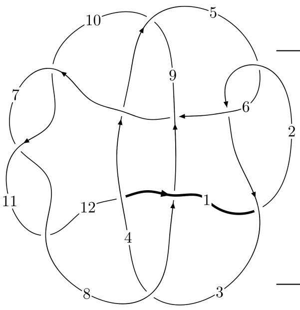
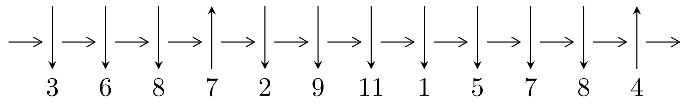
$12n_{0441}$ ($K12n_{0441}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-9309481822991u^{25} + 73829652568183u^{24} + \cdots + 260029930933511b + 103914726631843,\\
&469820212829242u^{25} - 103914726631843u^{24} + \cdots + 260029930933511a + 3878572919965900,\\
&u^{26} + 11u^{24} + \cdots + 9u + 1\rangle\\
I_2^u = \langle &-2.76733 \times 10^{64}u^{39} - 5.89505 \times 10^{64}u^{38} + \cdots + 1.60944 \times 10^{63}b + 2.15660 \times 10^{65},\\
&1.58706 \times 10^{65}u^{39} + 3.38445 \times 10^{65}u^{38} + \cdots + 1.60944 \times 10^{63}a - 1.20443 \times 10^{66},\ u^{40} + 2u^{39} + \cdots - 31u +\\
I_3^u = \langle &23u^9 + 7u^8 + 70u^7 + 16u^6 + 102u^5 + 97u^4 + 66u^3 + 55u^2 + 37b - 37u - 9,\\
&-56u^9 - 9u^8 - 201u^7 + 27u^6 - 369u^5 - 56u^4 - 402u^3 + 72u^2 + 37a - 37u + 149,\\
&u^{10} + 4u^8 - u^7 + 8u^6 + 9u^4 - u^3 + 2u^2 - 2u - 1\rangle\\
I_4^u = \langle &-9u^7 + 2u^6 - 53u^5 + 24u^4 - 91u^3 + 41u^2 + 13b - 62u + 18,\\
&-u^7 - 6u^5 + 2u^4 - 10u^3 + 6u^2 + a - 7u + 4,\ u^8 + 6u^6 - 2u^5 + 10u^4 - 6u^3 + 7u^2 - 4u + 1\rangle\\
I_5^u = \langle &b - u + 1,\ a,\ u^2 - u + 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 86 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. $I_1^u = \langle -9.31 \times 10^{12}u^{25} + 7.38 \times 10^{13}u^{24} + \cdots + 2.60 \times 10^{14}b + 1.04 \times 10^{14},\ 4.70 \times 10^{14}u^{25} - 1.04 \times 10^{14}u^{24} + \cdots + 2.60 \times 10^{14}a + 3.88 \times 10^{15},\ u^{26} + 11u^{24} + \cdots + 9u + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.80679u^{25} + 0.399626u^{24} + \cdots - 40.3048u - 14.9159 \\ 0.0358016u^{25} - 0.283928u^{24} + \cdots - 0.789841u - 0.399626 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.80679u^{25} + 0.399626u^{24} + \cdots - 40.3048u - 14.9159 \\ 0.0716032u^{25} - 0.567855u^{24} + \cdots - 2.57968u - 0.799252 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.77099u^{25} + 0.115699u^{24} + \cdots - 41.0946u - 15.3155 \\ -0.169902u^{25} - 0.371239u^{24} + \cdots - 0.0601367u - 0.515325 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3.57844u^{25} - 0.00928018u^{24} + \cdots + 60.7654u + 24.7620 \\ 0.339222u^{25} - 0.587326u^{24} + \cdots - 7.69123u - 0.0242533 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -3.14858u^{25} - 0.276584u^{24} + \cdots - 69.8097u - 24.6725 \\ 0.0250668u^{25} + 0.127352u^{24} + \cdots + 4.84799u - 0.123042 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0553456u^{25} + 0.301266u^{24} + \cdots - 9.68720u - 7.23255 \\ -0.0310923u^{25} + 0.0379551u^{24} + \cdots - 1.69626u - 0.240398 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.98609u^{25} - 1.47838u^{24} + \cdots + 22.3075u + 16.0739 \\ -0.0620066u^{25} + 0.275777u^{24} + \cdots + 9.47790u + 1.77196 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.60109u^{25} + 0.486937u^{24} + \cdots - 41.0345u - 14.8002 \\ -0.169902u^{25} - 