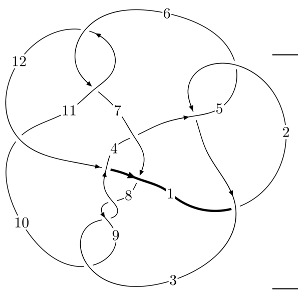
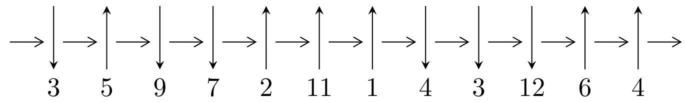
$12n_{0525}$ ($K12n_{0525}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 730697u^{21} + 8724191u^{20} + \cdots + 1495432b + 38274232, \\
& -1973739u^{21} - 26703501u^{20} + \cdots + 5981728a - 159009976,\ u^{22} + 11u^{21} + \cdots + 232u + 32\rangle \\
I_2^u = \langle & -10u^{29} + 31u^{28} + \cdots + 8b - 6,\ -54u^{29}a + 37u^{29} + \cdots + 104a - 100,\ u^{30} - 5u^{29} + \cdots - 2u + 1\rangle \\
I_3^u = \langle & u^{11} + 2u^{10} + 7u^9 + 10u^8 + 18u^7 + 15u^6 + 19u^5 + 5u^4 + 7u^3 - 2u^2 + b + 2u, \\
& -u^{11} - u^{10} - 5u^9 - 3u^8 - 8u^7 + 3u^6 - 4u^5 + 14u^4 - 2u^3 + 8u^2 + a - 4u + 1, \\
& u^{12} + 2u^{11} + 7u^{10} + 10u^9 + 19u^8 + 17u^7 + 24u^6 + 11u^5 + 15u^4 + 2u^3 + 6u^2 + 1\rangle \\
I_4^u = \langle & -u^2a + u^3 - u^2 + b + u,\ u^5a - 2u^4a - 4u^5 + 5u^3a + 5u^4 - 6u^2a - 11u^3 + a^2 + 5au + 9u^2 - 2a - 10u, \\
& u^6 - u^5 + 3u^4 - 2u^3 + 3u^2 + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 106 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. $I^u_1 =$
$\langle 7.31\times10^{5}u^{21}+8.72\times10^{6}u^{20}+\cdots+1.50\times10^{6}b+3.83\times10^{7},\ -1.97\times10^{6}u^{21}-2.67\times10^{7}u^{20}+\cdots+5.98\times10^{6}a-1.59\times10^{8},\ u^{22}+11u^{21}+\cdots+232u+32\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.329961u^{21}+4.46418u^{20}+\cdots+167.160u+26.5826\\-0.488619u^{21}-5.83389u^{20}+\cdots-164.041u-25.5941\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.678659u^{21}-6.54536u^{20}+\cdots-66.3494u-8.74650\\0.549186u^{21}+5.23031u^{20}+\cdots+73.2841u+11.2249\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.309352u^{21}-2.39786u^{20}+\cdots+59.0207u+10.7541\\-0.730680u^{21}-8.31181u^{20}+\cdots-218.761u-33.2810\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.129473u^{21}-1.31505u^{20}+\cdots+6.93466u+2.47838\\0.549186u^{21}+5.23031u^{20}+\cdots+73.2841u+11.2249\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.770630u^{21}+8.00468u^{20}+\cdots+111.293u+15.5266\\0.580458u^{21}+6.16373u^{20}+\cdots+148.964u+22.7178\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.459930u^{21}-4.72878u^{20}+\cdots-87.5298u-12.2394\\0.109153u^{21}+1.41941u^{20}+\cdots+32.5161u+4.14313\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.709930u^{21}-7.22878u^{20}+\cdots-117.030u-16.7394\\0.359153u^{21}+3.66941u^{20}+\cdots+37.0161u+4.14313\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{297700}{186929}u^{21}-\frac{2758587}{186929}u^{20}+\cdots-\frac{6073132}{186929}u-\frac{1067206}{186929}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{22} + 13u^{21} + \cdots + 6u + 1$
c_2, c_5, c_6 c_{11}	$u^{22} + u^{21} + \cdots - 2u + 1$
