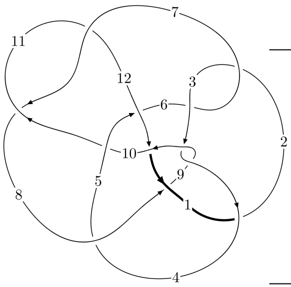
$12n_{0764}$ ($K12n_{0764}$)



A knot diagram[1]

Linearized knot diagam

$$\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to\downarrow\to$$

4 7 10 8 12 3 11 1 4 5 7 10

Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-521239u^{17} - 378608u^{16} + \cdots + 1930047b + 369959,\\
&- 4207072u^{17} - 369959u^{16} + \cdots + 1930047a + 27427427,\ u^{18} + 9u^{16} + \cdots - 7u + 1\rangle\\
I_2^u = \langle &u^2 + b,\ u^6 - u^5 + 2u^4 - 4u^3 + u^2 + a - 2u + 2,\ u^7 - u^6 + 2u^5 - 4u^4 + u^3 - 2u^2 + u + 1\rangle\\
I_3^u = \langle &-47u^{11} - 232u^{10} + \cdots + 125b - 849,\ 3669u^{11} + 13414u^{10} + \cdots + 14875a + 13098,\\
&u^{12} + 2u^{11} + 8u^{10} + 12u^9 + 29u^8 + 33u^7 + 54u^6 + 51u^5 + 54u^4 + 43u^3 + 28u^2 + 15u + 7\rangle\\
I_4^u = \langle &-2931u^{11} + 6882u^{10} + \cdots + 36253b - 67921,\ 20673u^{11} - 60690u^{10} + \cdots + 471289a - 219170,\\
&u^{12} - 2u^{11} - 2u^{10} + 4u^9 + 11u^8 - u^7 - 6u^6 - 7u^5 - 14u^4 - 19u^3 + 10u^2 + 25u + 13\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 49 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.
$\boldsymbol{I_1^u = \langle -5.21\times10^5u^{17} - 3.79\times10^5u^{16} + \cdots + 1.93\times10^6b + 3.70\times10^5,\ -4.21\times10^6u^{17} - 3.70\times10^5u^{16} + \cdots + 1.93\times10^6a + 2.74\times10^7,\ u^{18} + 9u^{16} + \cdots - 7u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2.17978u^{17} + 0.191684u^{16} + \cdots + 26.2071u - 14.2108 \\ 0.270065u^{17} + 0.196165u^{16} + \cdots - 1.83799u - 0.191684 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2.17978u^{17} + 0.191684u^{16} + \cdots + 25.2071u - 14.2108 \\ 0.270065u^{17} + 0.196165u^{16} + \cdots - 1.83799u - 0.191684 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2.64153u^{17} - 0.657915u^{16} + \cdots - 25.4168u + 18.5822 \\ -0.576170u^{17} - 0.104194u^{16} + \cdots - 0.125886u + 0.849598 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 7.90979u^{17} + 1.38868u^{16} + \cdots + 54.3071u - 42.6181 \\ 0.275909u^{17} + 0.141446u^{16} + \cdots + 7.93863u - 3.32710 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2.85131u^{17} + 0.717915u^{16} + \cdots + 18.8121u - 16.5368 \\ 0.0775567u^{17} - 0.0705465u^{16} + \cdots + 6.12764u - 1.93842 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -2.77375u^{17} - 0.788461u^{16} + \cdots - 12.6845u + 14.5983 \\ -0.0775567u^{17} + 0.0705465u^{16} + \cdots - 6.12764u + 1.93842 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 2.06984u^{17} + 0.123529u^{16} + \cdots + 25.9420u - 13.8229 \\ 0.380005u^{17} + 0.264320u^{16} + \cdots - 1.57289u - 0.579533 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -5.96916u^{17} - 1.48818u^{16} + \cdots - 52.2245u + 38.4019 \\ -0.707998u^{17} - 0.0464724u^{16} + \cdots - 2.87520u + 2.06771 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{464573}{91907}u^{17} - \frac{454121}{643349}u^{16} + \cdots - \frac{30228500}{643349}u + \frac{10577045}{643349}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18} + u^{17} + \cdots + 10u + 7$
c_2, c_6, c_8	$u^{18} + u^{17} + \cdots - 3u - 1$
c_3, c_5, c_9	$u^{18} - 16u^{16} + \cdots - 20u - 11$
c_4, c_7, c_{11}	$u^{18} + 9u^{16} + \cdots + 7u + 1$
c_{10}	$u^{18} + 7u^{17} + \cdots - 57u - 7$
c_{12}	$u^{18} - 4u^{17} + \cdots + 24u + 117$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} - 29y^{17} + \cdots - 1724y + 49$
c_2, c_6, c_8	$y^{18} - 15y^{17} + \cdots - 3y + 1$
c_3, c_5, c_9	$y^{18} - 32y^{17} + \cdots - 1060y + 121$
c_4, c_7, c_{11}	$y^{18} + 18y^{17} + \cdots - 31y + 1$
c_{10}	$y^{18} + y^{17} + \cdots - 337y + 49$
c_{12}	$y^{18} - 38y^{17} + \cdots - 200412y + 13689$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.017806 + 1.047910I$ $a = 0.678997 - 0.386228I$ $b = -0.748794 - 0.598570I$	$-0.15119 + 2.09745I$	$-12.63201 - 4.12977I$
$u = 0.017806 - 1.047910I$ $a = 0.678997 + 0.386228I$ $b = -0.748794 + 0.598570I$	$-0.15119 - 2.09745I$	$-12.63201 + 4.12977I$
$u = -0.346086 + 0.994636I$ $a = -0.819378 + 0.554280I$ $b = 1.44016 - 0.91249I$	$5.46595 - 1.70319I$	$-1.84461 + 1.40793I$
$u = -0.346086 - 0.994636I$ $a = -0.819378 - 0.554280I$ $b = 1.44016 + 0.91249I$	$5.46595 + 1.70319I$	$-1.84461 - 1.40793I$
$u = -0.442971 + 1.297020I$ $a = -0.306761 - 0.349541I$ $b = 0.497178 - 0.425094I$	$-0.12898 + 2.98542I$	$-11.42448 - 1.55661I$
$u = -0.442971 - 1.297020I$ $a = -0.306761 + 0.349541I$ $b = 0.497178 + 0.425094I$	$-0.12898 - 2.98542I$	$-11.42448 + 1.55661I$
$u = 0.680846 + 1.209390I$ $a = 0.815864 - 0.142059I$ $b = -1.262000 + 0.276114I$	$-0.03662 - 6.82707I$	$-12.5292 + 8.6563I$
$u = 0.680846 - 1.209390I$ $a = 0.815864 + 0.142059I$ $b = -1.262000 - 0.276114I$	$-0.03662 + 6.82707I$	$-12.5292 - 8.6563I$
$u = -0.76192 + 1.23703I$ $a = 0.045171 - 1.091190I$ $b = -1.337910 - 0.285858I$	$-13.04820 + 4.46526I$	$-11.23742 - 2.32071I$
$u = -0.76192 - 1.23703I$ $a = 0.045171 + 1.091190I$ $b = -1.337910 + 0.285858I$	$-13.04820 - 4.46526I$	$-11.23742 + 2.32071I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.24569 + 1.44514I$ $a = -1.051510 - 0.623676I$ $b = 1.93533 + 0.56642I$	$8.63765 + 4.81272I$	$-14.8469 + 6.2266I$
$u = -0.24569 - 1.44514I$ $a = -1.051510 + 0.623676I$ $b = 1.93533 - 0.56642I$	$8.63765 - 4.81272I$	$-14.8469 - 6.2266I$
