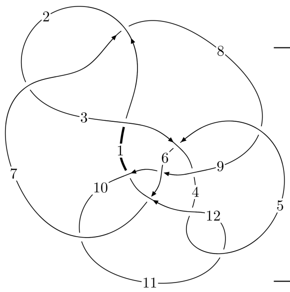
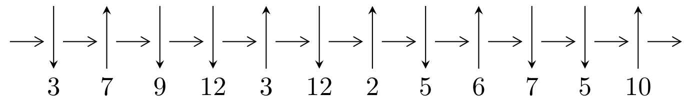
$12n_{0630}$ ($K12n_{0630}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-397668u^{11} - 278148u^{10} + \cdots + 7297577b + 2368848,\\
&-1957869u^{11} + 467354u^{10} + \cdots + 36487885a - 28305373,\\
&u^{12} - u^{11} - 6u^{10} + 13u^9 + 18u^8 - 60u^7 + 13u^6 + 62u^5 - 29u^4 - 23u^3 + 7u^2 + 2u + 5\rangle\\
I_2^u = \langle &-3.02231 \times 10^{15}u^{19} + 1.19819 \times 10^{15}u^{18} + \cdots + 5.91941 \times 10^{15}b + 5.59657 \times 10^{14},\\
&9227751817881066u^{19} + 3660231888309292u^{18} + \cdots + 5919405752257771a + 5607818622219472,\\
&u^{20} + 4u^{18} + \cdots + 3u + 1\rangle\\
I_3^u = \langle &-2.64152 \times 10^{16}u^{15} - 7.92608 \times 10^{15}u^{14} + \cdots + 8.40192 \times 10^{18}b + 2.48982 \times 10^{18},\\
&-2.01301 \times 10^{18}u^{15} + 1.13113 \times 10^{19}u^{14} + \cdots + 5.96536 \times 10^{20}a + 4.26142 \times 10^{21},\\
&u^{16} - u^{15} + \cdots + 163u + 71\rangle\\
I_4^u = \langle &u^2 + b - 1,\ u^2 + a + u,\ u^3 - u + 1\rangle\\
I_5^u = \langle &b - u - 1,\ a - u,\ u^2 + u + 1\rangle
\end{aligned}$$

* 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.

$$\boldsymbol{I^u_1 = \langle -3.98\times 10^5 u^{11} - 2.78\times 10^5 u^{10} + \cdots + 7.30\times 10^6 b + 2.37\times 10^6,\ -1.96\times 10^6 u^{11} + 4.67\times 10^5 u^{10} + \cdots + 3.65\times 10^7 a - 2.83\times 10^7,\ u^{12} - u^{11} + \cdots + 2u + 5\rangle}$$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0536581u^{11} - 0.0128085u^{10} + \cdots + 0.801672u + 0.775747 \\ 0.0544932u^{11} + 0.0381151u^{10} + \cdots + 0.115543u - 0.324607 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.109535u^{11} - 0.0184761u^{10} + \cdots + 0.336139u + 0.896107 \\ 0.268311u^{11} + 0.00905821u^{10} + \cdots - 0.264263u - 0.575656 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0908787u^{11} + 0.0231775u^{10} + \cdots + 0.150881u + 0.429910 \\ 0.255543u^{11} - 0.178786u^{10} + \cdots - 0.0241484u + 0.207817 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0776514u^{11} - 0.0522672u^{10} + \cdots + 1.20161u + 1.87973 \\ 0.114056u^{11} + 0.0999037u^{10} + \cdots + 0.248152u - 0.454394 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0776514u^{11} - 0.0522672u^{10} + \cdots + 1.20161u + 1.87973 \\ 0.131309u^{11} + 0.0394587u^{10} + \cdots - 0.399942u - 1.10399 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.313406u^{11} + 0.172062u^{10} + \cdots + 2.31775u + 0.230813 \\ 0.0700486u^{11} + 0.0126635u^{10} + \cdots + 0.664609u + 0.230518 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0649215u^{11} + 0.0104283u^{10} + \cdots + 1.13264u - 0.245386 \\ 0.155876u^{11} - 0.0790595u^{10} + \cdots - 0.751512u - 0.203733 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.220797u^{11} + 