c_3, c_8, c_9	$u^{22} + 11u^{21} + \cdots + 232u + 32$
c_4	$u^{22} - 15u^{21} + \cdots - 480u + 64$
c_7, c_{12}	$u^{22} + 13u^{20} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{22} + y^{21} + \cdots + 34y + 1$
c_2, c_5, c_6 c_{11}	$y^{22} + 13y^{21} + \cdots + 6y + 1$
c_3, c_8, c_9	$y^{22} + 11y^{21} + \cdots + 3264y + 1024$
c_4	$y^{22} + 7y^{21} + \cdots + 39936y + 4096$
c_7, c_{12}	$y^{22} + 26y^{21} + \cdots + 17y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.767910+0.699836I$ $a=\ \ 0.888145-0.307129I$ $b=-0.688888-0.277789I$	$-0.286662+0.737446I$	$3.26178-2.36364I$
$u=-0.767910-0.699836I$ $a=\ \ 0.888145+0.307129I$ $b=-0.688888+0.277789I$	$-0.286662-0.737446I$	$3.26178+2.36364I$
$u=-0.350255+1.075900I$ $a=\ \ 0.81263-1.53152I$ $b=-0.240178+0.810554I$	$-2.88260+1.01233I$	$-4.09792+3.96823I$
$u=-0.350255-1.075900I$ $a=\ \ 0.81263+1.53152I$ $b=-0.240178-0.810554I$	$-2.88260-1.01233I$	$-4.09792-3.96823I$
$u=-1.033280+0.527627I$ $a=-0.721729-0.194727I$ $b=\ \ 0.417851-1.163520I$	$-8.25550-1.54810I$	$-5.19018+2.03970I$
$u=-1.033280-0.527627I$ $a=-0.721729+0.194727I$ $b=\ \ 0.417851+1.163520I$	$-8.25550+1.54810I$	$-5.19018-2.03970I$
$u=\ \ 0.755708+0.364616I$ $a=\ \ 0.685218+0.575896I$ $b=-0.063685+1.154200I$	$-4.85462-1.77876I$	$-4.79807+3.91708I$
$u=\ \ 0.755708-0.364616I$ $a=\ \ 0.685218-0.575896I$ $b=-0.063685-1.154200I$	$-4.85462+1.77876I$	$-4.79807-3.91708I$
$u=-0.774895+1.020220I$ $a=-0.766277+0.769605I$ $b=\ \ 0.885411-0.402143I$	$0.61034+5.16314I$	$3.96974-2.90756I$
$u=-0.774895-1.020220I$ $a=-0.766277-0.769605I$ $b=\ \ 0.885411+0.402143I$	$0.61034-5.16314I$	$3.96974+2.90756I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.221500 + 0.677927I$ $a = 0.567702 - 0.117730I$ $b = -0.558982 + 1.253320I$	$-6.12965 - 9.37239I$	$-3.35170 + 5.78555I$
$u = -1.221500 - 0.677927I$ $a = 0.567702 + 0.117730I$ $b = -0.558982 - 1.253320I$	$-6.12965 + 9.37239I$	$-3.35170 - 5.78555I$
$u = -0.127935 + 1.398640I$ $a = -1.71401 - 0.32772I$ $b = 0.565971 + 0.644936I$	$6.04024 + 2.92164I$	$4.28614 + 0.75325I$
$u = -0.127935 - 1.398640I$ $a = -1.71401 + 0.32772I$ $b = 0.565971 - 0.644936I$	$6.04024 - 2.92164I$	$4.28614 - 0.75325I$
$u = -0.304981 + 0.451421I$ $a = 0.960223 - 0.185150I$ $b = -0.310004 - 0.375864I$	$0.090652 + 0.977959I$	$1.72728 - 6.82657I$
$u = -0.304981 - 0.451421I$ $a = 0.960223 + 0.185150I$ $b = -0.310004 + 0.375864I$	$0.090652 - 0.977959I$	$1.72728 + 6.82657I$
$u = -0.76091 + 1.25738I$ $a = 1.92912 + 0.01305I$ $b = -0.557890 - 1.095380I$	$-5.97217 + 8.17735I$	$-2.07600 - 6.92513I$
$u = -0.76091 - 1.25738I$ $a = 1.92912 - 0.01305I$ $b = -0.557890 + 1.095380I$	$-5.97217 - 8.17735I$	$-2.07600 + 6.92513I$
$u = -0.89339 + 1.20903I$ $a = -1.79322 + 0.05043I$ $b = 0.663517 + 1.230310I$	$-4.4232 + 16.8853I$	$-1.04656 - 9.40882I$
