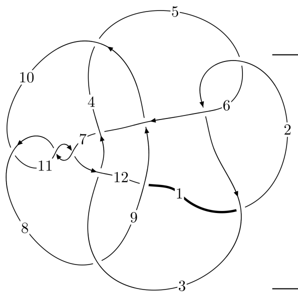
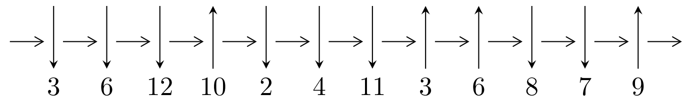
$12n_{0442}$ ($K12n_{0442}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 191026393u^{16} - 1652039068u^{15} + \cdots + 647196689b + 1958494945, \\
& -1223765713u^{16} + 10597268099u^{15} + \cdots + 1553272536a - 9878621497, \\
& u^{17} - 11u^{16} + \cdots + 25u - 24\rangle \\
I_2^u = \langle & -u^9 - 5u^8 - 6u^7 + 8u^6 + 25u^5 + 16u^4 - 11u^3 - 14u^2 + b + u + 7, \\
& -7u^9 - 51u^8 - 149u^7 - 213u^6 - 119u^5 + 61u^4 + 107u^3 + 8u^2 + 5a - 56u - 27, \\
& u^{10} + 8u^9 + 27u^8 + 49u^7 + 47u^6 + 12u^5 - 21u^4 - 19u^3 + 3u^2 + 11u + 5\rangle \\
I_3^u = \langle & -u^8a + 2u^8 + \cdots - a - 4,\ -u^8a - u^8 + \cdots + a^2 + 4,\ u^9 + 4u^8 + u^7 - 9u^6 + 12u^4 + 2u^3 + 4u^2 + 1\rangle \\
I_4^u = \langle & b^4 - 2b^3 + 3b^2 - 2b + 3,\ a + 1,\ u - 1\rangle \\
I_5^u = \langle & b^2 + b + 1,\ a - 1,\ u - 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 51 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.

$\boldsymbol{I_1^u = \langle 1.91 \times 10^8 u^{16} - 1.65 \times 10^9 u^{15} + \cdots + 6.47 \times 10^7 b + 1.96 \times 10^9,\ -1.22 \times 10^9 u^{16} + 1.06 \times 10^{10} u^{15} + \cdots + 1.55 \times 10^9 a - 9.88 \times 10^9,\ u^{17} - 11u^{16} + \cdots + 25u - 24\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.787863u^{16} - 6.82254u^{15} + \cdots - 4.19484u + 6.35988 \\ -2.95160u^{16} + 25.5261u^{15} + \cdots + 20.2471u - 30.2612 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.502780u^{16} + 4.36822u^{15} + \cdots + 2.45724u - 4.87506 \\ 1.68304u^{16} - 14.9279u^{15} + \cdots - 10.7408u + 18.8611 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.787863u^{16} - 6.82254u^{15} + \cdots - 4.19484u + 6.35988 \\ 1.37093u^{16} - 11.8653u^{15} + \cdots - 6.94294u + 13.9936 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.583066u^{16} + 5.04279u^{15} + \cdots + 2.74810u - 7.63370 \\ 1.37093u^{16} - 11.8653u^{15} + \cdots - 6.94294u + 13.9936 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.149136u^{16} + 1.25050u^{15} + \cdots + 3.19107u - 2.49878 \\ -0.717661u^{16} + 6.21375u^{15} + \cdots + 5.68076u - 7.77323 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.785878u^{16} + 6.96162u^{15} + \cdots + 3.90013u - 8.90611 \\ -0.0529908u^{16} + 0.408128u^{15} + \cdots + 0.448137u - 0.173332 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.659584u^{16} - 5.85549u^{15} + \cdots - 6.23720u + 8.19166 \\ 1.16236u^{16} - 10.2237u^{15} + \cdots - 7.69444u + 12.0667 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{258679440}{64719689}u^{16} - \frac{2255352174}{64719689}u^{15} + \cdots - \frac{1298645313}{64719689}u + \frac{2660816310}{64719689}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} + 33u^{16} + \cdots - 5039u + 576$