0.0894879u^{10} + \cdots + 1.88416u - 0.0416525 \\ 0.155876u^{11} - 0.0790595u^{10} + \cdots - 0.751512u - 0.203733 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.131232u^{11} - 0.216101u^{10} + \cdots + 0.285872u + 0.275328 \\ 0.0893665u^{11} + 0.00788878u^{10} + \cdots - 0.146247u - 0.586750 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{5487178}{7297577}u^{11} + \frac{4986967}{7297577}u^{10} + \cdots - \frac{3943475}{384083}u - \frac{53169632}{7297577}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12}+22u^{11}+\cdots+2624u+256$
c_2, c_7	$u^{12}-4u^{11}+\cdots-24u+16$
c_3, c_6	$u^{12}-u^{11}+\cdots+2u+5$
c_4, c_{11}	$u^{12}-15u^{10}+\cdots+425u+152$
c_5, c_{12}	$u^{12}+2u^{11}+\cdots-9u+7$
c_8, c_{10}	$u^{12}-u^{11}+\cdots+1494u+607$
c_9	$u^{12}-5u^{11}+\cdots+31u+14$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} + 6y^{11} + \cdots - 471040y + 65536$
c_2, c_7	$y^{12} + 22y^{11} + \cdots + 2624y + 256$
c_3, c_6	$y^{12} - 13y^{11} + \cdots + 66y + 25$
c_4, c_{11}	$y^{12} - 30y^{11} + \cdots + 13631y + 23104$
c_5, c_{12}	$y^{12} + 14y^{11} + \cdots + 591y + 49$
c_8, c_{10}	$y^{12} - 21y^{11} + \cdots + 947430y + 368449$
c_9	$y^{12} - 7y^{11} + \cdots + 3519y + 196$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.073080 + 0.247830I$ $a = -0.205686 + 0.226684I$ $b = -0.644126 - 0.709985I$	$-5.72012 + 1.08206I$	$-7.15082 - 4.03183I$
$u = 1.073080 - 0.247830I$ $a = -0.205686 - 0.226684I$ $b = -0.644126 + 0.709985I$	$-5.72012 - 1.08206I$	$-7.15082 + 4.03183I$
$u = 1.009660 + 0.511160I$ $a = -0.494615 - 1.267450I$ $b = 1.039140 - 0.687591I$	$0.57034 - 4.05390I$	$-4.38416 + 4.91735I$
$u = 1.009660 - 0.511160I$ $a = -0.494615 + 1.267450I$ $b = 1.039140 + 0.687591I$	$0.57034 + 4.05390I$	$-4.38416 - 4.91735I$
$u = -0.830480 + 0.173166I$ $a = -0.551557 + 0.852128I$ $b = -0.062030 - 1.028400I$	$-14.8564 + 1.0416I$	$-8.90880 - 6.97569I$
$u = -0.830480 - 0.173166I$ $a = -0.551557 - 0.852128I$ $b = -0.062030 + 1.028400I$	$-14.8564 - 1.0416I$	$-8.90880 + 6.97569I$
$u = -0.137010 + 0.433413I$ $a = 0.896797 + 0.679594I$ $b = 0.142411 + 0.345315I$	$-0.227997 + 0.989058I$	$-3.44966 - 7.41497I$
$u = -0.137010 - 0.433413I$ $a = 0.896797 - 0.679594I$ $b = 0.142411 - 0.345315I$	$-0.227997 - 0.989058I$	$-3.44966 + 7.41497I$
$u = 1.50435 + 1.39749I$ $a = 0.844739 + 0.586786I$ $b = -1.60755 + 1.62037I$	$19.5110 - 12.6758I$	$-3.44721 + 4.54307I$
$u = 1.50435 - 1.39749I$ $a = 0.844739 - 0.586786I$ $b = -1.60755 - 1.62037I$	$19.5110 + 12.6758I$	$-3.44721 - 4.54307I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -2.11959 + 0.80100I$ $a = 0.410323 - 0.816861I$ $b = 0.13215 - 2.51818I$	$-8.32399 + 2.80123I$	$-4.65935 - 1.22361I$
$u = -2.11959 - 0.80100I$ $a = 0.410323 + 0.816861I$ $b = 0.13215 + 2.51818I$	$-8.32399 - 2.80123I$	$-4.65935 + 1.22361I$

II.
