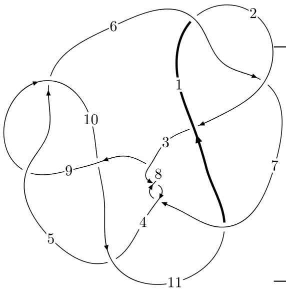
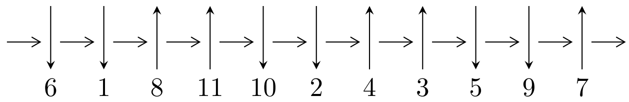
$11a_{198}$ ($K11a_{198}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3u^{16} + 9u^{15} + \cdots + 4b - 2,\ 5u^{16} + 19u^{15} + \cdots + 8a - 18,\ u^{17} + 5u^{16} + \cdots - 16u - 4\rangle$$
$$I_2^u = \langle u^{23}a + 101u^{23} + \cdots - a - 645,\ 5u^{23}a + 6u^{23} + \cdots + a + 15,\ u^{24} - 2u^{23} + \cdots - 13u^2 + 1\rangle$$
$$I_3^u = \langle -au + 2b - a,\ a^2 + au + a + 2u,\ u^2 + 1\rangle$$
$$I_4^u = \langle au + 2b - a + u - 1,\ a^2 + au + a - u,\ u^2 + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 73 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. $I^u_1 = \langle 3u^{16}+9u^{15}+\cdots+4b-2,\ 5u^{16}+19u^{15}+\cdots+8a-18,\ u^{17}+5u^{16}+\cdots-16u-4\rangle$

