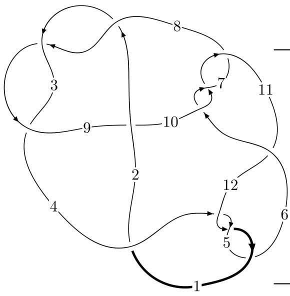
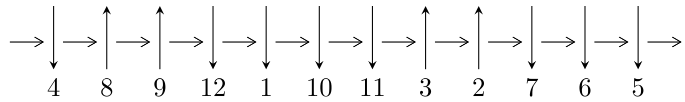
$12a_{1147}$ ($K12a_{1147}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -u^{22} - u^{21} + \cdots + 2b + 1,\ u^{22} + u^{21} + \cdots + 2a - 1,\ u^{24} + u^{23} + \cdots + u^2 + 1\rangle \\
I_2^u &= \langle 663778u^{39} + 3468564u^{38} + \cdots + 4497023b + 12669528, \\
&\quad\ 1460252u^{39} + 3892416u^{38} + \cdots + 4497023a + 44643349,\ u^{40} + u^{39} + \cdots + 10u - 1\rangle \\
I_3^u &= \langle b,\ a + 1,\ u + 1\rangle \\
I_4^u &= \langle b + a - 1,\ a^2 - 2a - 1,\ u - 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 67 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.

$$\boldsymbol{I_1^u = \langle -u^{22} - u^{21} + \cdots + 2b + 1,\ u^{22} + u^{21} + \cdots + 2a - 1,\ u^{24} + u^{23} + \cdots + u^2 + 1\rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{2}u^{22} - \frac{1}{2}u^{21} + \cdots - 2u + \frac{1}{2} \\ \frac{1}{2}u^{22} + \frac{1}{2}u^{21} + \cdots - u - \frac{1}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 - 2u \\ \frac{1}{2}u^{22} + \frac{1}{2}u^{21} + \cdots - u - \frac{1}{2} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{1}{2}u^{22} - \frac{1}{2}u^{21} + \cdots - u + \frac{1}{2} \\ -\frac{1}{2}u^{23} + \frac{11}{2}u^{21} + \cdots + \frac{3}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -\frac{1}{2}u^{23} - \frac{1}{2}u^{22} + \cdots + 4u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^4 + u^2 + 1 \\ -\frac{1}{2}u^{23} - \frac{1}{2}u^{22} + \cdots + 3u^2 + \frac{1}{2}u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -2u^{23} - u^{22} + 23u^{21} + 8u^{20} - 113u^{19} - 20u^{18} + 300u^{17} - 9u^{16} - 430u^{15} + 142u^{14} + 219u^{13} - 271u^{12} + 253u^{11} + 142u^{10} - 424u^9 + 149u^8 + 116u^7 - 175u^6 + 131u^5 - 14u^4 - 65u^3 + 44u^2 - 8u - 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{24} - 3u^{23} + \cdots + 16u - 16$
c_2, c_3, c_8	$u^{24} - 3u^{23} + \cdots + 2u - 2$
c_4, c_5, c_6 c_7, c_{10}, c_{12}	$u^{24} + u^{23} + \cdots + u^2 + 1$
c_9	$u^{24} + 9u^{23} + \cdots - 38u - 46$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{24} + 17y^{23} + \cdots - 1280y + 256$
c_2, c_3, c_8	$y^{24} - 23y^{23} + \cdots + 28y + 4$
c_4, c_5, c_6 c_7, c_{10}, c_{12}	$y^{24} - 23y^{23} + \cdots + 2y + 1$
c_9	$y^{24} - 11y^{23} + \cdots + 7020y + 2116$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.064601 + 0.857743I$ $a = 3.00242 + 0.79694I$ $b = -1.47055 + 0.22609I$	$11.05360 - 5.17653I$	$3.95325 + 3.49150I$
$u = 0.064601 - 0.857743I$ $a = 3.00242 - 0.79694I$ $b = -1.47055 - 0.22609I$	$11.05360 + 5.17653I$	$3.95325 - 3.49150I$