$\boldsymbol{I_2^u = \langle -3.02\times 10^{15}u^{19} + 1.20\times 10^{15}u^{18} + \cdots + 5.92\times 10^{15}b + 5.60\times 10^{14},\ 9.23\times 10^{15}u^{19} + 3.66\times 10^{15}u^{18} + \cdots + 5.92\times 10^{15}a + 5.61\times 10^{15},\ u^{20} + 4u^{18} + \cdots + 3u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1.55890u^{19} - 0.618344u^{18} + \cdots - 13.8199u - 0.947362 \\ 0.510577u^{19} - 0.202418u^{18} + \cdots + 2.63545u - 0.0945461 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.70332u^{19} - 0.312792u^{18} + \cdots - 13.0414u - 0.234471 \\ 0.440100u^{19} - 0.230469u^{18} + \cdots + 1.86321u - 0.400099 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.07358u^{19} - 0.813886u^{18} + \cdots - 33.9072u - 8.78031 \\ -0.504783u^{19} + 0.295424u^{18} + \cdots - 2.61547u - 0.255554 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.879796u^{19} - 0.232552u^{18} + \cdots + 4.44267u - 1.81413 \\ -0.380687u^{19} - 0.0331509u^{18} + \cdots - 0.811015u - 1.69737 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.879796u^{19} - 0.232552u^{18} + \cdots + 4.44267u - 1.81413 \\ -0.330693u^{19} + 0.000465385u^{18} + \cdots - 0.628875u - 1.92992 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.719586u^{19} + 0.369219u^{18} + \cdots + 13.5809u + 3.96598 \\ 0.431366u^{19} - 0.236260u^{18} + \cdots + 3.50101u + 0.447132 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1.18109u^{19} + 0.216905u^{18} + \cdots + 18.9092u + 4.78233 \\ 0.518834u^{19} - 0.220231u^{18} + \cdots + 3.49645u + 0.599447 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.662252u^{19} + 0.437136u^{18} + \cdots + 15.4127u + 4.18288 \\ 0.518834u^{19} - 0.220231u^{18} + \cdots + 3.49645u + 0.599447 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.743184u^{19} + 1.10142u^{18} + \cdots + 21.8615u + 6.70129 \\ 0.418161u^{19} + 0.0155632u^{18} + \cdots + 1.62432u + 2.08223 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{3981424950812 7817}{5919405752257771}u^{19} - \frac{6706137336893893}{5919405752257771}u^{18} + \cdots - \frac{334591284011249395}{5919405752257771}u - \frac{664983366457434 08}{5919405752257771}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{10} - 13u^9 + \cdots - 343u + 67)^2$
c_2, c_7	$u^{20} + 13u^{18} + \cdots + 343u^2 + 67$
c_3, c_6	$u^{20} + 4u^{18} + \cdots + 3u + 1$
c_4	$(u^{10} - u^9 - 2u^8 + u^7 - 4u^6 + 5u^5 + 7u^4 - 4u^3 + 2u^2 - 5u - 1)^2$
c_5, c_{12}	$u^{20} - 5u^{19} + \cdots - 4u + 1$
c_8, c_{10}	$u^{20} - 3u^{19} + \cdots - 313u + 391$
c_9	$(u^{10} + u^9 + 2u^8 - 8u^7 - 15u^6 - 41u^5 - 44u^4 - 57u^3 - 3u^2 + 6u + 1)^2$
c_{11}	$(u^{10} + u^9 - 2u^8 - u^7 - 4u^6 - 5u^5 + 7u^4 + 4u^3 + 2u^2 + 5u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10} - 19y^9 + \cdots - 5223y + 4489)^2$
