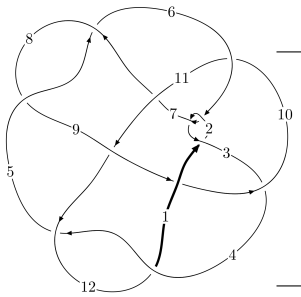
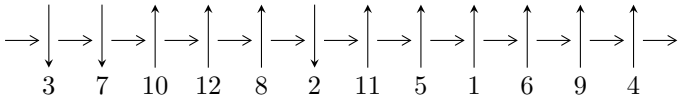
$12a_{0656}$ $(K12a_{0656})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -9540655u^{40} - 39881332u^{39} + \cdots + 2811062b + 78036718, \\
&\quad 177709945u^{40} + 1366370774u^{39} + \cdots + 16866372a + 2496378600,\ u^{41} + 8u^{40} + \cdots + 102u + 12\rangle \\
I_2^u &= \langle 3.46819 \times 10^{21}au^{52} - 3.39067 \times 10^{24}u^{52} + \cdots - 1.10739 \times 10^{22}a + 2.55339 \times 10^{24}, \\
&\quad - 2.28935 \times 10^{21}au^{52} + 1.20458 \times 10^{21}u^{52} + \cdots + 3.67777 \times 10^{21}a - 1.92411 \times 10^{20}, \\
&\quad u^{53} - 3u^{52} + \cdots - 7u + 3\rangle \\
I_3^u &= \langle -2u^{15} - 2u^{14} + \cdots + b + 1, \\
&\quad 2u^{15} + 5u^{14} - 12u^{12} - 10u^{11} + 11u^{10} + 21u^9 - 2u^8 - 26u^7 - 9u^6 + 19u^5 + 11u^4 - 5u^3 - 2u^2 + a + 3u, \\
&\quad u^{16} + 3u^{15} + 2u^{14} - 5u^{13} - 9u^{12} + 13u^{10} + 8u^9 - 11u^8 - 15u^7 + 3u^6 + 13u^5 + 4u^4 - 4u^3 - u^2 + 2u + 1\rangle \\
I_4^u &= \langle -u^6a + 3u^5a - 9u^6 + 2u^4a + 6u^5 - 5u^3a + 11u^4 - 6u^2a - 3u^3 + 6au - 19u^2 + 7b + 3a - 2u + 6, \\
&\quad - u^6a + 2u^4a - 3u^5 + 2u^4 - 3u^2a + 2u^3 + a^2 - 2au + 2a - 5u + 1,\ u^7 - u^6 - u^5 + u^4 + 2u^3 - u^2 - u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 177 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.

$\boldsymbol{I_1^u = \langle -9.54\times 10^6 u^{40} - 3.99\times 10^7 u^{39} + \cdots + 2.81\times 10^6 b + 7.80\times 10^7,\ 1.78\times 10^8 u^{40} + 1.37\times 10^9 u^{39} + \cdots + 1.69\times 10^7 a + 2.50\times 10^9,\ u^{41} + 8u^{40} + \cdots + 102u + 12\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} -10.5363u^{40} - 81.0115u^{39} + \cdots - 1142.34u - 148.009 \\ 3.39397u^{40} + 14.1873u^{39} + \cdots - 189.050u - 27.7606 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 11.9344u^{40} + 81.1701u^{39} + \cdots + 642.098u + 78.2302 \\ 5.42199u^{40} + 44.9429u^{39} + \cdots + 841.464u + 112.318 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.23943u^{40} + 11.2000u^{39} + \cdots - 81.5979u - 12.3360 \\ 7.54178u^{40} + 56.4150u^{39} + \cdots + 626.918u + 78.4362 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -13.9303u^{40} - 95.1988u^{39} + \cdots - 953.293u - 120.249 \\ 3.39397u^{40} + 14.1873u^{39} + \cdots - 189.050u - 27.7606 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 8.93120u^{40} + 49.3410u^{39} + \cdots - 43.6295u - 16.1139 \\ 10.7792u^{40} + 85.8051u^{39} + \cdots + 1221.80u + 158.128 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 8.17922u^{40} + 62.6496u^{39} + \cdots + 848.799u + 110.731 \\ 1.12373u^{40} + 13.0388u^{39} + \cdots + 341.462u + 45.5333 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -16.6903u^{40} - 127.083u^{39} + \cdots - 1863.89u - 244.521 \\ 8.31913u^{40} + 52.5805u^{39} + \cdots + 336.750u + 39.1452 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{50634926}{1405531}u^{40} + \frac{355341377}{1405531}u^{39} + \cdots + \frac{2555447816}{1405531}u + \frac{305571258}{1405531}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} + 14u^{40} + \cdots + 1308u + 144$
c_2, c_6	$u^{41} - 8u^{40} + \cdots + 102u - 12$
c_3, c_{10}	$u^{41} + 12u^{39} + \cdots + 13u - 7$