0.371239u^{24} + \cdots - 0.0601367u - 0.515325 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 3.27718u^{25} + 0.178388u^{24} + \cdots + 68.4960u + 24.8174 \\ 0.301266u^{25} - 0.187668u^{24} + \cdots - 7.73066u - 0.0553456 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{2458339353424590}{260029930933511}u^{25} + \frac{166778339040524}{260029930933511}u^{24} + \cdots + \frac{2838793570905159 3}{260029930933511}u + \frac{7983772528255336}{260029930933511}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 7u^{25} + \cdots + 769u + 16$
c_2, c_5	$u^{26} + 7u^{25} + \cdots - 43u - 4$
c_3, c_9	$u^{26} + 11u^{24} + \cdots + 9u + 1$
c_4, c_{12}	$u^{26} + 2u^{25} + \cdots + 11u + 1$
c_6, c_8	$u^{26} + u^{25} + \cdots - u - 1$
c_7, c_{10}, c_{11}	$u^{26} + 11u^{25} + \cdots - 23u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} + 17y^{25} + \cdots - 418017y + 256$
c_2, c_5	$y^{26} - 7y^{25} + \cdots - 769y + 16$
c_3, c_9	$y^{26} + 22y^{25} + \cdots - 33y + 1$
c_4, c_{12}	$y^{26} - 26y^{25} + \cdots - 17y + 1$
c_6, c_8	$y^{26} - 13y^{25} + \cdots - 5y + 1$
c_7, c_{10}, c_{11}	$y^{26} - 3y^{25} + \cdots - 89y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.925328 + 0.204781I$ $a = 0.576015 - 0.245577I$ $b = -0.549350 - 0.213489I$	$-1.185780 - 0.477506I$	$-8.56678 - 2.27892I$
$u = -0.925328 - 0.204781I$ $a = 0.576015 + 0.245577I$ $b = -0.549350 + 0.213489I$	$-1.185780 + 0.477506I$	$-8.56678 + 2.27892I$
$u = 0.437987 + 0.957320I$ $a = -1.273680 - 0.370591I$ $b = 1.67170 + 0.15777I$	$4.40116 - 1.97219I$	$-17.1827 - 0.9744I$
$u = 0.437987 - 0.957320I$ $a = -1.273680 + 0.370591I$ $b = 1.67170 - 0.15777I$	$4.40116 + 1.97219I$	$-17.1827 + 0.9744I$
$u = 0.248708 + 1.048740I$ $a = 0.062948 + 0.711511I$ $b = -0.187797 + 0.343031I$	$-1.73508 - 1.89801I$	$-8.55455 + 3.04477I$
$u = 0.248708 - 1.048740I$ $a = 0.062948 - 0.711511I$ $b = -0.187797 - 0.343031I$	$-1.73508 + 1.89801I$	$-8.55455 - 3.04477I$
$u = 1.033700 + 0.477780I$ $a = -0.441315 + 0.395879I$ $b = 0.271845 + 0.374508I$	$-1.59430 + 2.89984I$	$-9.85116 - 8.11236I$
$u = 1.033700 - 0.477780I$ $a = -0.441315 - 0.395879I$ $b = 0.271845 - 0.374508I$	$-1.59430 - 2.89984I$	$-9.85116 + 8.11236I$
$u = 0.152393 + 0.838106I$ $a = 0.304017 - 0.370147I$ $b = 0.040457 + 1.167170I$	$-1.68902 + 1.74396I$	$-6.90590 - 3.41950I$
$u = 0.152393 - 0.838106I$ $a = 0.304017 + 0.370147I$ $b = 0.040457 - 1.167170I$	$-1.68902 - 1.74396I$	$-6.90590 + 3.41950I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.157882 + 1.174830I$ $a = 0.147312 + 0.389022I$ $b = -0.186083 + 0.702237I$	$-1.75577 - 1.91027I$	$-7.85130 + 3.44778I$
$u = 0.157882 - 1.174830I$ $a = 0.147312 - 0.389022I$ $b = -0.186083 - 0.702237I$	$-1.75577 + 1.91027I$	$-7.85130 - 3.44778I$
$u = -0.041568 + 1.314780I$ $a = -0.962386 + 0.969307I$ $b = 1.72636 - 0.25395I$	$8.64541 + 0.35254I$	$-5.05913 - 0.86290I$
$u = -0.041568 - 1.314780I$ $a = -0.962386 - 0.969307I$ $b = 1.72636 + 0.25395I$	$8.64541 - 0.35254I$	$-5.05913 + 0.86290I$