$u = -0.034624 + 0.810902I$ $a = -1.048330 - 0.309670I$ $b = 0.448897 + 0.626898I$	$4.86252 + 2.05888I$	$0.88457 - 3.56826I$
$u = -0.034624 - 0.810902I$ $a = -1.048330 + 0.309670I$ $b = 0.448897 - 0.626898I$	$4.86252 - 2.05888I$	$0.88457 + 3.56826I$
$u = 1.24908$ $a = -1.63637$ $b = 1.51781$	-0.270498	-8.82770
$u = 1.259130 + 0.350678I$ $a = 1.67906 + 0.25248I$ $b = -1.50623 - 0.17059I$	$3.67444 - 3.51286I$	$-3.38395 + 3.71816I$
$u = 1.259130 - 0.350678I$ $a = 1.67906 - 0.25248I$ $b = -1.50623 + 0.17059I$	$3.67444 + 3.51286I$	$-3.38395 - 3.71816I$
$u = -1.315770 + 0.340499I$ $a = -0.177134 + 0.134393I$ $b = 0.594644 - 0.588222I$	$-3.18817 + 6.18598I$	$-7.02896 - 2.89473I$
$u = -1.315770 - 0.340499I$ $a = -0.177134 - 0.134393I$ $b = 0.594644 + 0.588222I$	$-3.18817 - 6.18598I$	$-7.02896 + 2.89473I$
$u = -1.384040 + 0.044740I$ $a = 0.091228 + 0.281923I$ $b = -0.942704 + 0.288972I$	$-8.06493 + 0.19408I$	$-10.28074 + 0.61912I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.384040 - 0.044740I$ $a = 0.091228 - 0.281923I$ $b = -0.942704 - 0.288972I$	$-8.06493 - 0.19408I$	$-10.28074 - 0.61912I$
$u = 1.346140 + 0.369990I$ $a = -0.959184 - 0.578715I$ $b = 0.398944 - 0.727533I$	$-3.88120 - 10.62900I$	$-8.08796 + 8.14735I$
$u = 1.346140 - 0.369990I$ $a = -0.959184 + 0.578715I$ $b = 0.398944 + 0.727533I$	$-3.88120 + 10.62900I$	$-8.08796 - 8.14735I$
$u = 1.400780 + 0.126559I$ $a = 0.372750 + 0.796952I$ $b = -0.137322 + 0.736533I$	$-10.61170 - 4.02452I$	$-13.52498 + 4.12532I$
$u = 1.400780 - 0.126559I$ $a = 0.372750 - 0.796952I$ $b = -0.137322 - 0.736533I$	$-10.61170 + 4.02452I$	$-13.52498 - 4.12532I$
$u = -1.352420 + 0.399114I$ $a = 1.62910 - 1.77474I$ $b = -1.46757 - 0.27259I$	$2.1308 + 14.2744I$	$-4.23619 - 8.14865I$
$u = -1.352420 - 0.399114I$ $a = 1.62910 + 1.77474I$ $b = -1.46757 + 0.27259I$	$2.1308 - 14.2744I$	$-4.23619 + 8.14865I$
$u = -1.40349 + 0.18980I$ $a = -0.55401 + 1.37979I$ $b = 1.301280 + 0.292342I$	$-6.12604 + 7.74233I$	$-8.51765 - 6.24570I$
$u = -1.40349 - 0.18980I$ $a = -0.55401 - 1.37979I$ $b = 1.301280 - 0.292342I$	$-6.12604 - 7.74233I$	$-8.51765 + 6.24570I$
$u = 0.271980 + 0.498934I$ $a = -2.01833 - 1.68837I$ $b = 1.348350 - 0.118156I$	$4.60442 - 2.61585I$	$2.73829 + 6.23776I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.271980 - 0.498934I$ $a = -2.01833 + 1.68837I$ $b = 1.348350 + 0.118156I$	$4.60442 + 2.61585I$	$2.73829 - 6.23776I$
$u = 0.454758$ $a = 0.0591891$ $b = -1.34147$	3.38497	-0.780610
$u = -0.204200 + 0.280203I$ $a = 0.771021 - 0.484359I$ $b = -0.155898 - 0.381963I$	$-0.123351 + 0.761222I$	$-3.71153 - 9.11663I$