c_2, c_7	$(y^{10} + 13y^9 + \cdots + 343y + 67)^2$
c_3, c_6	$y^{20} + 8y^{19} + \cdots + 13y + 1$
c_4, c_{11}	$(y^{10} - 5y^9 + \cdots - 29y + 1)^2$
c_5, c_{12}	$y^{20} - 9y^{19} + \cdots - 6y + 1$
c_8, c_{10}	$y^{20} - y^{19} + \cdots + 705145y + 152881$
c_9	$(y^{10} + 3y^9 + \cdots - 42y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.169912 + 1.033690I$ $a = -1.027740 + 0.367867I$ $b = 0.939266 + 0.170399I$	1.81830	$-61.381650 + 0.10I$
$u = 0.169912 - 1.033690I$ $a = -1.027740 - 0.367867I$ $b = 0.939266 - 0.170399I$	1.81830	$-61.381650 + 0.10I$
$u = -1.058270 + 0.332331I$ $a = 0.776808 - 0.003579I$ $b = 0.266712 + 0.446040I$	$-2.63705 + 1.91138I$	$-5.85314 - 2.19256I$
$u = -1.058270 - 0.332331I$ $a = 0.776808 + 0.003579I$ $b = 0.266712 - 0.446040I$	$-2.63705 - 1.91138I$	$-5.85314 + 2.19256I$
$u = 0.749999 + 0.461306I$ $a = 0.626786 + 0.928745I$ $b = -0.423468 - 1.053800I$	-14.3530	$-2.56768 + 0.I$
$u = 0.749999 - 0.461306I$ $a = 0.626786 - 0.928745I$ $b = -0.423468 + 1.053800I$	-14.3530	$-2.56768 + 0.I$
$u = 0.021655 + 1.184100I$ $a = 1.077240 - 0.017516I$ $b = -0.99403 + 1.07585I$	$-2.63705 - 1.91138I$	$-5.85314 + 2.19256I$
$u = 0.021655 - 1.184100I$ $a = 1.077240 + 0.017516I$ $b = -0.99403 - 1.07585I$	$-2.63705 + 1.91138I$	$-5.85314 - 2.19256I$
$u = -0.674532 + 1.047120I$ $a = 1.368660 - 0.287017I$ $b = -0.948711 - 0.785310I$	$-2.51892 + 5.10495I$	$-2.50119 - 5.27179I$
$u = -0.674532 - 1.047120I$ $a = 1.368660 + 0.287017I$ $b = -0.948711 + 0.785310I$	$-2.51892 - 5.10495I$	$-2.50119 + 5.27179I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.966161 + 1.030760I$ $a = -0.970102 + 0.568270I$ $b = 1.231870 + 0.292979I$	$-4.58274 + 3.70357I$	$-6.31936 - 0.16987I$
$u = -0.966161 - 1.030760I$ $a = -0.970102 - 0.568270I$ $b = 1.231870 - 0.292979I$	$-4.58274 - 3.70357I$	$-6.31936 + 0.16987I$
$u = 1.36430 + 0.42550I$ $a = -0.055504 - 0.690748I$ $b = 0.374039 - 0.261089I$	$-2.51892 - 5.10495I$	$-2.50119 + 5.27179I$
$u = 1.36430 - 0.42550I$ $a = -0.055504 + 0.690748I$ $b = 0.374039 + 0.261089I$	$-2.51892 + 5.10495I$	$-2.50119 - 5.27179I$
$u = 0.028356 + 0.409589I$ $a = 7.65404 - 3.49906I$ $b = -0.456837 - 0.233907I$	$6.13648 - 2.74090I$	$17.7667 - 11.6717I$
$u = 0.028356 - 0.409589I$ $a = 7.65404 + 3.49906I$ $b = -0.456837 + 0.233907I$	$6.13648 + 2.74090I$	$17.7667 + 11.6717I$
$u = -0.263839 + 0.272160I$ $a = 0.75729 + 1.74372I$ $b = 0.27219 + 1.44939I$	$-4.58274 + 3.70357I$	$-6.31936 - 0.16987I$
$u = -0.263839 - 0.272160I$ $a = 0.75729 - 1.74372I$ $b = 0.27219 - 1.44939I$	$-4.58274 - 3.70357I$	$-6.31936 + 0.16987I$
$u = 0.62858 + 2.01281I$ $a = -0.707467 - 0.154937I$ $b = 2.23897 - 0.22781I$	$6.13648 - 2.74090I$	$17.7667 - 11.6717I$
$u = 0.62858 - 2.01281I$ $a = -0.707467 + 0.154937I$ $b = 2.23897 + 0.22781I$	$6.13648 + 2.74090I$	$17.7667 + 11.6717I$