(i) Arc colorings

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

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

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

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

$$a_1 = \begin{pmatrix} -\frac{5}{8}u^{16} - \frac{19}{8}u^{15} + \cdots + \frac{43}{8}u + \frac{9}{4} \\ -\frac{3}{4}u^{16} - \frac{9}{4}u^{15} + \cdots + \frac{15}{4}u + \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2+1 \\ -u^4-2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{8}u^{16} - \frac{3}{8}u^{15} + \cdots - \frac{9}{8}u - \frac{1}{4} \\ -\frac{1}{4}u^{16} - \frac{3}{4}u^{15} + \cdots + \frac{9}{4}u + \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{7}{8}u^{16} + \frac{29}{8}u^{15} + \cdots - \frac{49}{8}u - \frac{3}{4} \\ -\frac{3}{4}u^{16} - \frac{15}{4}u^{15} + \cdots + \frac{65}{4}u + \frac{11}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{8}u^{16} - \frac{1}{8}u^{15} + \cdots + \frac{13}{8}u + \frac{7}{4} \\ -\frac{3}{4}u^{16} - \frac{9}{4}u^{15} + \cdots + \frac{15}{4}u + \frac{1}{2} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{3}{8}u^{16} - \frac{13}{8}u^{15} + \cdots + \frac{37}{8}u + \frac{5}{4} \\ \frac{1}{4}u^{16} + \frac{5}{4}u^{15} + \cdots - \frac{15}{4}u - \frac{3}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{7}{8}u^{16} + \frac{25}{8}u^{15} + \cdots - \frac{93}{8}u - \frac{15}{4} \\ -\frac{3}{4}u^{16} - \frac{11}{4}u^{15} + \cdots + \frac{23}{4}u + \frac{5}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{7}{8}u^{16} + \frac{25}{8}u^{15} + \cdots - \frac{93}{8}u - \frac{15}{4} \\ -\frac{3}{4}u^{16} - \frac{11}{4}u^{15} + \cdots + \frac{23}{4}u + \frac{5}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{16} - 5u^{15} - 19u^{14} - 54u^{13} - 118u^{12} - 225u^{11} - 344u^{10} - 469u^9 - 531u^8 - 526u^7 - 437u^6 - 296u^5 - 150u^4 - 37u^3 + 20u^2 + 28u + 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9	$u^{17} - 5u^{15} + \cdots + u + 1$
c_2, c_{10}	$u^{17} + 10u^{16} + \cdots + 3u + 1$
c_3, c_7, c_8	$u^{17} - 5u^{16} + \cdots - 16u + 4$
c_4, c_{11}	$u^{17} + 7u^{15} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^{17} - 10y^{16} + \cdots + 3y - 1$
c_2, c_{10}	$y^{17} - 2y^{16} + \cdots - 5y - 1$
c_3, c_7, c_8	$y^{17} + 15y^{16} + \cdots + 40y - 16$
c_4, c_{11}	$y^{17} + 14y^{16} + \cdots + 7y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.384204 + 0.955896I$ $a = -0.642349 - 0.376214I$ $b = -0.201052 - 0.409172I$	$-4.00659 + 3.27252I$	$-10.51806 - 4.95844I$
$u = 0.384204 - 0.955896I$ $a = -0.642349 + 0.376214I$ $b = -0.201052 + 0.409172I$	$-4.00659 - 3.27252I$	$-10.51806 + 4.95844I$
$u = -0.890867 + 0.377667I$ $a = -0.539314 - 0.319140I$ $b = 0.62144 - 1.41173I$	$-3.61361 - 10.59010I$	$-4.60527 + 8.92878I$
$u = -0.890867 - 0.377667I$ $a = -0.539314 + 0.319140I$ $b = 0.62144 + 1.41173I$	$-3.61361 + 10.59010I$	$-4.60527 - 8.92878I$
$u = -0.660302 + 0.842733I$ $a = -1.022380 - 0.230270I$ $b = -0.366663 - 1.179130I$	$-5.05206 + 5.24154I$	$-7.63274 - 4.49417I$
$u = -0.660302 - 0.842733I$ $a = -1.022380 + 0.230270I$ $b = -0.366663 + 1.179130I$	$-5.05206 - 5.24154I$	$-7.63274 + 4.49417I$
$u = -0.244707 + 1.043020I$ $a = 0.676808 - 0.521819I$ $b = 0.696756 + 0.141517I$	$-0.92388 - 2.05590I$	$-0.93009 + 3.10857I$
$u = -0.244707 - 1.043020I$ $a = 0.676808 + 0.521819I$ $b = 0.696756 - 0.141517I$	$-0.92388 + 2.05590I$	$-0.93009 - 3.10857I$
$u = -0.650467 + 0.269191I$ $a = 0.586208 + 0.134225I$ $b = -0.652154 + 0.703929I$	$1.27984 - 1.28287I$	$3.35042 + 1.93548I$
$u = -0.650467 - 0.269191I$ $a = 0.586208 - 0.134225I$ $b = -0.652154 - 0.703929I$	$1.27984 + 1.28287I$	$3.35042 - 1.93548I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.24757 + 1.43191I$ $a = -0.14316 - 1.60229I$ $b = 0.77487 - 1.21986I$	$-4.23745 - 4.56036I$	$-1.76092 + 2.27650I$
$u = -0.24757 - 1.43191I$ $a = -0.14316 + 1.60229I$ $b = 0.77487 + 1.21986I$	$-4.23745 + 4.56036I$	$-1.76092 - 2.27650I$
$u = 0.502705$ $a = 0.826549$ $b = 0.276508$	-1.52550	-5.61090
$u = -0.34289 + 1.49249I$ $a = 0.42197 + 1.89700I$ $b = -0.74695 + 1.66508I$	$-9.6338 - 15.0660I$	$-7.10421 + 9.07102I$
$u = -0.34289 - 1.49249I$ $a = 0.42197 - 1.89700I$ $b = -0.74695 - 1.66508I$	$-9.6338 + 15.0660I$	$-7.10421 - 9.07102I$
$u = -0.09876 + 1.57175I$ $a = 0.498949 + 1.308380I$ $b = -0.264501 + 1.188070I$	$-13.35050 + 2.91507I$	$-10.99366 - 2.99630I$
$u = -0.09876 - 1.57175I$ $a = 0.498949 - 1.308380I$ $b = -0.264501 - 1.188070I$	$-13.35050 - 2.91507I$	$-10.99366 + 2.99630I$