$u = -0.204200 - 0.280203I$ $a = 0.771021 + 0.484359I$ $b = -0.155898 + 0.381963I$	$-0.123351 - 0.761222I$	$-3.71153 + 9.11663I$

II. $\boldsymbol{I^u_2 = \langle 6.64 \times 10^5 u^{39} + 3.47 \times 10^6 u^{38} + \cdots + 4.50 \times 10^6 b + 1.27 \times 10^7,\ 1.46 \times 10^6 u^{39} + 3.89 \times 10^6 u^{38} + \cdots + 4.50 \times 10^6 a + 4.46 \times 10^7,\ u^{40} + u^{39} + \cdots + 10u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.324715u^{39} - 0.865554u^{38} + \cdots + 25.4189u - 9.92731 \\ -0.147604u^{39} - 0.771302u^{38} + \cdots + 11.3275u - 2.81731 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.502758u^{39} - 1.22710u^{38} + \cdots + 23.4208u - 10.1653 \\ -0.0239736u^{39} - 0.611436u^{38} + \cdots + 13.0357u - 2.77196 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2.56209u^{39} + 1.79705u^{38} + \cdots - 39.2267u + 15.9467 \\ 1.45613u^{39} + 0.698967u^{38} + \cdots - 2.49928u + 2.49602 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1.46016u^{39} + 3.14955u^{38} + \cdots - 50.0991u + 14.1572 \\ 0.192619u^{39} + 0.247031u^{38} + \cdots - 7.76383u + 2.21612 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1.65385u^{39} + 3.16578u^{38} + \cdots - 41.7713u + 13.1425 \\ -0.193691u^{39} - 0.0162321u^{38} + \cdots - 8.32777u + 2.01469 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{8450436}{4497023}u^{39} + \frac{11603704}{4497023}u^{38} + \cdots - \frac{184433680}{4497023}u + \frac{28189534}{4497023}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^{20} - 3u^{19} + \cdots - 12u + 1)^2$
c_2, c_3, c_8	$(u^{20} + u^{19} + \cdots - 2u - 1)^2$
c_4, c_5, c_6 c_7, c_{10}, c_{12}	$u^{40} + u^{39} + \cdots + 10u - 1$
c_9	$(u^{20} - 3u^{19} + \cdots + 2u + 5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^{20} + 17y^{19} + \cdots - 62y + 1)^2$
c_2, c_3, c_8	$(y^{20} - 19y^{19} + \cdots - 2y + 1)^2$
c_4, c_5, c_6 c_7, c_{10}, c_{12}	$y^{40} - 29y^{39} + \cdots - 60y + 1$
c_9	$(y^{20} - 7y^{19} + \cdots - 274y + 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.923862$ $a = 1.32744$ $b = -1.38920$	3.24334	1.89980
$u = 0.111900 + 0.892848I$ $a = -2.88979 - 0.73183I$ $b = 1.46202 - 0.24989I$	$6.73027 - 9.64430I$	$-0.34532 + 6.20543I$
$u = 0.111900 - 0.892848I$ $a = -2.88979 + 0.73183I$ $b = 1.46202 + 0.24989I$	$6.73027 + 9.64430I$	$-0.34532 - 6.20543I$
$u = 0.759025 + 0.475822I$ $a = -1.48000 - 0.53937I$ $b = 1.218960 + 0.103071I$	$-1.34713 + 0.58469I$	$-6.79795 - 0.00910I$
$u = 0.759025 - 0.475822I$ $a = -1.48000 + 0.53937I$ $b = 1.218960 - 0.103071I$	$-1.34713 - 0.58469I$	$-6.79795 + 0.00910I$
$u = -1.13904$ $a = -0.0164448$ $b = 0.432245$	-2.31303	-1.06120