c_4, c_5, c_8 c_{12}	$u^{41} + u^{40} + \cdots + 5u - 1$
c_7, c_9	$u^{41} + 3u^{40} + \cdots - 10u - 1$
c_{11}	$u^{41} + 29u^{40} + \cdots - 31212u - 2196$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} + 18y^{40} + \cdots + 259056y - 20736$
c_2, c_6	$y^{41} - 14y^{40} + \cdots + 1308y - 144$
c_3, c_{10}	$y^{41} + 24y^{40} + \cdots - 2197y - 49$
c_4, c_5, c_8 c_{12}	$y^{41} + 41y^{40} + \cdots + 13y - 1$
c_7, c_9	$y^{41} - 3y^{40} + \cdots - 44y - 1$
c_{11}	$y^{41} - y^{40} + \cdots + 18265752y - 4822416$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.885459 + 0.468568I$ $a = 0.74140 + 2.12496I$ $b = 0.14627 + 1.57300I$	$-8.61867 - 1.89974I$	$-0.41209 + 3.72876I$
$u = 0.885459 - 0.468568I$ $a = 0.74140 - 2.12496I$ $b = 0.14627 - 1.57300I$	$-8.61867 + 1.89974I$	$-0.41209 - 3.72876I$
$u = -0.638864 + 0.751208I$ $a = 0.138021 + 0.619122I$ $b = 1.31734 - 1.20105I$	$-4.97109 - 2.38814I$	$1.29196 + 2.16768I$
$u = -0.638864 - 0.751208I$ $a = 0.138021 - 0.619122I$ $b = 1.31734 + 1.20105I$	$-4.97109 + 2.38814I$	$1.29196 - 2.16768I$
$u = 1.023760 + 0.040551I$ $a = -0.89941 + 2.43314I$ $b = -0.63878 + 1.63015I$	$-10.53450 - 2.01458I$	$-6.45706 + 3.63025I$
$u = 1.023760 - 0.040551I$ $a = -0.89941 - 2.43314I$ $b = -0.63878 - 1.63015I$	$-10.53450 + 2.01458I$	$-6.45706 - 3.63025I$
$u = -0.336434 + 0.998716I$ $a = -0.244879 - 0.078110I$ $b = -0.428361 - 0.703700I$	$-5.98718 + 8.31828I$	$0.77031 - 8.90553I$
$u = -0.336434 - 0.998716I$ $a = -0.244879 + 0.078110I$ $b = -0.428361 + 0.703700I$	$-5.98718 - 8.31828I$	$0.77031 + 8.90553I$
$u = 0.852689 + 0.638581I$ $a = -0.665891 - 1.232780I$ $b = -0.201595 - 1.034500I$	$3.45937 - 2.49348I$	$17.3496 + 3.7147I$
$u = 0.852689 - 0.638581I$ $a = -0.665891 + 1.232780I$ $b = -0.201595 + 1.034500I$	$3.45937 + 2.49348I$	$17.3496 - 3.7147I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.984331+0.435389I$ $a=-1.49599+0.52826I$ $b=\ \ 0.247555+0.788723I$	$-8.39285+3.15435I$	$-2.00509-3.79246I$
$u=-0.984331-0.435389I$ $a=-1.49599-0.52826I$ $b=\ \ 0.247555-0.788723I$	$-8.39285-3.15435I$	$-2.00509+3.79246I$
$u=-0.558695+0.934797I$ $a=-0.224063+0.056775I$ $b=-1.00584+1.24085I$	$-4.7480-13.5144I$	$3.83057+6.47722I$
$u=-0.558695-0.934797I$ $a=-0.224063-0.056775I$ $b=-1.00584-1.24085I$	$-4.7480+13.5144I$	$3.83057-6.47722I$
$u=-0.578439+0.934242I$ $a=\ \ 0.180422+0.011630I$ $b=\ \ 0.828821-0.703301I$	$4.82087-2.96510I$	$11.89661+4.32984I$
$u=-0.578439-0.934242I$ $a=\ \ 0.180422-0.011630I$ $b=\ \ 0.828821+0.703301I$	$4.82087+2.96510I$	$11.89661-4.32984I$
$u=\ \ 0.911339+0.643598I$ $a=\ \ 0.442568+0.534189I$ $b=\ \ 0.213097+0.483788I$	$-1.08260-2.39919I$	$2.82500+2.36815I$
$u=\ \ 0.911339-0.643598I$ $a=\ \ 0.442568-0.534189I$ $b=\ \ 0.213097-0.483788I$	$-1.08260+2.39919I$	$2.82500-2.36815I$
$u=\ \ 0.450241+1.042540I$ $a=\ \ 0.082525+0.244030I$ $b=-0.042347+0.250005I$	$0.63600-2.52874I$	$18.1134+18.3545I$
$u=\ \ 0.450241-1.042540I$ $a=\ \ 0.082525-0.244030I$ $b=-0.042347-0.250005I$	$0.63600+2.52874I$	$18.1134-18.3545I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.905940+0.723310I$ $a=-1.206950+0.270424I$ $b=\ \ 0.06050+1.48050I$	$-6.88574+2.77950I$	$-2.52803-2.69400I$
$u=-0.905940-0.723310I$ $a=-1.206950-0.270424I$ $b=\ \ 0.06050-1.48050I$	$-6.88574-2.77950I$	$-2.52803+2.69400I$