$u = -0.89339 - 1.20903I$ $a = -1.79322 - 0.05043I$ $b = 0.663517 - 1.230310I$	$-4.4232 - 16.8853I$	$-1.04656 + 9.40882I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.02066 + 1.63363I$ $a = -0.972799 + 0.791268I$ $b = 0.386878 - 1.096150I$	$3.03407 - 4.86939I$	$-4.68451 + 3.83035I$
$u = -0.02066 - 1.63363I$ $a = -0.972799 - 0.791268I$ $b = 0.386878 + 1.096150I$	$3.03407 + 4.86939I$	$-4.68451 - 3.83035I$

II. $\boldsymbol{I_2^u = \langle -10u^{29} + 31u^{28} + \cdots + 8b - 6,\ -54u^{29}a + 37u^{29} + \cdots + 104a - 100,\ u^{30} - 5u^{29} + \cdots - 2u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} a \\ \frac{5}{4}u^{29} - \frac{31}{8}u^{28} + \cdots + \frac{25}{8}u + \frac{3}{4} \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -\frac{3}{2}u^{29}a + \frac{5}{4}u^{29} + \cdots - \frac{7}{8}a + \frac{3}{8} \\ \frac{7}{8}u^{29}a - \frac{1}{8}u^{29} + \cdots - \frac{3}{4}a - \frac{29}{8} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.500000au^{29} + 2.12500u^{29} + \cdots - 1.62500a - 2.75000 \\ -\frac{3}{2}u^{29}a - \frac{11}{2}u^{29} + \cdots + 2a + \frac{69}{8} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{5}{8}u^{29}a + \frac{9}{8}u^{29} + \cdots - \frac{13}{8}a - \frac{13}{4} \\ \frac{7}{8}u^{29}a - \frac{1}{8}u^{29} + \cdots - \frac{3}{4}a - \frac{29}{8} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -4u^{29}a + 4u^{29} + \cdots + \frac{19}{4}a - \frac{19}{4} \\ u^{29}a + \frac{9}{4}u^{29} + \cdots + \frac{3}{4}a - \frac{9}{8} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -2u^{29}a - \frac{5}{8}u^{29} + \cdots + \frac{3}{8}a + \frac{15}{8} \\ \frac{5}{4}u^{29}a + \frac{13}{4}u^{29} + \cdots - \frac{5}{8}a - \frac{49}{8} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -3u^{29}a + \frac{15}{8}u^{29} + \cdots + \frac{11}{2}a - \frac{5}{2} \\ \frac{3}{4}u^{29}a - \frac{13}{4}u^{29} + \cdots - \frac{5}{4}a - \frac{1}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 19u^{29} - \frac{169}{2}u^{28} + \cdots + 26u - \frac{5}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{60} + 30u^{59} + \cdots + 31603u + 2209$
c_2, c_5, c_6 c_{11}	$u^{60} - 2u^{59} + \cdots + 81u + 47$
c_3, c_8, c_9	$(u^{30} - 5u^{29} + \cdots - 2u + 1)^2$
c_4	$(u^{30} + 6u^{29} + \cdots + 9u + 1)^2$
c_7, c_{12}	$u^{60} + 5u^{59} + \cdots - 18u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{60} + 6y^{59} + \cdots - 90081877y + 4879681$
c_2, c_5, c_6 c_{11}	$y^{60} + 30y^{59} + \cdots + 31603y + 2209$
c_3, c_8, c_9	$(y^{30} + 9y^{29} + \cdots + 14y + 1)^2$
c_4	$(y^{30} + 10y^{29} + \cdots - 9y + 1)^2$
c_7, c_{12}	$y^{60} + 39y^{59} + \cdots - 40y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.408738 + 0.809128I$ $a = 1.47348 + 0.03228I$ $b = -0.881093 - 0.652728I$	$1.95297 + 0.83755I$	$3.80919 - 0.73546I$
