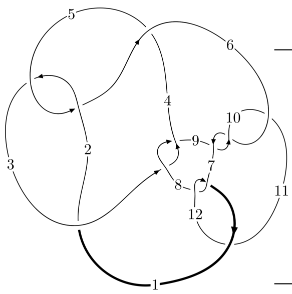
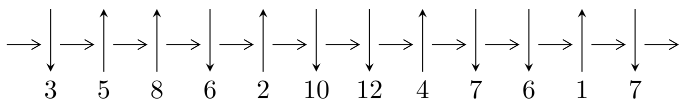
$12n_{0269}$ $(K12n_{0269})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &6075798104u^{29} - 20035573492u^{28} + \cdots + 94573295142b - 102785752178,\\
&52900187657u^{29} - 66435815226u^{28} + \cdots + 189146590284a - 100941534777,\\
&u^{30} - 2u^{29} + \cdots - 11u + 4\rangle\\
I_2^u = \langle &3u^{18}a - 3u^{18} + \cdots - a - 1,\ 2u^{18} - 3u^{17} + \cdots - 4a + 5,\ u^{19} - u^{18} + \cdots + 2u + 1\rangle\\
I_3^u = \langle &-u^3 + au - u^2 + b + 1,\ -2u^3a - 4u^2a + u^3 + a^2 - 4au - 2u^2 - 4u - 5,\ u^4 + u^3 + u^2 + 1\rangle\\
I_4^u = \langle &b - 1,\ 2a + 2u + 1,\ u^2 - u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 78 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. $I^u_1 =$
$\langle 6.08\times10^{9}u^{29}-2.00\times10^{10}u^{28}+\cdots+9.46\times10^{10}b-1.03\times10^{11},\ 5.29\times10^{10}u^{29}-6.64\times10^{10}u^{28}+\cdots+1.89\times10^{11}a-1.01\times10^{11},\ u^{30}-2u^{29}+\cdots-11u+4\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5+u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.279678u^{29}+0.351240u^{28}+\cdots-2.48757u+0.533668 \\ -0.0642443u^{29}+0.211852u^{28}+\cdots-0.962626u+1.08684 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.343923u^{29}+0.563092u^{28}+\cdots-3.45020u+1.62051 \\ -0.0642443u^{29}+0.211852u^{28}+\cdots-0.962626u+1.08684 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.293504u^{29}+0.578779u^{28}+\cdots-3.77569u+2.01661 \\ -0.0196924u^{29}+0.238501u^{28}+\cdots-1.68736u+1.14206 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.642162u^{29}+1.14610u^{28}+\cdots-7.29055u+2.93572 \\ -0.0853310u^{29}+0.458919u^{28}+\cdots-2.98810u+2.09785 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.565573u^{29}+1.10421u^{28}+\cdots-7.29137u+2.70821 \\ -0.0269374u^{29}+0.494525u^{28}+\cdots-3.51309u+2.26229 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.298240u^{29}+0.583012u^{28}+\cdots-3.84035u+1.31521 \\ -0.0210866u^{29}+0.247066u^{28}+\cdots-1.02547u+1.01102 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{13126781461}{15762215857}u^{29} - \frac{346887419065}{189146590284}u^{28} + \cdots + \frac{2455780116659}{189146590284}u - \frac{364257663059}{47286647571}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{30} + 10u^{29} + \cdots - u + 16$
c_2, c_5	$u^{30} + 2u^{29} + \cdots + 11u + 4$
c_3, c_8	$u^{30} - 3u^{29} + \cdots + 24u + 32$
c_6, c_7, c_9 c_{10}, c_{12}	$u^{30} + 2u^{29} + \cdots - u + 1$
c_{11}	$u^{30} - 8u^{29} + \cdots - 15u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{30} + 22y^{29} + \cdots + 3743y + 256$
c_2, c_5	$y^{30} + 10y^{29} + \cdots - y + 16$