II. $\boldsymbol{I_2^u = \langle u^{23}a + 101u^{23} + \cdots - a - 645,\ 5u^{23}a + 6u^{23} + \cdots + a + 15,\ u^{24} - 2u^{23} + \cdots - 13u^2 + 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_1 = \begin{pmatrix} a \\ -0.00367647au^{23} - 0.371324u^{23} + \cdots + 0.00367647a + 2.37132 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.128676au^{23} + 0.503676u^{23} + \cdots + 1.62868a + 3.49632 \\ 0.613971au^{23} + 0.0110294u^{23} + \cdots - 0.613971a + 0.488971 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.00367647au^{23} - 2.37132u^{23} + \cdots - 0.996324a - 0.128676 \\ 0.00367647au^{23} - 0.128676u^{23} + \cdots - 0.00367647a - 0.371324 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.00367647au^{23} + 0.371324u^{23} + \cdots + 0.996324a - 2.37132 \\ -0.00367647au^{23} - 0.371324u^{23} + \cdots + 0.00367647a + 2.37132 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.371324au^{23} + 0.496324u^{23} + \cdots + 2.37132a + 2.00368 \\ -\frac{1}{2}u^{20} + \frac{1}{2}u^{19} + \cdots - 2u + \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0110294au^{23} - 0.386029u^{23} + \cdots + 0.988971a - 0.613971 \\ -0.0147059au^{23} + 0.0147059u^{23} + \cdots + 0.0147059a + 1.48529 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0110294au^{23} - 0.386029u^{23} + \cdots + 0.988971a - 0.613971 \\ -0.0147059au^{23} + 0.0147059u^{23} + \cdots + 0.0147059a + 1.48529 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^{23} + 4u^{22} - 32u^{21} + 52u^{20} - 208u^{19} + 280u^{18} - 720u^{17} + 808u^{16} - 1448u^{15} + 1360u^{14} - 1760u^{13} + 1424u^{12} - 1440u^{11} + 1116u^{10} - 1084u^{9} + 820u^{8} - 730u^{7} + 352u^{6} - 148u^{5} - 88u^{4} + 100u^{3} - 76u^{2} + 8u + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9	$u^{48} - u^{47} + \cdots - 2u + 1$
c_2, c_{10}	$u^{48} + 23u^{47} + \cdots + 2u + 1$
c_3, c_7, c_8	$(u^{24} + 2u^{23} + \cdots - 13u^2 + 1)^2$
c_4, c_{11}	$u^{48} - 3u^{47} + \cdots - 1432u + 517$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$y^{48} - 23y^{47} + \cdots - 2y + 1$
c_2, c_{10}	$y^{48} + 5y^{47} + \cdots - 30y + 1$
c_3, c_7, c_8	$(y^{24} + 24y^{23} + \cdots - 26y + 1)^2$
c_4, c_{11}	$y^{48} + 13y^{47} + \cdots - 341422y + 267289$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.761584 + 0.575116I$ $a = -1.062990 - 0.130786I$ $b = -0.020543 - 0.903159I$	$-5.05945 - 2.59591I$	$-7.61304 + 3.04974I$
$u = -0.761584 + 0.575116I$ $a = -0.203429 - 0.419558I$ $b = 0.349703 - 1.187750I$	$-5.05945 - 2.59591I$	$-7.61304 + 3.04974I$
$u = -0.761584 - 0.575116I$ $a = -1.062990 + 0.130786I$ $b = -0.020543 + 0.903159I$	$-5.05945 + 2.59591I$	$-7.61304 - 3.04974I$
$u = -0.761584 - 0.575116I$ $a = -0.203429 + 0.419558I$ $b = 0.349703 + 1.187750I$	$-5.05945 + 2.59591I$	$-7.61304 - 3.04974I$
$u = 0.186022 + 1.063970I$ $a = 0.916877 - 0.413619I$ $b = 0.982102 - 0.768293I$	$-1.95017 - 2.09169I$	$-5.42289 + 2.15037I$