$u = -0.172111 + 0.488659I$ $a = -1.21271 + 2.12963I$ $b = 0.783985 - 0.730119I$	$2.63033 - 2.95805I$	$-12.64066 + 3.45085I$
$u = -0.172111 - 0.488659I$ $a = -1.21271 - 2.12963I$ $b = 0.783985 + 0.730119I$	$2.63033 + 2.95805I$	$-12.64066 - 3.45085I$
$u = 0.292901$ $a = 1.34245$ $b = -0.177730$	-0.535468	-18.6140
$u = 0.178761$ $a = -8.26850$ $b = -0.442984$	-7.55325	4.27620
$u = 1.03430 + 1.57774I$ $a = 0.813344 - 0.058598I$ $b = -1.99758 + 1.15997I$	$-11.6616 - 12.5169I$	$-11.17612 + 5.12731I$
$u = 1.03430 - 1.57774I$ $a = 0.813344 + 0.058598I$ $b = -1.99758 - 1.15997I$	$-11.6616 + 12.5169I$	$-11.17612 - 5.12731I$

II. $I_2^u = \langle u^2+b,\ u^6-u^5+2u^4-4u^3+u^2+a-2u+2,\ u^7-u^6+2u^5-4u^4+u^3-2u^2+u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^6+5u^5-11u^4+28u^3-15u^2+14u-24$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^7 - 6u^5 - u^4 + 9u^3 + u^2 - 4u + 1$
c_2, c_8	$u^7 + 2u^6 - u^5 + 2u^4 + u^3 - 2u^2 - u - 1$
c_3, c_5	$u^7 + u^6 - 5u^5 + 5u^4 - 9u^3 + 7u^2 - 1$
c_4, c_7	$u^7 - u^6 + 2u^5 - 4u^4 + u^3 - 2u^2 + u + 1$
c_6	$u^7 - 2u^6 - u^5 - 2u^4 + u^3 + 2u^2 - u + 1$
c_9	$u^7 - u^6 - 5u^5 - 5u^4 - 9u^3 - 7u^2 + 1$
c_{10}	$u^7 + 6u^6 + 17u^5 + 26u^4 + 20u^3 + 3u^2 - 5u - 1$
c_{11}	$u^7 + u^6 + 2u^5 + 4u^4 + u^3 + 2u^2 + u - 1$
c_{12}	$u^7 + 5u^6 + 6u^5 + 7u^4 + 18u^3 + 5u^2 + 10u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^7 - 12y^6 + 54y^5 - 117y^4 + 131y^3 - 71y^2 + 14y - 1$
c_2, c_6, c_8	$y^7 - 6y^6 - 5y^5 + 15y^3 - 2y^2 - 3y - 1$
c_3, c_5, c_9	$y^7 - 11y^6 - 3y^5 + 51y^4 + 13y^3 - 39y^2 + 14y - 1$
c_4, c_7, c_{11}	$y^7 + 3y^6 - 2y^5 - 14y^4 - 9y^3 + 6y^2 + 5y - 1$
c_{10}	$y^7 - 2y^6 + 17y^5 - 42y^4 + 86y^3 - 157y^2 + 31y - 1$
c_{12}	$y^7 - 13y^6 + 2y^5 + 137y^4 + 304y^3 + 237y^2 + 30y - 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.180603 + 0.994309I$ $a = -1.17684 - 0.97360I$ $b = 0.956033 + 0.359151I$	$3.86399 + 3.81570I$	$-7.59315 - 5.07181I$
$u = -0.180603 - 0.994309I$ $a = -1.17684 + 0.97360I$ $b = 0.956033 - 0.359151I$	$3.86399 - 3.81570I$	$-7.59315 + 5.07181I$
$u = 0.799230$ $a = 0.251205$ $b = -0.638768$	-3.11260	-12.2590
$u = 1.42119$ $a = -0.296362$ $b = -2.01977$	-14.5025	-11.1100
$u = -0.22015 + 1.41755I$ $a = -1.106980 - 0.688829I$ $b = 1.96097 + 0.62416I$	$8.82336 + 5.00709I$	$6.2703 - 15.1192I$
$u = -0.22015 - 1.41755I$ $a = -1.106980 + 0.688829I$ $b = 1.96097 - 0.62416I$	$8.82336 - 5.00709I$	$6.2703 + 15.1192I$
$u = -0.418901$ $a = -3.38720$ $b = -0.175478$	-7.75956	-34.9850