$u=\ \ 1.156170+0.163202I$ $a=\ \ 0.054861+1.154130I$ $b=-0.011284+0.831483I$	$-2.60053-1.63849I$	$1.29829+3.72995I$
$u=\ \ 1.156170-0.163202I$ $a=\ \ 0.054861-1.154130I$ $b=-0.011284-0.831483I$	$-2.60053+1.63849I$	$1.29829-3.72995I$
$u=-1.017490+0.598781I$ $a=-0.48971+1.36588I$ $b=\ \ 0.938580+0.636689I$	$0.01859+4.99073I$	$7.41621-5.15637I$
$u=-1.017490-0.598781I$ $a=-0.48971-1.36588I$ $b=\ \ 0.938580-0.636689I$	$0.01859-4.99073I$	$7.41621+5.15637I$
$u=-0.582863+0.568272I$ $a=\ \ 0.532194-0.367975I$ $b=-0.814843+0.187675I$	$1.313200-0.233695I$	$10.70499+1.18118I$
$u=-0.582863-0.568272I$ $a=\ \ 0.532194+0.367975I$ $b=-0.814843-0.187675I$	$1.313200+0.233695I$	$10.70499-1.18118I$
$u=-1.012550+0.676105I$ $a=\ \ 1.04077-2.00094I$ $b=-1.44968-1.50619I$	$-6.08547+7.82770I$	$0.-7.17884I$
$u=-1.012550-0.676105I$ $a=\ \ 1.04077+2.00094I$ $b=-1.44968+1.50619I$	$-6.08547-7.82770I$	$0.+7.17884I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.255260 + 0.098348I$ $a = 0.62696 - 1.68689I$ $b = 0.503775 - 1.234310I$	$-11.9204 - 11.6017I$	$0. + 7.20800I$
$u = 1.255260 - 0.098348I$ $a = 0.62696 + 1.68689I$ $b = 0.503775 + 1.234310I$	$-11.9204 + 11.6017I$	$0. - 7.20800I$
$u = -1.097620 + 0.715676I$ $a = 0.43707 - 1.39878I$ $b = -0.904534 - 0.976612I$	$3.20670 + 9.01055I$	0
$u = -1.097620 - 0.715676I$ $a = 0.43707 + 1.39878I$ $b = -0.904534 + 0.976612I$	$3.20670 - 9.01055I$	0
$u = -1.110990 + 0.712322I$ $a = -0.77442 + 1.84377I$ $b = 1.05657 + 1.43789I$	$-6.4571 + 19.5586I$	0
$u = -1.110990 - 0.712322I$ $a = -0.77442 - 1.84377I$ $b = 1.05657 - 1.43789I$	$-6.4571 - 19.5586I$	0
$u = -1.208090 + 0.536455I$ $a = 0.835695 - 0.569841I$ $b = 0.013353 - 0.626817I$	$-8.96308 - 2.68054I$	0
$u = -1.208090 - 0.536455I$ $a = 0.835695 + 0.569841I$ $b = 0.013353 + 0.626817I$	$-8.96308 + 2.68054I$	0
$u = -0.284449 + 0.551332I$ $a = 0.379709 - 0.836237I$ $b = 0.419007 + 0.842756I$	$-6.48873 + 0.58270I$	$2.21114 - 2.45573I$
$u = -0.284449 - 0.551332I$ $a = 0.379709 + 0.836237I$ $b = 0.419007 - 0.842756I$	$-6.48873 - 0.58270I$	$2.21114 + 2.45573I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.436343$		
$a = \ \ 1.51826$	1.00381	8.15590
$b = -0.495207$		

II. $I_2^u = \langle 3.47\times 10^{21}au^{52} - 3.39\times 10^{24}u^{52} + \cdots - 1.11\times 10^{22}a + 2.55\times 10^{24},\ -2.29\times 10^{21}au^{52} + 1.20\times 10^{21}u^{52} + \cdots + 3.68\times 10^{21}a - 1.92\times 10^{20},\ u^{53} - 3u^{52} + \cdots - 7u + 3\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} a \\ -0.00547323au^{52} + 5.35090u^{52} + \cdots + 0.0174759a - 4.02956 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.792245au^{52} - 3.85460u^{52} + \cdots - 10.0550a + 8.50356 \\ -2.56812au^{52} + 6.14017u^{52} + \cdots + 10.9405a - 10.5932 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.844639au^{52} + 2.51068u^{52} + \cdots - 5.12108a + 3.53606 \\ 0.662151au^{52} - 8.20051u^{52} + \cdots + 1.45552a + 14.6696 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00547323au^{52} - 5.35090u^{52} + \cdots + 0.982524a + 4.02956 \\ -0.00547323au^{52} + 5.35090u^{52} + \cdots + 0.0174759a - 4.02956 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 5.35090au^{52} + 