c_2, c_5	$u^{17} + 11u^{16} + \cdots + 25u + 24$
c_3, c_6	$u^{17} - u^{16} + \cdots + 4u + 1$
c_4, c_8	$u^{17} + 14u^{15} + \cdots - 6u^2 + 1$
c_7, c_{10}, c_{11}	$u^{17} - 6u^{16} + \cdots + 19u - 2$
c_9, c_{12}	$u^{17} + u^{16} + \cdots + 33u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 117y^{16} + \cdots + 20649889y - 331776$
c_2, c_5	$y^{17} - 33y^{16} + \cdots - 5039y - 576$
c_3, c_6	$y^{17} + 13y^{16} + \cdots - 22y - 1$
c_4, c_8	$y^{17} + 28y^{16} + \cdots + 12y - 1$
c_7, c_{10}, c_{11}	$y^{17} + 14y^{16} + \cdots + 93y - 4$
c_9, c_{12}	$y^{17} + 35y^{16} + \cdots + 1875y - 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.942057+0.494267I$ $a=-0.753350-0.421156I$ $b=\ \ 0.435867-0.555452I$	$1.96186+2.24541I$	$1.44074-2.23530I$
$u=-0.942057-0.494267I$ $a=-0.753350+0.421156I$ $b=\ \ 0.435867+0.555452I$	$1.96186-2.24541I$	$1.44074+2.23530I$
$u=\ \ 1.095620+0.300147I$ $a=\ \ 0.131673-0.311290I$ $b=-1.033950-0.750497I$	$2.79366+0.08444I$	$-4.63288+0.68709I$
$u=\ \ 1.095620-0.300147I$ $a=\ \ 0.131673+0.311290I$ $b=-1.033950+0.750497I$	$2.79366-0.08444I$	$-4.63288-0.68709I$
$u=\ \ 0.836685$ $a=-0.0818231$ $b=\ \ 0.476471$	-1.37068	-8.35980
$u=-0.320479+0.572318I$ $a=\ \ 0.08297+1.68332I$ $b=-0.103629+0.996127I$	$7.44498+0.11919I$	$3.63980-1.93920I$
$u=-0.320479-0.572318I$ $a=\ \ 0.08297-1.68332I$ $b=-0.103629-0.996127I$	$7.44498-0.11919I$	$3.63980+1.93920I$
$u=-1.25347+0.91415I$ $a=\ \ 0.916560-0.265291I$ $b=\ \ 0.46012+1.98973I$	$5.01538+5.62718I$	$-1.75252-3.01899I$
$u=-1.25347-0.91415I$ $a=\ \ 0.916560+0.265291I$ $b=\ \ 0.46012-1.98973I$	$5.01538-5.62718I$	$-1.75252+3.01899I$
$u=-0.032060+0.412278I$ $a=-1.57998-0.21566I$ $b=-0.592975+0.413733I$	$0.026615-1.286250I$	$0.68462+4.17584I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.032060 - 0.412278I$ $a = -1.57998 + 0.21566I$ $b = -0.592975 - 0.413733I$	$0.026615 + 1.286250I$	$0.68462 - 4.17584I$
$u = 2.13442 + 0.33433I$ $a = -0.041538 + 1.111040I$ $b = 1.96060 - 2.85602I$	$-10.20570 - 0.23808I$	$-2.00230 - 0.80635I$
$u = 2.13442 - 0.33433I$ $a = -0.041538 - 1.111040I$ $b = 1.96060 + 2.85602I$	$-10.20570 + 0.23808I$	$-2.00230 + 0.80635I$
$u = 2.15252 + 0.26857I$ $a = 0.260975 - 1.202630I$ $b = -2.33574 + 2.94126I$	$-7.3294 - 12.2045I$	$-2.87951 + 5.29191I$
$u = 2.15252 - 0.26857I$ $a = 0.260975 + 1.202630I$ $b = -2.33574 - 2.94126I$	$-7.3294 + 12.2045I$	$-2.87951 - 5.29191I$
$u = 2.24717 + 0.01207I$ $a = -0.122236 + 1.201380I$ $b = 0.47148 - 3.89441I$	$-13.0039 - 6.5145I$	$-5.31806 + 4.17343I$
$u = 2.24717 - 0.01207I$ $a = -0.122236 - 1.201380I$ $b = 0.47148 + 3.89441I$	$-13.0039 + 6.5145I$	$-5.31806 - 4.17343I$

II.