III. $\boldsymbol{I^u_3 = \langle -47u^{11} - 232u^{10} + \cdots + 125b - 849,\ 3669u^{11} + 13414u^{10} + \cdots + 14875a + 13098,\ u^{12} + 2u^{11} + \cdots + 15u + 7\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.246655u^{11} - 0.901782u^{10} + \cdots - 4.03341u - 0.880538 \\ 0.376000u^{11} + 1.85600u^{10} + \cdots + 17.0880u + 6.79200 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.154420u^{11} - 0.00719328u^{10} + \cdots + 5.20094u + 3.05217 \\ 0.287059u^{11} + 0.957647u^{10} + \cdots + 5.79059u + 1.82118 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.389513u^{11} + 1.18750u^{10} + \cdots + 8.03341u + 3.02339 \\ -0.301647u^{11} - 0.798118u^{10} + \cdots - 5.36847u - 3.08094 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.154420u^{11} + 0.00719328u^{10} + \cdots - 5.20094u - 3.05217 \\ -0.187294u^{11} - 0.500235u^{10} + \cdots - 2.12894u + 0.310118 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0135126u^{11} + 0.331496u^{10} + \cdots + 5.94541u + 2.23139 \\ 0.362824u^{11} + 0.871059u^{10} + \cdots + 4.34024u + 0.944471 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.349311u^{11} - 0.539563u^{10} + \cdots + 1.60518u + 1.28692 \\ 0.362824u^{11} + 0.871059u^{10} + \cdots + 4.34024u + 0.944471 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.346420u^{11} - 0.359193u^{10} + \cdots + 7.30494u + 3.98817 \\ 0.475765u^{11} + 1.31341u^{10} + \cdots + 5.74965u + 1.92329 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.778958u^{11} + 1.90568u^{10} + \cdots + 5.02729u + 1.17002 \\ -0.515765u^{11} - 1.55341u^{10} + \cdots - 5.26965u - 1.60329 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{3466}{2125}u^{11} + \frac{5146}{2125}u^{10} + \frac{20662}{2125}u^9 + \frac{4013}{425}u^8 + \frac{54149}{2125}u^7 + \frac{27374}{2125}u^6 + \frac{10937}{425}u^5 + \frac{7631}{2125}u^4 + \frac{2288}{2125}u^3 - \frac{3202}{425}u^2 - \frac{16867}{2125}u - \frac{37678}{2125}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^3 - 3u^2 + 2u + 1)^4$
c_2, c_8	$u^{12} - u^{11} - u^{10} + u^9 - u^8 + 2u^7 + u^6 - 9u^5 + 15u^4 - 13u^3 + 9u^2 - 4u + 1$
c_3, c_5	$u^{12} + 4u^{11} + \cdots + 2u + 1$
c_4, c_7	$u^{12} + 2u^{11} + \cdots + 15u + 7$
c_6	$u^{12} + u^{11} - u^{10} - u^9 - u^8 - 2u^7 + u^6 + 9u^5 + 15u^4 + 13u^3 + 9u^2 + 4u + 1$
c_9	$u^{12} - 4u^{11} + \cdots - 2u + 1$
c_{10}	$(u^2 - u + 1)^6$
c_{11}	$u^{12} - 2u^{11} + \cdots - 15u + 7$
c_{12}	$u^{12} - 4u^{11} + \cdots + 21u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^3-5y^2+10y-1)^4$
c_2, c_6, c_8	$y^{12}-3y^{11}+\cdots+2y+1$
c_3, c_5, c_9	$y^{12}-2y^{11}+\cdots+26y+1$
c_4, c_7, c_{11}	$y^{12}+12y^{11}+\cdots+167y+49$
c_{10}	$(y^2+y+1)^6$
