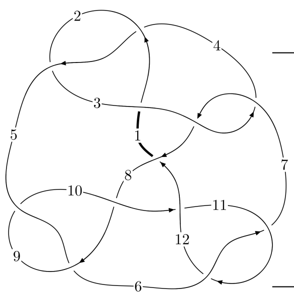
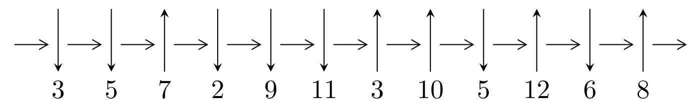
$12n_{0211}$ $(K12n_{0211})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 13u^{16} + 9u^{15} + \cdots + 32b + 15,\ 21u^{16} - 15u^{15} + \cdots + 32a - 41, \\
& u^{17} + 3u^{15} + 2u^{14} + 9u^{13} + 4u^{12} + 15u^{11} + 9u^{10} + 23u^9 + 6u^8 + 23u^7 + 5u^6 + 19u^5 - 3u^4 + 11u^3 + 1\rangle \\
I_2^u = \langle & -u^3 + u^2 + 2b + 1,\ -u^3 - u^2 + 2a - 1,\ u^4 + u^2 - u + 1\rangle \\
I_3^u = \langle & -33675480u^{21} + 230853871u^{20} + \cdots + 427516113b + 1988747145, \\
& -330664297u^{21} + 1163900912u^{20} + \cdots + 1282548339a + 9330160065, \\
& u^{22} - 2u^{21} + \cdots - 12u + 9\rangle \\
I_4^u = \langle & u^5 + u^4 + u^3 + 2u^2 + b + u + 1,\ u^5 + u^4 + u^3 + u^2 + a + u,\ u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1\rangle \\
I_5^u = \langle & au + 5b - 3a + u - 3,\ a^2 + au + 5u - 4,\ u^2 + 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 53 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. $\boldsymbol{I_1^u = \langle 13u^{16} + 9u^{15} + \cdots + 32b + 15,\ 21u^{16} - 15u^{15} + \cdots + 32a - 41,\ u^{17} + 3u^{15} + \cdots + 11u^3 + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.656250u^{16} + 0.468750u^{15} + \cdots + 2.90625u + 1.28125 \\ -0.406250u^{16} - 0.281250u^{15} + \cdots - 0.343750u - 0.468750 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.468750u^{16} + 0.406250u^{15} + \cdots + 3.21875u + 0.343750 \\ -0.0937500u^{16} - 0.218750u^{15} + \cdots - 0.156250u - 0.531250 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}u^{16} + u^{14} + \cdots - \frac{5}{2}u^3 + \frac{5}{2}u \\ \frac{1}{4}u^{16} + \frac{1}{2}u^{14} + \cdots - \frac{9}{4}u^3 - \frac{3}{4}u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.281250u^{16} + 0.0937500u^{15} + \cdots + 2.53125u + 0.156250 \\ -0.531250u^{16} + 0.0937500u^{15} + \cdots + 0.281250u + 0.156250 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{4}u^{15} + \frac{1}{2}u^{13} + \cdots - \frac{5}{4}u^2 + \frac{5}{4} \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{1}{4}u^{16} + \frac{1}{2}u^{14} + \cdots - \frac{9}{4}u^3 + \frac{9}{4}u \\ -u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{4}u^{16} + \frac{1}{2}u^{14} + \cdots - \frac{9}{4}u^3 + \frac{5}{4}u \\ -u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{25}{64}u^{16} + \frac{61}{64}u^{15} + \cdots + \frac{639}{64}u - \frac{133}{64}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 25u^{16} + \cdots - 31u + 16$
c_2, c_4	$u^{17} - 5u^{16} + \cdots - u + 4$
c_3, c_7	$u^{17} - 3u^{16} + \cdots + 176u + 64$
c_5, c_6, c_9 c_{11}	$u^{17} + 3u^{15} + \cdots + 11u^3 - 1$
c_8, c_{10}	$u^{17} - 6u^{16} + \cdots - 6u^2 + 1$
c_{12}	$u^{17} + 19u^{15} + \cdots - 5u^2 + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 61y^{16} + \cdots - 15103y - 256$
c_2, c_4	$y^{17} - 25y^{16} + \cdots - 31y - 16$
c_3, c_7	$y^{17} + 27y^{16} + \cdots + 4352y - 4096$
c_5, c_6, c_9 c_{11}	$y^{17} + 6y^{16} + \cdots + 6y^2 - 1$
c_8, c_{10}	$y^{17} + 18y^{16} + \cdots + 12y - 1$
c_{12}	$y^{17} + 38y^{16} + \cdots + 40y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.609453 + 0.805159I$ $a = \ \ 0.854862 - 0.986654I$ $b = -0.766890 - 0.457544I$	$-0.52072 - 2.33309I$	$-2.02167 + 3.26936I$