$u = -0.408738 + 0.809128I$ $a = 0.65867 + 1.49537I$ $b = 0.483976 - 0.827208I$	$1.95297 + 0.83755I$	$3.80919 - 0.73546I$
$u = -0.408738 - 0.809128I$ $a = 1.47348 - 0.03228I$ $b = -0.881093 + 0.652728I$	$1.95297 - 0.83755I$	$3.80919 + 0.73546I$
$u = -0.408738 - 0.809128I$ $a = 0.65867 - 1.49537I$ $b = 0.483976 + 0.827208I$	$1.95297 - 0.83755I$	$3.80919 + 0.73546I$
$u = 0.204797 + 0.865298I$ $a = 0.913167 + 0.827489I$ $b = -0.717809 - 1.010560I$	$0.86908 + 5.05707I$	$0.52377 - 4.80046I$
$u = 0.204797 + 0.865298I$ $a = 0.79610 - 2.03259I$ $b = 0.378609 + 0.969447I$	$0.86908 + 5.05707I$	$0.52377 - 4.80046I$
$u = 0.204797 - 0.865298I$ $a = 0.913167 - 0.827489I$ $b = -0.717809 + 1.010560I$	$0.86908 - 5.05707I$	$0.52377 + 4.80046I$
$u = 0.204797 - 0.865298I$ $a = 0.79610 + 2.03259I$ $b = 0.378609 - 0.969447I$	$0.86908 - 5.05707I$	$0.52377 + 4.80046I$
$u = 0.846145 + 0.766192I$ $a = -0.742838 + 0.117308I$ $b = 0.633812 - 0.058357I$	$-5.03543 - 2.48830I$	$-2.08110 + 3.16963I$
$u = 0.846145 + 0.766192I$ $a = 0.161640 + 0.601130I$ $b = 0.123075 + 1.176780I$	$-5.03543 - 2.48830I$	$-2.08110 + 3.16963I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.846145 - 0.766192I$ $a = -0.742838 - 0.117308I$ $b = 0.633812 + 0.058357I$	$-5.03543 + 2.48830I$	$-2.08110 - 3.16963I$
$u = 0.846145 - 0.766192I$ $a = 0.161640 - 0.601130I$ $b = 0.123075 - 1.176780I$	$-5.03543 + 2.48830I$	$-2.08110 - 3.16963I$
$u = 0.476164 + 0.624124I$ $a = 1.065700 + 0.769850I$ $b = -0.560439 + 1.270490I$	$-0.16540 - 7.91184I$	$-1.25799 + 13.37489I$
$u = 0.476164 + 0.624124I$ $a = -3.03202 - 0.17816I$ $b = 0.670131 - 1.010730I$	$-0.16540 - 7.91184I$	$-1.25799 + 13.37489I$
$u = 0.476164 - 0.624124I$ $a = 1.065700 - 0.769850I$ $b = -0.560439 - 1.270490I$	$-0.16540 + 7.91184I$	$-1.25799 - 13.37489I$
$u = 0.476164 - 0.624124I$ $a = -3.03202 + 0.17816I$ $b = 0.670131 + 1.010730I$	$-0.16540 + 7.91184I$	$-1.25799 - 13.37489I$
$u = 0.843824 + 0.910765I$ $a = 0.922245 + 0.095668I$ $b = -0.146948 + 1.374310I$	$-5.24308 - 3.14036I$	$3.38309 + 6.95597I$
$u = 0.843824 + 0.910765I$ $a = 0.418535 + 0.014710I$ $b = 0.036650 + 0.609588I$	$-5.24308 - 3.14036I$	$3.38309 + 6.95597I$
$u = 0.843824 - 0.910765I$ $a = 0.922245 - 0.095668I$ $b = -0.146948 - 1.374310I$	$-5.24308 + 3.14036I$	$3.38309 - 6.95597I$
$u = 0.843824 - 0.910765I$ $a = 0.418535 - 0.014710I$ $b = 0.036650 - 0.609588I$	$-5.24308 + 3.14036I$	$3.38309 - 6.95597I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.535931 + 0.532997I$ $a = 1.74162 - 0.15387I$ $b = -0.945912 + 0.839676I$	$1.99448 - 4.75213I$	$1.25920 + 8.38226I$
$u = 0.535931 + 0.532997I$ $a = -1.15336 - 2.63260I$ $b = 0.461109 - 0.821998I$	$1.99448 - 4.75213I$	$1.25920 + 8.38226I$