c_3, c_8	$y^{30} - 15y^{29} + \cdots - 6336y + 1024$
c_6, c_7, c_9 c_{10}, c_{12}	$y^{30} + 8y^{29} + \cdots + 15y + 1$
c_{11}	$y^{30} + 24y^{29} + \cdots + 19y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.460643 + 0.958497I$ $a = 1.032200 - 0.246838I$ $b = -0.299080 - 0.268098I$	$-0.32179 - 2.57657I$	$1.59153 + 5.16266I$
$u = -0.460643 - 0.958497I$ $a = 1.032200 + 0.246838I$ $b = -0.299080 + 0.268098I$	$-0.32179 + 2.57657I$	$1.59153 - 5.16266I$
$u = 0.117766 + 1.065450I$ $a = -2.08067 + 0.32615I$ $b = 0.868345 - 0.853291I$	$-5.22441 + 3.04204I$	$-6.16892 - 2.76702I$
$u = 0.117766 - 1.065450I$ $a = -2.08067 - 0.32615I$ $b = 0.868345 + 0.853291I$	$-5.22441 - 3.04204I$	$-6.16892 + 2.76702I$
$u = 0.892544 + 0.608188I$ $a = 0.357885 - 0.459993I$ $b = -0.660894 - 1.208280I$	$3.48880 - 10.37700I$	$3.38979 + 5.72342I$
$u = 0.892544 - 0.608188I$ $a = 0.357885 + 0.459993I$ $b = -0.660894 + 1.208280I$	$3.48880 + 10.37700I$	$3.38979 - 5.72342I$
$u = -0.835530 + 0.693005I$ $a = -0.118947 - 0.761630I$ $b = 0.596590 - 0.966034I$	$1.29700 + 3.10575I$	$1.45147 - 3.18731I$
$u = -0.835530 - 0.693005I$ $a = -0.118947 + 0.761630I$ $b = 0.596590 + 0.966034I$	$1.29700 - 3.10575I$	$1.45147 + 3.18731I$
$u = 0.513340 + 0.739634I$ $a = -1.14053 - 0.97145I$ $b = 1.145550 - 0.289264I$	$-1.57253 + 1.48061I$	$1.51311 + 5.82808I$
$u = 0.513340 - 0.739634I$ $a = -1.14053 + 0.97145I$ $b = 1.145550 + 0.289264I$	$-1.57253 - 1.48061I$	$1.51311 - 5.82808I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.850935+0.293187I$ $a=\quad 0.444169-0.489109I$ $b=-0.601963-1.009720I$	$1.66857-6.29086I$	$3.10303+6.83080I$
$u=-0.850935-0.293187I$ $a=\quad 0.444169+0.489109I$ $b=-0.601963+1.009720I$	$1.66857+6.29086I$	$3.10303-6.83080I$
$u=\quad 0.590492+0.982207I$ $a=-0.644113-1.170090I$ $b=\quad 1.149850+0.591978I$	$-2.48088+3.02207I$	$-2.21456-6.76782I$
$u=\quad 0.590492-0.982207I$ $a=-0.644113+1.170090I$ $b=\quad 1.149850-0.591978I$	$-2.48088-3.02207I$	$-2.21456+6.76782I$
$u=-0.120227+1.185320I$ $a=\quad 1.71764+0.85667I$ $b=-0.727551-1.085270I$	$-3.53890-9.16679I$	$-2.72882+7.28806I$
$u=-0.120227-1.185320I$ $a=\quad 1.71764-0.85667I$ $b=-0.727551+1.085270I$	$-3.53890+9.16679I$	$-2.72882-7.28806I$
$u=-0.537667+0.602506I$ $a=\quad 0.295236+0.519101I$ $b=\quad 0.023047+0.423163I$	$0.81059-1.39109I$	$1.55512+4.14990I$
$u=-0.537667-0.602506I$ $a=\quad 0.295236-0.519101I$ $b=\quad 0.023047-0.423163I$	$0.81059+1.39109I$	$1.55512-4.14990I$
$u=-0.530973+1.119350I$ $a=\quad 0.144119-0.924498I$ $b=-0.645054+0.883761I$	$-0.91910+1.29166I$	$-0.69831-3.06877I$
$u=-0.530973-1.119350I$ $a=\quad 0.144119+0.924498I$ $b=-0.645054-0.883761I$	$-0.91910-1.29166I$	$-0.69831+3.06877I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.730890+1.026770I$ $a=-1.64352+1.06510I$ $b=\ \ 0.646060+1.041760I$	$0.26873-8.97735I$	$0.28174+7.42318I$