$$I_2^u = \langle -u^9-5u^8+\cdots+b+7,\ -7u^9-51u^8+\cdots+5a-27,\ u^{10}+8u^9+\cdots+11u+5\rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\-u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}\frac{7}{5}u^9+\frac{51}{5}u^8+\cdots+\frac{56}{5}u+\frac{27}{5}\\u^9+5u^8+6u^7-8u^6-25u^5-16u^4+11u^3+14u^2-u-7\end{pmatrix}$$
$$a_4 = \begin{pmatrix}\frac{4}{5}u^9+\frac{27}{5}u^8+\cdots+\frac{32}{5}u+\frac{9}{5}\\-u^9-8u^8-26u^7-43u^6-33u^5+3u^4+24u^3+10u^2-9u-9\end{pmatrix}$$
$$a_9 = \begin{pmatrix}\frac{7}{5}u^9+\frac{51}{5}u^8+\cdots+\frac{56}{5}u+\frac{27}{5}\\u^9+6u^8+13u^7+10u^6-5u^5-12u^4-u^3+7u^2+3u-2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}\frac{2}{5}u^9+\frac{21}{5}u^8+\cdots+\frac{41}{5}u+\frac{37}{5}\\u^9+6u^8+13u^7+10u^6-5u^5-12u^4-u^3+7u^2+3u-2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{13}{5}u^9+\frac{89}{5}u^8+\cdots+\frac{84}{5}u+\frac{23}{5}\\-u^9-9u^8-33u^7-61u^6-52u^5+2u^4+38u^3+16u^2-15u-13\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-\frac{9}{5}u^9-\frac{67}{5}u^8+\cdots-\frac{77}{5}u-\frac{54}{5}\\-2u^9-13u^8-33u^7-39u^6-12u^5+21u^4+18u^3-4u^2-11u-1\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{1}{5}u^9+\frac{8}{5}u^8+\cdots+\frac{8}{5}u+\frac{16}{5}\\u^9+7u^8+20u^7+29u^6+18u^5-6u^4-15u^3-4u^2+7u+4\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -8u^9-57u^8-163u^7-230u^6-130u^5+61u^4+115u^3+15u^2-61u-34$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10} - 10u^9 + \cdots - 91u + 25$
c_2	$u^{10} + 8u^9 + \cdots + 11u + 5$
c_3, c_6	$u^{10} + u^9 + 3u^8 + u^6 - 3u^5 - 2u^4 - u^3 + 2u + 1$
c_4, c_8	$u^{10} + 6u^8 + 7u^6 - 2u^5 + 5u^4 + 2u^3 + 5u^2 + 2u + 1$
c_5	$u^{10} - 8u^9 + \cdots - 11u + 5$
c_7	$u^{10} - 3u^9 + \cdots - 10u + 3$
c_9, c_{12}	$u^{10} - u^9 + 6u^8 - 10u^7 + 10u^6 - 6u^5 + 2u^4 - u^3 + 2u^2 - u + 1$
c_{10}, c_{11}	$u^{10} + 3u^9 + \cdots + 10u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{10} - 22y^9 + \cdots + 2569y + 625$
c_2, c_5	$y^{10} - 10y^9 + \cdots - 91y + 25$
c_3, c_6	$y^{10} + 5y^9 + 11y^8 + 8y^7 - 9y^6 - 15y^5 + 4y^4 + 13y^3 - 4y + 1$
c_4, c_8	$y^{10} + 12y^9 + \cdots + 6y + 1$
c_7, c_{10}, c_{11}	$y^{10} + 9y^9 + \cdots + 20y + 9$