III. $\boldsymbol{I_3^u = \langle -2.64 \times 10^{16}u^{15} - 7.93 \times 10^{15}u^{14} + \cdots + 8.40 \times 10^{18}b + 2.49 \times 10^{18},\ -2.01 \times 10^{18}u^{15} + 1.13 \times 10^{19}u^{14} + \cdots + 5.97 \times 10^{20}a + 4.26 \times 10^{21},\ u^{16} - u^{15} + \cdots + 163u + 71\rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00337450u^{15} - 0.0189617u^{14} + \cdots + 1.89959u - 7.14361 \\ 0.00314395u^{15} + 0.000943365u^{14} + \cdots + 0.0449932u - 0.296340 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0107975u^{15} - 0.0252968u^{14} + \cdots + 4.15572u - 5.74058 \\ 0.00250302u^{15} + 0.00276345u^{14} + \cdots - 0.659364u - 0.373579 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0655553u^{15} + 0.0741115u^{14} + \cdots - 27.0806u - 10.9764 \\ 0.00312829u^{15} + 0.00290945u^{14} + \cdots - 1.59008u - 0.820416 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0104767u^{15} + 0.0209012u^{14} + \cdots - 5.81764u + 1.25426 \\ 0.00216927u^{15} + 0.00594923u^{14} + \cdots - 1.37136u - 0.417612 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0104767u^{15} + 0.0209012u^{14} + \cdots - 5.81764u + 1.25426 \\ 0.00117374u^{15} + 0.00575176u^{14} + \cdots - 0.416019u + 0.322528 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0252415u^{15} - 0.0178660u^{14} + \cdots + 7.88004u + 4.68578 \\ 0.00657981u^{15} - 0.00108658u^{14} + \cdots - 0.0698176u - 0.177735 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0337177u^{15} - 0.0306569u^{14} + \cdots + 10.8046u + 5.03170 \\ 0.00820697u^{15} - 0.00225643u^{14} + \cdots + 0.0316438u + 0.128600 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0255108u^{15} - 0.0284004u^{14} + \cdots + 10.7729u + 4.90310 \\ 0.00820697u^{15} - 0.00225643u^{14} + \cdots + 0.0316438u + 0.128600 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0387732u^{15} - 0.0335190u^{14} + \cdots + 13.0924u + 8.52027 \\ 0.00517636u^{15} - 0.00187196u^{14} + \cdots + 0.247599u + 0.297704 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{942004923634454628}{840191649183906552 5}u^{15} + \frac{81627954125616557}{763810590167187775}u^{14} + \cdots - \frac{31071603959624212879 6}{8401916491839065525}u - \frac{16918611479808519387 1}{8401916491839065525}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^8+15u^7+78u^6+153u^5+154u^4+76u^3-159u^2-174u+121)^2$
c_2, c_7	$(u^8+u^7+8u^6+u^5+8u^4-12u^3+u^2-14u+11)^2$
c_3, c_6	$u^{16}-u^{15}+\cdots+163u+71$
c_4, c_{11}	$(u^8-7u^7+14u^6-10u^5+16u^4+2u^3+5u^2-18u+28)^2$
c_5, c_{12}	$u^{16}+2u^{15}+\cdots+516u+113$
c_8, c_{10}	$u^{16}-30u^{14}+\cdots-305u+25$
c_9	$(u^8+u^7+4u^6+u^5+10u^4+9u^2-2u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^8 - 69y^7 + \cdots - 68754y + 14641)^2$