$u = 0.535931 - 0.532997I$ $a = 1.74162 + 0.15387I$ $b = -0.945912 - 0.839676I$	$1.99448 + 4.75213I$	$1.25920 - 8.38226I$
$u = 0.535931 - 0.532997I$ $a = -1.15336 + 2.63260I$ $b = 0.461109 + 0.821998I$	$1.99448 + 4.75213I$	$1.25920 - 8.38226I$
$u = -0.009746 + 0.748854I$ $a = 0.263930 - 0.170722I$ $b = -0.891285 - 0.086936I$	$3.73099 + 2.66963I$	$10.94282 - 2.46654I$
$u = -0.009746 + 0.748854I$ $a = -2.60774 - 1.78017I$ $b = 0.695330 + 0.857378I$	$3.73099 + 2.66963I$	$10.94282 - 2.46654I$
$u = -0.009746 - 0.748854I$ $a = 0.263930 + 0.170722I$ $b = -0.891285 + 0.086936I$	$3.73099 - 2.66963I$	$10.94282 + 2.46654I$
$u = -0.009746 - 0.748854I$ $a = -2.60774 + 1.78017I$ $b = 0.695330 - 0.857378I$	$3.73099 - 2.66963I$	$10.94282 + 2.46654I$
$u = 1.008520 + 0.761169I$ $a = 1.152310 + 0.354766I$ $b = -0.976428 + 0.128566I$	$-2.70377 + 3.89986I$	$-0.32016 - 2.93300I$
$u = 1.008520 + 0.761169I$ $a = 0.479203 - 0.132479I$ $b = -0.523001 - 1.118150I$	$-2.70377 + 3.89986I$	$-0.32016 - 2.93300I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.008520 - 0.761169I$ $a = 1.152310 - 0.354766I$ $b = -0.976428 - 0.128566I$	$-2.70377 - 3.89986I$	$-0.32016 + 2.93300I$
$u = 1.008520 - 0.761169I$ $a = 0.479203 + 0.132479I$ $b = -0.523001 + 1.118150I$	$-2.70377 - 3.89986I$	$-0.32016 + 2.93300I$
$u = 0.716463 + 1.086870I$ $a = 0.985703 + 0.963170I$ $b = -0.637549 - 0.440747I$	$-4.00624 - 3.41764I$	$-0.54348 + 2.60438I$
$u = 0.716463 + 1.086870I$ $a = 1.73164 + 0.46125I$ $b = -0.354117 + 1.056240I$	$-4.00624 - 3.41764I$	$-0.54348 + 2.60438I$
$u = 0.716463 - 1.086870I$ $a = 0.985703 - 0.963170I$ $b = -0.637549 + 0.440747I$	$-4.00624 + 3.41764I$	$-0.54348 - 2.60438I$
$u = 0.716463 - 1.086870I$ $a = 1.73164 - 0.46125I$ $b = -0.354117 - 1.056240I$	$-4.00624 + 3.41764I$	$-0.54348 - 2.60438I$
$u = -0.464563 + 0.517217I$ $a = 0.810151 - 0.727418I$ $b = -0.576786 - 1.098220I$	$0.97854 + 2.53138I$	$-0.41612 - 5.99517I$
$u = -0.464563 + 0.517217I$ $a = -0.46286 + 1.86979I$ $b = 0.737137 - 0.620730I$	$0.97854 + 2.53138I$	$-0.41612 - 5.99517I$
$u = -0.464563 - 0.517217I$ $a = 0.810151 + 0.727418I$ $b = -0.576786 + 1.098220I$	$0.97854 - 2.53138I$	$-0.41612 + 5.99517I$
$u = -0.464563 - 0.517217I$ $a = -0.46286 - 1.86979I$ $b = 0.737137 + 0.620730I$	$0.97854 - 2.53138I$	$-0.41612 + 5.99517I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.037400 + 0.901379I$ $a = -1.183640 + 0.552154I$ $b = 0.465103 + 1.121610I$	$-7.97522 + 6.40080I$	$-3.44445 - 6.75759I$
$u = -1.037400 + 0.901379I$ $a = 0.145261 + 0.219918I$ $b = 0.19421 - 1.45130I$	$-7.97522 + 6.40080I$	$-3.44445 - 6.75759I$
$u = -1.037400 - 0.901379I$ $a = -1.183640 - 0.552154I$ $b = 0.465103 - 1.121610I$	$-7.97522 - 6.40080I$	$-3.44445 + 6.75759I$
