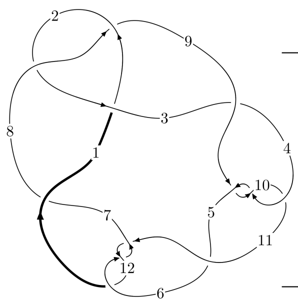
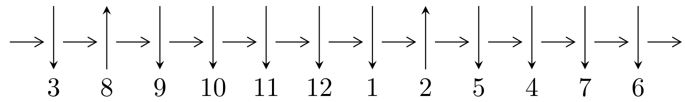
$12a_{0725}$ ($K12a_{0725}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle &-u^{15} - 8u^{13} + 2u^{12} - 26u^{11} + 12u^{10} - 41u^9 + 28u^8 - 26u^7 + 28u^6 + 5u^5 + 6u^4 + 8u^3 - 5u^2 + 2b - 3u + 1,\\
&- u^{15} - 8u^{13} - 26u^{11} + 2u^{10} - 41u^9 + 10u^8 - 26u^7 + 20u^6 + 5u^5 + 18u^4 + 8u^3 + 5u^2 + 2a - 3u - 1,\\
&u^{16} - u^{15} + \cdots - 2u + 1\rangle\\
I^u_2 = \langle &-u^{11} - 4u^9 - u^8 - 5u^7 - 3u^6 - u^5 - 2u^4 + u^3 + b - 1,\\
&- u^{13} + 2u^{12} - 5u^{11} + 6u^{10} - 9u^9 + 4u^8 - 6u^7 - 6u^6 - 8u^4 + u^3 - 2u^2 + 2a - u - 1,\\
&u^{14} + 5u^{12} + 2u^{11} + 9u^{10} + 8u^9 + 6u^8 + 10u^7 + 2u^5 - u^4 - 2u^3 + u^2 + u + 2\rangle\\
I^u_3 = \langle &b - u,\ a - u,\ u^{12} - u^{11} + 4u^{10} - 4u^9 + 7u^8 - 7u^7 + 5u^6 - 5u^5 + u^4 - u^3 + 1\rangle\\
I^u_4 = \langle &8u^5a + 22u^4a + 37u^5 + 14u^3a + 29u^4 - 8u^2a + 89u^3 + 2au + 60u^2 + 97b - 37a + 82u + 35,\\
&u^5 - 2u^3a + 4u^4 - 2u^2a + 6u^3 + a^2 - 3au + 10u^2 - 2a + 6u + 7,\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1\rangle\\
I^u_5 = \langle &b - u,\ a - u,\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1\rangle\\
I^u_6 = \langle &b - u,\ a - u + 1,\ u^2 + 1\rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 62 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.

$$\boldsymbol{I_1^u = \langle -u^{15}-8u^{13}+\cdots+2b+1,\ -u^{15}-8u^{13}+\cdots+2a-1,\ u^{16}-u^{15}+\cdots-2u+1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^5-2u^3-u \\ -u^7-3u^5-2u^3+u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}u^{15}+4u^{13}+\cdots+\frac{3}{2}u+\frac{1}{2} \\ \frac{1}{2}u^{15}+4u^{13}+\cdots+\frac{3}{2}u-\frac{1}{2} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^3+2u \\ u^3+u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^6-3u^4-2u^2+1 \\ \frac{1}{2}u^{15}-u^{14}+\cdots+\frac{3}{2}u-\frac{1}{2} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^9-4u^7-5u^5+3u \\ -\frac{1}{2}u^{15}-3u^{13}+\cdots-\frac{1}{2}u-\frac{1}{2} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3+2u \\ -\frac{1}{2}u^{15}-3u^{13}+\cdots-\frac{1}{2}u-\frac{1}{2} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^4-u^2+1 \\ \frac{1}{2}u^{15}-u^{14}+\cdots+\frac{3}{2}u-\frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{15}-4u^{14}+30u^{13}-28u^{12}+90u^{11}-76u^{10}+122u^9-88u^8+40u^7-16u^6-64u^5+36u^4-34u^3+22u-16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} + 24y^{14} + \cdots - 33y + 16$