$u = 0.091023 + 1.338640I$ $a = 0.930924 + 0.895385I$ $b = -1.78763 - 0.03157I$	$7.58539 - 7.09977I$	$-6.01709 + 4.34352I$
$u = 0.091023 - 1.338640I$ $a = 0.930924 - 0.895385I$ $b = -1.78763 + 0.03157I$	$7.58539 + 7.09977I$	$-6.01709 - 4.34352I$
$u = -0.689089 + 1.219170I$ $a = 0.961669 + 0.093949I$ $b = -1.50398 - 0.49169I$	$-0.10698 + 7.65731I$	$-11.70226 - 7.14009I$
$u = -0.689089 - 1.219170I$ $a = 0.961669 - 0.093949I$ $b = -1.50398 + 0.49169I$	$-0.10698 - 7.65731I$	$-11.70226 + 7.14009I$
$u = -0.486762$ $a = 1.08934$ $b = -0.228656$	-0.765965	-12.9500
$u = -0.098078 + 0.439549I$ $a = -0.77333 - 3.25861I$ $b = -0.237064 + 1.104460I$	$-5.10383 + 3.18903I$	$-17.4273 - 3.2712I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.098078-0.439549I$ $a=-0.77333+3.25861I$ $b=-0.237064-1.104460I$	$-5.10383-3.18903I$	$-17.4273+3.2712I$
$u=\ \ 0.50591+1.51762I$ $a=-0.954886+0.422620I$ $b=\ \ 1.81183-0.81387I$	$8.81872-9.45700I$	$-5.57202+4.82775I$
$u=\ \ 0.50591-1.51762I$ $a=-0.954886-0.422620I$ $b=\ \ 1.81183+0.81387I$	$8.81872+9.45700I$	$-5.57202-4.82775I$
$u=-0.55589+1.59469I$ $a=\ \ 0.878916+0.428177I$ $b=-1.76028-0.92013I$	$7.2466+15.9916I$	$-8.00000-8.39864I$
$u=-0.55589-1.59469I$ $a=\ \ 0.878916-0.428177I$ $b=-1.76028+0.92013I$	$7.2466-15.9916I$	$-8.00000+8.39864I$
$u=-0.148557$ $a=-11.0018$ $b=-0.391355$	-10.0986	22.3080

II. $\boldsymbol{I^u_2 = \langle -2.77\times 10^{64}u^{39} - 5.90\times 10^{64}u^{38} + \cdots + 1.61\times 10^{63}b + 2.16\times 10^{65},\ 1.59\times 10^{65}u^{39} + 3.38\times 10^{65}u^{38} + \cdots + 1.61\times 10^{63}a - 1.20\times 10^{66},\ u^{40} + 2u^{39} + \cdots - 31u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-98.6099u^{39} - 210.287u^{38} + \cdots - 17327.2u + 748.357\\ 17.1944u^{39} + 36.6280u^{38} + \cdots + 3110.76u - 133.997\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-98.6099u^{39} - 210.287u^{38} + \cdots - 17327.2u + 748.357\\ 15.4838u^{39} + 32.9912u^{38} + \cdots + 2804.27u - 120.930\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-81.4155u^{39} - 173.659u^{38} + \cdots - 14216.5u + 614.359\\ 15.7727u^{39} + 33.5976u^{38} + \cdots + 2856.50u - 123.169\end{pmatrix}$$
$$a_9 = \begin{pmatrix}24.3237u^{39} + 51.8494u^{38} + \cdots + 4186.11u - 167.565\\ 1.70809u^{39} + 3.60334u^{38} + \cdots + 350.584u - 14.1596\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-20.2827u^{39} - 43.3042u^{38} + \cdots - 3387.05u + 134.967\\ -2.73705u^{39} - 5.80246u^{38} + \cdots - 523.421u + 21.6408\end{pmatrix}$$
$$a_5 = \begin{pmatrix}13.0361u^{39} + 27.9037u^{38} + \cdots + 2358.25u - 112.609\\ 5.85766u^{39} + 12.5132u^{38} + \cdots + 1011.37u - 44.6712\end{pmatrix}$$