$u = -1.037400 - 0.901379I$ $a = 0.145261 - 0.219918I$ $b = 0.19421 + 1.45130I$	$-7.97522 - 6.40080I$	$-3.44445 + 6.75759I$
$u = 0.862751 + 1.092420I$ $a = -1.077000 - 0.739852I$ $b = 1.047710 + 0.340566I$	$-1.66664 - 10.74240I$	$0. + 6.67563I$
$u = 0.862751 + 1.092420I$ $a = -1.77506 - 0.35041I$ $b = 0.627078 - 1.150130I$	$-1.66664 - 10.74240I$	$0. + 6.67563I$
$u = 0.862751 - 1.092420I$ $a = -1.077000 + 0.739852I$ $b = 1.047710 - 0.340566I$	$-1.66664 + 10.74240I$	$0. - 6.67563I$
$u = 0.862751 - 1.092420I$ $a = -1.77506 + 0.35041I$ $b = 0.627078 + 1.150130I$	$-1.66664 + 10.74240I$	$0. - 6.67563I$
$u = 0.173166 + 1.400750I$ $a = -1.367910 - 0.170007I$ $b = 0.212711 - 0.577463I$	$4.99765 + 1.93280I$	$0. - 5.83991I$
$u = 0.173166 + 1.400750I$ $a = -1.38631 - 0.99061I$ $b = 0.646364 + 0.999117I$	$4.99765 + 1.93280I$	$0. - 5.83991I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.173166 - 1.400750I$ $a = -1.367910 + 0.170007I$ $b = 0.212711 + 0.577463I$	$4.99765 - 1.93280I$	$0. + 5.83991I$
$u = 0.173166 - 1.400750I$ $a = -1.38631 + 0.99061I$ $b = 0.646364 - 0.999117I$	$4.99765 - 1.93280I$	$0. + 5.83991I$
$u = -1.00992 + 1.06850I$ $a = 1.291960 + 0.152355I$ $b = -0.39965 - 1.37579I$	$-7.50048 + 1.00444I$	0
$u = -1.00992 + 1.06850I$ $a = 0.154134 + 0.113540I$ $b = -0.344881 + 1.084600I$	$-7.50048 + 1.00444I$	0
$u = -1.00992 - 1.06850I$ $a = 1.291960 - 0.152355I$ $b = -0.39965 + 1.37579I$	$-7.50048 - 1.00444I$	0
$u = -1.00992 - 1.06850I$ $a = 0.154134 - 0.113540I$ $b = -0.344881 - 1.084600I$	$-7.50048 - 1.00444I$	0
$u = -0.237396 + 0.363229I$ $a = 0.87244 - 1.36981I$ $b = -0.849393 + 0.936354I$	$1.67828 - 1.77422I$	$-0.88602 - 3.46618I$
$u = -0.237396 + 0.363229I$ $a = -0.74915 + 5.11939I$ $b = 0.392284 + 0.725566I$	$1.67828 - 1.77422I$	$-0.88602 - 3.46618I$
$u = -0.237396 - 0.363229I$ $a = 0.87244 + 1.36981I$ $b = -0.849393 - 0.936354I$	$1.67828 + 1.77422I$	$-0.88602 + 3.46618I$
$u = -0.237396 - 0.363229I$ $a = -0.74915 - 5.11939I$ $b = 0.392284 - 0.725566I$	$1.67828 + 1.77422I$	$-0.88602 + 3.46618I$

III.

$$\boldsymbol{I^u_3 = \langle u^{11}+2u^{10}+\cdots+b+2u,\ -u^{11}-u^{10}+\cdots+a+1,\ u^{12}+2u^{11}+\cdots+6u^2+1\rangle}$$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix}u^{11}+u^{10}+5u^9+3u^8+8u^7-3u^6+4u^5-14u^4+2u^3-8u^2+4u-1\\-u^{11}-2u^{10}+\cdots+2u^2-2u\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}-2u^{11}-2u^{10}+\cdots-u+6\\2u^{11}+4u^{10}+\cdots+4u-1\end{pmatrix}$$

$$a_6 = \begin{pmatrix}u^{11}+3u^9-4u^8-2u^7-22u^6-13u^5-38u^4-10u^3-24u^2+u-7\\-2u^{11}-4u^{10}+\cdots-6u+1\end{pmatrix}$$

$$a_1 = \begin{pmatrix}2u^{10}+5u^9+\cdots+3u+5\\2u^{11}+4u^{10}+\cdots+4u-1\end{pmatrix}$$