7.75572u^{52} + \cdots - 4.02956a - 31.2778 \\ -1.82420u^{52} + 7.28102u^{51} + \cdots - 19.2201u + 14.3168 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.02122u^{52} - 6.54669u^{51} + \cdots + a - 12.9034 \\ 0.00547323au^{52} + 2.07703u^{52} + \cdots - 0.0174759a + 2.21423 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.699902au^{52} - 5.33229u^{52} + \cdots + 8.35283a + 17.7577 \\ 4.00241au^{52} + 6.14017u^{52} + \cdots - 15.3774a - 9.59325 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{121904372732907815124}{10140903080066369147}u^{52} + \frac{84784483273909067308}{10140903080066369147}u^{51} + \cdots - \frac{561107072444840340117}{10140903080066369147}u - \frac{235969730948693192607}{10140903080066369147}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{53}+21u^{52}+\cdots+187u+9)^2$
c_2, c_6	$(u^{53}+3u^{52}+\cdots-7u-3)^2$
c_3, c_{10}	$u^{106}+u^{105}+\cdots-102u+283$
c_4, c_5, c_8 c_{12}	$u^{106}+5u^{105}+\cdots-34u+1$
c_7, c_9	$u^{106}+u^{105}+\cdots+38u+1$
c_{11}	$(u^{53}-19u^{52}+\cdots+603u-55)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{53}+27y^{52}+\cdots+1651y-81)^2$
c_2, c_6	$(y^{53}-21y^{52}+\cdots+187y-9)^2$
c_3, c_{10}	$y^{106}-9y^{105}+\cdots+484280y+80089$
c_4, c_5, c_8 c_{12}	$y^{106}+75y^{105}+\cdots-698y+1$
c_7, c_9	$y^{106}-3y^{105}+\cdots-230y+1$
c_{11}	$(y^{53}+27y^{52}+\cdots-30081y-3025)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.761955 + 0.663374I$ $a = -0.422004 - 0.248213I$ $b = 1.26884 + 0.75571I$	$-2.68106 + 4.45453I$	$6.83454 - 2.23016I$
$u = 0.761955 + 0.663374I$ $a = 0.08415 + 2.05127I$ $b = -1.97665 + 0.42519I$	$-2.68106 + 4.45453I$	$6.83454 - 2.23016I$
$u = 0.761955 - 0.663374I$ $a = -0.422004 + 0.248213I$ $b = 1.26884 - 0.75571I$	$-2.68106 - 4.45453I$	$6.83454 + 2.23016I$
$u = 0.761955 - 0.663374I$ $a = 0.08415 - 2.05127I$ $b = -1.97665 - 0.42519I$	$-2.68106 - 4.45453I$	$6.83454 + 2.23016I$
$u = -0.739105 + 0.649562I$ $a = 0.58620 - 1.41792I$ $b = -1.164340 - 0.733353I$	$1.99956 - 0.73578I$	$9.99636 + 2.14125I$
$u = -0.739105 + 0.649562I$ $a = 0.261702 + 0.107022I$ $b = -0.984287 + 0.409104I$	$1.99956 - 0.73578I$	$9.99636 + 2.14125I$
$u = -0.739105 - 0.649562I$ $a = 0.58620 + 1.41792I$ $b = -1.164340 + 0.733353I$	$1.99956 + 0.73578I$	$9.99636 - 2.14125I$
$u = -0.739105 - 0.649562I$ $a = 0.261702 - 0.107022I$ $b = -0.984287 - 0.409104I$	$1.99956 + 0.73578I$	$9.99636 - 2.14125I$
$u = -0.803695 + 0.553806I$ $a = -0.471613 - 0.777847I$ $b = 0.817053 - 0.820052I$	$-0.914471 - 0.291155I$	$6.37184 - 2.68973I$
$u = -0.803695 + 0.553806I$ $a = -1.04648 + 2.48317I$ $b = 1.13190 + 1.51872I$	$-0.914471 - 0.291155I$	$6.37184 - 2.68973I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.803695-0.553806I$ $a=-0.471613+0.777847I$ $b=\ \ 0.817053+0.820052I$	$-0.914471+0.291155I$	$6.37184+2.68973I$
$u=-0.803695-0.553806I$ $a=-1.04648-2.48317I$ $b=\ \ 1.13190-1.51872I$	$-0.914471+0.291155I$	$6.37184+2.68973I$
$u=\ \ 0.809219+0.657477I$ $a=\ \ 0.929581+0.655660I$ $b=-0.054251+1.080400I$	$-0.96806-2.57158I$	$2.36852+1.85769I$
$u=\ \ 0.809219+0.657477I$ $a=-0.057982+0.463873I$ $b=\ \ 0.404376-0.070029I$	$-0.96806-2.57158I$	$2.36852+1.85769I$
$u=\ \ 0.809219-0.657477I$ $a=\ \ 0.929581-0.655660I$ $b=-0.054251-1.080400I$	$-0.96806+2.57158I$	$2.36852-1.85769I$