c_9, c_{12}	$y^{10} + 11y^9 + 36y^8 + 12y^7 + 6y^6 + 8y^5 + 24y^4 + 15y^3 + 6y^2 + 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.698244+0.611679I$ $a=-0.594983+0.452728I$ $b=-1.12357-1.18282I$	$6.61177+7.24611I$	$1.48024-6.55546I$
$u=-0.698244-0.611679I$ $a=-0.594983-0.452728I$ $b=-1.12357+1.18282I$	$6.61177-7.24611I$	$1.48024+6.55546I$
$u=-0.765895+0.862612I$ $a=0.577252+0.100829I$ $b=0.25692+1.47319I$	$1.12408+3.31101I$	$-1.94210-5.90631I$
$u=-0.765895-0.862612I$ $a=0.577252-0.100829I$ $b=0.25692-1.47319I$	$1.12408-3.31101I$	$-1.94210+5.90631I$
$u=0.649524+0.270637I$ $a=0.986717+0.863844I$ $b=0.280240-0.198619I$	$-0.88058+1.43796I$	$-7.95798-4.23415I$
$u=0.649524-0.270637I$ $a=0.986717-0.863844I$ $b=0.280240+0.198619I$	$-0.88058-1.43796I$	$-7.95798+4.23415I$
$u=-1.11228+0.88745I$ $a=-0.346880-0.585052I$ $b=1.56427-1.47362I$	$5.04002-1.56785I$	$-0.680979+1.239329I$
$u=-1.11228-0.88745I$ $a=-0.346880+0.585052I$ $b=1.56427+1.47362I$	$5.04002+1.56785I$	$-0.680979-1.239329I$
$u=-2.07310+0.22780I$ $a=0.077895+1.141750I$ $b=-1.47786-2.59954I$	$-11.89530+1.62532I$	$-4.89918-0.65986I$
$u=-2.07310-0.22780I$ $a=0.077895-1.141750I$ $b=-1.47786+2.59954I$	$-11.89530-1.62532I$	$-4.89918+0.65986I$

III. $\boldsymbol{I_3^u = \langle -u^8a + 2u^8 + \cdots - a - 4,\ -u^8a - u^8 + \cdots + a^2 + 4,\ u^9 + 4u^8 + u^7 - 9u^6 + 12u^4 + 2u^3 + 4u^2 + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ \frac{1}{8}u^8a - \frac{1}{4}u^8 + \cdots + \frac{1}{8}a + \frac{1}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{1}{4}u^8a + \frac{7}{8}u^8 + \cdots + \frac{1}{2}a + \frac{15}{8} \\ \frac{1}{4}u^8a + \frac{3}{8}u^8 + \cdots + \frac{1}{2}a - \frac{5}{8} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ \frac{1}{8}u^8a - \frac{1}{4}u^8 + \cdots + \frac{1}{8}a + \frac{1}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{8}u^8a + \frac{1}{4}u^8 + \cdots + \frac{7}{8}a - \frac{1}{2} \\ \frac{1}{8}u^8a - \frac{1}{4}u^8 + \cdots + \frac{1}{8}a + \frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{4}u^8a + \frac{1}{2}u^8 + \cdots + \frac{1}{2}a + \frac{5}{4} \\ \frac{1}{8}u^8a - \frac{3}{4}u^8 + \cdots + \frac{3}{8}a - \frac{3}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{2}u^8a - \frac{7}{8}u^8 + \cdots - \frac{1}{4}a - \frac{7}{8} \\ \frac{1}{4}u^8a + \frac{3}{8}u^8 + \cdots + \frac{3}{4}a - \frac{3}{8} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^8 - 4u^7 - u^6 + 9u^5 - 12u^3 - 2u^2 - 4u \\ \frac{1}{2}u^8a + \frac{1}{8}u^8 + \cdots + \frac{1}{4}a - \frac{7}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{5}{4}u^8 + \frac{25}{4}u^7 + \frac{7}{2}u^6 - \frac{63}{4}u^5 - \frac{15}{4}u^4 + \frac{93}{4}u^3 + \frac{7}{4}u^2 + \frac{27}{4}u - \frac{13}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9+14u^8+73u^7+173u^6+188u^5+80u^4-74u^3+40u^2-8u+1)^2$
c_2, c_5	$(u^9-4u^8+u^7+9u^6-12u^4+2u^3-4u^2-1)^2$
c_3, c_6	$u^{18}-4u^{17}+\cdots-19u+7$
c_4, c_8	$u^{18}+17u^{16}+\cdots-33u+61$
c_7, c_{10}, c_{11}	$(u^9+u^8+5u^7+4u^6+8u^5+5u^4+3u^3-2u-2)^2$
c_9, c_{12}	$u^{18}-3u^{17}+\cdots-38u+787$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9 - 50y^8 + \cdots - 16y - 1)^2$
c_2, c_5	$(y^9 - 14y^8 + 73y^7 - 173y^6 + 188y^5 - 80y^4 - 74y^3 - 40y^2 - 8y - 1)^2$
c_3, c_6	$y^{18} + 2y^{17} + \cdots + 451y + 49$
c_4, c_8	$y^{18} + 34y^{17} + \cdots + 4279y + 3721$
c_7, c_{10}, c_{11}	$(y^9 + 9y^8 + 33y^7 + 60y^6 + 50y^5 + 7y^4 - 7y^3 + 8y^2 + 4y - 4)^2$
c_9, c_{12}	$y^{18} + 29y^{17} + \cdots + 1731530y + 619369$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.149930 + 0.591217I$ $a = -0.601255 - 0.402054I$ $b = -0.395481 + 0.118419I$	$1.86176 + 1.02570I$	$-2.63382 - 1.45009I$
$u = 1.149930 + 0.591217I$ $a = 1.283380 - 0.095795I$ $b = -0.77918 - 2.34414I$	$1.86176 + 1.02570I$	$-2.63382 - 1.45009I$
$u = 1.149930 - 0.591217I$ $a = -0.601255 + 0.402054I$ $b = -0.395481 - 0.118419I$	$1.86176 - 1.02570I$	$-2.63382 + 1.45009I$
$u = 1.149930 - 0.591217I$ $a = 1.283380 + 0.095795I$ $b = -0.77918 + 2.34414I$	$1.86176 - 1.02570I$	$-2.63382 + 1.45009I$
$u = -0.256958 + 0.481474I$ $a = 2.09172 + 0.18082I$ $b = -0.347105 + 0.467672I$	$5.86635 - 5.34937I$	$-0.84423 + 2.78056I$
$u = -0.256958 + 0.481474I$ $a = 0.39890 - 2.37095I$ $b = 1.48260 - 1.54705I$	$5.86635 - 5.34937I$	$-0.84423 + 2.78056I$
$u = -0.256958 - 0.481474I$ $a = 2.09172 - 0.18082I$ $b = -0.347105 - 0.467672I$	$5.86635 + 5.34937I$	$-0.84423 - 2.78056I$
$u = -0.256958 - 0.481474I$ $a = 0.39890 + 2.37095I$ $b = 1.48260 + 1.54705I$	$5.86635 + 5.34937I$	$-0.84423 - 2.78056I$
$u = 0.202323 + 0.429977I$ $a = -1.06958 - 1.32915I$ $b = -0.028684 + 0.501202I$	$-0.08117 - 1.83340I$	$-4.79553 + 3.05314I$