$$a_8 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-u^{11}-3u^{10}+\cdots-2u-3\\u^{10}+2u^9+6u^8+8u^7+13u^6+9u^5+11u^4+2u^3+3u^2-u+1\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-u^{11}-u^{10}+\cdots-u+4\\2u^{11}+5u^{10}+\cdots+3u^2+5u\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-u^{11}-2u^{10}+\cdots-4u-2\\u^{11}+3u^{10}+8u^9+14u^8+21u^7+22u^6+20u^5+12u^4+4u^3+u^2+1\end{pmatrix}$$

(ii) Obstruction class $=1$

(iii) Cusp Shapes

$$= -7u^{11}-13u^{10}-41u^9-49u^8-86u^7-47u^6-71u^5+13u^4-26u^3+32u^2-13u+14$$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.398201 + 0.944382I$ $a = 0.90750 - 1.42868I$ $b = -0.101632 + 0.556849I$	$-2.45692 + 1.58415I$	$2.68356 - 4.01575I$
$u = -0.398201 - 0.944382I$ $a = 0.90750 + 1.42868I$ $b = -0.101632 - 0.556849I$	$-2.45692 - 1.58415I$	$2.68356 + 4.01575I$
$u = 0.009554 + 1.336590I$ $a = -1.96403 + 0.31123I$ $b = 0.618206 - 0.752212I$	$6.04841 - 3.70923I$	$4.35790 + 9.04746I$
$u = 0.009554 - 1.336590I$ $a = -1.96403 - 0.31123I$ $b = 0.618206 + 0.752212I$	$6.04841 + 3.70923I$	$4.35790 - 9.04746I$
$u = 0.321162 + 0.526918I$ $a = 2.45149 + 1.05480I$ $b = -0.642424 + 1.102360I$	$0.26042 - 7.07580I$	$3.22594 + 4.98075I$
$u = 0.321162 - 0.526918I$ $a = 2.45149 - 1.05480I$ $b = -0.642424 - 1.102360I$	$0.26042 + 7.07580I$	$3.22594 - 4.98075I$
$u = -0.008480 + 0.565991I$ $a = 0.23065 + 2.01576I$ $b = -0.746714 - 0.688145I$	$2.91227 + 3.67114I$	$6.22425 - 5.54178I$
$u = -0.008480 - 0.565991I$ $a = 0.23065 - 2.01576I$ $b = -0.746714 + 0.688145I$	$2.91227 - 3.67114I$	$6.22425 + 5.54178I$
$u = -1.04086 + 1.00123I$ $a = 0.678256 - 0.226364I$ $b = -0.116334 - 1.202190I$	$-7.51749 + 3.74982I$	$-4.74315 - 3.41984I$
$u = -1.04086 - 1.00123I$ $a = 0.678256 + 0.226364I$ $b = -0.116334 + 1.202190I$	$-7.51749 - 3.74982I$	$-4.74315 + 3.41984I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.11683 + 1.44227I$ $a = -0.803868 - 0.992511I$ $b = 0.488896 + 1.051410I$	$4.04318 + 5.16032I$	$4.25149 - 6.22222I$
$u = 0.11683 - 1.44227I$ $a = -0.803868 + 0.992511I$ $b = 0.488896 - 1.051410I$	$4.04318 - 5.16032I$	$4.25149 + 6.22222I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^5+5u^4-u^3+11u^2-9u+9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.751720 + 0.952459I$ $a = 1.161910 + 0.208933I$ $b = -0.169435 + 1.321240I$	$-5.66414 - 2.84527I$	$-10.09526 - 1.04786I$
$u = 0.751720 + 0.952459I$ $a = -0.214542 + 0.486127I$ $b = -0.095489 - 0.744618I$	$-5.66414 - 2.84527I$	$-10.09526 - 1.04786I$
$u = 0.751720 - 0.952459I$ $a = 1.161910 - 0.208933I$ $b = -0.169435 - 1.321240I$	$-5.66414 + 2.84527I$	$-10.09526 + 1.04786I$
$u = 0.751720 - 0.952459I$ $a = -0.214542 - 0.486127I$ $b = -0.095489 + 0.744618I$	$-5.66414 + 2.84527I$	$-10.09526 + 1.04786I$
$u = -0.081708 + 1.363140I$ $a = -1.41421 + 0.28398I$ $b = 0.456929 + 0.708982I$	$5.25930 - 1.24964I$	$4.40551 - 3.55084I$
