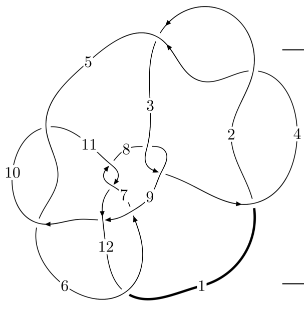
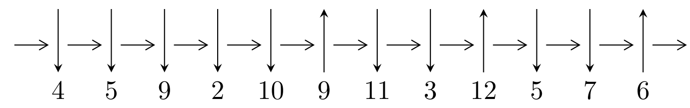
$12n_{0697}$ $(K12n_{0697})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -3.62104\times 10^{19}u^{20} + 1.26138\times 10^{19}u^{19} + \cdots + 4.08630\times 10^{20}b + 4.01944\times 10^{20},\\
&\quad -1.37856\times 10^{21}u^{20} - 8.38333\times 10^{20}u^{19} + \cdots + 5.72082\times 10^{21}a - 9.06403\times 10^{21},\ u^{21} - 3u^{19} + \cdots - u +\\
I_2^u &= \langle b+1,\ -u^3 - u^2 + 2a - u + 1,\ u^4 + u^2 - u + 1\rangle\\
I_3^u &= \langle -2u^{11} + u^{10} - 5u^9 + 10u^8 + 5u^7 + 22u^6 + 17u^5 + 16u^4 + 13u^3 + 9u^2 + b + 6u + 2,\\
&\quad -4u^{12} + 5u^{11} - 12u^{10} + 28u^9 - 6u^8 + 41u^7 + 12u^5 - 5u^4 - 5u^3 - 9u^2 + a - 6u - 5,\\
&\quad u^{13} + 3u^{11} - 4u^{10} - 3u^9 - 16u^8 - 16u^7 - 22u^6 - 18u^5 - 16u^4 - 11u^3 - 7u^2 - 3u - 1\rangle\\
I_4^u &= \langle b+1,\ u^5 + 2u^3 + a + u + 1,\ u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1\rangle\\
I_5^u &= \langle -31240024u^{11} - 108045960u^{10} + \cdots + 160351243397b + 4787221942,\\
&\quad -2479067476388u^{11} - 7672762434312u^{10} + \cdots + 189470000096321a - 300611169358247,\\
&\quad u^{12} + 2u^{11} - u^{10} + 24u^8 + 24u^7 - 42u^6 + 142u^5 - 296u^4 + 168u^3 - 248u^2 + 192u - 79\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 56 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.

$\boldsymbol{I_1^u = \langle -3.62\times 10^{19}u^{20}+1.26\times 10^{19}u^{19}+\cdots+4.09\times 10^{20}b+4.02\times 10^{20},\ -1.38\times 10^{21}u^{20}-8.38\times 10^{20}u^{19}+\cdots+5.72\times 10^{21}a-9.06\times 10^{21},\ u^{21}-3u^{19}+\cdots-u+1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.240973u^{20} + 0.146541u^{19} + \cdots + 0.630949u + 1.58439 \\ 0.0886140u^{20} - 0.0308685u^{19} + \cdots + 0.687354u - 0.983638 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.569574u^{20} + 0.221291u^{19} + \cdots - 0.866797u + 0.435171 \\ -0.376569u^{20} - 0.348821u^{19} + \cdots + 2.18805u + 0.671636 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0422288u^{20} - 0.00485208u^{19} + \cdots - 0.760876u + 0.127899 \\ -0.411664u^{20} - 0.138444u^{19} + \cdots + 3.07667u + 1.14698 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.367023u^{20} + 0.127899u^{19} + \cdots - 3.80016u - 1.01423 \\ -0.367023u^{20} - 0.127899u^{19} + \cdots + 2.80016u + 1.01423 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.410427u^{20} + 0.0856689u^{19} + \cdots - 1.95365u - 1.18436 \\ -0.368198u^{20} - 0.0808168u^{19} + \cdots + 2.71453u + 1.05646 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.01423u^{20} - 0.367023u^{19} + \cdots + 4.62375u + 3.81439 \\ 1.01423u^{20} + 0.367023u^{19} + \cdots - 4.62375u - 2.81439 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.152359u^{20} + 0.177409u^{19} + \cdots - 0.0564046u + 2.56803 \\ 0.0886140u^{20} - 0.0308685u^{19} + \cdots + 0.687354u - 0.983638 