$u = 0.202323 + 0.429977I$ $a = -1.78447 + 1.20971I$ $b = -0.54712 + 1.46919I$	$-0.08117 - 1.83340I$	$-4.79553 + 3.05314I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.202323 - 0.429977I$ $a = -1.06958 + 1.32915I$ $b = -0.028684 - 0.501202I$	$-0.08117 + 1.83340I$	$-4.79553 - 3.05314I$
$u = 0.202323 - 0.429977I$ $a = -1.78447 - 1.20971I$ $b = -0.54712 - 1.46919I$	$-0.08117 + 1.83340I$	$-4.79553 - 3.05314I$
$u = -2.04009 + 0.22792I$ $a = -0.374086 - 0.921422I$ $b = 2.26253 + 1.38756I$	$-10.25890 + 3.35426I$	$-1.96692 - 2.76177I$
$u = -2.04009 + 0.22792I$ $a = -0.189467 + 1.360530I$ $b = -0.72311 - 3.40708I$	$-10.25890 + 3.35426I$	$-1.96692 - 2.76177I$
$u = -2.04009 - 0.22792I$ $a = -0.374086 + 0.921422I$ $b = 2.26253 - 1.38756I$	$-10.25890 - 3.35426I$	$-1.96692 + 2.76177I$
$u = -2.04009 - 0.22792I$ $a = -0.189467 - 1.360530I$ $b = -0.72311 + 3.40708I$	$-10.25890 - 3.35426I$	$-1.96692 + 2.76177I$
$u = -2.11041$ $a = 0.244866 + 1.162790I$ $b = -0.92445 - 2.96892I$	-14.5153	-7.51900
$u = -2.11041$ $a = 0.244866 - 1.162790I$ $b = -0.92445 + 2.96892I$	-14.5153	-7.51900

IV. $I_4^u = \langle b^4 - 2b^3 + 3b^2 - 2b + 3,\ a + 1,\ u - 1 \rangle$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -b + 1 \\ b^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ b - 1 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} -b^2 + 2b - 1 \\ b^3 - b^2 + 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_9, c_{12}	$(y-1)^4$
c_3, c_4, c_6 c_8	$y^4 + 2y^3 + 7y^2 + 14y + 9$
c_7, c_{10}, c_{11}	$(y+2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = -0.152220 + 1.084150I$	4.93480	0
$u = 1.00000$ $a = -1.00000$ $b = -0.152220 - 1.084150I$	4.93480	0
$u = 1.00000$ $a = -1.00000$ $b = 1.15222 + 1.08415I$	4.93480	0
$u = 1.00000$ $a = -1.00000$ $b = 1.15222 - 1.08415I$	4.93480	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_9 c_{12}	$(u-1)^2$
c_3, c_4, c_6 c_8	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_9, c_{12}	$(y-1)^2$
c_3, c_4, c_6 c_8	y^2+y+1
c_7, c_{10}, c_{11}	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.00000$ $b = -0.500000 + 0.866025I$	0	-6.00000