$u=-0.730890-1.026770I$ $a=-1.64352-1.06510I$ $b=\ \ 0.646060-1.041760I$	$0.26873+8.97735I$	$0.28174-7.42318I$
$u=\ \ 0.896688+0.897515I$ $a=\ \ 0.544249+0.743729I$ $b=-0.269532+0.876061I$	$9.52166+4.35690I$	$1.93733-9.19475I$
$u=\ \ 0.896688-0.897515I$ $a=\ \ 0.544249-0.743729I$ $b=-0.269532-0.876061I$	$9.52166-4.35690I$	$1.93733+9.19475I$
$u=\ \ 0.875554+0.943207I$ $a=-0.406635-0.439577I$ $b=-0.231064-0.841743I$	$9.37686+2.17701I$	$0.69666+4.17919I$
$u=\ \ 0.875554-0.943207I$ $a=-0.406635+0.439577I$ $b=-0.231064+0.841743I$	$9.37686-2.17701I$	$0.69666-4.17919I$
$u=\ \ 0.719689+1.077380I$ $a=\ \ 2.03341+0.65165I$ $b=-0.70309+1.23931I$	$2.0453+16.3438I$	$1.41001-9.88978I$
$u=\ \ 0.719689-1.077380I$ $a=\ \ 2.03341-0.65165I$ $b=-0.70309-1.23931I$	$2.0453-16.3438I$	$1.41001+9.88978I$
$u=\ \ 0.460792+0.211623I$ $a=-0.159496-1.172690I$ $b=\ \ 0.708800-0.487048I$	$-1.26041+1.13919I$	$-3.24420-2.21188I$
$u=\ \ 0.460792-0.211623I$ $a=-0.159496+1.172690I$ $b=\ \ 0.708800+0.487048I$	$-1.26041-1.13919I$	$-3.24420+2.21188I$

II.
$\boldsymbol{I_2^u = \langle 3u^{18}a - 3u^{18} + \cdots - a - 1,\ 2u^{18} - 3u^{17} + \cdots - 4a + 5,\ u^{19} - u^{18} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ -\frac{3}{2}u^{18}a + \frac{3}{2}u^{18} + \cdots + \frac{1}{2}a + \frac{1}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{3}{2}u^{18}a + \frac{3}{2}u^{18} + \cdots + \frac{3}{2}a + \frac{1}{2} \\ -\frac{3}{2}u^{18}a + \frac{3}{2}u^{18} + \cdots + \frac{1}{2}a + \frac{1}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 2u^{17}a - u^{17} + \cdots - a + 4 \\ \frac{3}{2}u^{18}a - \frac{3}{2}u^{18} + \cdots - \frac{1}{2}a - \frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{13} - 2u^{11} - 3u^9 - 2u^7 + u \\ -u^{15} - 3u^{13} - 6u^{11} - 7u^9 - 6u^7 - 4u^5 - 2u^3 - u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{18} + 3u^{16} + 6u^{14} + 7u^{12} + 5u^{10} + 3u^8 - u^2 - 1 \\ u^{18} - u^{17} + \cdots - 3u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{18}a + \frac{3}{2}u^{18} + \cdots + \frac{1}{2}a - \frac{1}{2} \\ -2u^{18}a + 3u^{18} + \cdots + au - 4u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{17} + 4u^{16} - 12u^{15} + 12u^{14} - 28u^{13} + 24u^{12} - 36u^{11} + 32u^{10} - 36u^9 + 28u^8 - 28u^7 + 28u^6 - 12u^5 + 16u^4 - 12u^3 + 12u^2 + 4u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^{19} + 7u^{18} + \cdots + 2u - 1)^2$
c_2, c_5	$(u^{19} + u^{18} + \cdots + 2u - 1)^2$
c_3, c_8	$(u^{19} + u^{18} + \cdots - u^2 + 1)^2$
c_6, c_7, c_9 c_{10}, c_{12}	$u^{38} - 5u^{37} + \cdots - 173u + 34$