c_{12}	$y^{12}+4y^{11}+\cdots+105y+49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.180135 + 0.927755I$ $a = 0.798712 + 0.694015I$ $b = -1.29718 + 1.09845I$	$0.265740 - 0.798239I$	$-10.21508 - 2.15696I$
$u = 0.180135 - 0.927755I$ $a = 0.798712 - 0.694015I$ $b = -1.29718 - 1.09845I$	$0.265740 + 0.798239I$	$-10.21508 + 2.15696I$
$u = -0.206453 + 1.188860I$ $a = -0.636230 + 0.531056I$ $b = 1.80380 - 0.74655I$	$4.40332 - 2.02988I$	$-10.56984 + 3.46410I$
$u = -0.206453 - 1.188860I$ $a = -0.636230 - 0.531056I$ $b = 1.80380 + 0.74655I$	$4.40332 + 2.02988I$	$-10.56984 - 3.46410I$
$u = 0.300960 + 1.170050I$ $a = -0.797324 + 0.222244I$ $b = 1.87013 + 0.59068I$	$0.26574 - 4.85801I$	$-10.21508 + 4.77124I$
$u = 0.300960 - 1.170050I$ $a = -0.797324 - 0.222244I$ $b = 1.87013 - 0.59068I$	$0.26574 + 4.85801I$	$-10.21508 - 4.77124I$
$u = -0.670986 + 0.330909I$ $a = 0.087396 + 1.333780I$ $b = 0.828521 - 0.773223I$	$4.40332 - 2.02988I$	$-10.56984 + 3.46410I$
$u = -0.670986 - 0.330909I$ $a = 0.087396 - 1.333780I$ $b = 0.828521 + 0.773223I$	$4.40332 + 2.02988I$	$-10.56984 - 3.46410I$
$u = 0.40365 + 1.40633I$ $a = -0.663216 + 0.165175I$ $b = 0.835953 - 0.124983I$	$0.265740 + 0.798239I$	$-10.21508 + 2.15696I$
$u = 0.40365 - 1.40633I$ $a = -0.663216 - 0.165175I$ $b = 0.835953 + 0.124983I$	$0.265740 - 0.798239I$	$-10.21508 - 2.15696I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00731 + 1.43634I$ $a = \quad 0.567805 - 0.050096I$ $b = -1.041220 - 0.420474I$	$0.26574 + 4.85801I$	$-10.21508 - 4.77124I$
$u = -1.00731 - 1.43634I$ $a = \quad 0.567805 + 0.050096I$ $b = -1.041220 + 0.420474I$	$0.26574 - 4.85801I$	$-10.21508 + 4.77124I$

IV. $\boldsymbol{I_4^u = \langle -2931u^{11} + 6882u^{10} + \cdots + 36253b - 67921,\ 20673u^{11} - 60690u^{10} + \cdots + 471289a - 219170,\ u^{12} - 2u^{11} + \cdots + 25u + 13\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} -0.0438648u^{11} + 0.128774u^{10} + \cdots - 0.996698u + 0.465044 \\ 0.0808485u^{11} - 0.189833u^{10} + \cdots + 2.60001u + 1.87353 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.0941100u^{11} - 0.160829u^{10} + \cdots + 2.05919u + 2.87215 \\ 0.0281356u^{11} + 0.0393623u^{10} + \cdots + 1.14768u + 2.05103 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.120788u^{11} - 0.282621u^{10} + \cdots + 1.76593u + 1.45803 \\ 0.0273908u^{11} - 0.164621u^{10} + \cdots + 0.519405u - 1.22343 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0941100u^{11} + 0.160829u^{10} + \cdots - 2.05919u - 2.87215 \\ -0.0324939u^{11} + 0.0685461u^{10} + \cdots + 0.472016u - 0.826442 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.133483u^{11} + 0.361165u^{10} + \cdots - 2.47857u - 2.33702 \\ -0.190081u^{11} + 0.415166u^{10} + \cdots - 2.22379u - 