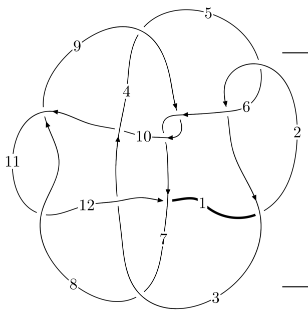
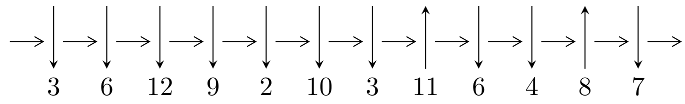
$12n_{0419}$ ($K12n_{0419}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.66310 \times 10^{40} u^{18} + 2.05150 \times 10^{40} u^{17} + \cdots + 1.58940 \times 10^{42} b + 1.51319 \times 10^{42}, \\
& -1.49523 \times 10^{41} u^{18} - 1.67879 \times 10^{41} u^{17} + \cdots + 2.70197 \times 10^{43} a + 4.39022 \times 10^{43}, \\
& u^{19} + 2u^{18} + \cdots + 197u + 34 \rangle \\
I_2^u = \langle & -6u^{11} + 17u^{10} + 15u^9 - 46u^8 - 27u^7 + 16u^6 + 67u^5 + 36u^4 - 81u^3 - 12u^2 + 3b + 33u - 13, \\
& -u^{11} + 8u^9 + 6u^8 - 20u^7 - 23u^6 + 6u^5 + 33u^4 + 24u^3 - 24u^2 + 3a - 13u + 12, \\
& u^{12} - 3u^{11} - 2u^{10} + 8u^9 + 3u^8 - 3u^7 - 10u^6 - 4u^5 + 14u^4 - 2u^3 - 6u^2 + 4u - 1 \rangle \\
I_3^u = \langle & -u^3 b + u^3 + b^2 + u^2 - u - 1,\ u^3 + a - u,\ u^4 - u^2 + 1 \rangle \\
I_4^u = \langle & b + u - 1,\ a - u + 1,\ u^2 - u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 41 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. $I_1^u = \langle 1.66 \times 10^{40} u^{18} + 2.05 \times 10^{40} u^{17} + \cdots + 1.59 \times 10^{42} b + 1.51 \times 10^{42},\ -1.50 \times 10^{41} u^{18} - 1.68 \times 10^{41} u^{17} + \cdots + 2.70 \times 10^{43} a + 4.39 \times 10^{43},\ u^{19} + 2u^{18} + \cdots + 197u + 34 \rangle$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00553383u^{18} + 0.00621320u^{17} + \cdots + 4.05205u - 1.62482 \\ -0.0104638u^{18} - 0.0129074u^{17} + \cdots - 4.49529u - 0.952055 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.00553383u^{18} + 0.00621320u^{17} + \cdots + 4.05205u - 1.62482 \\ -0.0124793u^{18} - 0.0173211u^{17} + \cdots - 5.26347u - 1.11711 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0156043u^{18} - 0.0294312u^{17} + \cdots - 5.04992u - 3.27835 \\ 0.00435103u^{18} + 0.00855543u^{17} + \cdots - 2.18420u - 0.489130 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0196881u^{18} + 0.0324028u^{17} + \cdots + 5.22408u + 0.287287 \\ -0.0163849u^{18} - 0.0268543u^{17} + \cdots - 3.04420u - 0.799678 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00330322u^{18} + 0.00554852u^{17} + \cdots + 2.17988u - 0.512391 \\ -0.0163849u^{18} - 0.0268543u^{17} + \cdots - 3.04420u - 0.799678 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0271290u^{18} + 0.0462190u^{17} + \cdots + 4.83481u + 2.57786 \\ 0.000739414u^{18} + 0.00488659u^{17} + \cdots + 0.324280u + 0.739169 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.00330322u^{18} - 0.00554852u^{17} + \cdots - 2.17988u + 0.512391 \\ 0.0151808u^{18} + 0.0269510u^{17} + \cdots + 2.74012u + 