$$a_6 = \begin{pmatrix}57.2063u^{39} + 121.962u^{38} + \cdots + 9989.28u - 428.196\\ -12.1175u^{39} - 25.8205u^{38} + \cdots - 2184.36u + 94.7544\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-97.1883u^{39} - 207.257u^{38} + \cdots - 17073.0u + 737.528\\ 15.7727u^{39} + 33.5976u^{38} + \cdots + 2856.50u - 123.169\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-182.374u^{39} - 388.925u^{38} + \cdots - 32001.5u + 1381.43\\ 34.6744u^{39} + 73.8531u^{38} + \cdots + 6269.35u - 270.136\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -21.2453u^{39} - 45.2764u^{38} + \cdots - 3927.04u + 165.006$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{20}+8u^{19}+\cdots+67u+9)^2$
c_2, c_5	$(u^{20}-2u^{19}+\cdots-7u+3)^2$
c_3, c_9	$u^{40}+2u^{39}+\cdots-31u+1$
c_4, c_{12}	$u^{40}+4u^{39}+\cdots+37u+1$
c_6, c_8	$u^{40}+u^{39}+\cdots-38u+19$
c_7, c_{10}, c_{11}	$(u^{20}-5u^{19}+\cdots-9u+2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{20} + 12y^{19} + \cdots - 223y + 81)^2$
c_2, c_5	$(y^{20} - 8y^{19} + \cdots - 67y + 9)^2$
c_3, c_9	$y^{40} + 40y^{39} + \cdots + 19y + 1$
c_4, c_{12}	$y^{40} - 36y^{39} + \cdots - 231y + 1$
c_6, c_8	$y^{40} + y^{39} + \cdots + 5548y + 361$
c_7, c_{10}, c_{11}	$(y^{20} - y^{19} + \cdots + 15y + 4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.107685 + 0.869000I$ $a = -0.09684 + 1.48156I$ $b = -0.316103 + 0.209805I$	$-1.93389 - 2.53032I$	$-6.19592 + 4.02108I$
$u = 0.107685 - 0.869000I$ $a = -0.09684 - 1.48156I$ $b = -0.316103 - 0.209805I$	$-1.93389 + 2.53032I$	$-6.19592 - 4.02108I$
$u = -0.373189 + 1.166640I$ $a = -0.636181 - 0.287370I$ $b = 1.69080 + 0.43538I$	$2.80723 + 3.42080I$	0
$u = -0.373189 - 1.166640I$ $a = -0.636181 + 0.287370I$ $b = 1.69080 - 0.43538I$	$2.80723 - 3.42080I$	0
$u = 1.163750 + 0.469682I$ $a = 0.612522 + 0.298397I$ $b = -0.004964 - 0.158740I$	$2.80723 - 3.42080I$	0
$u = 1.163750 - 0.469682I$ $a = 0.612522 - 0.298397I$ $b = -0.004964 + 0.158740I$	$2.80723 + 3.42080I$	0
$u = 0.091657 + 1.296970I$ $a = 0.932233 - 0.746341I$ $b = -1.73419 - 0.20045I$	$8.52898 - 1.35152I$	0
$u = 0.091657 - 1.296970I$ $a = 0.932233 + 0.746341I$ $b = -1.73419 + 0.20045I$	$8.52898 + 1.35152I$	0
$u = 0.231177 + 0.655143I$ $a = 0.791547 - 0.146798I$ $b = -1.64148 + 0.76911I$	$-2.77919 - 0.72470I$	$-6.99365 + 10.58729I$
$u = 0.231177 - 0.655143I$ $a = 0.791547 + 0.146798I$ $b = -1.64148 - 0.76911I$	$-2.77919 + 0.72470I$	$-6.99365 - 10.58729I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.615112 + 1.163700I$ $a = 0.568955 - 0.258845I$ $b = -1.72547 + 0.43428I$	$0.70919 - 8.81461I$	0
$u = 0.615112 - 1.163700I$ $a = 0.568955 + 0.258845I$ $b = -1.72547 - 0.43428I$	$0.70919 + 8.81461I$	0
$u = -0.110827 + 1.329560I$ $a = 0.137120 + 0.964756I$ $b = 0.151293 - 0.864996I$	$-1.93389 - 2.53032I$	0
$u = -0.110827 - 1.329560I$ $a = 0.137120 - 0.964756I$ $b = 0.151293 + 0.864996I$	$-1.93389 + 2.53032I$	0
$u = 0.299939 + 1.358570I$ $a = -0.641788 - 0.218251I$ $b = 1.43525 - 0.13921I$	$4.45736 - 0.35820I$	0
$u = 0.299939 - 1.358570I$ $a = -0.641788 + 0.218251I$ $b = 1.43525 + 0.13921I$	$4.45736 + 0.35820I$	0
$u = -0.080772 + 1.395440I$ $a = -0.824582 - 0.752869I$ $b = 1.85230 - 0.03442I$	$8.30234 + 6.78804I$	0
$u = -0.080772 - 1.395440I$ $a = -0.824582 + 0.752869I$ $b = 1.85230 + 0.03442I$	$8.30234 - 6.78804I$	0