$u = 1.00000$ $a = 1.00000$ $b = -0.500000 - 0.866025I$	0	-6.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^6$ $\cdot(u^9+14u^8+73u^7+173u^6+188u^5+80u^4-74u^3+40u^2-8u+1)^2$ $\cdot(u^{10}-10u^9+\cdots-91u+25)(u^{17}+33u^{16}+\cdots-5039u+576)$
c_2	$(u-1)^6(u^9-4u^8+u^7+9u^6-12u^4+2u^3-4u^2-1)^2$ $\cdot(u^{10}+8u^9+\cdots+11u+5)(u^{17}+11u^{16}+\cdots+25u+24)$
c_3, c_6	$(u^2+u+1)(u^4+2u^3+3u^2+2u+3)$ $\cdot(u^{10}+u^9+\cdots+2u+1)(u^{17}-u^{16}+\cdots+4u+1)$ $\cdot(u^{18}-4u^{17}+\cdots-19u+7)$
c_4, c_8	$(u^2+u+1)(u^4-2u^3+3u^2-2u+3)$ $\cdot(u^{10}+6u^8+7u^6-2u^5+5u^4+2u^3+5u^2+2u+1)$ $\cdot(u^{17}+14u^{15}+\cdots-6u^2+1)(u^{18}+17u^{16}+\cdots-33u+61)$
c_5	$(u+1)^6(u^9-4u^8+u^7+9u^6-12u^4+2u^3-4u^2-1)^2$ $\cdot(u^{10}-8u^9+\cdots-11u+5)(u^{17}+11u^{16}+\cdots+25u+24)$
c_7	$u^2(u^2+2)^2(u^9+u^8+5u^7+4u^6+8u^5+5u^4+3u^3-2u-2)^2$ $\cdot(u^{10}-3u^9+\cdots-10u+3)(u^{17}-6u^{16}+\cdots+19u-2)$
c_9, c_{12}	$(u-1)^2(u+1)^4$ $\cdot(u^{10}-u^9+6u^8-10u^7+10u^6-6u^5+2u^4-u^3+2u^2-u+1)$ $\cdot(u^{17}+u^{16}+\cdots+33u+3)(u^{18}-3u^{17}+\cdots-38u+787)$
c_{10}, c_{11}	$u^2(u^2+2)^2(u^9+u^8+5u^7+4u^6+8u^5+5u^4+3u^3-2u-2)^2$ $\cdot(u^{10}+3u^9+\cdots+10u+3)(u^{17}-6u^{16}+\cdots+19u-2)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^9 - 50y^8 + \cdots - 16y - 1)^2$ $\cdot (y^{10} - 22y^9 + \cdots + 2569y + 625)$ $\cdot (y^{17} - 117y^{16} + \cdots + 20649889y - 331776)$
c_2, c_5	$(y-1)^6$ $\cdot (y^9 - 14y^8 + 73y^7 - 173y^6 + 188y^5 - 80y^4 - 74y^3 - 40y^2 - 8y - 1)^2$ $\cdot (y^{10} - 10y^9 + \cdots - 91y + 25)(y^{17} - 33y^{16} + \cdots - 5039y - 576)$
c_3, c_6	$(y^2 + y + 1)(y^4 + 2y^3 + 7y^2 + 14y + 9)$ $\cdot (y^{10} + 5y^9 + 11y^8 + 8y^7 - 9y^6 - 15y^5 + 4y^4 + 13y^3 - 4y + 1)$ $\cdot (y^{17} + 13y^{16} + \cdots - 22y - 1)(y^{18} + 2y^{17} + \cdots + 451y + 49)$
c_4, c_8	$(y^2 + y + 1)(y^4 + 2y^3 + \cdots + 14y + 9)(y^{10} + 12y^9 + \cdots + 6y + 1)$ $\cdot (y^{17} + 28y^{16} + \cdots + 12y - 1)(y^{18} + 34y^{17} + \cdots + 4279y + 3721)$
c_7, c_{10}, c_{11}	$y^2(y+2)^4$ $\cdot (y^9 + 9y^8 + 33y^7 + 60y^6 + 50y^5 + 7y^4 - 7y^3 + 8y^2 + 4y - 4)^2$ $\cdot (y^{10} + 9y^9 + \cdots + 20y + 9)(y^{17} + 14y^{16} + \cdots + 93y - 4)$
c_9, c_{12}	$(y-1)^6$ $\cdot (y^{10} + 11y^9 + 36y^8 + 12y^7 + 6y^6 + 8y^5 + 24y^4 + 15y^3 + 6y^2 + 3y + 1)$ $\cdot (y^{17} + 35y^{16} + \cdots + 1875y - 9)$ $\cdot (y^{18} + 29y^{17} + \cdots + 1731530y + 619369)$