c_2, c_8	$y^{16} + 8y^{15} + \cdots + 11y + 4$
c_3, c_5, c_7	$y^{16} - 14y^{15} + \cdots + 496y + 64$
c_4, c_6, c_9 c_{10}, c_{11}, c_{12}	$y^{16} + 15y^{15} + \cdots + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.896754 + 0.031752I$ $a = 0.17672 + 2.61210I$ $b = -0.465246 + 1.250080I$	$-11.44060 - 4.76307I$	$-15.3726 + 3.2989I$
$u = 0.896754 - 0.031752I$ $a = 0.17672 - 2.61210I$ $b = -0.465246 - 1.250080I$	$-11.44060 + 4.76307I$	$-15.3726 - 3.2989I$
$u = -0.177081 + 1.342100I$ $a = -0.281404 + 0.454739I$ $b = 0.725499 - 0.391212I$	$8.15821 + 4.40873I$	$0.01113 - 3.61674I$
$u = -0.177081 - 1.342100I$ $a = -0.281404 - 0.454739I$ $b = 0.725499 + 0.391212I$	$8.15821 - 4.40873I$	$0.01113 + 3.61674I$
$u = 0.399274 + 1.311870I$ $a = -0.110245 + 0.614867I$ $b = -0.897959 - 0.093377I$	$0.55749 - 9.14366I$	$-4.61411 + 5.72614I$
$u = 0.399274 - 1.311870I$ $a = -0.110245 - 0.614867I$ $b = -0.897959 + 0.093377I$	$0.55749 + 9.14366I$	$-4.61411 - 5.72614I$
$u = -0.037558 + 1.371140I$ $a = 0.952917 + 0.035835I$ $b = -0.623542 - 0.745700I$	$9.86121 + 2.40714I$	$1.11944 - 3.44004I$
$u = -0.037558 - 1.371140I$ $a = 0.952917 - 0.035835I$ $b = -0.623542 + 0.745700I$	$9.86121 - 2.40714I$	$1.11944 + 3.44004I$
$u = 0.240518 + 1.356540I$ $a = -1.46246 - 0.89499I$ $b = 0.561956 - 1.036960I$	$6.29728 - 9.25950I$	$-3.29029 + 8.32178I$
$u = 0.240518 - 1.356540I$ $a = -1.46246 + 0.89499I$ $b = 0.561956 + 1.036960I$	$6.29728 + 9.25950I$	$-3.29029 - 8.32178I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.598794 + 0.151071I$ $a = -0.88900 + 2.25691I$ $b = 0.359947 + 1.044940I$	$-3.27788 + 3.09462I$	$-15.6158 - 6.1007I$
$u = -0.598794 - 0.151071I$ $a = -0.88900 - 2.25691I$ $b = 0.359947 - 1.044940I$	$-3.27788 - 3.09462I$	$-15.6158 + 6.1007I$
$u = -0.420730 + 1.328670I$ $a = 1.38895 - 1.73157I$ $b = -0.514655 - 1.242600I$	$-2.9192 + 14.2327I$	$-7.70275 - 8.58885I$
$u = -0.420730 - 1.328670I$ $a = 1.38895 + 1.73157I$ $b = -0.514655 + 1.242600I$	$-2.9192 - 14.2327I$	$-7.70275 + 8.58885I$
$u = 0.197618 + 0.311751I$ $a = 1.224520 + 0.293518I$ $b = -0.146001 + 0.823219I$	$-0.656687 - 0.955703I$	$-10.53509 + 6.55993I$
$u = 0.197618 - 0.311751I$ $a = 1.224520 - 0.293518I$ $b = -0.146001 - 0.823219I$	$-0.656687 + 0.955703I$	$-10.53509 - 6.55993I$

II.