c_2, c_7	$(y^8 + 15y^7 + 78y^6 + 153y^5 + 154y^4 + 76y^3 - 159y^2 - 174y + 121)^2$
c_3, c_6	$y^{16} + y^{15} + \cdots + 18445y + 5041$
c_4, c_{11}	$(y^8 - 21y^7 + 88y^6 + 386y^5 + 240y^4 + 580y^3 + 993y^2 - 44y + 784)^2$
c_5, c_{12}	$y^{16} - 2y^{15} + \cdots + 42912y + 12769$
c_8, c_{10}	$y^{16} - 60y^{15} + \cdots - 30675y + 625$
c_9	$(y^8 + 7y^7 + 34y^6 + 97y^5 + 178y^4 + 192y^3 + 101y^2 + 14y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.930105 + 0.642390I$ $a = -0.0256301 + 0.0507802I$ $b = -0.046860 + 1.356980I$	$-4.46347 + 4.82161I$	$-6.01453 - 6.61722I$
$u = -0.930105 - 0.642390I$ $a = -0.0256301 - 0.0507802I$ $b = -0.046860 - 1.356980I$	$-4.46347 - 4.82161I$	$-6.01453 + 6.61722I$
$u = 0.837926 + 0.838459I$ $a = 1.37082 + 0.68579I$ $b = -1.060800 + 0.622192I$	$-4.46347 - 4.82161I$	$-6.01453 + 6.61722I$
$u = 0.837926 - 0.838459I$ $a = 1.37082 - 0.68579I$ $b = -1.060800 - 0.622192I$	$-4.46347 + 4.82161I$	$-6.01453 - 6.61722I$
$u = 1.200940 + 0.035935I$ $a = 0.089945 + 0.500990I$ $b = 0.875246 + 0.803241I$	$-0.47591 + 2.83833I$	$-2.49972 - 2.93638I$
$u = 1.200940 - 0.035935I$ $a = 0.089945 - 0.500990I$ $b = 0.875246 - 0.803241I$	$-0.47591 - 2.83833I$	$-2.49972 + 2.93638I$
$u = -0.668009 + 1.003610I$ $a = 1.019600 - 0.478974I$ $b = -0.425332 - 1.024850I$	$-0.47591 + 2.83833I$	$-2.49972 - 2.93638I$
$u = -0.668009 - 1.003610I$ $a = 1.019600 + 0.478974I$ $b = -0.425332 + 1.024850I$	$-0.47591 - 2.83833I$	$-2.49972 + 2.93638I$
$u = -0.219451 + 0.356043I$ $a = -7.73951 - 0.17352I$ $b = -0.222770 + 0.248407I$	$5.99986 + 2.87814I$	$-11.5340 - 17.1252I$
$u = -0.219451 - 0.356043I$ $a = -7.73951 + 0.17352I$ $b = -0.222770 - 0.248407I$	$5.99986 - 2.87814I$	$-11.5340 + 17.1252I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.90749+0.26315I$ $a=-0.237198+1.251610I$ $b=\ \ 0.02100+2.20047I$	$-19.1547+0.7815I$	$-4.45172-0.30321I$
$u=-1.90749-0.26315I$ $a=-0.237198-1.251610I$ $b=\ \ 0.02100-2.20047I$	$-19.1547-0.7815I$	$-4.45172+0.30321I$
$u=\ \ 0.62790+2.02093I$ $a=-0.709426-0.166954I$ $b=\ \ 2.23737-0.20974I$	$5.99986-2.87814I$	$-11.5340+17.1252I$
$u=\ \ 0.62790-2.02093I$ $a=-0.709426+0.166954I$ $b=\ \ 2.23737+0.20974I$	$5.99986+2.87814I$	$-11.5340-17.1252I$
$u=\ \ 1.55829+2.01508I$ $a=\ \ 0.196181+0.265717I$ $b=-2.37786-1.70668I$	$-19.1547+0.7815I$	$-4.45172-0.30321I$
$u=\ \ 1.55829-2.01508I$ $a=\ \ 0.196181-0.265717I$ $b=-2.37786+1.70668I$	$-19.1547-0.7815I$	$-4.45172+0.30321I$

IV. $I_4^u = \langle u^2 + b - 1,\ u^2 + a + u,\ u^3 - u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 7u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.662359 + 0.562280I$ $a = -0.78492 - 1.30714I$ $b = 0.877439 - 0.744862I$	$1.45094 - 3.77083I$	$4.63651 + 3.93596I$
$u = 0.662359 - 0.562280I$ $a = -0.78492 + 1.30714I$ $b = 0.877439 + 0.744862I$	$1.45094 + 3.77083I$	$4.63651 - 3.93596I$