0.653062 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0134032u^{18} - 0.0261459u^{17} + \cdots - 5.10567u - 3.36811 \\ 0.00236078u^{18} + 0.00585106u^{17} + \cdots - 1.98324u - 0.361402 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0105559u^{18} + 0.0127073u^{17} + \cdots + 11.9187u - 12.1302$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} + 97u^{18} + \cdots - 1941683u + 162409$
c_2, c_5	$u^{19} + 3u^{18} + \cdots - 721u - 403$
c_3	$u^{19} - 5u^{18} + \cdots - 24u + 11$
c_4	$u^{19} - 5u^{18} + \cdots + 270503u + 65171$
c_6, c_9	$u^{19} + 2u^{18} + \cdots + 197u + 34$
c_7	$u^{19} - 5u^{18} + \cdots + 94u - 421$
c_8, c_{11}	$u^{19} + 4u^{18} + \cdots + 111u + 9$
c_{10}	$u^{19} + u^{18} + \cdots + 706u + 167$
c_{12}	$u^{19} + 4u^{18} + \cdots - 13967u - 14044$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} - 3221y^{18} + \cdots + 5217004770233y - 26376683281$
c_2, c_5	$y^{19} - 97y^{18} + \cdots - 1941683y - 162409$
c_3	$y^{19} - 9y^{18} + \cdots + 1588y - 121$
c_4	$y^{19} - 193y^{18} + \cdots + 27615258537y - 4247259241$
c_6, c_9	$y^{19} - 54y^{18} + \cdots + 33165y - 1156$
c_7	$y^{19} - 55y^{18} + \cdots + 783476y - 177241$
c_8, c_{11}	$y^{19} + 8y^{18} + \cdots + 4023y - 81$
c_{10}	$y^{19} + y^{18} + \cdots + 293694y - 27889$
c_{12}	$y^{19} - 210y^{18} + \cdots + 15988001y - 197233936$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.461221 + 0.540098I$ $a = -0.329642 + 0.316078I$ $b = -0.029910 + 0.572548I$	$-1.03982 + 1.81601I$	$-6.18544 - 3.90826I$
$u = -0.461221 - 0.540098I$ $a = -0.329642 - 0.316078I$ $b = -0.029910 - 0.572548I$	$-1.03982 - 1.81601I$	$-6.18544 + 3.90826I$
$u = -1.088290 + 0.702970I$ $a = -0.517058 - 0.653979I$ $b = -1.259640 - 0.053971I$	$-1.72336 + 1.68833I$	$-7.61757 - 1.84714I$
$u = -1.088290 - 0.702970I$ $a = -0.517058 + 0.653979I$ $b = -1.259640 + 0.053971I$	$-1.72336 - 1.68833I$	$-7.61757 + 1.84714I$
$u = 1.36853 + 0.50280I$ $a = -0.383197 + 0.779759I$ $b = -1.84064 + 0.23118I$	$-8.13748 - 4.76151I$	$-14.1488 + 2.3927I$
$u = 1.36853 - 0.50280I$ $a = -0.383197 - 0.779759I$ $b = -1.84064 - 0.23118I$	$-8.13748 + 4.76151I$	$-14.1488 - 2.3927I$
$u = -0.347878 + 0.247156I$ $a = -2.26272 - 0.83175I$ $b = 0.56233 + 1.35367I$	$-3.68506 + 0.25072I$	$-15.1444 - 0.1476I$
$u = -0.347878 - 0.247156I$ $a = -2.26272 + 0.83175I$ $b = 0.56233 - 1.35367I$	$-3.68506 - 0.25072I$	$-15.1444 + 0.1476I$
$u = 0.310858 + 0.201294I$ $a = 0.06485 + 2.00660I$ $b = -2.14079 + 0.42046I$	$-3.21447 + 6.05819I$	$-7.22138 - 2.86734I$