$u=\ \ 0.809219-0.657477I$ $a=-0.057982-0.463873I$ $b=\ \ 0.404376+0.070029I$	$-0.96806+2.57158I$	$2.36852-1.85769I$
$u=\ \ 0.847011+0.619709I$ $a=-0.412637-0.614788I$ $b=-0.770270-0.844098I$	$3.34792-2.43380I$	$12.85093+4.05145I$
$u=\ \ 0.847011+0.619709I$ $a=-0.81361-1.71549I$ $b=\ \ 0.414434-1.083910I$	$3.34792-2.43380I$	$12.85093+4.05145I$
$u=\ \ 0.847011-0.619709I$ $a=-0.412637+0.614788I$ $b=-0.770270+0.844098I$	$3.34792+2.43380I$	$12.85093-4.05145I$
$u=\ \ 0.847011-0.619709I$ $a=-0.81361+1.71549I$ $b=\ \ 0.414434+1.083910I$	$3.34792+2.43380I$	$12.85093-4.05145I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.902087+0.562696I$ $a=-1.211490-0.007785I$ $b=-1.57400+1.34383I$	$-1.24052+4.76476I$	$4.96654-5.54371I$
$u=-0.902087+0.562696I$ $a=\ \ 0.92835-2.65426I$ $b=-0.563164-0.942103I$	$-1.24052+4.76476I$	$4.96654-5.54371I$
$u=-0.902087-0.562696I$ $a=-1.211490+0.007785I$ $b=-1.57400-1.34383I$	$-1.24052-4.76476I$	$4.96654+5.54371I$
$u=-0.902087-0.562696I$ $a=\ \ 0.92835+2.65426I$ $b=-0.563164+0.942103I$	$-1.24052-4.76476I$	$4.96654+5.54371I$
$u=\ \ 0.529209+0.925581I$ $a=-0.140548-0.244294I$ $b=-0.875570-1.087590I$	$0.91880+7.85413I$	$7.41161-6.47576I$
$u=\ \ 0.529209+0.925581I$ $a=\ \ 0.128027-0.146145I$ $b=\ \ 1.029630+0.773863I$	$0.91880+7.85413I$	$7.41161-6.47576I$
$u=\ \ 0.529209-0.925581I$ $a=-0.140548+0.244294I$ $b=-0.875570+1.087590I$	$0.91880-7.85413I$	$7.41161+6.47576I$
$u=\ \ 0.529209-0.925581I$ $a=\ \ 0.128027+0.146145I$ $b=\ \ 1.029630-0.773863I$	$0.91880-7.85413I$	$7.41161+6.47576I$
$u=-1.068010+0.070510I$ $a=\ \ 0.20788-1.77260I$ $b=\ \ 0.392060-1.181690I$	$-6.58685-2.11178I$	$-2.20971+0.I$
$u=-1.068010+0.070510I$ $a=-1.13743+1.70116I$ $b=-0.460832+1.241750I$	$-6.58685-2.11178I$	$-2.20971+0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.068010-0.070510I$ $a=\ \ 0.20788+1.77260I$ $b=\ \ 0.392060+1.181690I$	$-6.58685+2.11178I$	$-2.20971+0.I$
$u=-1.068010-0.070510I$ $a=-1.13743-1.70116I$ $b=-0.460832-1.241750I$	$-6.58685+2.11178I$	$-2.20971+0.I$
$u=\ \ 0.837471+0.361490I$ $a=\ \ 0.065083+1.154200I$ $b=-1.56349+0.30496I$	$-2.48325+0.50792I$	$-0.045723+0.759721I$
$u=\ \ 0.837471+0.361490I$ $a=-2.67691-0.70533I$ $b=-0.178802-0.391633I$	$-2.48325+0.50792I$	$-0.045723+0.759721I$
$u=\ \ 0.837471-0.361490I$ $a=\ \ 0.065083-1.154200I$ $b=-1.56349-0.30496I$	$-2.48325-0.50792I$	$-0.045723-0.759721I$
$u=\ \ 0.837471-0.361490I$ $a=-2.67691+0.70533I$ $b=-0.178802+0.391633I$	$-2.48325-0.50792I$	$-0.045723-0.759721I$
$u=-0.920253+0.640465I$ $a=\ \ 0.667286+0.588445I$ $b=\ \ 1.48578-0.50992I$	$1.46071+5.77097I$	$6.00000-8.48092I$
$u=-0.920253+0.640465I$ $a=-0.60050+1.76608I$ $b=\ \ 0.796743+0.614787I$	$1.46071+5.77097I$	$6.00000-8.48092I$
$u=-0.920253-0.640465I$ $a=\ \ 0.667286-0.588445I$ $b=\ \ 1.48578+0.50992I$	$1.46071-5.77097I$	$6.00000+8.48092I$
$u=-0.920253-0.640465I$ $a=-0.60050-1.76608I$ $b=\ \ 0.796743-0.614787I$	$1.46071-5.77097I$	$6.00000+8.48092I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.926043 + 0.636364I$ $a = 0.59546 - 1.29650I$ $b = 2.19092 + 0.13649I$	$-3.19040 - 9.51012I$	$6.00000 + 9.12317I$
$u = 0.926043 + 0.636364I$ $a = 1.11316 + 2.24311I$ $b = -1.12822 + 0.90500I$	$-3.19040 - 9.51012I$	$6.00000 + 9.12317I$