$u = 0.109439 + 0.536709I$ $a = 0.04901 + 1.66403I$ $b = -0.383758 + 1.251790I$	$-4.22584 + 1.07930I$	$-18.8617 - 0.2582I$
$u = 0.109439 - 0.536709I$ $a = 0.04901 - 1.66403I$ $b = -0.383758 - 1.251790I$	$-4.22584 - 1.07930I$	$-18.8617 + 0.2582I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.38851 + 0.47418I$ $a = -0.073304 - 0.374070I$ $b = -0.386249 + 0.114590I$	$-2.77919 - 0.72470I$	0
$u = -1.38851 - 0.47418I$ $a = -0.073304 + 0.374070I$ $b = -0.386249 - 0.114590I$	$-2.77919 + 0.72470I$	0
$u = 0.48704 + 1.38580I$ $a = 0.839633 - 0.417130I$ $b = -1.128480 + 0.324249I$	$4.71743 - 3.54403I$	0
$u = 0.48704 - 1.38580I$ $a = 0.839633 + 0.417130I$ $b = -1.128480 - 0.324249I$	$4.71743 + 3.54403I$	0
$u = -0.40407 + 1.47756I$ $a = 0.618122 - 0.115570I$ $b = -1.342100 - 0.439927I$	$3.26793 + 6.33523I$	0
$u = -0.40407 - 1.47756I$ $a = 0.618122 + 0.115570I$ $b = -1.342100 + 0.439927I$	$3.26793 - 6.33523I$	0
$u = -0.27827 + 1.51128I$ $a = -0.730955 - 0.518496I$ $b = 1.66383 + 0.37308I$	$4.71743 + 3.54403I$	0
$u = -0.27827 - 1.51128I$ $a = -0.730955 + 0.518496I$ $b = 1.66383 - 0.37308I$	$4.71743 - 3.54403I$	0
$u = -1.54083 + 0.63283I$ $a = -0.476317 + 0.130739I$ $b = -0.0700266 + 0.0232375I$	$0.70919 + 8.81461I$	0
$u = -1.54083 - 0.63283I$ $a = -0.476317 - 0.130739I$ $b = -0.0700266 - 0.0232375I$	$0.70919 - 8.81461I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.35133 + 1.67126I$ $a = -0.780533 - 0.466237I$ $b = 1.62791 + 0.86433I$	$8.52898 + 1.35152I$	0
$u = -0.35133 - 1.67126I$ $a = -0.780533 + 0.466237I$ $b = 1.62791 - 0.86433I$	$8.52898 - 1.35152I$	0
$u = -0.17475 + 1.70544I$ $a = 0.173717 + 0.502733I$ $b = -0.090864 - 1.013700I$	$-4.22584 + 1.07930I$	0
$u = -0.17475 - 1.70544I$ $a = 0.173717 - 0.502733I$ $b = -0.090864 + 1.013700I$	$-4.22584 - 1.07930I$	0
$u = 0.42173 + 1.68142I$ $a = 0.766594 - 0.472156I$ $b = -1.44211 + 0.94264I$	$8.30234 - 6.78804I$	0
$u = 0.42173 - 1.68142I$ $a = 0.766594 + 0.472156I$ $b = -1.44211 - 0.94264I$	$8.30234 + 6.78804I$	0
$u = 0.1305640 + 0.0006413I$ $a = 0.76135 - 7.18315I$ $b = 0.314121 + 1.236250I$	$4.45736 - 0.35820I$	$-3.17120 - 1.48913I$
$u = 0.1305640 - 0.0006413I$ $a = 0.76135 + 7.18315I$ $b = 0.314121 - 1.236250I$	$4.45736 + 0.35820I$	$-3.17120 + 1.48913I$
$u = 0.0444473 + 0.0647209I$ $a = 9.50970 + 7.75152I$ $b = -0.46972 + 1.51512I$	$3.26793 + 6.33523I$	$-4.73548 - 4.55872I$
$u = 0.0444473 - 0.0647209I$ $a = 9.50970 - 7.75152I$ $b = -0.46972 - 1.51512I$	$3.26793 - 6.33523I$	$-4.73548 + 4.55872I$