$u = 0.310858 - 0.201294I$ $a = 0.06485 - 2.00660I$ $b = -2.14079 - 0.42046I$	$-3.21447 - 6.05819I$	$-7.22138 + 2.86734I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.21322 + 1.62429I$ $a = -0.704489 + 0.702997I$ $b = 2.62979 - 2.27449I$	$1.70124 + 2.03414I$	$-9.92889 - 4.28864I$
$u = 0.21322 - 1.62429I$ $a = -0.704489 - 0.702997I$ $b = 2.62979 + 2.27449I$	$1.70124 - 2.03414I$	$-9.92889 + 4.28864I$
$u = -0.230182$ $a = -1.93660$ $b = -0.473485$	-0.715844	-14.1990
$u = 2.32815$ $a = -1.06005$ $b = -3.36761$	-18.6560	-21.4300
$u = -2.39736 + 1.54309I$ $a = -1.141170 - 0.008691I$ $b = -1.78841 + 8.62679I$	$12.7776 + 11.8645I$	$-10.68698 - 4.25583I$
$u = -2.39736 - 1.54309I$ $a = -1.141170 + 0.008691I$ $b = -1.78841 - 8.62679I$	$12.7776 - 11.8645I$	$-10.68698 + 4.25583I$
$u = -2.64357 + 1.95100I$ $a = 1.147970 + 0.222590I$ $b = 3.90696 - 11.33980I$	$13.49670 + 2.32138I$	$-10.59401 + 0.I$
$u = -2.64357 - 1.95100I$ $a = 1.147970 - 0.222590I$ $b = 3.90696 + 11.33980I$	$13.49670 - 2.32138I$	$-10.59401 + 0.I$
$u = 5.99343$ $a = 1.27698$ $b = 43.7617$	17.1155	0

II. $I_2^u =$
$\langle -6u^{11}+17u^{10}+\cdots+3b-13,\ -u^{11}+8u^9+\cdots+3a+12,\ u^{12}-3u^{11}+\cdots+4u-1\rangle$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{3}u^{11} - \frac{8}{3}u^9 + \cdots + \frac{13}{3}u - 4 \\ 2u^{11} - \frac{17}{3}u^{10} + \cdots - 11u + \frac{13}{3} \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} \frac{1}{3}u^{11} - \frac{8}{3}u^9 + \cdots + \frac{13}{3}u - 4 \\ u^{11} - 3u^{10} + \cdots - \frac{22}{3}u + \frac{10}{3} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{3}u^{11} - \frac{7}{3}u^{10} + \cdots - 13u + 7 \\ -\frac{1}{3}u^{11} + \frac{4}{3}u^{10} + \cdots + \frac{22}{3}u - \frac{1}{3} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{2}{3}u^{11} + \frac{1}{3}u^{10} + \cdots - \frac{22}{3}u + 6 \\ \frac{1}{3}u^{11} - \frac{1}{3}u^{10} + \cdots + \frac{13}{3}u - \frac{4}{3} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{3}u^{11} + \frac{10}{3}u^9 + \cdots - 3u + \frac{14}{3} \\ \frac{1}{3}u^{11} - \frac{1}{3}u^{10} + \cdots + \frac{13}{3}u - \frac{4}{3} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{8}{3}u^{11} + \frac{22}{3}u^{10} + \cdots + 15u - \frac{7}{3} \\ -\frac{4}{3}u^{11} + \frac{11}{3}u^{10} + \cdots + \frac{20}{3}u - \frac{10}{3} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{1}{3}u^{11} - \frac{10}{3}u^9 + \cdots + 3u - \frac{14}{3} \\ \frac{4}{3}u^{11} - 3u^{10} + \cdots - \frac{23}{3}u + 2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{2}{3}u^{11} + \frac{1}{3}u^{10} + \cdots - \frac{25}{3}u + 6 \\ \frac{1}{3}u^{10} - u^9 + \cdots + 3u + \frac{1}{3} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$$= -\frac{46}{3}u^{11}+33u^{10}+62u^9-\frac{247}{3}u^8-114u^7-\frac{91}{3}u^6+\frac{388}{3}u^5+\frac{526}{3}u^4-\frac{304}{3}u^3-\frac{176}{3}u^2+\frac{181}{3}u-\frac{107}{3}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} - 10u^{11} + \cdots + 2u + 1$