$u = \ \ 0.609453 - 0.805159I$ $a = \ \ 0.854862 + 0.986654I$ $b = -0.766890 + 0.457544I$	$-0.52072 + 2.33309I$	$-2.02167 - 3.26936I$
$u = \ \ 0.230202 + 0.870288I$ $a = -2.22993 - 0.26645I$ $b = -0.119488 + 0.657240I$	$-6.16563 - 1.02177I$	$-6.84477 + 7.08191I$
$u = \ \ 0.230202 - 0.870288I$ $a = -2.22993 + 0.26645I$ $b = -0.119488 - 0.657240I$	$-6.16563 + 1.02177I$	$-6.84477 - 7.08191I$
$u = -0.773626 + 0.937847I$ $a = \ \ 0.606886 - 0.071826I$ $b = -1.190660 + 0.370945I$	$-4.38989 + 4.09446I$	$-5.30008 - 4.36784I$
$u = -0.773626 - 0.937847I$ $a = \ \ 0.606886 + 0.071826I$ $b = -1.190660 - 0.370945I$	$-4.38989 - 4.09446I$	$-5.30008 + 4.36784I$
$u = -1.050610 + 0.636095I$ $a = -0.407370 + 0.267779I$ $b = \ \ 1.93722 - 0.60149I$	$-17.5984 - 0.0758I$	$-7.31042 - 1.57550I$
$u = -1.050610 - 0.636095I$ $a = -0.407370 - 0.267779I$ $b = \ \ 1.93722 + 0.60149I$	$-17.5984 + 0.0758I$	$-7.31042 + 1.57550I$
$u = -0.576669 + 1.098490I$ $a = -0.263264 - 0.069567I$ $b = \ \ 0.341659 - 0.129445I$	$1.86747 + 7.21175I$	$3.72852 - 5.27936I$
$u = -0.576669 - 1.098490I$ $a = -0.263264 + 0.069567I$ $b = \ \ 0.341659 + 0.129445I$	$1.86747 - 7.21175I$	$3.72852 + 5.27936I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.743234 + 1.053510I$ $a = -0.04444 + 2.04366I$ $b = 2.07902 + 0.33370I$	$-3.55752 - 7.80542I$	$-4.29962 + 6.17985I$
$u = 0.743234 - 1.053510I$ $a = -0.04444 - 2.04366I$ $b = 2.07902 - 0.33370I$	$-3.55752 + 7.80542I$	$-4.29962 - 6.17985I$
$u = 0.71574 + 1.23305I$ $a = -0.99869 - 1.97392I$ $b = -2.63254 + 0.11082I$	$-13.5091 - 13.2681I$	$-3.78464 + 6.49717I$
$u = 0.71574 - 1.23305I$ $a = -0.99869 + 1.97392I$ $b = -2.63254 - 0.11082I$	$-13.5091 + 13.2681I$	$-3.78464 - 6.49717I$
$u = 0.302591 + 0.411010I$ $a = 0.856584 + 0.998116I$ $b = 0.086217 - 0.461654I$	$-0.250655 - 1.078620I$	$-3.32954 + 6.69723I$
$u = 0.302591 - 0.411010I$ $a = 0.856584 - 0.998116I$ $b = 0.086217 + 0.461654I$	$-0.250655 + 1.078620I$	$-3.32954 - 6.69723I$
$u = -0.400636$ $a = -1.24927$ $b = -0.969091$	-2.22247	-4.42560

II. $I_2^u = \langle -u^3 + u^2 + 2b + 1,\ -u^3 - u^2 + 2a - 1,\ u^4 + u^2 - u + 1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{2}u^3 + \frac{1}{2}u^2 + \frac{1}{2} \\ \frac{1}{2}u^3 - \frac{1}{2}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}u^3 + \frac{1}{2}u^2 + \frac{1}{2} \\ \frac{1}{2}u^3 - \frac{1}{2}u^2 - \frac{1}{2} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^3 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^3 - u^2 - 1 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 - u^2 + u - 1 \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{11}{4}u^3 + \frac{21}{4}u^2 - \frac{1}{2}u - \frac{17}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.547424 + 0.585652I$ $a = 0.278726 + 0.483420I$ $b = -0.677958 - 0.157780I$	$-2.62503 - 1.39709I$	$-5.84901 + 3.96898I$
$u = 0.547424 - 0.585652I$ $a = 0.278726 - 0.483420I$ $b = -0.677958 + 0.157780I$	$-2.62503 + 1.39709I$	$-5.84901 - 3.96898I$
$u = -0.547424 + 1.120870I$ $a = 0.971274 - 0.813859I$ $b = 0.927958 + 0.413327I$	$0.98010 + 7.64338I$	$-3.77599 - 8.10462I$
$u = -0.547424 - 1.120870I$ $a = 0.971274 + 0.813859I$ $b = 0.927958 - 0.413327I$	$0.98010 - 7.64338I$	$-3.77599 + 8.10462I$

III.