2.79433 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0565980u^{11} + 0.0540008u^{10} + \cdots + 0.254780u - 0.457318 \\ 0.190081u^{11} - 0.415166u^{10} + \cdots + 2.22379u + 2.79433 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.108895u^{11} - 0.270117u^{10} + \cdots - 0.193179u + 0.632864 \\ -0.0719113u^{11} + 0.209059u^{10} + \cdots + 1.79649u + 1.70571 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.177965u^{11} - 0.558920u^{10} + \cdots + 2.12679u + 1.81136 \\ 0.514054u^{11} - 1.53965u^{10} + \cdots + 9.23946u + 4.75588 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3530}{36253}u^{11} + \frac{19484}{36253}u^{10} - \frac{23246}{36253}u^9 - \frac{11803}{36253}u^8 - \frac{17415}{36253}u^7 + \frac{113796}{36253}u^6 + \frac{5597}{36253}u^5 + \frac{68101}{36253}u^4 - \frac{58140}{36253}u^3 - \frac{1074}{36253}u^2 - \frac{209035}{36253}u - \frac{58638}{5179}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^3 - u^2 - 2u + 1)^4$
c_2, c_6, c_8	$u^{12} + u^{11} + \cdots - 308u + 91$
c_3, c_5, c_9	$u^{12} + 4u^{11} + \cdots + 315u^2 + 189$
c_4, c_7, c_{11}	$u^{12} + 2u^{11} + \cdots - 25u + 13$
c_{10}	$(u^2 - u + 1)^6$
c_{12}	$u^{12} - 18u^{10} + \cdots - 525u + 127$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^3 - 5y^2 + 6y - 1)^4$
c_2, c_6, c_8	$y^{12} - 31y^{11} + \cdots - 27342y + 8281$
c_3, c_5, c_9	$y^{12} - 38y^{11} + \cdots + 119070y + 35721$
c_4, c_7, c_{11}	$y^{12} - 8y^{11} + \cdots - 365y + 169$
c_{10}	$(y^2 + y + 1)^6$
c_{12}	$y^{12} - 36y^{11} + \cdots - 25943y + 16129$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.935871+0.612228I$ $a=\ \ 0.798080-0.403281I$ $b=-1.27562-0.98498I$	$-3.05488+2.02988I$	$-11.80194-3.46410I$
$u=-0.935871-0.612228I$ $a=\ \ 0.798080+0.403281I$ $b=-1.27562+0.98498I$	$-3.05488-2.02988I$	$-11.80194+3.46410I$
$u=\ \ 0.267965+1.122990I$ $a=-0.830154+0.247151I$ $b=\ \ 1.50749-0.36507I$	$2.58490-2.02988I$	$-8.75302+3.46410I$
$u=\ \ 0.267965-1.122990I$ $a=-0.830154-0.247151I$ $b=\ \ 1.50749+0.36507I$	$2.58490+2.02988I$	$-8.75302-3.46410I$
$u=-0.668934+0.428490I$ $a=\ \ 1.118010-0.578487I$ $b=-0.304581+0.329429I$	$2.58490+2.02988I$	$-8.75302-3.46410I$
$u=-0.668934-0.428490I$ $a=\ \ 1.118010+0.578487I$ $b=-0.304581-0.329429I$	$2.58490-2.02988I$	$-8.75302+3.46410I$
$u=\ \ 1.213350+0.131620I$ $a=-0.483814-0.661265I$ $b=\ \ 0.443182-0.504374I$	$-3.05488-2.02988I$	$-11.80194+3.46410I$
$u=\ \ 1.213350-0.131620I$ $a=-0.483814+0.661265I$ $b=\ \ 0.443182+0.504374I$	$-3.05488+2.02988I$	$-11.80194-3.46410I$
$u=-0.894944+0.895021I$ $a=\ \ 0.763167-0.204455I$ $b=-2.34607-2.27347I$	$-14.3344+2.0299I$	$-10.44504-3.46410I$