$u = -0.118681 + 0.840736I$ $a = 0.962099 + 0.331136I$ $b = -0.403387 - 0.672553I$	$0.72067 + 6.27316I$	$-3.89985 - 6.54347I$
$u = -0.118681 - 0.840736I$ $a = 0.962099 - 0.331136I$ $b = -0.403387 + 0.672553I$	$0.72067 - 6.27316I$	$-3.89985 + 6.54347I$
$u = -1.128490 + 0.400676I$ $a = -0.025745 + 0.174387I$ $b = 0.380611 - 0.584774I$	$-2.37392 - 1.80448I$	$-7.17537 + 3.70058I$
$u = -1.128490 - 0.400676I$ $a = -0.025745 - 0.174387I$ $b = 0.380611 + 0.584774I$	$-2.37392 + 1.80448I$	$-7.17537 - 3.70058I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.014873 + 0.802003I$ $a = -3.15229 - 0.90911I$ $b = 1.47490 - 0.19643I$	$7.52808 - 0.63661I$	$0.960350 - 0.169887I$
$u = 0.014873 - 0.802003I$ $a = -3.15229 + 0.90911I$ $b = 1.47490 + 0.19643I$	$7.52808 + 0.63661I$	$0.960350 + 0.169887I$
$u = 0.067576 + 0.777860I$ $a = 1.154830 + 0.297440I$ $b = -0.506351 - 0.571230I$	$1.14846 - 2.14390I$	$-2.54408 + 0.24308I$
$u = 0.067576 - 0.777860I$ $a = 1.154830 - 0.297440I$ $b = -0.506351 + 0.571230I$	$1.14846 + 2.14390I$	$-2.54408 - 0.24308I$
$u = 0.405495 + 0.666361I$ $a = 2.09904 + 0.99095I$ $b = -1.287780 + 0.198735I$	$-0.30488 - 4.84109I$	$-4.36837 + 6.37981I$
$u = 0.405495 - 0.666361I$ $a = 2.09904 - 0.99095I$ $b = -1.287780 - 0.198735I$	$-0.30488 + 4.84109I$	$-4.36837 - 6.37981I$
$u = 1.168250 + 0.467812I$ $a = 1.64680 + 0.34227I$ $b = -1.44525 - 0.22406I$	$3.49387 + 4.79919I$	$-3.30190 - 3.09464I$
$u = 1.168250 - 0.467812I$ $a = 1.64680 - 0.34227I$ $b = -1.44525 + 0.22406I$	$3.49387 - 4.79919I$	$-3.30190 + 3.09464I$
$u = 1.221280 + 0.315797I$ $a = -1.117640 - 0.858852I$ $b = 0.380611 - 0.584774I$	$-2.37392 - 1.80448I$	$-7.17537 + 3.70058I$
$u = 1.221280 - 0.315797I$ $a = -1.117640 + 0.858852I$ $b = 0.380611 + 0.584774I$	$-2.37392 + 1.80448I$	$-7.17537 - 3.70058I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.506013 + 0.529581I$ $a = -0.492988 - 0.064584I$ $b = 0.084750 + 0.594489I$	$-4.54605 + 1.94645I$	$-10.94680 - 4.81876I$
$u = -0.506013 - 0.529581I$ $a = -0.492988 + 0.064584I$ $b = 0.084750 - 0.594489I$	$-4.54605 - 1.94645I$	$-10.94680 + 4.81876I$
$u = 1.210060 + 0.408349I$ $a = -1.65887 - 0.29795I$ $b = 1.47490 + 0.19643I$	$7.52808 + 0.63661I$	$-60.960350 + 0.10I$
$u = 1.210060 - 0.408349I$ $a = -1.65887 + 0.29795I$ $b = 1.47490 - 0.19643I$	$7.52808 - 0.63661I$	$-60.960350 + 0.10I$
$u = 1.280890 + 0.069261I$ $a = -0.308042 - 1.258930I$ $b = 0.084750 - 0.594489I$	$-4.54605 - 1.94645I$	$-10.94680 + 4.81876I$
$u = 1.280890 - 0.069261I$ $a = -0.308042 + 1.258930I$ $b = 0.084750 + 0.594489I$	$-4.54605 + 1.94645I$	$-10.94680 - 4.81876I$
$u = -1.238550 + 0.356207I$ $a = 0.111095 - 0.148235I$ $b = -0.506351 + 0.571230I$	$1.14846 + 2.14390I$	$-2.54408 + 0.I$