$\boldsymbol{I_2^u = \langle -u^{11} - 4u^9 + \cdots + b - 1,\ -u^{13} + 2u^{12} + \cdots + 2a - 1,\ u^{14} + 5u^{12} + \cdots + u + 2 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{12} - 4u^{11} + 16u^{10} - 8u^9 + 20u^8 + 4u^7 + 4u^6 + 20u^5 - 4u^4 + 12u^3 - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^7+4u^6+8u^5+7u^4+2u^3-3u^2-2u-1)^2$
c_2, c_8	$(u^7+2u^5-u^4+2u^3-u^2-1)^2$
c_3, c_5, c_7	$(u^7-3u^6+u^5+2u^4+2u^3-3u^2+u-2)^2$
c_4, c_6, c_9 c_{10}, c_{11}, c_{12}	$u^{14}+5u^{12}+\cdots-u+2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^7+12y^5+3y^4+22y^3-3y^2-2y-1)^2$
c_2, c_8	$(y^7+4y^6+8y^5+7y^4+2y^3-3y^2-2y-1)^2$
c_3, c_5, c_7	$(y^7-7y^6+17y^5-16y^4+6y^3+3y^2-11y-4)^2$
c_4, c_6, c_9 c_{10}, c_{11}, c_{12}	$y^{14}+10y^{13}+\cdots+3y+4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.909403 + 0.064443I$ $a = -0.15740 + 2.55157I$ $b = 0.489252 + 1.239920I$	$-7.27584 + 9.47458I$	$-11.52754 - 6.21855I$
$u = -0.909403 - 0.064443I$ $a = -0.15740 - 2.55157I$ $b = 0.489252 - 1.239920I$	$-7.27584 - 9.47458I$	$-11.52754 + 6.21855I$
$u = 0.004458 + 1.241100I$ $a = -1.103090 + 0.868476I$ $b = 0.391915 - 0.631080I$	$3.69786 - 1.46776I$	$-2.58766 + 4.85424I$
$u = 0.004458 - 1.241100I$ $a = -1.103090 - 0.868476I$ $b = 0.391915 + 0.631080I$	$3.69786 + 1.46776I$	$-2.58766 - 4.85424I$
$u = 0.689055 + 0.275978I$ $a = 0.52249 + 2.02022I$ $b = -0.468927 + 1.008510I$	$1.13946 - 6.00484I$	$-8.26608 + 8.08638I$
$u = 0.689055 - 0.275978I$ $a = 0.52249 - 2.02022I$ $b = -0.468927 - 1.008510I$	$1.13946 + 6.00484I$	$-8.26608 - 8.08638I$
$u = -0.396373 + 0.610024I$ $a = -0.351244 + 1.089890I$ $b = 0.391915 + 0.631080I$	$3.69786 + 1.46776I$	$-2.58766 - 4.85424I$
$u = -0.396373 - 0.610024I$ $a = -0.351244 - 1.089890I$ $b = 0.391915 - 0.631080I$	$3.69786 - 1.46776I$	$-2.58766 + 4.85424I$
$u = 0.412241 + 1.228750I$ $a = -0.088236 + 0.731499I$ $b = -0.824481$	-0.0577569	$-5.23744 + 0.I$
$u = 0.412241 - 1.228750I$ $a = -0.088236 - 0.731499I$ $b = -0.824481$	-0.0577569	$-5.23744 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.220128 + 1.284480I$ $a = 1.90275 - 0.76301I$ $b = -0.468927 - 1.008510I$	$1.13946 + 6.00484I$	$-8.26608 - 8.08638I$
$u = -0.220128 - 1.284480I$ $a = 1.90275 + 0.76301I$ $b = -0.468927 + 1.008510I$	$1.13946 - 6.00484I$	$-8.26608 + 8.08638I$
$u = 0.420151 + 1.304360I$ $a = -1.47527 - 1.77944I$ $b = 0.489252 - 1.239920I$	$-7.27584 - 9.47458I$	$-11.52754 + 6.21855I$
$u = 0.420151 - 1.304360I$ $a = -1.47527 + 1.77944I$ $b = 0.489252 + 1.239920I$	$-7.27584 + 9.47458I$	$-11.52754 - 6.21855I$