III. $I_3^u = \langle 23u^9 + 7u^8 + \cdots + 37b - 9,\ -56u^9 - 9u^8 + \cdots + 37a + 149,\ u^{10} + 4u^8 - u^7 + 8u^6 + 9u^4 - u^3 + 2u^2 - 2u - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{56}{37}u^9 + \frac{9}{37}u^8 + \cdots + u - \frac{149}{37} \\ -\frac{23}{37}u^9 - \frac{7}{37}u^8 + \cdots + u + \frac{9}{37} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{56}{37}u^9 + \frac{9}{37}u^8 + \cdots + u - \frac{149}{37} \\ -1.24324u^9 - 0.378378u^8 + \cdots + 3u + 0.486486 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{33}{37}u^9 + \frac{2}{37}u^8 + \cdots + 2u - \frac{140}{37} \\ -0.648649u^9 - 0.675676u^8 + \cdots + 2u + 0.297297 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.89189u^9 - 0.0540541u^8 + \cdots - 5u + 5.78378 \\ \frac{1}{37}u^9 + \frac{18}{37}u^8 + \cdots - 2u - \frac{2}{37} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2.21622u^9 + 0.891892u^8 + \cdots + 2u - 6.43243 \\ -0.324324u^9 - 0.837838u^8 + \cdots + 3u + 0.648649 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{12}{37}u^9 - \frac{6}{37}u^8 + \cdots - u + \frac{87}{37} \\ -\frac{10}{37}u^9 + \frac{5}{37}u^8 + \cdots - u - \frac{17}{37} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.540541u^9 + 1.27027u^8 + \cdots - 6u + 3.08108 \\ -\frac{19}{37}u^9 - \frac{9}{37}u^8 + \cdots + u + \frac{38}{37} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.54054u^9 + 0.729730u^8 + \cdots + 0.162162u^2 - 4.08108 \\ -0.648649u^9 - 0.675676u^8 + \cdots + 2u + 0.297297 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.05405u^9 - 0.972973u^8 + \cdots - 2u + 6.10811 \\ \frac{6}{37}u^9 + \frac{34}{37}u^8 + \cdots - 3u - \frac{12}{37} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{205}{37}u^9 - \frac{84}{37}u^8 + \frac{936}{37}u^7 - \frac{673}{37}u^6 + \frac{2106}{37}u^5 - \frac{1127}{37}u^4 + \frac{2612}{37}u^3 - \frac{1326}{37}u^2 + 23u - \frac{1150}{37}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10} - 2u^9 + 5u^8 - 4u^7 + 4u^6 - 7u^5 + 22u^4 - 54u^3 + 40u^2 - 9u + 1$
c_2	$u^{10} + 4u^9 + 7u^8 + 4u^7 - 6u^6 - 15u^5 - 12u^4 + 8u^2 + 5u + 1$
c_3, c_9	$u^{10} + 4u^8 - u^7 + 8u^6 + 9u^4 - u^3 + 2u^2 - 2u - 1$
c_4, c_{12}	$u^{10} + 2u^9 - 4u^8 - 8u^7 + 6u^6 + 8u^5 - 6u^4 + 3u^3 + 4u^2 - 6u + 1$
c_5	$u^{10} - 4u^9 + 7u^8 - 4u^7 - 6u^6 + 15u^5 - 12u^4 + 8u^2 - 5u + 1$
c_6, c_8	$u^{10} + u^9 - u^8 + 2u^7 + u^6 - 2u^5 + 3u^4 - u^3 - 2u^2 + 2u - 1$
c_7	$u^{10} + 8u^9 + \cdots - 2u - 3$
c_{10}, c_{11}	$u^{10} - 8u^9 + \cdots + 2u - 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{10} + 6y^9 + \cdots - y + 1$
c_2, c_5	$y^{10} - 2y^9 + 5y^8 - 4y^7 + 4y^6 - 7y^5 + 22y^4 - 54y^3 + 40y^2 - 9y + 1$
c_3, c_9	$y^{10} + 8y^9 + \cdots - 8y + 1$
c_4, c_{12}	$y^{10} - 12y^9 + \cdots - 28y + 1$
c_6, c_8	$y^{10} - 3y^9 - y^8 + 4y^7 + y^6 + 4y^5 - 5y^4 - 7y^3 + 2y^2 + 1$
c_7, c_{10}, c_{11}	$y^{10} - 6y^9 + 5y^8 + 13y^7 + 47y^5 - 51y^4 - 237y^3 - 174y^2 - 88y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.113601 + 0.927431I$ $a = -0.11490 - 1.98015I$ $b = -0.206295 + 0.774410I$	$-4.12954 + 3.49860I$	$-9.01209 - 4.51290I$
$u = -0.113601 - 0.927431I$ $a = -0.11490 + 1.98015I$ $b = -0.206295 - 0.774410I$	$-4.12954 - 3.49860I$	$-9.01209 + 4.51290I$
$u = -0.495456 + 0.987445I$ $a = -1.009770 + 0.387931I$ $b = 1.61173 - 0.28244I$	$4.73376 + 2.16483I$	$1.22717 - 8.71022I$
$u = -0.495456 - 0.987445I$ $a = -1.009770 - 0.387931I$ $b = 1.61173 + 0.28244I$	$4.73376 - 2.16483I$	$1.22717 + 8.71022I$