c_{11}	$u^{38} - 19u^{37} + \cdots - 13387u + 1156$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{19} + 11y^{18} + \cdots + 42y - 1)^2$
c_2, c_5	$(y^{19} + 7y^{18} + \cdots + 2y - 1)^2$
c_3, c_8	$(y^{19} - 5y^{18} + \cdots + 2y - 1)^2$
c_6, c_7, c_9 c_{10}, c_{12}	$y^{38} + 19y^{37} + \cdots + 13387y + 1156$
c_{11}	$y^{38} - y^{37} + \cdots + 7530783y + 1336336$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.787239 + 0.559366I$ $a = 0.516479 + 0.470519I$ $b = -0.991761 + 0.337645I$	$0.85217 - 4.39903I$	$0.93348 + 2.80289I$
$u = 0.787239 + 0.559366I$ $a = -0.195675 + 0.232139I$ $b = 0.689098 + 1.130990I$	$0.85217 - 4.39903I$	$0.93348 + 2.80289I$
$u = 0.787239 - 0.559366I$ $a = 0.516479 - 0.470519I$ $b = -0.991761 - 0.337645I$	$0.85217 + 4.39903I$	$0.93348 - 2.80289I$
$u = 0.787239 - 0.559366I$ $a = -0.195675 - 0.232139I$ $b = 0.689098 - 1.130990I$	$0.85217 + 4.39903I$	$0.93348 - 2.80289I$
$u = 0.709462 + 0.766103I$ $a = 0.585393 + 0.482577I$ $b = -0.678167 - 0.996758I$	$6.91199 - 0.16816I$	$6.16829 + 0.91431I$
$u = 0.709462 + 0.766103I$ $a = 1.214050 + 0.700043I$ $b = -0.19863 + 1.44121I$	$6.91199 - 0.16816I$	$6.16829 + 0.91431I$
$u = 0.709462 - 0.766103I$ $a = 0.585393 - 0.482577I$ $b = -0.678167 + 0.996758I$	$6.91199 + 0.16816I$	$6.16829 - 0.91431I$
$u = 0.709462 - 0.766103I$ $a = 1.214050 - 0.700043I$ $b = -0.19863 - 1.44121I$	$6.91199 + 0.16816I$	$6.16829 - 0.91431I$
$u = -0.588600 + 0.865037I$ $a = -0.49489 - 2.57683I$ $b = 0.138356 - 1.097670I$	$3.75823 - 2.32534I$	$-1.72826 + 3.09456I$
$u = -0.588600 + 0.865037I$ $a = -3.97835 + 1.04025I$ $b = 0.197824 + 0.975432I$	$3.75823 - 2.32534I$	$-1.72826 + 3.09456I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.588600 - 0.865037I$ $a = -0.49489 + 2.57683I$ $b = 0.138356 + 1.097670I$	$3.75823 + 2.32534I$	$-1.72826 - 3.09456I$
$u = -0.588600 - 0.865037I$ $a = -3.97835 - 1.04025I$ $b = 0.197824 - 0.975432I$	$3.75823 + 2.32534I$	$-1.72826 - 3.09456I$
$u = -0.745489 + 0.500016I$ $a = 0.352472 + 0.544649I$ $b = -0.564915 + 0.608349I$	$0.45606 - 1.53005I$	$0.20605 + 2.54963I$
$u = -0.745489 + 0.500016I$ $a = -0.147251 + 0.364183I$ $b = 0.536858 + 0.708989I$	$0.45606 - 1.53005I$	$0.20605 + 2.54963I$
$u = -0.745489 - 0.500016I$ $a = 0.352472 - 0.544649I$ $b = -0.564915 - 0.608349I$	$0.45606 + 1.53005I$	$0.20605 - 2.54963I$
$u = -0.745489 - 0.500016I$ $a = -0.147251 - 0.364183I$ $b = 0.536858 - 0.708989I$	$0.45606 + 1.53005I$	$0.20605 - 2.54963I$
$u = -0.021471 + 1.128170I$ $a = -1.52252 - 1.09613I$ $b = 0.800008 + 0.907616I$	$-5.01775 - 3.11880I$	$-5.58624 + 2.69239I$
$u = -0.021471 + 1.128170I$ $a = 1.81596 - 0.53999I$ $b = -0.913287 + 0.607157I$	$-5.01775 - 3.11880I$	$-5.58624 + 2.69239I$
$u = -0.021471 - 1.128170I$ $a = -1.52252 + 1.09613I$ $b = 0.800008 - 0.907616I$	$-5.01775 + 3.11880I$	$-5.58624 - 2.69239I$