$u = 0.186022 + 1.063970I$ $a = -0.933580 - 1.021610I$ $b = -0.389494 - 0.003420I$	$-1.95017 - 2.09169I$	$-5.42289 + 2.15037I$
$u = 0.186022 - 1.063970I$ $a = 0.916877 + 0.413619I$ $b = 0.982102 + 0.768293I$	$-1.95017 + 2.09169I$	$-5.42289 - 2.15037I$
$u = 0.186022 - 1.063970I$ $a = -0.933580 + 1.021610I$ $b = -0.389494 + 0.003420I$	$-1.95017 + 2.09169I$	$-5.42289 - 2.15037I$
$u = 0.772868 + 0.366845I$ $a = 0.536799 - 0.512090I$ $b = -0.638086 - 1.241260I$	$-1.01177 + 5.79366I$	$-1.10840 - 5.84891I$
$u = 0.772868 + 0.366845I$ $a = -0.655414 + 0.003636I$ $b = 0.640538 + 0.994553I$	$-1.01177 + 5.79366I$	$-1.10840 - 5.84891I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.772868 - 0.366845I$ $a = 0.536799 + 0.512090I$ $b = -0.638086 + 1.241260I$	$-1.01177 - 5.79366I$	$-1.10840 + 5.84891I$
$u = 0.772868 - 0.366845I$ $a = -0.655414 - 0.003636I$ $b = 0.640538 - 0.994553I$	$-1.01177 - 5.79366I$	$-1.10840 + 5.84891I$
$u = 0.518255 + 0.626071I$ $a = 1.151290 - 0.224523I$ $b = 0.354929 - 0.825030I$	$-2.06743 - 1.34975I$	$-3.70130 + 0.61741I$
$u = 0.518255 + 0.626071I$ $a = -0.466736 - 0.173905I$ $b = 0.036758 + 0.809795I$	$-2.06743 - 1.34975I$	$-3.70130 + 0.61741I$
$u = 0.518255 - 0.626071I$ $a = 1.151290 + 0.224523I$ $b = 0.354929 + 0.825030I$	$-2.06743 + 1.34975I$	$-3.70130 - 0.61741I$
$u = 0.518255 - 0.626071I$ $a = -0.466736 + 0.173905I$ $b = 0.036758 - 0.809795I$	$-2.06743 + 1.34975I$	$-3.70130 - 0.61741I$
$u = -0.105109 + 1.230930I$ $a = 0.782932 - 0.414854I$ $b = 1.289160 - 0.195621I$	$-1.53555 - 2.45321I$	$-1.73083 + 3.64393I$
$u = -0.105109 + 1.230930I$ $a = 0.07652 - 1.62634I$ $b = 0.323070 - 0.600087I$	$-1.53555 - 2.45321I$	$-1.73083 + 3.64393I$
$u = -0.105109 - 1.230930I$ $a = 0.782932 + 0.414854I$ $b = 1.289160 + 0.195621I$	$-1.53555 + 2.45321I$	$-1.73083 - 3.64393I$
$u = -0.105109 - 1.230930I$ $a = 0.07652 + 1.62634I$ $b = 0.323070 + 0.600087I$	$-1.53555 + 2.45321I$	$-1.73083 - 3.64393I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.059730+1.371060I$ $a=-0.818424-0.361459I$ $b=-1.60423-0.59087I$	$-4.45021-0.95435I$	$-6.93920+1.02665I$
$u=-0.059730+1.371060I$ $a=-0.74073+2.25028I$ $b=-0.361469+1.063690I$	$-4.45021-0.95435I$	$-6.93920+1.02665I$
$u=-0.059730-1.371060I$ $a=-0.818424+0.361459I$ $b=-1.60423+0.59087I$	$-4.45021+0.95435I$	$-6.93920-1.02665I$
$u=-0.059730-1.371060I$ $a=-0.74073-2.25028I$ $b=-0.361469-1.063690I$	$-4.45021+0.95435I$	$-6.93920-1.02665I$
$u=0.139725+1.381280I$ $a=-0.770884-0.370544I$ $b=-1.66412-0.10648I$	$-4.08023+6.55700I$	$-5.63713-6.78251I$
$u=0.139725+1.381280I$ $a=0.29262+2.38176I$ $b=0.489560+1.196920I$	$-4.08023+6.55700I$	$-5.63713-6.78251I$
$u=0.139725-1.381280I$ $a=-0.770884+0.370544I$ $b=-1.66412+0.10648I$	$-4.08023-6.55700I$	$-5.63713+6.78251I$
$u=0.139725-1.381280I$ $a=0.29262-2.38176I$ $b=0.489560-1.196920I$	$-4.08023-6.55700I$	$-5.63713+6.78251I$
$u=-0.554352$ $a=0.740835+0.680093I$ $b=-0.921542+0.242552I$	2.09657	5.17700
$u=-0.554352$ $a=0.740835-0.680093I$ $b=-0.921542-0.242552I$	2.09657	5.17700