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1.01423u^{20} + 0.367023u^{19} + \cdots - 4.62375u - 3.81439 \\ -1.01423u^{20} - 0.367023u^{19} + \cdots + 4.62375u + 2.81439 \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{41331710946122587570789}{11441642780167527166456}u^{20} - \frac{13713223367732965094891}{11441642780167527166456}u^{19} + \cdots + \frac{62252584059208509594863}{2860410695041881791614}u + \frac{24448772877532289945923}{5720821390083763583228}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{21} - 5u^{20} + \cdots - 176u + 64$
c_3, c_8	$u^{21} + u^{20} + \cdots + 3328u + 1024$
c_5, c_7, c_{10} c_{11}	$u^{21} - 3u^{19} + \cdots - u + 1$
c_6, c_{12}	$u^{21} + u^{20} + \cdots + 26u^2 + 1$
c_9	$u^{21} + 7u^{20} + \cdots + 32u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{21} - 25y^{20} + \cdots + 9472y - 4096$
c_3, c_8	$y^{21} - 27y^{20} + \cdots - 1769472y - 1048576$
c_5, c_7, c_{10} c_{11}	$y^{21} - 6y^{20} + \cdots + 9y - 1$
c_6, c_{12}	$y^{21} + 13y^{20} + \cdots - 52y - 1$
c_9	$y^{21} - 5y^{20} + \cdots + 440y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.749636+0.488902I$ $a=0.469897+0.044424I$ $b=0.341636+0.425477I$	$-1.45186+0.85737I$	$-6.38463-1.62097I$
$u=-0.749636-0.488902I$ $a=0.469897-0.044424I$ $b=0.341636-0.425477I$	$-1.45186-0.85737I$	$-6.38463+1.62097I$
$u=-0.139166+0.781262I$ $a=-0.73889+1.22004I$ $b=1.375930-0.218020I$	$-3.48621+5.01960I$	$-12.50321+2.57874I$
$u=-0.139166-0.781262I$ $a=-0.73889-1.22004I$ $b=1.375930+0.218020I$	$-3.48621-5.01960I$	$-12.50321-2.57874I$
$u=-0.099594+0.653522I$ $a=0.28465-1.42599I$ $b=-0.166654+0.606297I$	$1.43705+2.05574I$	$-1.84211-3.02644I$
$u=-0.099594-0.653522I$ $a=0.28465+1.42599I$ $b=-0.166654-0.606297I$	$1.43705-2.05574I$	$-1.84211+3.02644I$
$u=0.713665+1.142840I$ $a=0.257213-0.050637I$ $b=0.917606-0.416133I$	$1.15190-6.95574I$	$-3.07603+1.63596I$
$u=0.713665-1.142840I$ $a=0.257213+0.050637I$ $b=0.917606+0.416133I$	$1.15190+6.95574I$	$-3.07603-1.63596I$
$u=0.118860+0.511212I$ $a=0.21443+2.11251I$ $b=-1.120560-0.176119I$	$-1.29818-0.86925I$	$-5.22327-0.45664I$
$u=0.118860-0.511212I$ $a=0.21443-2.11251I$ $b=-1.120560+0.176119I$	$-1.29818+0.86925I$	$-5.22327+0.45664I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.396570 + 0.053595I$ $a = 0.127913 - 0.750550I$ $b = 0.872784 + 0.806219I$	$4.27603 - 3.00281I$	$-0.00709 - 9.01951I$
$u = 0.396570 - 0.053595I$ $a = 0.127913 + 0.750550I$ $b = 0.872784 - 0.806219I$	$4.27603 + 3.00281I$	$-0.00709 + 9.01951I$
$u = -0.322867$ $a = 1.20351$ $b = -0.565313$	-0.896054	-11.8310
$u = 1.14110 + 1.36056I$ $a = 0.796386 - 0.921717I$ $b = 1.89575 + 0.52604I$	$-18.0940 - 7.3272I$	$-7.63094 + 2.78873I$
$u = 1.14110 - 1.36056I$ $a = 0.796386 + 0.921717I$ $b = 1.89575 - 0.52604I$	$-18.0940 + 7.3272I$	$-7.63094 - 2.78873I$
$u = 1.83772 + 0.22825I$ $a = -0.768356 + 0.189539I$ $b = -1.69775 - 1.08714I$	$-7.41133 + 0.52434I$	$-8.70349 - 1.08333I$