$\boldsymbol{I^u_3 = \langle -3.37\times 10^7 u^{21} + 2.31\times 10^8 u^{20} + \cdots + 4.28\times 10^8 b + 1.99\times 10^9,\ -3.31\times 10^8 u^{21} + 1.16\times 10^9 u^{20} + \cdots + 1.28\times 10^9 a + 9.33\times 10^9,\ u^{22} - 2u^{21} + \cdots - 12u + 9\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.257818u^{21} - 0.907491u^{20} + \cdots + 8.27519u - 7.27470 \\ 0.0787701u^{21} - 0.539989u^{20} + \cdots + 5.17053u - 4.65186 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0569753u^{21} - 0.732717u^{20} + \cdots + 6.42310u - 8.39988 \\ 0.147735u^{21} - 0.732052u^{20} + \cdots + 6.08589u - 6.69407 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.113449u^{21} - 0.132459u^{20} + \cdots + 2.54918u - 1.84329 \\ 0.183373u^{21} - 0.457606u^{20} + \cdots + 4.47394u - 2.89558 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.325326u^{21} + 0.184523u^{20} + \cdots + 0.502711u - 2.87359 \\ -0.383495u^{21} + 0.177086u^{20} + \cdots - 0.310468u - 2.63640 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.264604u^{21} + 0.445061u^{20} + \cdots - 3.11735u - 0.705220 \\ -0.121794u^{21} + 0.190645u^{20} + \cdots - 0.910828u - 1.28085 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{9}u^{21} - \frac{2}{9}u^{20} + \cdots + \frac{32}{9}u - \frac{4}{3} \\ 0.0312057u^{21} - 0.184205u^{20} + \cdots + 2.13810u - 1.28530 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.142317u^{21} - 0.406427u^{20} + \cdots + 5.69365u - 2.61863 \\ 0.0312057u^{21} - 0.184205u^{20} + \cdots + 2.13810u - 1.28530 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{51496451}{142505371}u^{21} + \frac{36892662}{142505371}u^{20} + \cdots + \frac{723246262}{142505371}u - \frac{1135221198}{142505371}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{11}+18u^{10}+\cdots+31u+1)^2$
c_2, c_4	$(u^{11}-4u^{10}-u^9+17u^8+u^7-40u^6+3u^5+37u^4-3u^3-9u^2+7u-1)^2$
c_3, c_7	$(u^{11}+u^{10}+\cdots-4u+8)^2$
c_5, c_6, c_9 c_{11}	$u^{22}+2u^{21}+\cdots+12u+9$
c_8, c_{10}	$u^{22}-10u^{21}+\cdots-432u+81$
c_{12}	$(u^{11}+12u^9+36u^7+2u^6+2u^5+13u^4+13u^3+u^2+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{11} - 46y^{10} + \cdots + 863y - 1)^2$
c_2, c_4	$(y^{11} - 18y^{10} + \cdots + 31y - 1)^2$
c_3, c_7	$(y^{11} + 21y^{10} + \cdots + 336y - 64)^2$
c_5, c_6, c_9 c_{11}	$y^{22} + 10y^{21} + \cdots + 432y + 81$
c_8, c_{10}	$y^{22} + 2y^{21} + \cdots + 12312y + 6561$
c_{12}	$(y^{11} + 24y^{10} + \cdots - 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.545296 + 0.923005I$ $a = 0.012822 + 0.329575I$ $b = 0.622069 - 0.196649I$	$-0.14517 - 2.25109I$	$-0.29632 + 2.34373I$
$u = 0.545296 - 0.923005I$ $a = 0.012822 - 0.329575I$ $b = 0.622069 + 0.196649I$	$-0.14517 + 2.25109I$	$-0.29632 - 2.34373I$
$u = 0.858271 + 0.670516I$ $a = 0.369906 - 0.478944I$ $b = -1.92512 + 0.39933I$	$-4.72798 + 1.82060I$	$-6.54374 - 1.21714I$