$u = -0.081708 + 1.363140I$ $a = -1.40363 + 1.20387I$ $b = 0.642260 - 0.996545I$	$5.25930 - 1.24964I$	$4.40551 - 3.55084I$
$u = -0.081708 - 1.363140I$ $a = -1.41421 - 0.28398I$ $b = 0.456929 - 0.708982I$	$5.25930 + 1.24964I$	$4.40551 + 3.55084I$
$u = -0.081708 - 1.363140I$ $a = -1.40363 - 1.20387I$ $b = 0.642260 + 0.996545I$	$5.25930 + 1.24964I$	$4.40551 + 3.55084I$
$u = -0.170012 + 0.579072I$ $a = 1.72240 + 0.01156I$ $b = -0.828025 - 0.974687I$	$2.04978 + 2.32699I$	$7.18975 - 6.61882I$
$u = -0.170012 + 0.579072I$ $a = -1.35194 - 3.13856I$ $b = -0.506239 + 0.595906I$	$2.04978 + 2.32699I$	$7.18975 - 6.61882I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.170012 - 0.579072I$ $a = 1.72240 - 0.01156I$ $b = -0.828025 + 0.974687I$	$2.04978 - 2.32699I$	$7.18975 + 6.61882I$
$u = -0.170012 - 0.579072I$ $a = -1.35194 + 3.13856I$ $b = -0.506239 - 0.595906I$	$2.04978 - 2.32699I$	$7.18975 + 6.61882I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$(u^{12}-7u^{11}+\cdots-7u+1)(u^{12}-7u^{11}+\cdots-9u+1)$ $\cdot(u^{22}+13u^{21}+\cdots+6u+1)(u^{60}+30u^{59}+\cdots+31603u+2209)$
c_2, c_6	$(u^{12}+u^{11}+\cdots+u+1)(u^{12}+u^{11}+\cdots+u+1)(u^{22}+u^{21}+\cdots-2u+1)$ $\cdot(u^{60}-2u^{59}+\cdots+81u+47)$
c_3	$((u^6-u^5+3u^4-2u^3+3u^2+1)^2)(u^{12}+2u^{11}+\cdots+6u^2+1)$ $\cdot(u^{22}+11u^{21}+\cdots+232u+32)(u^{30}-5u^{29}+\cdots-2u+1)^2$
c_4	$((u^6+2u^4+2u^3+u+1)^2)(u^{12}-2u^{11}+\cdots-2u+1)$ $\cdot(u^{22}-15u^{21}+\cdots-480u+64)(u^{30}+6u^{29}+\cdots+9u+1)^2$
c_5, c_{11}	$(u^{12}-u^{11}+\cdots-u+1)(u^{12}-u^{11}+\cdots-u+1)(u^{22}+u^{21}+\cdots-2u+1)$ $\cdot(u^{60}-2u^{59}+\cdots+81u+47)$
c_7, c_{12}	$(u^{12}+2u^{10}-u^9+u^8-2u^7+u^6+4u^4+3u^3-2u^2+1)$ $\cdot(u^{12}+4u^{10}+5u^9+6u^8+11u^7+9u^6+6u^5+2u^4-2u^3-2u^2+1)$ $\cdot(u^{22}+13u^{20}+\cdots-u+1)(u^{60}+5u^{59}+\cdots-18u+1)$
c_8, c_9	$((u^6+u^5+3u^4+2u^3+3u^2+1)^2)(u^{12}-2u^{11}+\cdots+6u^2+1)$ $\cdot(u^{22}+11u^{21}+\cdots+232u+32)(u^{30}-5u^{29}+\cdots-2u+1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^{12}+3y^{11}+\cdots+3y+1)(y^{12}+3y^{11}+\cdots-11y+1)$ $\cdot(y^{22}+y^{21}+\cdots+34y+1)(y^{60}+6y^{59}+\cdots-9.00819\times10^{7}y+4879681)$
c_2, c_5, c_6 c_{11}	$(y^{12}+7y^{11}+\cdots+9y+1)(y^{12}+7y^{11}+\cdots+7y+1)$ $\cdot(y^{22}+13y^{21}+\cdots+6y+1)(y^{60}+30y^{59}+\cdots+31603y+2209)$
c_3, c_8, c_9	$(y^6+5y^5+11y^4+16y^3+15y^2+6y+1)^2$ $\cdot(y^{12}+10y^{11}+\cdots+12y+1)(y^{22}+11y^{21}+\cdots+3264y+1024)$ $\cdot(y^{30}+9y^{29}+\cdots+14y+1)^2$
c_4	$((y^6+4y^5+4y^4-2y^3-y+1)^2)(y^{12}+6y^{11}+\cdots-2y+1)$ $\cdot(y^{22}+7y^{21}+\cdots+39936y+4096)(y^{30}+10y^{29}+\cdots-9y+1)^2$
c_7, c_{12}	$(y^{12}+4y^{11}+\cdots-4y+1)(y^{12}+8y^{11}+\cdots-4y+1)$ $\cdot(y^{22}+26y^{21}+\cdots+17y+1)(y^{60}+39y^{59}+\cdots-40y+1)$