$u = 1.83772 - 0.22825I$ $a = -0.768356 - 0.189539I$ $b = -1.69775 + 1.08714I$	$-7.41133 - 0.52434I$	$-8.70349 + 1.08333I$
$u = -1.86654 + 0.63952I$ $a = -0.678604 - 0.317967I$ $b = -1.55087 + 1.33931I$	$-7.05646 + 5.93668I$	$-8.04055 - 3.74874I$
$u = -1.86654 - 0.63952I$ $a = -0.678604 + 0.317967I$ $b = -1.55087 - 1.33931I$	$-7.05646 - 5.93668I$	$-8.04055 + 3.74874I$
$u = -1.19154 + 1.65776I$ $a = 0.683607 + 0.829952I$ $b = 1.91479 - 0.63403I$	$-16.9669 + 14.7114I$	$-6.79810 - 5.93574I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.19154 - 1.65776I$ $a = 0.683607 - 0.829952I$ $b = 1.91479 + 0.63403I$	$-16.9669 - 14.7114I$	$-6.79810 + 5.93574I$

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

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

$$a_9 = \begin{pmatrix} -u^3 - u^2 \\ u^3 + u^2 + 1 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -u^3 - u^2 \\ u^3 + u^2 + 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{19}{4}u^3 + \frac{13}{2}u^2 - \frac{5}{2}u - \frac{37}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.547424 + 0.585652I$ $a = -0.447562 + 0.776246I$ $b = -1.00000$	$-2.62503 - 1.39709I$	$-12.79646 + 4.25046I$
$u = \quad 0.547424 - 0.585652I$ $a = -0.447562 - 0.776246I$ $b = -1.00000$	$-2.62503 + 1.39709I$	$-12.79646 - 4.25046I$
$u = -0.547424 + 1.120870I$ $a = -0.302438 - 0.253422I$ $b = -1.00000$	$0.98010 + 7.64338I$	$-5.07854 - 12.68142I$
$u = -0.547424 - 1.120870I$ $a = -0.302438 + 0.253422I$ $b = -1.00000$	$0.98010 - 7.64338I$	$-5.07854 + 12.68142I$

III.

$\boldsymbol{I_3^u = \langle -2u^{11}+u^{10}+\cdots+b+2,\ -4u^{12}+5u^{11}+\cdots+a-5,\ u^{13}+3u^{11}+\cdots-3u-1 \rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 4u^{12} - 5u^{11} + \cdots + 6u + 5 \\ 2u^{11} - u^{10} + \cdots - 6u - 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 3u^{11} - u^{10} + \cdots - 8u - 3 \\ -u^{12} - 2u^{11} + \cdots + 12u + 4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{11} + 2u^9 - 4u^8 - 5u^7 - 12u^6 - 11u^5 - 10u^4 - 7u^3 - 6u^2 - 5u - 1 \\ -u^{12} - u^{11} + \cdots + 9u + 4 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -4u^{12} - 3u^{11} + \cdots + 24u + 7 \\ 4u^{12} + 2u^{11} + \cdots - 19u - 6 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -4u^{12} + u^{11} + \cdots + 11u + 2 \\ 4u^{12} - u^{11} + \cdots - 11u - 3 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 4u^{12} - 7u^{11} + \cdots + 12u + 7 \\ 2u^{11} - u^{10} + \cdots - 6u - 2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -4u^{12} + u^{11} + \cdots + 11u + 2 \\ 4u^{12} - u^{11} + \cdots - 11u - 3 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -u^{11} + 12u^{10} - 13u^9 + 34u^8 - 65u^7 + 2u^6 - 99u^5 - 27u^4 - 41u^3 - 6u^2 - 17u - 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$u^{13} + 6u^{12} + \cdots - 3u + 1$
c_3	$u^{13} + 3u^{12} + \cdots - 3u + 1$
c_4	$u^{13} - 6u^{12} + \cdots - 3u - 1$
c_5, c_{11}	$u^{13} + 3u^{11} + \cdots - 3u - 1$