$u = 0.609357$ $a = -0.481071$ $b = -0.787987$	-3.04786	-13.9390
$u = 0.84505 + 1.13903I$ $a = 0.589363 + 0.076741I$ $b = -1.336550 - 0.049223I$	$2.04346 - 8.28564I$	$-5.35537 + 8.10267I$
$u = 0.84505 - 1.13903I$ $a = 0.589363 - 0.076741I$ $b = -1.336550 + 0.049223I$	$2.04346 + 8.28564I$	$-5.35537 - 8.10267I$
$u = -0.37880 + 1.49046I$ $a = -0.751588 - 0.458927I$ $b = 1.42239 + 0.31186I$	$5.62989 + 3.50299I$	$-1.76700 - 2.21802I$
$u = -0.37880 - 1.49046I$ $a = -0.751588 + 0.458927I$ $b = 1.42239 - 0.31186I$	$5.62989 - 3.50299I$	$-1.76700 + 2.21802I$
$u = -0.323747$ $a = -4.94514$ $b = -0.194564$	-10.2174	-45.2470

IV. $\boldsymbol{I_4^u = \langle -9u^7 + 2u^6 + \cdots + 13b + 18,\ -u^7 - 6u^5 + 2u^4 - 10u^3 + 6u^2 + a - 7u + 4,\ u^8 + 6u^6 - 2u^5 + 10u^4 - 6u^3 + 7u^2 - 4u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^7 + 6u^5 - 2u^4 + 10u^3 - 6u^2 + 7u - 4 \\ 0.692308u^7 - 0.153846u^6 + \cdots + 4.76923u - 1.38462 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^7 + 6u^5 - 2u^4 + 10u^3 - 6u^2 + 7u - 4 \\ 0.692308u^7 - 0.153846u^6 + \cdots + 3.76923u - 1.38462 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1.69231u^7 - 0.153846u^6 + \cdots + 11.7692u - 5.38462 \\ 0.615385u^7 + 0.307692u^6 + \cdots + 2.46154u - 1.23077 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.38462u^7 - 0.307692u^6 + \cdots + 17.5385u - 6.76923 \\ 0.538462u^7 + 0.769231u^6 + \cdots + 3.15385u - 1.07692 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^7 - 6u^5 + 2u^4 - 10u^3 + 6u^2 - 7u + 4 \\ -0.692308u^7 + 0.153846u^6 + \cdots - 3.76923u + 1.38462 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.38462u^7 + 0.692308u^6 + \cdots + 6.53846u + 0.230769 \\ -0.153846u^7 - 0.0769231u^6 + \cdots + 1.38462u + 0.307692 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.230769u^7 - 0.615385u^6 + \cdots + 1.07692u + 2.46154 \\ -0.846154u^7 + 0.0769231u^6 + \cdots - 3.38462u + 1.69231 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1.07692u^7 - 0.461538u^6 + \cdots + 9.30769u - 4.15385 \\ 0.615385u^7 + 0.307692u^6 + \cdots + 2.46154u - 1.23077 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{32}{13}u^7 - \frac{16}{13}u^6 - \frac{200}{13}u^5 - \frac{36}{13}u^4 - 24u^3 + \frac{36}{13}u^2 - \frac{128}{13}u - \frac{144}{13}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^4$
c_2, c_5	$(y^2-y+1)^4$
c_3, c_9	$y^8+12y^7+56y^6+130y^5+162y^4+100y^3+21y^2-2y+1$
c_4, c_{12}	$(y+1)^8$
c_6, c_8	$y^8-12y^7+56y^6-130y^5+162y^4-100y^3+21y^2+2y+1$
