917895 + 0.882530I$ $a = 3.01654 - 2.45632I$ $b = 0.32556 - 5.04361I$	12.4555	0
$u = -0.917895 - 0.882530I$ $a = 3.01654 + 2.45632I$ $b = 0.32556 + 5.04361I$	12.4555	0
$u = 0.959444 + 0.848413I$ $a = -1.18514 - 1.34955I$ $b = 0.10952 - 1.97053I$	$8.01455 - 9.71739I$	0
$u = 0.959444 - 0.848413I$ $a = -1.18514 + 1.34955I$ $b = 0.10952 + 1.97053I$	$8.01455 + 9.71739I$	0
$u = 0.947556 + 0.870745I$ $a = 0.33672 + 1.44236I$ $b = -1.26760 + 1.29298I$	$10.34730 - 5.08751I$	0
$u = 0.947556 - 0.870745I$ $a = 0.33672 - 1.44236I$ $b = -1.26760 - 1.29298I$	$10.34730 + 5.08751I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.998762 + 0.865177I$ $a = 1.62848 + 2.70839I$ $b = -0.93674 + 4.41906I$	$17.5794 - 7.6165I$	0
$u = 0.998762 - 0.865177I$ $a = 1.62848 - 2.70839I$ $b = -0.93674 - 4.41906I$	$17.5794 + 7.6165I$	0
$u = -0.304534 + 0.542389I$ $a = -0.125842 + 0.286126I$ $b = 0.557583 + 0.600347I$	$1.74731 - 2.75249I$	$-5.85663 + 4.25990I$
$u = -0.304534 - 0.542389I$ $a = -0.125842 - 0.286126I$ $b = 0.557583 - 0.600347I$	$1.74731 + 2.75249I$	$-5.85663 - 4.25990I$
$u = 0.579212$ $a = -0.784912$ $b = 0.245364$	-0.838576	-11.3810
$u = -0.551506 + 0.061917I$ $a = 0.27580 + 2.18978I$ $b = 0.36476 + 1.51138I$	$2.31973 - 2.73395I$	$0.279102 + 0.676902I$
$u = -0.551506 - 0.061917I$ $a = 0.27580 - 2.18978I$ $b = 0.36476 - 1.51138I$	$2.31973 + 2.73395I$	$0.279102 - 0.676902I$
$u = 0.273323$ $a = -1.80982$ $b = 0.373488$	-0.838576	-11.3810

III. $I^u_3 = \langle b+u,\ a+u,\ u^3+u^2-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u-12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = 0.877439 - 0.744862I$ $b = 0.877439 - 0.744862I$	$6.04826 + 5.65624I$	$-4.98049 - 5.95889I$
$u = -0.877439 - 0.744862I$ $a = 0.877439 + 0.744862I$ $b = 0.877439 + 0.744862I$	$6.04826 - 5.65624I$	$-4.98049 + 5.95889I$
$u = 0.754878$ $a = -0.754878$ $b = -0.754878$	-2.22691	-18.0390

IV. $\boldsymbol{I_4^u = \langle b - a,\ u^2a + a^2 + u^2 + 2u + 1,\ u^3 + u^2 - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^2a + au - u^2 - 8a - 19$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=-0.592519+0.986732I$ $b=-0.592519+0.986732I$	6.04826	$-5.39114+0.I$
$u=-0.877439+0.744862I$ $a=\ \ 0.377439+0.320410I$ $b=\ \ 0.377439+0.320410I$	$1.91067+2.82812I$	$-18.8044-4.6518I$
$u=-0.877439-0.744862I$ $a=-0.592519-0.986732I$ $b=-0.592519-0.986732I$	6.04826	$-5.39114+0.I$
$u=-0.877439-0.744862I$ $a=\ \ 0.377439-0.320410I$ $b=\ \ 0.377439-0.320410I$	$1.91067-2.82812I$	$-18.8044+4.6518I$
$u=\ \ 0.754878$ $a=-0.28492+1.73159I$ $b=-0.28492+1.73159I$	$1.91067+2.82812I$	$-18.8044-4.6518I$
$u=\ \ 0.754878$ $a=-0.28492-1.73159I$ $b=-0.28492-1.73159I$	$1.91067-2.82812I$	$-18.8044+4.6518I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4, c_9 c_{10}	$((u^3 - u^2 + 2u - 1)^3)(u^{13} + 3u^{12} + \cdots + 8u + 1)$ $\cdot (u^{48} + 11u^{47} + \cdots + 28u + 1)$
c_2, c_7	$((u^3 + u^2 - 1)^3)(u^{13} + u^{12} + \cdots + 2u + 1)(u^{48} + 3u^{47} + \cdots + 2u + 1)$
c_3, c_8	$u^9(u^{13} - 7u^{12} + \cdots - 24u + 8)(u^{24} + 3u^{23} + \cdots + 20u + 8)^2$
c_5, c_{11}	$((u^3 - u^2 + 1)^3)(u^{13} + u^{12} + \cdots + 2u + 1)(u^{48} + 3u^{47} + \cdots + 2u + 1)$
c_6, c_{12}	$((u^3 + u^2 + 2u + 1)^3)(u^{13} + 3u^{12} + \cdots + 8u + 1)$ $\cdot (u^{48} + 11u^{47} + \cdots + 28u + 1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_6 c_9, c_{10}, c_{12}	$((y^3+3y^2+2y-1)^3)(y^{13}+17y^{12}+\cdots+16y-1)$ $\cdot\,(y^{48}+53y^{47}+\cdots-188y+1)$
c_2, c_5, c_7 c_{11}	$((y^3-y^2+2y-1)^3)(y^{13}-3y^{12}+\cdots+8y-1)$ $\cdot\,(y^{48}-11y^{47}+\cdots-28y+1)$
c_3, c_8	$y^9(y^{13}+7y^{12}+\cdots+128y-64)(y^{24}+21y^{23}+\cdots+496y+64)^2$