c_6, c_{12}	$u^{13} + 3u^{12} + \cdots - 6u - 1$
c_7, c_{10}	$u^{13} + 3u^{11} + \cdots - 3u + 1$
c_8	$u^{13} - 3u^{12} + \cdots - 3u - 1$
c_9	$u^{13} + 5u^{12} + \cdots + 7u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{13} - 16y^{12} + \cdots - y - 1$
c_3, c_8	$y^{13} - 15y^{12} + \cdots + 7y - 1$
c_5, c_7, c_{10} c_{11}	$y^{13} + 6y^{12} + \cdots - 5y - 1$
c_6, c_{12}	$y^{13} - 15y^{12} + \cdots + 2y - 1$
c_9	$y^{13} - 3y^{12} + \cdots + 31y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.210034 + 0.823435I$ $a = -0.96478 + 1.20909I$ $b = 1.383880 - 0.179213I$	$-3.30762 + 5.36054I$	$-2.9630 - 14.9223I$
$u = -0.210034 - 0.823435I$ $a = -0.96478 - 1.20909I$ $b = 1.383880 + 0.179213I$	$-3.30762 - 5.36054I$	$-2.9630 + 14.9223I$
$u = 0.433075 + 0.722389I$ $a = -5.11247 + 2.19335I$ $b = -1.017580 + 0.097497I$	$0.24289 - 2.63834I$	$-11.1688 + 22.2580I$
$u = 0.433075 - 0.722389I$ $a = -5.11247 - 2.19335I$ $b = -1.017580 - 0.097497I$	$0.24289 + 2.63834I$	$-11.1688 - 22.2580I$
$u = -0.332363 + 0.723799I$ $a = 1.22666 - 1.54731I$ $b = -0.195461 + 0.299951I$	$1.73250 + 3.31191I$	$2.30285 - 9.65242I$
$u = -0.332363 - 0.723799I$ $a = 1.22666 + 1.54731I$ $b = -0.195461 - 0.299951I$	$1.73250 - 3.31191I$	$2.30285 + 9.65242I$
$u = -0.221139 + 1.245340I$ $a = 0.195961 + 0.001466I$ $b = 1.47371 + 0.23975I$	$-1.70123 - 3.58519I$	$-8.08868 + 2.57007I$
$u = -0.221139 - 1.245340I$ $a = 0.195961 - 0.001466I$ $b = 1.47371 - 0.23975I$	$-1.70123 + 3.58519I$	$-8.08868 - 2.57007I$
$u = -0.561559 + 0.310550I$ $a = 0.299162 + 0.039936I$ $b = 0.757557 - 0.861161I$	$4.16689 + 3.30359I$	$-8.3931 - 13.8587I$
$u = -0.561559 - 0.310550I$ $a = 0.299162 - 0.039936I$ $b = 0.757557 + 0.861161I$	$4.16689 - 3.30359I$	$-8.3931 + 13.8587I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.10456 + 1.52728I$ $a = 0.865689 + 0.511270I$ $b = -0.619685 - 0.390992I$	$5.01404 - 0.65957I$	$-7.51619 + 8.70514I$
$u = -0.10456 - 1.52728I$ $a = 0.865689 - 0.511270I$ $b = -0.619685 + 0.390992I$	$5.01404 + 0.65957I$	$-7.51619 - 8.70514I$
$u = 1.99317$ $a = 0.979535$ $b = 2.43517$	-15.5848	-10.3460

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^3+4u-4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.498832 + 1.001300I$ $a = -0.039862 + 0.693124I$ $b = -1.00000$	$-1.37919 - 2.82812I$	$-7.50976 + 2.97945I$
$u = \quad 0.498832 - 1.001300I$ $a = -0.039862 - 0.693124I$ $b = -1.00000$	$-1.37919 + 2.82812I$	$-7.50976 - 2.97945I$
$u = -0.284920 + 1.115140I$ $a = -0.877439 + 0.479689I$ $b = -1.00000$	2.75839	$-6 - 0.980489 + 0.10I$
$u = -0.284920 - 1.115140I$ $a = -0.877439 - 0.479689I$ $b = -1.00000$	2.75839	$-6 - 0.980489 + 0.10I$
$u = -0.713912 + 0.305839I$ $a = -0.08270 - 1.43799I$ $b = -1.00000$	$-1.37919 - 2.82812I$	$-7.50976 + 2.97945I$
$u = -0.713912 - 0.305839I$ $a = -0.08270 + 1.43799I$ $b = -1.00000$	$-1.37919 + 2.82812I$	$-7.50976 - 2.97945I$

V. $\boldsymbol{I_5^u =}$