c_7, c_{10}, c_{11}	$(y-1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.170691 + 0.964637I$ $a = -0.177866 + 1.005190I$ $b = 1.000000I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = 0.170691 - 0.964637I$ $a = -0.177866 - 1.005190I$ $b = -1.000000I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -0.351035 + 1.212180I$ $a = 0.220415 + 0.761130I$ $b = -1.000000I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = -0.351035 - 1.212180I$ $a = 0.220415 - 0.761130I$ $b = 1.000000I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = 0.351035 + 0.212180I$ $a = -2.08644 + 1.26113I$ $b = 1.000000I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = 0.351035 - 0.212180I$ $a = -2.08644 - 1.26113I$ $b = -1.000000I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = -0.17069 + 1.96464I$ $a = 0.043891 + 0.505187I$ $b = -1.000000I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -0.17069 - 1.96464I$ $a = 0.043891 - 0.505187I$ $b = 1.000000I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -15$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$	-3.28987	-15.0000
$u = 0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$	-3.28987	-15.0000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^2(u^2-u+1)^4$ $\cdot(u^{10}-2u^9+5u^8-4u^7+4u^6-7u^5+22u^4-54u^3+40u^2-9u+1)$ $\cdot((u^{20}+8u^{19}+\cdots+67u+9)^2)(u^{26}+7u^{25}+\cdots+769u+16)$
c_2	$(u-1)^2(u^4-u^2+1)^2$ $\cdot(u^{10}+4u^9+7u^8+4u^7-6u^6-15u^5-12u^4+8u^2+5u+1)$ $\cdot((u^{20}-2u^{19}+\cdots-7u+3)^2)(u^{26}+7u^{25}+\cdots-43u-4)$
c_3, c_9	$(u^2-u+1)(u^8+6u^6-2u^5+10u^4-6u^3+7u^2-4u+1)$ $\cdot(u^{10}+4u^8-u^7+8u^6+9u^4-u^3+2u^2-2u-1)$ $\cdot(u^{26}+11u^{24}+\cdots+9u+1)(u^{40}+2u^{39}+\cdots-31u+1)$
c_4, c_{12}	$(u^2+1)^4(u^2-u+1)$ $\cdot(u^{10}+2u^9-4u^8-8u^7+6u^6+8u^5-6u^4+3u^3+4u^2-6u+1)$ $\cdot(u^{26}+2u^{25}+\cdots+11u+1)(u^{40}+4u^{39}+\cdots+37u+1)$
c_5	$(u+1)^2(u^4-u^2+1)^2$ $\cdot(u^{10}-4u^9+7u^8-4u^7-6u^6+15u^5-12u^4+8u^2-5u+1)$ $\cdot((u^{20}-2u^{19}+\cdots-7u+3)^2)(u^{26}+7u^{25}+\cdots-43u-4)$
c_6, c_8	$(u-1)^2(u^8-4u^7+2u^6+8u^5-6u^4-6u^3+3u^2+2u+1)$ $\cdot(u^{10}+u^9-u^8+2u^7+u^6-2u^5+3u^4-u^3-2u^2+2u-1)$ $\cdot(u^{26}+u^{25}+\cdots-u-1)(u^{40}+u^{39}+\cdots-38u+19)$
c_7	$u^2(u-1)^8(u^{10}+8u^9+\cdots-2u-3)(u^{20}-5u^{19}+\cdots-9u+2)^2$ $\cdot(u^{26}+11u^{25}+\cdots-23u-2)$
c_{10}, c_{11}	$u^2(u+1)^8(u^{10}-8u^9+\cdots+2u-3)(u^{20}-5u^{19}+\cdots-9u+2)^2$ $\cdot(u^{26}+11u^{25}+\cdots-23u-2)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^2)(y^2+y+1)^4(y^{10}+6y^9+\cdots-y+1)$ $\cdot(y^{20}+12y^{19}+\cdots-223y+81)^2$ $\cdot(y^{26}+17y^{25}+\cdots-418017y+256)$
c_2, c_5	$(y-1)^2(y^2-y+1)^4$ $\cdot(y^{10}-2y^9+5y^8-4y^7+4y^6-7y^5+22y^4-54y^3+40y^2-9y+1)$ $\cdot((y^{20}-8y^{19}+\cdots-67y+9)^2)(y^{26}-7y^{25}+\cdots-769y+16)$
c_3, c_9	(y^2+y+1) $\cdot(y^8+12y^7+56y^6+130y^5+162y^4+100y^3+21y^2-2y+1)$ $\cdot(y^{10}+8y^9+\cdots-8y+1)(y^{26}+22y^{25}+\cdots-33y+1)$ $\cdot(y^{40}+40y^{39}+\cdots+19y+1)$
c_4, c_{12}	$((y+1)^8)(y^2+y+1)(y^{10}-12y^9+\cdots-28y+1)$ $\cdot(y^{26}-26y^{25}+\cdots-17y+1)(y^{40}-36y^{39}+\cdots-231y+1)$
c_6, c_8	$((y-1)^2)(y^8-12y^7+\cdots+2y+1)$ $\cdot(y^{10}-3y^9-y^8+4y^7+y^6+4y^5-5y^4-7y^3+2y^2+1)$ $\cdot(y^{26}-13y^{25}+\cdots-5y+1)(y^{40}+y^{39}+\cdots+5548y+361)$
c_7, c_{10}, c_{11}	$y^2(y-1)^8$ $\cdot(y^{10}-6y^9+5y^8+13y^7+47y^5-51y^4-237y^3-174y^2-88y+9)$ $\cdot((y^{20}-y^{19}+\cdots+15y+4)^2)(y^{26}-3y^{25}+\cdots-89y+4)$