$u = -1.238550 - 0.356207I$ $a = 0.111095 + 0.148235I$ $b = -0.506351 - 0.571230I$	$1.14846 - 2.14390I$	$-2.54408 + 0.I$
$u = -1.288630 + 0.060039I$ $a = 1.00326 + 1.02639I$ $b = 1.218960 + 0.103071I$	$-1.34713 + 0.58469I$	$-6.79795 + 0.I$
$u = -1.288630 - 0.060039I$ $a = 1.00326 - 1.02639I$ $b = 1.218960 - 0.103071I$	$-1.34713 - 0.58469I$	$-6.79795 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.317540+0.151393I$ $a=-0.06745-1.74399I$ $b=-1.287780-0.198735I$	$-0.30488+4.84109I$	$-4.00000-6.37981I$
$u=-1.317540-0.151393I$ $a=-0.06745+1.74399I$ $b=-1.287780+0.198735I$	$-0.30488-4.84109I$	$-4.00000+6.37981I$
$u=-1.281360+0.353972I$ $a=\ \ 1.52306-2.23919I$ $b=-1.44525-0.22406I$	$3.49387+4.79919I$	$-4.00000-3.09464I$
$u=-1.281360-0.353972I$ $a=\ \ 1.52306+2.23919I$ $b=-1.44525+0.22406I$	$3.49387-4.79919I$	$-4.00000+3.09464I$
$u=\ \ 1.293540+0.359734I$ $a=\ \ 1.030770+0.670930I$ $b=-0.403387+0.672553I$	$0.72067-6.27316I$	$-4.00000+6.54347I$
$u=\ \ 1.293540-0.359734I$ $a=\ \ 1.030770-0.670930I$ $b=-0.403387-0.672553I$	$0.72067+6.27316I$	$-4.00000-6.54347I$
$u=-1.317700+0.387037I$ $a=-1.62992+1.96256I$ $b=\ \ 1.46202+0.24989I$	$6.73027+9.64430I$	$0.-6.20543I$
$u=-1.317700-0.387037I$ $a=-1.62992-1.96256I$ $b=\ \ 1.46202-0.24989I$	$6.73027-9.64430I$	$0.+6.20543I$
$u=\ \ 0.405383$ $a=-1.98705$ $b=\ \ 0.432245$	-2.31303	-1.06120
$u=\ \ 0.137952$ $a=-6.74035$ $b=-1.38920$	3.24334	1.89980

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000$ $b = \quad 0$	-3.28987	-12.0000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.414214$ $b = 1.41421$	1.64493	−4.00000
$u = 1.00000$ $a = 2.41421$ $b = -1.41421$	1.64493	−4.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^3(u^{20} - 3u^{19} + \cdots - 12u + 1)^2(u^{24} - 3u^{23} + \cdots + 16u - 16)$
c_2, c_3, c_8	$u(u^2 - 2)(u^{20} + u^{19} + \cdots - 2u - 1)^2(u^{24} - 3u^{23} + \cdots + 2u - 2)$
c_4, c_5, c_{10}	$((u - 1)^2)(u + 1)(u^{24} + u^{23} + \cdots + u^2 + 1)(u^{40} + u^{39} + \cdots + 10u - 1)$
c_6, c_7, c_{12}	$(u - 1)(u + 1)^2(u^{24} + u^{23} + \cdots + u^2 + 1)(u^{40} + u^{39} + \cdots + 10u - 1)$
c_9	$u(u^2 - 2)(u^{20} - 3u^{19} + \cdots + 2u + 5)^2(u^{24} + 9u^{23} + \cdots - 38u - 46)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^3(y^{20}+17y^{19}+\cdots-62y+1)^2(y^{24}+17y^{23}+\cdots-1280y+256)$
c_2, c_3, c_8	$y(y-2)^2(y^{20}-19y^{19}+\cdots-2y+1)^2(y^{24}-23y^{23}+\cdots+28y+4)$
c_4, c_5, c_6 c_7, c_{10}, c_{12}	$((y-1)^3)(y^{24}-23y^{23}+\cdots+2y+1)(y^{40}-29y^{39}+\cdots-60y+1)$
c_9	$y(y-2)^2(y^{20}-7y^{19}+\cdots-274y+25)^2$ $\cdot(y^{24}-11y^{23}+\cdots+7020y+2116)$