$u = 0.926043 - 0.636364I$ $a = 0.59546 + 1.29650I$ $b = 2.19092 - 0.13649I$	$-3.19040 + 9.51012I$	$6.00000 - 9.12317I$
$u = 0.926043 - 0.636364I$ $a = 1.11316 - 2.24311I$ $b = -1.12822 - 0.90500I$	$-3.19040 + 9.51012I$	$6.00000 - 9.12317I$
$u = 0.563470 + 0.650779I$ $a = 0.802413 + 0.694471I$ $b = -0.607079 - 0.454169I$	$-1.82739 + 3.33111I$	$4.53816 - 3.55806I$
$u = 0.563470 + 0.650779I$ $a = 0.245333 - 0.331567I$ $b = 1.15252 + 1.04512I$	$-1.82739 + 3.33111I$	$4.53816 - 3.55806I$
$u = 0.563470 - 0.650779I$ $a = 0.802413 - 0.694471I$ $b = -0.607079 + 0.454169I$	$-1.82739 - 3.33111I$	$4.53816 + 3.55806I$
$u = 0.563470 - 0.650779I$ $a = 0.245333 + 0.331567I$ $b = 1.15252 - 1.04512I$	$-1.82739 - 3.33111I$	$4.53816 + 3.55806I$
$u = -0.212856 + 0.829020I$ $a = -0.155685 + 0.859257I$ $b = -0.532616 + 0.773106I$	$-0.211705 - 0.528763I$	$11.05954 - 2.34564I$
$u = -0.212856 + 0.829020I$ $a = 0.300917 - 0.092700I$ $b = -0.880370 - 0.176654I$	$-0.211705 - 0.528763I$	$11.05954 - 2.34564I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.212856-0.829020I$ $a=-0.155685-0.859257I$ $b=-0.532616-0.773106I$	$-0.211705+0.528763I$	$11.05954+2.34564I$
$u=-0.212856-0.829020I$ $a=\ \ 0.300917+0.092700I$ $b=-0.880370+0.176654I$	$-0.211705+0.528763I$	$11.05954+2.34564I$
$u=\ \ 0.545783+1.016510I$ $a=\ \ 0.134531+0.288899I$ $b=\ \ 0.214856+0.429857I$	$0.66390-2.55386I$	$21.5274+0.I$
$u=\ \ 0.545783+1.016510I$ $a=-0.006182+0.238215I$ $b=-0.323074+0.067457I$	$0.66390-2.55386I$	$21.5274+0.I$
$u=\ \ 0.545783-1.016510I$ $a=\ \ 0.134531-0.288899I$ $b=\ \ 0.214856-0.429857I$	$0.66390+2.55386I$	$21.5274+0.I$
$u=\ \ 0.545783-1.016510I$ $a=-0.006182-0.238215I$ $b=-0.323074-0.067457I$	$0.66390+2.55386I$	$21.5274+0.I$
$u=\ \ 1.165430+0.175714I$ $a=-1.19088-1.18311I$ $b=-0.379117-1.235260I$	$-10.54930+2.59097I$	0
$u=\ \ 1.165430+0.175714I$ $a=\ \ 0.53528-1.99476I$ $b=\ \ 0.054387-1.088210I$	$-10.54930+2.59097I$	0
$u=\ \ 1.165430-0.175714I$ $a=-1.19088+1.18311I$ $b=-0.379117+1.235260I$	$-10.54930-2.59097I$	0
$u=\ \ 1.165430-0.175714I$ $a=\ \ 0.53528+1.99476I$ $b=\ \ 0.054387+1.088210I$	$-10.54930-2.59097I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.851563+0.825849I$ $a=-0.073086-0.590149I$ $b=\ \ 0.183606+0.246239I$	$-2.54747+3.04977I$	0
$u=-0.851563+0.825849I$ $a=-1.06914+0.94258I$ $b=-0.19322+1.69960I$	$-2.54747+3.04977I$	0
$u=-0.851563-0.825849I$ $a=-0.073086+0.590149I$ $b=\ \ 0.183606-0.246239I$	$-2.54747-3.04977I$	0
$u=-0.851563-0.825849I$ $a=-1.06914-0.94258I$ $b=-0.19322-1.69960I$	$-2.54747-3.04977I$	0
$u=\ \ 1.017210+0.627388I$ $a=-0.841592-1.125980I$ $b=\ \ 1.003030-0.685688I$	$-3.12568-8.35925I$	0
$u=\ \ 1.017210+0.627388I$ $a=\ \ 0.84069+2.07433I$ $b=-1.17258+1.39807I$	$-3.12568-8.35925I$	0
$u=\ \ 1.017210-0.627388I$ $a=-0.841592+1.125980I$ $b=\ \ 1.003030+0.685688I$	$-3.12568+8.35925I$	0
$u=\ \ 1.017210-0.627388I$ $a=\ \ 0.84069-2.07433I$ $b=-1.17258-1.39807I$	$-3.12568+8.35925I$	0
$u=\ \ 1.100540+0.474663I$ $a=\ \ 0.185852-1.385000I$ $b=\ \ 1.073590-0.557920I$	$-3.73664-3.38760I$	0
$u=\ \ 1.100540+0.474663I$ $a=\ \ 1.26944+1.03677I$ $b=\ \ 0.046877+0.487352I$	$-3.73664-3.38760I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.100540 - 0.474663I$ $a = 0.185852 + 1.385000I$ $b = 1.073590 + 0.557920I$	$-3.73664 + 3.38760I$	0