$u=-0.894944-0.895021I$ $a=\ \ 0.763167+0.204455I$ $b=-2.34607+2.27347I$	$-14.3344-2.0299I$	$-10.44504+3.46410I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 2.01843 + 1.05092I$ $a = -0.019135 + 0.439021I$ $b = -1.024400 + 0.327533I$	$-14.3344 + 2.0299I$	$-10.44504 - 3.46410I$
$u = \quad 2.01843 - 1.05092I$ $a = -0.019135 - 0.439021I$ $b = -1.024400 - 0.327533I$	$-14.3344 - 2.0299I$	$-10.44504 + 3.46410I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3-3u^2+2u+1)^4(u^3-u^2-2u+1)^4$ $\cdot(u^7-6u^5-u^4+9u^3+u^2-4u+1)(u^{18}+u^{17}+\cdots+10u+7)$
c_2, c_8	$(u^7+2u^6-u^5+2u^4+u^3-2u^2-u-1)$ $\cdot(u^{12}-u^{11}-u^{10}+u^9-u^8+2u^7+u^6-9u^5+15u^4-13u^3+9u^2-4u+1)$ $\cdot(u^{12}+u^{11}+\cdots-308u+91)(u^{18}+u^{17}+\cdots-3u-1)$
c_3, c_5	$(u^7+u^6+\cdots+7u^2-1)(u^{12}+4u^{11}+\cdots+315u^2+189)$ $\cdot(u^{12}+4u^{11}+\cdots+2u+1)(u^{18}-16u^{16}+\cdots-20u-11)$
c_4, c_7	$(u^7-u^6+\cdots+u+1)(u^{12}+2u^{11}+\cdots-25u+13)$ $\cdot(u^{12}+2u^{11}+\cdots+15u+7)(u^{18}+9u^{16}+\cdots+7u+1)$
c_6	$(u^7-2u^6+\cdots-u+1)(u^{12}+u^{11}+\cdots-308u+91)$ $\cdot(u^{12}+u^{11}-u^{10}-u^9-u^8-2u^7+u^6+9u^5+15u^4+13u^3+9u^2+4u+1)$ $\cdot(u^{18}+u^{17}+\cdots-3u-1)$
c_9	$(u^7-u^6+\cdots-7u^2+1)(u^{12}-4u^{11}+\cdots-2u+1)$ $\cdot(u^{12}+4u^{11}+\cdots+315u^2+189)(u^{18}-16u^{16}+\cdots-20u-11)$
c_{10}	$(u^2-u+1)^{12}(u^7+6u^6+17u^5+26u^4+20u^3+3u^2-5u-1)$ $\cdot(u^{18}+7u^{17}+\cdots-57u-7)$
c_{11}	$(u^7+u^6+\cdots+u-1)(u^{12}-2u^{11}+\cdots-15u+7)$ $\cdot(u^{12}+2u^{11}+\cdots-25u+13)(u^{18}+9u^{16}+\cdots+7u+1)$
c_{12}	$(u^7+5u^6+6u^5+7u^4+18u^3+5u^2+10u+7)$ $\cdot(u^{12}-18u^{10}+\cdots-525u+127)(u^{12}-4u^{11}+\cdots+21u+7)$ $\cdot(u^{18}-4u^{17}+\cdots+24u+117)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^3-5y^2+6y-1)^4(y^3-5y^2+10y-1)^4$ $\cdot(y^7-12y^6+54y^5-117y^4+131y^3-71y^2+14y-1)$ $\cdot(y^{18}-29y^{17}+\cdots-1724y+49)$
c_2, c_6, c_8	$(y^7-6y^6-5y^5+15y^3-2y^2-3y-1)$ $\cdot(y^{12}-31y^{11}+\cdots-27342y+8281)(y^{12}-3y^{11}+\cdots+2y+1)$ $\cdot(y^{18}-15y^{17}+\cdots-3y+1)$
c_3, c_5, c_9	$(y^7-11y^6-3y^5+51y^4+13y^3-39y^2+14y-1)$ $\cdot(y^{12}-38y^{11}+\cdots+119070y+35721)(y^{12}-2y^{11}+\cdots+26y+1)$ $\cdot(y^{18}-32y^{17}+\cdots-1060y+121)$
c_4, c_7, c_{11}	$(y^7+3y^6-2y^5-14y^4-9y^3+6y^2+5y-1)$ $\cdot(y^{12}-8y^{11}+\cdots-365y+169)(y^{12}+12y^{11}+\cdots+167y+49)$ $\cdot(y^{18}+18y^{17}+\cdots-31y+1)$
c_{10}	$(y^2+y+1)^{12}(y^7-2y^6+17y^5-42y^4+86y^3-157y^2+31y-1)$ $\cdot(y^{18}+y^{17}+\cdots-337y+49)$
c_{12}	$(y^7-13y^6+2y^5+137y^4+304y^3+237y^2+30y-49)$ $\cdot(y^{12}-36y^{11}+\cdots-25943y+16129)(y^{12}+4y^{11}+\cdots+105y+49)$ $\cdot(y^{18}-38y^{17}+\cdots-200412y+13689)$