III. $\boldsymbol{I_3^u = \langle b-u,\ a-u,\ u^{12}-u^{11}+\cdots-u^3+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^9+12u^7+12u^5-4u^3-8u-10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 5y^{11} + \cdots + 4y + 1$
c_2, c_4, c_8 c_9, c_{10}	$y^{12} + 7y^{11} + \cdots + 2y^2 + 1$
c_3, c_5, c_7	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)^2$
c_6, c_{11}, c_{12}	$(y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.386547 + 0.899125I$ $a = 0.386547 + 0.899125I$ $b = 0.386547 + 0.899125I$	$2.96024 + 1.97241I$	$-4.57572 - 3.68478I$
$u = 0.386547 - 0.899125I$ $a = 0.386547 - 0.899125I$ $b = 0.386547 - 0.899125I$	$2.96024 - 1.97241I$	$-4.57572 + 3.68478I$
$u = -0.206575 + 1.062080I$ $a = -0.206575 + 1.062080I$ $b = -0.206575 + 1.062080I$	-0.738851	$-13.41678 + 0.I$
$u = -0.206575 - 1.062080I$ $a = -0.206575 - 1.062080I$ $b = -0.206575 - 1.062080I$	-0.738851	$-13.41678 + 0.I$
$u = 0.869654 + 0.049931I$ $a = 0.869654 + 0.049931I$ $b = 0.869654 + 0.049931I$	$-3.69558 - 4.59213I$	$-8.58114 + 3.20482I$
$u = 0.869654 - 0.049931I$ $a = 0.869654 - 0.049931I$ $b = 0.869654 - 0.049931I$	$-3.69558 + 4.59213I$	$-8.58114 - 3.20482I$
$u = -0.460851 + 1.226450I$ $a = -0.460851 + 1.226450I$ $b = -0.460851 + 1.226450I$	$-3.69558 - 4.59213I$	$-8.58114 + 3.20482I$
$u = -0.460851 - 1.226450I$ $a = -0.460851 - 1.226450I$ $b = -0.460851 - 1.226450I$	$-3.69558 + 4.59213I$	$-8.58114 - 3.20482I$
$u = 0.436607 + 1.253750I$ $a = 0.436607 + 1.253750I$ $b = 0.436607 + 1.253750I$	-7.66009	$-12.26950 + 0.I$
$u = 0.436607 - 1.253750I$ $a = 0.436607 - 1.253750I$ $b = 0.436607 - 1.253750I$	-7.66009	$-12.26950 + 0.I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.525382 + 0.335320I$		
$a = -0.525382 + 0.335320I$	$2.96024 + 1.97241I$	$-4.57572 - 3.68478I$
$b = -0.525382 + 0.335320I$		
$u = -0.525382 - 0.335320I$		
$a = -0.525382 - 0.335320I$	$2.96024 - 1.97241I$	$-4.57572 + 3.68478I$
$b = -0.525382 - 0.335320I$		

IV. $\boldsymbol{I^u_4 = \langle 8u^5a + 37u^5 + \cdots - 37a + 35,\ u^5 + 4u^4 + \cdots - 2a + 7,\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^5 - u^4 - 2u^3 - u^2 - u + 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ -0.0824742au^5 - 0.381443u^5 + \cdots + 0.381443a - 0.360825 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.247423au^5 - 0.855670u^5 + \cdots + 0.855670a + 0.0824742 \\ 0.412371au^5 - 1.09278u^5 + \cdots + 0.0927835a - 0.195876 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.381443au^5 - 0.360825u^5 + \cdots + 0.360825a - 2.20619 \\ 0.144330au^5 - 0.0824742u^5 + \cdots + 0.0824742a - 0.618557 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.247423au^5 - 0.855670u^5 + \cdots - 0.144330a - 0.917526 \\ -0.412371au^5 + 0.0927835u^5 + \cdots - 0.0927835a + 0.195876 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.670103au^5 - 0.525773u^5 + \cdots + 0.525773a - 0.443299 \\ 0.422680au^5 - 0.670103u^5 + \cdots - 0.329897a - 0.525773 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^4 - 4u^3 - 8u^2 - 4u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 5y^{11} + \cdots + 4y + 1$
c_2, c_6, c_8 c_{11}, c_{12}	$y^{12} + 7y^{11} + \cdots + 2y^2 + 1$
c_3, c_5, c_7	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)^2$
c_4, c_9, c_{10}	$(y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.873214$ $a=-0.21315+2.67643I$ $b=\ \ 0.436607+1.253750I$	-7.66009	-12.2690
$u=-0.873214$ $a=-0.21315-2.67643I$ $b=\ \ 0.436607-1.253750I$	-7.66009	-12.2690
$u=\ \ 0.138835+1.234450I$ $a=\ \ 0.371706+0.742110I$ $b=-0.525382-0.335320I$	$2.96024-1.97241I$	$-4.57572+3.68478I$
$u=\ \ 0.138835+1.234450I$ $a=-2.22839+0.02729I$ $b=\ \ 0.386547-0.899125I$	$2.96024-1.97241I$	$-4.57572+3.68478I$
$u=\ \ 0.138835-1.234450I$ $a=\ \ 0.371706-0.742110I$ $b=-0.525382+0.335320I$	$2.96024+1.97241I$	$-4.57572-3.68478I$
$u=\ \ 0.138835-1.234450I$ $a=-2.22839-0.02729I$ $b=\ \ 0.386547+0.899125I$	$2.96024+1.97241I$	$-4.57572-3.68478I$
$u=-0.408802+1.276380I$ $a=\ \ 0.105118+0.668457I$ $b=\ \ 0.869654-0.049931I$	$-3.69558+4.59213I$	$-8.58114-3.20482I$
$u=-0.408802+1.276380I$ $a=\ \ 1.60377-1.80541I$ $b=-0.460851-1.226450I$	$-3.69558+4.59213I$	$-8.58114-3.20482I$
$u=-0.408802-1.276380I$ $a=\ \ 0.105118-0.668457I$ $b=\ \ 0.869654+0.049931I$	$-3.69558-4.59213I$	$-8.58114+3.20482I$
$u=-0.408802-1.276380I$ $a=\ \ 1.60377+1.80541I$ $b=-0.460851+1.226450I$	$-3.69558-4.59213I$	$-8.58114+3.20482I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.413150$ $a = 1.86094 + 2.87653I$ $b = -0.206575 + 1.062080I$	-0.738851	-13.4170
$u = 0.413150$ $a = 1.86094 - 2.87653I$ $b = -0.206575 - 1.062080I$	-0.738851	-13.4170

V. $I_5^u = \langle b - u,\ a - u,\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^5 - u^4 - 2u^3 - u^2 - u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^5 + 2u^3 + u \\ u^5 + u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u^3 + 2u \\ -u^5 - 2u^4 - u^3 - 2u^2 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^4 - u^2 + 1 \\ u^5 - u^4 - u^2 - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^4 - 4u^3 - 8u^2 - 4u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - 7y^5 + 29y^4 - 72y^3 + 94y^2 - 37y + 1$