$u = 1.100540 - 0.474663I$ $a = 1.26944 - 1.03677I$ $b = 0.046877 - 0.487352I$	$-3.73664 + 3.38760I$	0
$u = -1.063130 + 0.568697I$ $a = 1.56510 - 0.47928I$ $b = -0.138546 - 0.455023I$	$-8.04966 + 9.90864I$	0
$u = -1.063130 + 0.568697I$ $a = 0.57686 - 2.18399I$ $b = -1.14386 - 1.57633I$	$-8.04966 + 9.90864I$	0
$u = -1.063130 - 0.568697I$ $a = 1.56510 + 0.47928I$ $b = -0.138546 + 0.455023I$	$-8.04966 - 9.90864I$	0
$u = -1.063130 - 0.568697I$ $a = 0.57686 + 2.18399I$ $b = -1.14386 + 1.57633I$	$-8.04966 - 9.90864I$	0
$u = -0.696627 + 0.209310I$ $a = 1.31647 + 0.69027I$ $b = 1.60761 - 0.69970I$	$-5.84696 - 5.71093I$	$-1.49347 + 4.28887I$
$u = -0.696627 + 0.209310I$ $a = -3.02781 + 1.53788I$ $b = -0.722518 + 0.223372I$	$-5.84696 - 5.71093I$	$-1.49347 + 4.28887I$
$u = -0.696627 - 0.209310I$ $a = 1.31647 - 0.69027I$ $b = 1.60761 + 0.69970I$	$-5.84696 + 5.71093I$	$-1.49347 - 4.28887I$
$u = -0.696627 - 0.209310I$ $a = -3.02781 - 1.53788I$ $b = -0.722518 - 0.223372I$	$-5.84696 + 5.71093I$	$-1.49347 - 4.28887I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.276460+0.074097I$ $a=-0.387601-0.942926I$ $b=-0.323720-0.864956I$	$-6.05943+5.69834I$	0
$u=-1.276460+0.074097I$ $a=\ \ 0.53114+1.63270I$ $b=\ \ 0.404900+1.037470I$	$-6.05943+5.69834I$	0
$u=-1.276460-0.074097I$ $a=-0.387601+0.942926I$ $b=-0.323720+0.864956I$	$-6.05943-5.69834I$	0
$u=-1.276460-0.074097I$ $a=\ \ 0.53114-1.63270I$ $b=\ \ 0.404900-1.037470I$	$-6.05943-5.69834I$	0
$u=-0.286837+0.649271I$ $a=\ \ 0.295283+0.532839I$ $b=\ \ 1.04208-1.07030I$	$-6.04626-5.25640I$	$1.97588+3.31648I$
$u=-0.286837+0.649271I$ $a=-1.50512-0.37840I$ $b=-0.359246-0.589546I$	$-6.04626-5.25640I$	$1.97588+3.31648I$
$u=-0.286837-0.649271I$ $a=\ \ 0.295283-0.532839I$ $b=\ \ 1.04208+1.07030I$	$-6.04626+5.25640I$	$1.97588-3.31648I$
$u=-0.286837-0.649271I$ $a=-1.50512+0.37840I$ $b=-0.359246+0.589546I$	$-6.04626+5.25640I$	$1.97588-3.31648I$
$u=\ \ 1.114990+0.698316I$ $a=\ \ 0.37056+1.55826I$ $b=-1.13634+1.02615I$	$-0.88041-13.81330I$	0
$u=\ \ 1.114990+0.698316I$ $a=-0.72776-1.81101I$ $b=\ \ 0.89886-1.28492I$	$-0.88041-13.81330I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.114990 - 0.698316I$ $a = 0.37056 - 1.55826I$ $b = -1.13634 - 1.02615I$	$-0.88041 + 13.81330I$	0
$u = 1.114990 - 0.698316I$ $a = -0.72776 + 1.81101I$ $b = 0.89886 + 1.28492I$	$-0.88041 + 13.81330I$	0
$u = 1.086420 + 0.756342I$ $a = 0.579196 + 1.067940I$ $b = -0.376750 + 1.016600I$	$-0.95201 - 3.84201I$	0
$u = 1.086420 + 0.756342I$ $a = -0.301202 - 0.504293I$ $b = 0.493323 - 0.518369I$	$-0.95201 - 3.84201I$	0
$u = 1.086420 - 0.756342I$ $a = 0.579196 - 1.067940I$ $b = -0.376750 - 1.016600I$	$-0.95201 + 3.84201I$	0
$u = 1.086420 - 0.756342I$ $a = -0.301202 + 0.504293I$ $b = 0.493323 + 0.518369I$	$-0.95201 + 3.84201I$	0
$u = -1.217200 + 0.650248I$ $a = 0.157075 + 0.700499I$ $b = 0.829327 + 0.210290I$	$-3.12919 + 6.08910I$	0
$u = -1.217200 + 0.650248I$ $a = -0.49683 + 1.75097I$ $b = 0.460943 + 1.134740I$	$-3.12919 + 6.08910I$	0
$u = -1.217200 - 0.650248I$ $a = 0.157075 - 0.700499I$ $b = 0.829327 - 0.210290I$	$-3.12919 - 6.08910I$	0