$u = -1.32472$ $a = -0.430160$ $b = -0.754878$	-6.19175	-9.27300

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u-2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-0.500000+0.866025I$ $b=\ \ 0.500000+0.866025I$	$2.02988I$	$0.-3.46410I$
$u=-0.500000-0.866025I$ $a=-0.500000-0.866025I$ $b=\ \ 0.500000-0.866025I$	$-2.02988I$	$0.+3.46410I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^3(u^2+u+1)$ $\cdot(u^8+15u^7+78u^6+153u^5+154u^4+76u^3-159u^2-174u+121)^2$ $\cdot((u^{10}-13u^9+\cdots-343u+67)^2)(u^{12}+22u^{11}+\cdots+2624u+256)$
c_2, c_7	$u^3(u^2+u+1)(u^8+u^7+8u^6+u^5+8u^4-12u^3+u^2-14u+11)^2$ $\cdot(u^{12}-4u^{11}+\cdots-24u+16)(u^{20}+13u^{18}+\cdots+343u^2+67)$
c_3, c_6	$(u^2+u+1)(u^3-u+1)(u^{12}-u^{11}+\cdots+2u+5)$ $\cdot(u^{16}-u^{15}+\cdots+163u+71)(u^{20}+4u^{18}+\cdots+3u+1)$
c_4	$u^2(u^3+2u^2+u+1)$ $\cdot(u^8-7u^7+14u^6-10u^5+16u^4+2u^3+5u^2-18u+28)^2$ $\cdot(u^{10}-u^9-2u^8+u^7-4u^6+5u^5+7u^4-4u^3+2u^2-5u-1)^2$ $\cdot(u^{12}-15u^{10}+\cdots+425u+152)$
c_5, c_{12}	$(u^2-u+1)(u^3-u^2+1)(u^{12}+2u^{11}+\cdots-9u+7)$ $\cdot(u^{16}+2u^{15}+\cdots+516u+113)(u^{20}-5u^{19}+\cdots-4u+1)$
c_8, c_{10}	$(u^2+u+1)(u^3+2u^2+u+1)(u^{12}-u^{11}+\cdots+1494u+607)$ $\cdot(u^{16}-30u^{14}+\cdots-305u+25)(u^{20}-3u^{19}+\cdots-313u+391)$
c_9	$(u^2-u+1)(u^3-u^2+1)(u^8+u^7+\cdots-2u+1)^2$ $\cdot(u^{10}+u^9+2u^8-8u^7-15u^6-41u^5-44u^4-57u^3-3u^2+6u+1)^2$ $\cdot(u^{12}-5u^{11}+\cdots+31u+14)$
c_{11}	$u^2(u^3-2u^2+u-1)$ $\cdot(u^8-7u^7+14u^6-10u^5+16u^4+2u^3+5u^2-18u+28)^2$ $\cdot(u^{10}+u^9-2u^8-u^7-4u^6-5u^5+7u^4+4u^3+2u^2+5u-1)^2$ $\cdot(u^{12}-15u^{10}+\cdots+425u+152)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^3(y^2+y+1)(y^8-69y^7+\cdots-68754y+14641)^2$ $\cdot(y^{10}-19y^9+\cdots-5223y+4489)^2$ $\cdot(y^{12}+6y^{11}+\cdots-471040y+65536)$
c_2, c_7	$y^3(y^2+y+1)$ $\cdot(y^8+15y^7+78y^6+153y^5+154y^4+76y^3-159y^2-174y+121)^2$ $\cdot((y^{10}+13y^9+\cdots+343y+67)^2)(y^{12}+22y^{11}+\cdots+2624y+256)$
c_3, c_6	$(y^2+y+1)(y^3-2y^2+y-1)(y^{12}-13y^{11}+\cdots+66y+25)$ $\cdot(y^{16}+y^{15}+\cdots+18445y+5041)(y^{20}+8y^{19}+\cdots+13y+1)$
c_4, c_{11}	$y^2(y^3-2y^2-3y-1)$ $\cdot(y^8-21y^7+88y^6+386y^5+240y^4+580y^3+993y^2-44y+784)^2$ $\cdot((y^{10}-5y^9+\cdots-29y+1)^2)(y^{12}-30y^{11}+\cdots+13631y+23104)$
c_5, c_{12}	$(y^2+y+1)(y^3-y^2+2y-1)(y^{12}+14y^{11}+\cdots+591y+49)$ $\cdot(y^{16}-2y^{15}+\cdots+42912y+12769)(y^{20}-9y^{19}+\cdots-6y+1)$
c_8, c_{10}	$(y^2+y+1)(y^3-2y^2-3y-1)(y^{12}-21y^{11}+\cdots+947430y+368449)$ $\cdot(y^{16}-60y^{15}+\cdots-30675y+625)$ $\cdot(y^{20}-y^{19}+\cdots+705145y+152881)$
c_9	$(y^2+y+1)(y^3-y^2+2y-1)$ $\cdot(y^8+7y^7+34y^6+97y^5+178y^4+192y^3+101y^2+14y+1)^2$ $\cdot((y^{10}+3y^9+\cdots-42y+1)^2)(y^{12}-7y^{11}+\cdots+3519y+196)$