c_2, c_4, c_6 c_8, c_9, c_{10} c_{11}, c_{12}	$y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1$
c_3, c_5, c_7	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.873214$ $a=-0.873214$ $b=-0.873214$	-7.66009	-12.2690
$u=\ 0.138835+1.234450I$ $a=\ 0.138835+1.234450I$ $b=\ 0.138835+1.234450I$	$2.96024-1.97241I$	$-4.57572+3.68478I$
$u=\ 0.138835-1.234450I$ $a=\ 0.138835-1.234450I$ $b=\ 0.138835-1.234450I$	$2.96024+1.97241I$	$-4.57572-3.68478I$
$u=-0.408802+1.276380I$ $a=-0.408802+1.276380I$ $b=-0.408802+1.276380I$	$-3.69558+4.59213I$	$-8.58114-3.20482I$
$u=-0.408802-1.276380I$ $a=-0.408802-1.276380I$ $b=-0.408802-1.276380I$	$-3.69558-4.59213I$	$-8.58114+3.20482I$
$u=\ 0.413150$ $a=\ 0.413150$ $b=\ 0.413150$	-0.738851	-13.4170

VI. $I_6^u = \langle b - u,\ a - u + 1,\ u^2 + 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} u - 1 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ -1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ -1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.00000 + 1.00000I$ $b = 1.000000I$	1.64493	−8.00000
$u = -1.000000I$ $a = -1.00000 - 1.00000I$ $b = -1.000000I$	1.64493	−8.00000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^2(u^6+5u^5+9u^4+4u^3-6u^2-5u+1)$ $\cdot(u^7+4u^6+8u^5+7u^4+2u^3-3u^2-2u-1)^2$ $\cdot((u^{12}+7u^{11}+\cdots+2u^2+1)^2)(u^{16}+8u^{15}+\cdots+11u+4)$
c_2, c_8	$(u^2+1)(u^6-u^5+\cdots-u-1)(u^7+2u^5+\cdots-u^2-1)^2$ $\cdot(u^{12}+u^{11}+4u^{10}+4u^9+7u^8+7u^7+5u^6+5u^5+u^4+u^3+1)^2$ $\cdot(u^{16}-2u^{15}+\cdots-3u+2)$
c_3, c_5, c_7	$u^2(u^6+u^5-3u^4-2u^3+2u^2-u-1)^5$ $\cdot((u^7-3u^6+\cdots+u-2)^2)(u^{16}+2u^{15}+\cdots+12u+8)$
c_4, c_6, c_9 c_{10}, c_{11}, c_{12}	$(u^2+1)(u^6-u^5+3u^4-2u^3+2u^2-u-1)^3$ $\cdot(u^{12}+u^{11}+4u^{10}+4u^9+7u^8+7u^7+5u^6+5u^5+u^4+u^3+1)$ $\cdot(u^{14}+5u^{12}+\cdots-u+2)(u^{16}+u^{15}+\cdots+2u+1)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^2(y^6-7y^5+29y^4-72y^3+94y^2-37y+1)$ $\cdot(y^7+12y^5+3y^4+22y^3-3y^2-2y-1)^2$ $\cdot((y^{12}-5y^{11}+\cdots+4y+1)^2)(y^{16}+24y^{14}+\cdots-33y+16)$
c_2, c_8	$(y+1)^2(y^6+5y^5+9y^4+4y^3-6y^2-5y+1)$ $\cdot(y^7+4y^6+8y^5+7y^4+2y^3-3y^2-2y-1)^2$ $\cdot((y^{12}+7y^{11}+\cdots+2y^2+1)^2)(y^{16}+8y^{15}+\cdots+11y+4)$
c_3, c_5, c_7	$y^2(y^6-7y^5+17y^4-16y^3+6y^2-5y+1)^5$ $\cdot(y^7-7y^6+17y^5-16y^4+6y^3+3y^2-11y-4)^2$ $\cdot(y^{16}-14y^{15}+\cdots+496y+64)$
c_4, c_6, c_9 c_{10}, c_{11}, c_{12}	$(y+1)^2(y^6+5y^5+9y^4+4y^3-6y^2-5y+1)^3$ $\cdot(y^{12}+7y^{11}+\cdots+2y^2+1)(y^{14}+10y^{13}+\cdots+3y+4)$ $\cdot(y^{16}+15y^{15}+\cdots+4y+1)$