$u = 0.858271 - 0.670516I$ $a = 0.369906 + 0.478944I$ $b = -1.92512 - 0.39933I$	$-4.72798 - 1.82060I$	$-6.54374 + 1.21714I$
$u = -0.240009 + 1.082970I$ $a = 0.454525 + 0.334757I$ $b = 0.515438 + 0.609605I$	4.11473	$8.33208 + 0.I$
$u = -0.240009 - 1.082970I$ $a = 0.454525 - 0.334757I$ $b = 0.515438 - 0.609605I$	4.11473	$8.33208 + 0.I$
$u = 0.705045 + 0.879700I$ $a = 0.12429 - 1.54454I$ $b = -0.016245 - 0.493238I$	$-9.06867 - 2.70718I$	$-3.52709 + 2.44627I$
$u = 0.705045 - 0.879700I$ $a = 0.12429 + 1.54454I$ $b = -0.016245 + 0.493238I$	$-9.06867 + 2.70718I$	$-3.52709 - 2.44627I$
$u = -0.800202 + 0.827914I$ $a = -0.14364 - 1.64878I$ $b = 0.910452 + 0.422891I$	$-4.72798 + 1.82060I$	$-6.54374 - 1.21714I$
$u = -0.800202 - 0.827914I$ $a = -0.14364 + 1.64878I$ $b = 0.910452 - 0.422891I$	$-4.72798 - 1.82060I$	$-6.54374 + 1.21714I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.047914 + 1.160270I$ $a = 2.24792 - 1.55926I$ $b = 1.93663 - 2.04614I$	$1.59514 + 0.83621I$	$-6.12521 - 2.51411I$
$u = 0.047914 - 1.160270I$ $a = 2.24792 + 1.55926I$ $b = 1.93663 + 2.04614I$	$1.59514 - 0.83621I$	$-6.12521 + 2.51411I$
$u = 1.089810 + 0.428144I$ $a = -0.395831 + 0.234267I$ $b = 2.55516 - 0.12719I$	$-16.0296 + 6.7782I$	$-6.17368 - 2.81310I$
$u = 1.089810 - 0.428144I$ $a = -0.395831 - 0.234267I$ $b = 2.55516 + 0.12719I$	$-16.0296 - 6.7782I$	$-6.17368 + 2.81310I$
$u = -0.703030 + 0.415587I$ $a = 0.495039 + 0.546851I$ $b = -0.195521 - 0.253083I$	$-0.14517 - 2.25109I$	$-0.29632 + 2.34373I$
$u = -0.703030 - 0.415587I$ $a = 0.495039 - 0.546851I$ $b = -0.195521 + 0.253083I$	$-0.14517 + 2.25109I$	$-0.29632 - 2.34373I$
$u = 0.190193 + 0.774835I$ $a = -2.15826 + 2.04536I$ $b = -1.52590 + 1.49076I$	$1.59514 - 0.83621I$	$-6.12521 + 2.51411I$
$u = 0.190193 - 0.774835I$ $a = -2.15826 - 2.04536I$ $b = -1.52590 - 1.49076I$	$1.59514 + 0.83621I$	$-6.12521 - 2.51411I$
$u = -0.804264 + 1.135210I$ $a = -0.80264 + 1.70705I$ $b = -1.69330 - 0.63124I$	$-16.0296 + 6.7782I$	$-6.17368 - 2.81310I$
$u = -0.804264 - 1.135210I$ $a = -0.80264 - 1.70705I$ $b = -1.69330 + 0.63124I$	$-16.0296 - 6.7782I$	$-6.17368 + 2.81310I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.11097 + 1.44346I$ $a = -2.20412 + 0.05114I$ $b = -2.68367 + 0.72362I$	$-9.06867 + 2.70718I$	$-3.52709 - 2.44627I$
$u = 0.11097 - 1.44346I$ $a = -2.20412 - 0.05114I$ $b = -2.68367 - 0.72362I$	$-9.06867 - 2.70718I$	$-3.52709 + 2.44627I$

IV. $\boldsymbol{I_4^u = \langle u^5 + u^4 + u^3 + 2u^2 + b + u + 1,\ u^5 + u^4 + u^3 + u^2 + a + u,\ u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.498832 + 1.001300I$ $a = 0.767394 + 0.943705I$ $b = 0.521167 - 0.055259I$	$-1.37919 - 2.82812I$	$-5.84740 + 3.54173I$
$u = 0.498832 - 1.001300I$ $a = 0.767394 - 0.943705I$ $b = 0.521167 + 0.055259I$	$-1.37919 + 2.82812I$	$-5.84740 - 3.54173I$