$\boldsymbol{\langle -3.12\times10^7u^{11}-1.08\times10^8u^{10}+\cdots+1.60\times10^{10}b+4.79\times10^9,\ -2.48\times10^{12}u^{11}-7.67\times10^{12}u^{10}+\cdots+1.89\times10^{14}a-3.01\times10^{14},\ u^{12}+2u^{11}+\cdots+192u-79\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.0130842u^{11}+0.0404959u^{10}+\cdots-3.54067u+1.58659\\0.00194822u^{11}+0.00673808u^{10}+\cdots-0.189616u-0.298546\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.00262893u^{11}+0.00748102u^{10}+\cdots-1.18530u+1.48618\\-0.00389645u^{11}-0.0134762u^{10}+\cdots+0.379232u-0.402908\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.00720608u^{11}+0.0217001u^{10}+\cdots-2.56022u+0.673821\\-0.00779290u^{11}-0.0269523u^{10}+\cdots+0.758463u-0.805816\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.0155775u^{11}+0.0393443u^{10}+\cdots-4.14869u+2.05539\\-0.00417591u^{11}-0.0144212u^{10}+\cdots+1.24677u-0.734617\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.0130842u^{11}-0.0404959u^{10}+\cdots+3.54067u-0.586590\\-0.00194822u^{11}-0.00673808u^{10}+\cdots+0.189616u+0.298546\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.0107154u^{11}+0.0306105u^{10}+\cdots-2.36500u-0.00933523\\-0.00613825u^{11}-0.0163914u^{10}+\cdots+0.990078u-0.803027\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.0111360u^{11}+0.0337578u^{10}+\cdots-3.35105u+1.88514\\0.00194822u^{11}+0.00673808u^{10}+\cdots-0.189616u-0.298546\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.00847360u^{11}-0.0276953u^{10}+\cdots+1.75415u+0.409455\\0.00389645u^{11}+0.0134762u^{10}+\cdots-0.379232u+0.402908\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u\\u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{78562652888}{2398354431599}u^{11} - \frac{197375077140}{2398354431599}u^{10} + \cdots + \frac{8974663966792}{2398354431599}u - \frac{21399328621852}{2398354431599}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$(u^2 - 2u - 1)^6$
c_3, c_8	$(u^2 - 4u + 2)^6$
c_5, c_7, c_{10} c_{11}	$u^{12} + 2u^{11} + \cdots + 192u - 79$
c_6, c_{12}	$u^{12} + 6u^{11} + \cdots + 92u + 161$
c_9	$(u^3 - u^2 + 1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^2 - 6y + 1)^6$
c_3, c_8	$(y^2 - 12y + 4)^6$
c_5, c_7, c_{10} c_{11}	$y^{12} - 6y^{11} + \cdots + 2320y + 6241$
c_6, c_{12}	$y^{12} + 2y^{11} + \cdots - 31648y + 25921$
c_9	$(y^3 - y^2 + 2y - 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.374272 + 0.913197I$ $a = 2.14288 - 0.70393I$ $b = -0.414214$	$1.08821 + 2.82812I$	$-7.50976 - 2.97945I$
$u = -0.374272 - 0.913197I$ $a = 2.14288 + 0.70393I$ $b = -0.414214$	$1.08821 - 2.82812I$	$-7.50976 + 2.97945I$
$u = 1.30635$ $a = 1.43621$ $b = 2.41421$	-14.5134	-0.980490
$u = 0.463361 + 0.371761I$ $a = -0.09457 - 1.94281I$ $b = -0.414214$	$1.08821 - 2.82812I$	$-7.50976 + 2.97945I$
$u = 0.463361 - 0.371761I$ $a = -0.09457 + 1.94281I$ $b = -0.414214$	$1.08821 + 2.82812I$	$-7.50976 - 2.97945I$