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.29578 + 1.47095I$ $a = 0.18443 - 1.56957I$ $b = -0.92779 - 1.33458I$	$-6.94105 + 9.69379I$	$-4.61840 - 5.69034I$
$u = 0.29578 + 1.47095I$ $a = -0.31932 + 1.99740I$ $b = 0.67461 + 1.56652I$	$-6.94105 + 9.69379I$	$-4.61840 - 5.69034I$
$u = 0.29578 - 1.47095I$ $a = 0.18443 + 1.56957I$ $b = -0.92779 + 1.33458I$	$-6.94105 - 9.69379I$	$-4.61840 + 5.69034I$
$u = 0.29578 - 1.47095I$ $a = -0.31932 - 1.99740I$ $b = 0.67461 - 1.56652I$	$-6.94105 - 9.69379I$	$-4.61840 + 5.69034I$
$u = 0.16919 + 1.49858I$ $a = -0.711118 + 1.168250I$ $b = 0.274092 + 0.921694I$	$-8.88235 + 1.10950I$	$-6.99514 + 0.17623I$
$u = 0.16919 + 1.49858I$ $a = 0.09153 - 1.54673I$ $b = -0.53616 - 1.43470I$	$-8.88235 + 1.10950I$	$-6.99514 + 0.17623I$
$u = 0.16919 - 1.49858I$ $a = -0.711118 - 1.168250I$ $b = 0.274092 - 0.921694I$	$-8.88235 - 1.10950I$	$-6.99514 - 0.17623I$
$u = 0.16919 - 1.49858I$ $a = 0.09153 + 1.54673I$ $b = -0.53616 + 1.43470I$	$-8.88235 - 1.10950I$	$-6.99514 - 0.17623I$
$u = 0.466344 + 0.139064I$ $a = -1.18545 - 1.21183I$ $b = 1.039580 + 0.010832I$	$0.81638 + 4.44188I$	$2.19708 - 6.84090I$
$u = 0.466344 + 0.139064I$ $a = 1.18593 - 1.46874I$ $b = -0.867602 - 0.879604I$	$0.81638 + 4.44188I$	$2.19708 - 6.84090I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.466344 - 0.139064I$ $a = -1.18545 + 1.21183I$ $b = 1.039580 - 0.010832I$	$0.81638 - 4.44188I$	$2.19708 + 6.84090I$
$u = 0.466344 - 0.139064I$ $a = 1.18593 + 1.46874I$ $b = -0.867602 + 0.879604I$	$0.81638 - 4.44188I$	$2.19708 + 6.84090I$
$u = -0.23640 + 1.53629I$ $a = 0.609636 + 1.013420I$ $b = -0.471274 + 0.872850I$	$-12.00220 - 6.17786I$	$-9.83600 + 3.42505I$
$u = -0.23640 + 1.53629I$ $a = 0.12964 + 1.84162I$ $b = -0.47148 + 1.62736I$	$-12.00220 - 6.17786I$	$-9.83600 + 3.42505I$
$u = -0.23640 - 1.53629I$ $a = 0.609636 - 1.013420I$ $b = -0.471274 - 0.872850I$	$-12.00220 + 6.17786I$	$-9.83600 - 3.42505I$
$u = -0.23640 - 1.53629I$ $a = 0.12964 - 1.84162I$ $b = -0.47148 - 1.62736I$	$-12.00220 + 6.17786I$	$-9.83600 - 3.42505I$
$u = -0.216364$ $a = -3.33097 + 3.65605I$ $b = 0.919690 + 0.650330I$	0.115142	1.63340
$u = -0.216364$ $a = -3.33097 - 3.65605I$ $b = 0.919690 - 0.650330I$	0.115142	1.63340