c_2	$u^{12} + 8u^{11} + \cdots - 4u - 1$
c_3	$u^{12} + 3u^{11} + \cdots - 4u - 1$
c_4	$u^{12} - 3u^{11} + \cdots - 113u + 61$
c_5	$u^{12} - 8u^{11} + \cdots + 4u - 1$
c_6	$u^{12} + 3u^{11} + \cdots - 4u - 1$
c_7	$u^{12} + 3u^{11} + \cdots - 2u - 1$
c_8	$u^{12} + 3u^{11} + \cdots + 6u + 1$
c_9	$u^{12} - 3u^{11} + \cdots + 4u - 1$
c_{10}	$u^{12} + u^{11} + u^{10} - u^9 - 2u^8 - 7u^7 - 3u^6 - 4u^5 + 4u^4 - u^3 + 3u^2 + 1$
c_{11}	$u^{12} - 3u^{11} + \cdots - 6u + 1$
c_{12}	$u^{12} - 7u^{11} + \cdots - 149u + 61$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 70y^{11} + \cdots - 18y + 1$
c_2, c_5	$y^{12} - 10y^{11} + \cdots + 2y + 1$
c_3	$y^{12} - 3y^{11} + \cdots - 6y + 1$
c_4	$y^{12} - 11y^{11} + \cdots + 2725y + 3721$
c_6, c_9	$y^{12} - 13y^{11} + \cdots - 4y + 1$
c_7	$y^{12} - 19y^{11} + \cdots - 16y + 1$
c_8, c_{11}	$y^{12} + 3y^{11} + \cdots - 20y + 1$
c_{10}	$y^{12} + y^{11} + \cdots + 6y + 1$
c_{12}	$y^{12} - 33y^{11} + \cdots - 22201y + 3721$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.059480 + 0.154142I$ $a = \ \ 0.819599 - 0.608253I$ $b = -0.415453 - 0.590193I$	$1.22664 + 3.11362I$	$-7.04939 - 7.05690I$
$u = -1.059480 - 0.154142I$ $a = \ \ 0.819599 + 0.608253I$ $b = -0.415453 + 0.590193I$	$1.22664 - 3.11362I$	$-7.04939 + 7.05690I$
$u = -0.457840 + 1.081060I$ $a = \ \ 0.907598 - 0.603898I$ $b = -3.07960 - 0.50765I$	$2.31672 + 1.60638I$	$-1.16262 - 0.94623I$
$u = -0.457840 - 1.081060I$ $a = \ \ 0.907598 + 0.603898I$ $b = -3.07960 + 0.50765I$	$2.31672 - 1.60638I$	$-1.16262 + 0.94623I$
$u = -1.24242$ $a = -0.422158$ $b = \ \ 0.0575173$	-3.40775	-11.1910
$u = \ \ 0.646031 + 0.179003I$ $a = -0.948613 - 0.380726I$ $b = \ \ 2.25048 + 0.18881I$	$-3.62882 - 6.45766I$	$-17.3073 + 12.6531I$
$u = \ \ 0.646031 - 0.179003I$ $a = -0.948613 + 0.380726I$ $b = \ \ 2.25048 - 0.18881I$	$-3.62882 + 6.45766I$	$-17.3073 - 12.6531I$
$u = \ \ 1.45298 + 0.05285I$ $a = -0.107356 - 0.338014I$ $b = -0.694805 - 0.843286I$	$-7.20322 - 5.60855I$	$-9.98455 + 5.57082I$
$u = \ \ 1.45298 - 0.05285I$ $a = -0.107356 + 0.338014I$ $b = -0.694805 + 0.843286I$	$-7.20322 + 5.60855I$	$-9.98455 - 5.57082I$
$u = \ \ 0.285356 + 0.363826I$ $a = -1.91901 + 3.12576I$ $b = -0.84108 - 1.29227I$	$-8.23832 - 3.21911I$	$-14.7748 - 0.6369I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.285356 - 0.363826I$ $a = -1.91901 - 3.12576I$ $b = -0.84108 + 1.29227I$	$-8.23832 + 3.21911I$	$-14.7748 + 0.6369I$