$u = -0.284920 + 1.115140I$ $a = 1.37744 - 1.47725I$ $b = 1.53980 - 0.84179I$	2.75839	$-6 - 1.305207 + 0.10I$
$u = -0.284920 - 1.115140I$ $a = 1.37744 + 1.47725I$ $b = 1.53980 + 0.84179I$	2.75839	$-6 - 1.305207 + 0.10I$
$u = -0.713912 + 0.305839I$ $a = 0.355167 - 0.198843I$ $b = -1.060970 + 0.237841I$	$-1.37919 - 2.82812I$	$-5.84740 + 3.54173I$
$u = -0.713912 - 0.305839I$ $a = 0.355167 + 0.198843I$ $b = -1.060970 - 0.237841I$	$-1.37919 + 2.82812I$	$-5.84740 - 3.54173I$

V. $\boldsymbol{I^u_5 = \langle au + 5b - 3a + u - 3,\ a^2 + au + 5u - 4,\ u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -2.23607 + 0.61803I$ $b = -0.618034 + 0.618034I$	-5.59278	0
$u = 1.000000I$ $a = 2.23607 - 1.61803I$ $b = 1.61803 - 1.61803I$	2.30291	0
$u = -1.000000I$ $a = -2.23607 - 0.61803I$ $b = -0.618034 - 0.618034I$	-5.59278	0
$u = -1.000000I$ $a = 2.23607 + 1.61803I$ $b = 1.61803 + 1.61803I$	2.30291	0

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^2-3u+1)^2(u^{11}+18u^{10}+\cdots+31u+1)^2$ $\cdot(u^{17}+25u^{16}+\cdots-31u+16)$
c_2	$(u-1)^{10}(u^2+u-1)^2$ $\cdot(u^{11}-4u^{10}-u^9+17u^8+u^7-40u^6+3u^5+37u^4-3u^3-9u^2+7u-1)^2$ $\cdot(u^{17}-5u^{16}+\cdots-u+4)$
c_3, c_7	$u^{10}(u^4+3u^2+1)(u^{11}+u^{10}+\cdots-4u+8)^2$ $\cdot(u^{17}-3u^{16}+\cdots+176u+64)$
c_4	$(u+1)^{10}(u^2-u-1)^2$ $\cdot(u^{11}-4u^{10}-u^9+17u^8+u^7-40u^6+3u^5+37u^4-3u^3-9u^2+7u-1)^2$ $\cdot(u^{17}-5u^{16}+\cdots-u+4)$
c_5, c_6	$(u^2+1)^2(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{17}+3u^{15}+\cdots+11u^3-1)(u^{22}+2u^{21}+\cdots+12u+9)$
c_8, c_{10}	$(u+1)^4(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{17}-6u^{16}+\cdots-6u^2+1)(u^{22}-10u^{21}+\cdots-432u+81)$
c_9, c_{11}	$(u^2+1)^2(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{17}+3u^{15}+\cdots+11u^3-1)(u^{22}+2u^{21}+\cdots+12u+9)$
c_{12}	$(u^3-u^2+1)^2(u^4+7u^2+1)(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{11}+12u^9+36u^7+2u^6+2u^5+13u^4+13u^3+u^2+1)^2$ $\cdot(u^{17}+19u^{15}+\cdots-5u^2+4)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{10})(y^2-7y+1)^2(y^{11}-46y^{10}+\cdots+863y-1)^2$ $\cdot(y^{17}-61y^{16}+\cdots-15103y-256)$
c_2, c_4	$((y-1)^{10})(y^2-3y+1)^2(y^{11}-18y^{10}+\cdots+31y-1)^2$ $\cdot(y^{17}-25y^{16}+\cdots-31y-16)$
c_3, c_7	$y^{10}(y^2+3y+1)^2(y^{11}+21y^{10}+\cdots+336y-64)^2$ $\cdot(y^{17}+27y^{16}+\cdots+4352y-4096)$
c_5, c_6, c_9 c_{11}	$(y+1)^4(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{17}+6y^{16}+\cdots+6y^2-1)(y^{22}+10y^{21}+\cdots+432y+81)$
c_8, c_{10}	$(y-1)^4(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{17}+18y^{16}+\cdots+12y-1)(y^{22}+2y^{21}+\cdots+12312y+6561)$
c_{12}	$(y^2+7y+1)^2(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot((y^{11}+24y^{10}+\cdots-2y-1)^2)(y^{17}+38y^{16}+\cdots+40y-16)$