III. $I_3^u = \langle -au + 2b - a,\ a^2 + au + a + 2u,\ u^2 + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4au - 4a - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 0.36603 - 1.36603I$ $b = 0.866025 - 0.500000I$	$-1.64493 - 4.05977I$	$-4.00000 + 6.92820I$
$u = 1.000000I$ $a = -1.36603 + 0.36603I$ $b = -0.866025 - 0.500000I$	$-1.64493 + 4.05977I$	$-4.00000 - 6.92820I$
$u = -1.000000I$ $a = 0.36603 + 1.36603I$ $b = 0.866025 + 0.500000I$	$-1.64493 + 4.05977I$	$-4.00000 - 6.92820I$
$u = -1.000000I$ $a = -1.36603 - 0.36603I$ $b = -0.866025 + 0.500000I$	$-1.64493 - 4.05977I$	$-4.00000 + 6.92820I$

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

(i) Arc colorings

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

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

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

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

$$a_1 = \begin{pmatrix} a \\ -\frac{1}{2}au + \frac{1}{2}a - \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -\frac{1}{2}au + \frac{1}{2}a - \frac{1}{2}u - \frac{1}{2} \\ -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u + \frac{1}{2} \\ -\frac{1}{2}au - \frac{1}{2}a - \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u - \frac{1}{2} \\ -\frac{1}{2}au + \frac{1}{2}a - \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}au + \frac{1}{2}a - \frac{1}{2}u + \frac{1}{2} \\ u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u - \frac{1}{2} \\ -au - u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a + \frac{1}{2}u - \frac{1}{2} \\ -au - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 0.366025 + 0.366025I$ $b = 0.866025 - 0.500000I$	-1.64493	-4.00000
$u = 1.000000I$ $a = -1.36603 - 1.36603I$ $b = -0.866025 - 0.500000I$	-1.64493	-4.00000
$u = -1.000000I$ $a = 0.366025 - 0.366025I$ $b = 0.866025 + 0.500000I$	-1.64493	-4.00000
$u = -1.000000I$ $a = -1.36603 + 1.36603I$ $b = -0.866025 + 0.500000I$	-1.64493	-4.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9	$((u^4-u^2+1)^2)(u^{17}-5u^{15}+\cdots+u+1)(u^{48}-u^{47}+\cdots-2u+1)$
c_2, c_{10}	$((u^2+u+1)^4)(u^{17}+10u^{16}+\cdots+3u+1)(u^{48}+23u^{47}+\cdots+2u+1)$
c_3, c_7, c_8	$((u^2+1)^4)(u^{17}-5u^{16}+\cdots-16u+4)(u^{24}+2u^{23}+\cdots-13u^2+1)^2$
c_4, c_{11}	$((u^4-u^2+1)^2)(u^{17}+7u^{15}+\cdots+3u+1)$ $\cdot(u^{48}-3u^{47}+\cdots-1432u+517)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9	$((y^2 - y + 1)^4)(y^{17} - 10y^{16} + \cdots + 3y - 1)(y^{48} - 23y^{47} + \cdots - 2y + 1)$
c_2, c_{10}	$((y^2 + y + 1)^4)(y^{17} - 2y^{16} + \cdots - 5y - 1)(y^{48} + 5y^{47} + \cdots - 30y + 1)$
c_3, c_7, c_8	$((y+1)^8)(y^{17} + 15y^{16} + \cdots + 40y - 16)$ $\cdot (y^{24} + 24y^{23} + \cdots - 26y + 1)^2$
c_4, c_{11}	$((y^2 - y + 1)^4)(y^{17} + 14y^{16} + \cdots + 7y - 1)$ $\cdot (y^{48} + 13y^{47} + \cdots - 341422y + 267289)$