$u = -0.021471 - 1.128170I$ $a = 1.81596 + 0.53999I$ $b = -0.913287 - 0.607157I$	$-5.01775 + 3.11880I$	$-5.58624 - 2.69239I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.167515+0.839557I$ $a=\ 0.857565-0.800159I$ $b=-0.003570+1.177280I$	$1.87881-1.72326I$	$-3.81965+5.18112I$
$u=-0.167515+0.839557I$ $a=\ 0.78439+2.81455I$ $b=-0.197548-0.604455I$	$1.87881-1.72326I$	$-3.81965+5.18112I$
$u=-0.167515-0.839557I$ $a=\ 0.857565+0.800159I$ $b=-0.003570-1.177280I$	$1.87881+1.72326I$	$-3.81965-5.18112I$
$u=-0.167515-0.839557I$ $a=\ 0.78439-2.81455I$ $b=-0.197548+0.604455I$	$1.87881+1.72326I$	$-3.81965-5.18112I$
$u=\ 0.687512+0.928828I$ $a=-0.992722-0.197204I$ $b=-0.09297-1.48296I$	$6.41945+5.52702I$	$4.42794-7.00248I$
$u=\ 0.687512+0.928828I$ $a=\ 1.93781+0.22445I$ $b=-0.765375+0.868851I$	$6.41945+5.52702I$	$4.42794-7.00248I$
$u=\ 0.687512-0.928828I$ $a=-0.992722+0.197204I$ $b=-0.09297+1.48296I$	$6.41945-5.52702I$	$4.42794+7.00248I$
$u=\ 0.687512-0.928828I$ $a=\ 1.93781-0.22445I$ $b=-0.765375-0.868851I$	$6.41945-5.52702I$	$4.42794+7.00248I$
$u=-0.636878+1.050560I$ $a=-0.005727+0.813937I$ $b=\ 0.717895-0.570311I$	$-1.12421-3.71612I$	$-2.19900+2.45937I$
$u=-0.636878+1.050560I$ $a=\ 1.69165-0.73976I$ $b=-0.636967-0.819328I$	$-1.12421-3.71612I$	$-2.19900+2.45937I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.636878 - 1.050560I$ $a = -0.005727 - 0.813937I$ $b = 0.717895 + 0.570311I$	$-1.12421 + 3.71612I$	$-2.19900 - 2.45937I$
$u = -0.636878 - 1.050560I$ $a = 1.69165 + 0.73976I$ $b = -0.636967 + 0.819328I$	$-1.12421 + 3.71612I$	$-2.19900 - 2.45937I$
$u = 0.666721 + 1.052350I$ $a = 0.652896 + 1.081010I$ $b = -1.105990 - 0.392926I$	$-0.60648 + 9.88550I$	$-1.13872 - 7.31129I$
$u = 0.666721 + 1.052350I$ $a = -2.00964 - 0.51551I$ $b = 0.792055 - 1.166900I$	$-0.60648 + 9.88550I$	$-1.13872 - 7.31129I$
$u = 0.666721 - 1.052350I$ $a = 0.652896 - 1.081010I$ $b = -1.105990 + 0.392926I$	$-0.60648 - 9.88550I$	$-1.13872 + 7.31129I$
$u = 0.666721 - 1.052350I$ $a = -2.00964 + 0.51551I$ $b = 0.792055 + 1.166900I$	$-0.60648 - 9.88550I$	$-1.13872 + 7.31129I$
$u = -0.381963$ $a = 2.43810 + 0.93795I$ $b = -0.222910 - 1.071950I$	4.19724	7.47220
$u = -0.381963$ $a = 2.43810 - 0.93795I$ $b = -0.222910 + 1.071950I$	4.19724	7.47220

III. $\boldsymbol{I_3^u = \langle -u^3 + au - u^2 + b + 1,\ -2u^3a + u^3 + \cdots + a^2 - 5,\ u^4 + u^3 + u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 - 4u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_2, c_5	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$
c_3, c_8	$(y^4 - 5y^3 + 7y^2 - 2y + 1)^2$
c_6, c_7, c_9 c_{10}, c_{12}	$(y + 1)^8$