$u = 0.11802 + 1.46261I$ $a = 1.031230 - 0.387086I$ $b = -0.414214$	5.22579	$-6 - 0.980489 + 0.10I$
$u = 0.11802 - 1.46261I$ $a = 1.031230 + 0.387086I$ $b = -0.414214$	5.22579	$-6 - 0.980489 + 0.10I$
$u = 1.49364 + 1.50456I$ $a = 0.633916 - 0.506378I$ $b = 2.41421$	$-18.6510 - 2.8281I$	$-7.50976 + 2.97945I$
$u = 1.49364 - 1.50456I$ $a = 0.633916 + 0.506378I$ $b = 2.41421$	$-18.6510 + 2.8281I$	$-7.50976 - 2.97945I$
$u = -2.01289 + 1.65116I$ $a = 0.617702 + 0.335790I$ $b = 2.41421$	$-18.6510 - 2.8281I$	$-7.50976 + 2.97945I$

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -2.01289 - 1.65116I$ $a = \ \ 0.617702 - 0.335790I$ $b = \ \ 2.41421$	$-18.6510 + 2.8281I$	$-7.50976 - 2.97945I$
$u = -2.68206$ $a = \ \ 0.787537$ $b = \ \ 2.41421$	-14.5134	-0.980490

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^{10})(u^2-2u-1)^6(u^{13}+6u^{12}+\cdots-3u+1)$ $\cdot(u^{21}-5u^{20}+\cdots-176u+64)$
c_3	$u^{10}(u^2-4u+2)^6(u^{13}+3u^{12}+\cdots-3u+1)$ $\cdot(u^{21}+u^{20}+\cdots+3328u+1024)$
c_4	$((u+1)^{10})(u^2-2u-1)^6(u^{13}-6u^{12}+\cdots-3u-1)$ $\cdot(u^{21}-5u^{20}+\cdots-176u+64)$
c_5	$(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{12}+2u^{11}+\cdots+192u-79)(u^{13}+3u^{11}+\cdots-3u-1)$ $\cdot(u^{21}-3u^{19}+\cdots-u+1)$
c_6	$(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{12}+6u^{11}+\cdots+92u+161)(u^{13}+3u^{12}+\cdots-6u-1)$ $\cdot(u^{21}+u^{20}+\cdots+26u^2+1)$
c_7	$(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{12}+2u^{11}+\cdots+192u-79)(u^{13}+3u^{11}+\cdots-3u+1)$ $\cdot(u^{21}-3u^{19}+\cdots-u+1)$
c_8	$u^{10}(u^2-4u+2)^6(u^{13}-3u^{12}+\cdots-3u-1)$ $\cdot(u^{21}+u^{20}+\cdots+3328u+1024)$
c_9	$(u^3-u^2+1)^4(u^3+u^2-1)^2(u^4-3u^3+4u^2-3u+2)$ $\cdot(u^{13}+5u^{12}+\cdots+7u+1)(u^{21}+7u^{20}+\cdots+32u+4)$
c_{10}	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{12}+2u^{11}+\cdots+192u-79)(u^{13}+3u^{11}+\cdots-3u+1)$ $\cdot(u^{21}-3u^{19}+\cdots-u+1)$
c_{11}	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{12}+2u^{11}+\cdots+192u-79)(u^{13}+3u^{11}+\cdots-3u-1)$ $\cdot(u^{21}-3u^{19}+\cdots-u+1)$
c_{12}	$(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^{12}+6u^{11}+\cdots+92u+161)(u^{13}+3u^{12}+\cdots-6u-1)$ $\cdot(u^{21}+u^{20}+\cdots+26u^2+1)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^{10})(y^2-6y+1)^6(y^{13}-16y^{12}+\cdots-y-1)$ $\cdot(y^{21}-25y^{20}+\cdots+9472y-4096)$
c_3, c_8	$y^{10}(y^2-12y+4)^6(y^{13}-15y^{12}+\cdots+7y-1)$ $\cdot(y^{21}-27y^{20}+\cdots-1769472y-1048576)$
c_5, c_7, c_{10} c_{11}	$(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{12}-6y^{11}+\cdots+2320y+6241)(y^{13}+6y^{12}+\cdots-5y-1)$ $\cdot(y^{21}-6y^{20}+\cdots+9y-1)$
c_6, c_{12}	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{12}+2y^{11}+\cdots-31648y+25921)(y^{13}-15y^{12}+\cdots+2y-1)$ $\cdot(y^{21}+13y^{20}+\cdots-52y-1)$
c_9	$((y^3-y^2+2y-1)^6)(y^4-y^3+2y^2+7y+4)(y^{13}-3y^{12}+\cdots+31y-1)$ $\cdot(y^{21}-5y^{20}+\cdots+440y-16)$