$u = 2.50831$ $a = -1.08227$ $b = -4.49661$	-18.1761	-4.25130

III. $\boldsymbol{I_3^u = \langle -u^3b + u^3 + b^2 + u^2 - u - 1,\ u^3 + a - u,\ u^4 - u^2 + 1\rangle}$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} -u^3 + u \\ b - u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 + u \\ b \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3 + b + u \\ b \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u^3 - b - u \\ -1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^3 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2 - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^8$
c_3	$y^8 + 2y^6 - 4y^5 - 21y^4 + 20y^3 + 42y^2 - 4y + 1$
c_4	$y^8 + 2y^6 + 4y^5 - 21y^4 - 20y^3 + 42y^2 + 4y + 1$
c_6, c_9	$(y^2 - y + 1)^4$
c_7	$y^8 - 6y^7 + 17y^6 - 34y^5 + 60y^4 - 70y^3 + 57y^2 - 10y + 1$
c_8, c_{11}	$(y+1)^8$
c_{10}	$y^8 + 6y^7 + 17y^6 + 34y^5 + 60y^4 + 70y^3 + 57y^2 + 10y + 1$
c_{12}	$(y^2 + y + 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.866025 + 0.500000I$ $a = 0.866025 - 0.500000I$ $b = 1.200000 - 0.069179I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = 0.866025 + 0.500000I$ $a = 0.866025 - 0.500000I$ $b = -1.20000 + 1.06918I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = 0.866025 - 0.500000I$ $a = 0.866025 + 0.500000I$ $b = 1.200000 + 0.069179I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = 0.866025 - 0.500000I$ $a = 0.866025 + 0.500000I$ $b = -1.20000 - 1.06918I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -0.866025 + 0.500000I$ $a = -0.866025 - 0.500000I$ $b = 0.224207 + 1.316270I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -0.866025 + 0.500000I$ $a = -0.866025 - 0.500000I$ $b = -0.224207 - 0.316268I$	$-3.28987 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -0.866025 - 0.500000I$ $a = -0.866025 + 0.500000I$ $b = 0.224207 - 1.316270I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$
$u = -0.866025 - 0.500000I$ $a = -0.866025 + 0.500000I$ $b = -0.224207 + 0.316268I$	$-3.28987 - 2.02988I$	$-14.0000 + 3.4641I$

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

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u-1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u-1 \\ -u+1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u+1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u-1 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0 \\ u-1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u+1)^2$
c_2, c_5, c_8 c_{11}	$(u-1)^2$
c_3, c_4, c_{10}	u^2+u+1
c_6, c_7, 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_5 c_8, c_{11}	$(y-1)^2$