c_{11}	$(y - 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.351808 + 0.720342I$ $a = -1.71161 + 1.80064I$ $b = 1.000000I$	$3.07886 + 1.41510I$	$4.17326 - 4.90874I$
$u = 0.351808 + 0.720342I$ $a = 0.53013 + 2.89548I$ $b = -1.000000I$	$3.07886 + 1.41510I$	$4.17326 - 4.90874I$
$u = 0.351808 - 0.720342I$ $a = -1.71161 - 1.80064I$ $b = -1.000000I$	$3.07886 - 1.41510I$	$4.17326 + 4.90874I$
$u = 0.351808 - 0.720342I$ $a = 0.53013 - 2.89548I$ $b = 1.000000I$	$3.07886 - 1.41510I$	$4.17326 + 4.90874I$
$u = -0.851808 + 0.911292I$ $a = -0.994913 + 0.491876I$ $b = 1.000000I$	$10.08060 - 3.16396I$	$7.82674 + 2.56480I$
$u = -0.851808 + 0.911292I$ $a = 0.176391 - 0.602971I$ $b = -1.000000I$	$10.08060 - 3.16396I$	$7.82674 + 2.56480I$
$u = -0.851808 - 0.911292I$ $a = -0.994913 - 0.491876I$ $b = -1.000000I$	$10.08060 + 3.16396I$	$7.82674 - 2.56480I$
$u = -0.851808 - 0.911292I$ $a = 0.176391 + 0.602971I$ $b = 1.000000I$	$10.08060 + 3.16396I$	$7.82674 - 2.56480I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{31}{4}u + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5	$y^2 + y + 1$
c_3, c_8	y^2
c_6, c_7, c_9 c_{10}, c_{11}, 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
$u = \quad 0.500000 + 0.866025I$ $a = -1.000000 - 0.866025I$ $b = \quad 1.00000$	$-1.64493 + 2.02988I$	$-1.87500 - 6.71170I$
$u = \quad 0.500000 - 0.866025I$ $a = -1.000000 + 0.866025I$ $b = \quad 1.00000$	$-1.64493 - 2.02988I$	$-1.87500 + 6.71170I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^2-u+1)(u^4-u^3+3u^2-2u+1)^2(u^{19}+7u^{18}+\cdots+2u-1)^2$ $\cdot(u^{30}+10u^{29}+\cdots-u+16)$
c_2	$(u^2+u+1)(u^4-u^3+u^2+1)^2(u^{19}+u^{18}+\cdots+2u-1)^2$ $\cdot(u^{30}+2u^{29}+\cdots+11u+4)$
c_3, c_8	$u^2(u^8-5u^6+\cdots-2u^2+1)(u^{19}+u^{18}+\cdots-u^2+1)^2$ $\cdot(u^{30}-3u^{29}+\cdots+24u+32)$
c_5	$(u^2-u+1)(u^4+u^3+u^2+1)^2(u^{19}+u^{18}+\cdots+2u-1)^2$ $\cdot(u^{30}+2u^{29}+\cdots+11u+4)$
c_6, c_7	$((u-1)^2)(u^2+1)^4(u^{30}+2u^{29}+\cdots-u+1)$ $\cdot(u^{38}-5u^{37}+\cdots-173u+34)$
c_9, c_{10}, c_{12}	$((u+1)^2)(u^2+1)^4(u^{30}+2u^{29}+\cdots-u+1)$ $\cdot(u^{38}-5u^{37}+\cdots-173u+34)$
c_{11}	$((u-1)^2)(u+1)^8(u^{30}-8u^{29}+\cdots-15u+1)$ $\cdot(u^{38}-19u^{37}+\cdots-13387u+1156)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^2+y+1)(y^4+5y^3+\cdots+2y+1)^2(y^{19}+11y^{18}+\cdots+42y-1)^2$ $\cdot(y^{30}+22y^{29}+\cdots+3743y+256)$
c_2, c_5	$(y^2+y+1)(y^4+y^3+3y^2+2y+1)^2(y^{19}+7y^{18}+\cdots+2y-1)^2$ $\cdot(y^{30}+10y^{29}+\cdots-y+16)$
c_3, c_8	$y^2(y^4-5y^3+\cdots-2y+1)^2(y^{19}-5y^{18}+\cdots+2y-1)^2$ $\cdot(y^{30}-15y^{29}+\cdots-6336y+1024)$
c_6, c_7, c_9 c_{10}, c_{12}	$((y-1)^2)(y+1)^8(y^{30}+8y^{29}+\cdots+15y+1)$ $\cdot(y^{38}+19y^{37}+\cdots+13387y+1156)$
c_{11}	$((y-1)^{10})(y^{30}+24y^{29}+\cdots+19y+1)$ $\cdot(y^{38}-y^{37}+\cdots+7530783y+1336336)$