c_3, c_4, c_6 c_7, c_9, c_{10} c_{12}	$y^2 + y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0.500000 - 0.866025I$	$1.64493 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 0.500000 - 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0.500000 + 0.866025I$	$1.64493 - 2.02988I$	$-6.00000 + 3.46410I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u+1)^2(u^{12}-10u^{11}+\cdots+2u+1)$ $\cdot(u^{19}+97u^{18}+\cdots-1941683u+162409)$
c_2	$((u-1)^{10})(u^{12}+8u^{11}+\cdots-4u-1)(u^{19}+3u^{18}+\cdots-721u-403)$
c_3	$(u^2+u+1)(u^8+4u^7+8u^6+10u^5+9u^4+6u^3-2u+1)$ $\cdot(u^{12}+3u^{11}+\cdots-4u-1)(u^{19}-5u^{18}+\cdots-24u+11)$
c_4	$(u^2+u+1)(u^8+2u^5+u^4+6u^3+4u^2-2u+1)$ $\cdot(u^{12}-3u^{11}+\cdots-113u+61)(u^{19}-5u^{18}+\cdots+270503u+65171)$
c_5	$((u-1)^2)(u+1)^8(u^{12}-8u^{11}+\cdots+4u-1)$ $\cdot(u^{19}+3u^{18}+\cdots-721u-403)$
c_6	$(u^2-u+1)(u^4-u^2+1)^2(u^{12}+3u^{11}+\cdots-4u-1)$ $\cdot(u^{19}+2u^{18}+\cdots+197u+34)$
c_7	$(u^2-u+1)(u^8+2u^7-u^6-4u^5+6u^3+3u^2-4u+1)$ $\cdot(u^{12}+3u^{11}+\cdots-2u-1)(u^{19}-5u^{18}+\cdots+94u-421)$
c_8	$((u-1)^2)(u^2+1)^4(u^{12}+3u^{11}+\cdots+6u+1)$ $\cdot(u^{19}+4u^{18}+\cdots+111u+9)$
c_9	$(u^2-u+1)(u^4-u^2+1)^2(u^{12}-3u^{11}+\cdots+4u-1)$ $\cdot(u^{19}+2u^{18}+\cdots+197u+34)$
c_{10}	$(u^2+u+1)(u^8+3u^6-2u^5+4u^4+7u^2+2u+1)$ $\cdot(u^{12}+u^{11}+u^{10}-u^9-2u^8-7u^7-3u^6-4u^5+4u^4-u^3+3u^2+1)$ $\cdot(u^{19}+u^{18}+\cdots+706u+167)$
c_{11}	$((u-1)^2)(u^2+1)^4(u^{12}-3u^{11}+\cdots-6u+1)$ $\cdot(u^{19}+4u^{18}+\cdots+111u+9)$
c_{12}	$(u^2-u+1)(u^2+u+1)^4(u^{12}-7u^{11}+\cdots-149u+61)$ $\cdot(u^{19}+4u^{18}+\cdots-13967u-14044)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{10})(y^{12}-70y^{11}+\cdots-18y+1)$ $\cdot(y^{19}-3221y^{18}+\cdots+5217004770233y-26376683281)$
c_2, c_5	$((y-1)^{10})(y^{12}-10y^{11}+\cdots+2y+1)$ $\cdot(y^{19}-97y^{18}+\cdots-1941683y-162409)$
c_3	$(y^2+y+1)(y^8+2y^6-4y^5-21y^4+20y^3+42y^2-4y+1)$ $\cdot(y^{12}-3y^{11}+\cdots-6y+1)(y^{19}-9y^{18}+\cdots+1588y-121)$
c_4	$(y^2+y+1)(y^8+2y^6+4y^5-21y^4-20y^3+42y^2+4y+1)$ $\cdot(y^{12}-11y^{11}+\cdots+2725y+3721)$ $\cdot(y^{19}-193y^{18}+\cdots+27615258537y-4247259241)$
c_6, c_9	$((y^2-y+1)^4)(y^2+y+1)(y^{12}-13y^{11}+\cdots-4y+1)$ $\cdot(y^{19}-54y^{18}+\cdots+33165y-1156)$
c_7	$(y^2+y+1)(y^8-6y^7+\cdots-10y+1)$ $\cdot(y^{12}-19y^{11}+\cdots-16y+1)(y^{19}-55y^{18}+\cdots+783476y-177241)$
c_8, c_{11}	$((y-1)^2)(y+1)^8(y^{12}+3y^{11}+\cdots-20y+1)$ $\cdot(y^{19}+8y^{18}+\cdots+4023y-81)$
c_{10}	$(y^2+y+1)(y^8+6y^7+\cdots+10y+1)$ $\cdot(y^{12}+y^{11}+\cdots+6y+1)(y^{19}+y^{18}+\cdots+293694y-27889)$
c_{12}	$((y^2+y+1)^5)(y^{12}-33y^{11}+\cdots-22201y+3721)$ $\cdot(y^{19}-210y^{18}+\cdots+15988001y-197233936)$