$u = -1.217200 - 0.650248I$ $a = -0.49683 - 1.75097I$ $b = 0.460943 - 1.134740I$	$-3.12919 - 6.08910I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.510512$ $a=\ \ 1.59024+0.68134I$ $b=-0.529767+0.296649I$	0.958787	4.02350
$u=-0.510512$ $a=\ \ 1.59024-0.68134I$ $b=-0.529767-0.296649I$	0.958787	4.02350
$u=\ \ 0.488326+0.120056I$ $a=\ \ 0.583472+0.975215I$ $b=\ \ 0.897245-0.451317I$	$-1.99592-2.63154I$	$0.54415+5.66267I$
$u=\ \ 0.488326+0.120056I$ $a=\ \ 2.16069-1.51977I$ $b=\ \ 0.317808+0.436683I$	$-1.99592-2.63154I$	$0.54415+5.66267I$
$u=\ \ 0.488326-0.120056I$ $a=\ \ 0.583472-0.975215I$ $b=\ \ 0.897245+0.451317I$	$-1.99592+2.63154I$	$0.54415-5.66267I$
$u=\ \ 0.488326-0.120056I$ $a=\ \ 2.16069+1.51977I$ $b=\ \ 0.317808-0.436683I$	$-1.99592+2.63154I$	$0.54415-5.66267I$

III. $I_3^u =$
$\langle -2u^{15}-2u^{14}+\cdots+b+1,\ 2u^{15}+5u^{14}+\cdots+a+3u,\ u^{16}+3u^{15}+\cdots+2u+1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^{15}-5u^{14}+\cdots+2u^2-3u \\ 2u^{15}+2u^{14}+\cdots+3u-1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 3u^{15}+9u^{14}+\cdots+3u+6 \\ -3u^{15}-6u^{14}+\cdots-4u-3 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5-u^3+u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{15}-5u^{14}+\cdots-4u-5 \\ 2u^{15}+6u^{14}+\cdots+2u+3 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -4u^{15}-7u^{14}+\cdots-6u+1 \\ 2u^{15}+2u^{14}+\cdots+3u-1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -4u^{15}-10u^{14}+\cdots-6u-4 \\ 2u^{15}+5u^{14}+\cdots+5u+2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -3u^{15}-5u^{14}+\cdots-5u+1 \\ -u^{14}-2u^{13}+\cdots+u-1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 4u^{15}+10u^{14}+\cdots+8u+6 \\ -u^{14}-u^{13}+\cdots-u-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -27u^{15}-63u^{14}-3u^{13}+156u^{12}+138u^{11}-137u^{10}-295u^9+18u^8+356u^7+155u^6-269u^5-194u^4+79u^3+83u^2-41u-27$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 5u^{15} + \cdots - 6u + 1$
c_2	$u^{16} - 3u^{15} + \cdots - 2u + 1$
c_3, c_{10}	$u^{16} - 4u^{14} + \cdots - 2u + 1$
c_4, c_8	$u^{16} - u^{15} + \cdots - 2u + 1$
c_5, c_{12}	$u^{16} + u^{15} + \cdots + 2u + 1$
c_6	$u^{16} + 3u^{15} + \cdots + 2u + 1$
c_7, c_9	$u^{16} + 3u^{15} + \cdots + 3u + 1$
c_{11}	$u^{16} - 12u^{15} + \cdots - 121u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16}+7y^{15}+\cdots+14y+1$
c_2, c_6	$y^{16}-5y^{15}+\cdots-6y+1$
c_3, c_{10}	$y^{16}-8y^{15}+\cdots+8y+1$
c_4, c_5, c_8 c_{12}	$y^{16}+13y^{15}+\cdots+14y+1$
c_7, c_9	$y^{16}+y^{15}+\cdots+7y+1$
c_{11}	$y^{16}+16y^{15}+\cdots-2503y+49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.715082+0.617273I$ $a=-0.362225+1.332290I$ $b=\ \ 1.71319-0.54908I$	$-3.92884-5.06693I$	$1.20890+4.91911I$
$u=-0.715082-0.617273I$ $a=-0.362225-1.332290I$ $b=\ \ 1.71319+0.54908I$	$-3.92884+5.06693I$	$1.20890-4.91911I$
$u=\ \ 0.855903+0.626934I$ $a=-0.70077-1.38032I$ $b=-0.196869-1.141810I$	$3.07518-2.45620I$	$-3.86955+1.80652I$
$u=\ \ 0.855903-0.626934I$ $a=-0.70077+1.38032I$ $b=-0.196869+1.141810I$	$3.07518+2.45620I$	$-3.86955-1.80652I$
$u=\ \ 1.109480+0.168280I$ $a=-1.07174-1.20629I$ $b=-0.698575-0.903116I$	$-7.46004+3.98076I$	$-3.29932-4.31107I$
$u=\ \ 1.109480-0.168280I$ $a=-1.07174+1.20629I$ $b=-0.698575+0.903116I$	$-7.46004-3.98076I$	$-3.29932+4.31107I$
$u=-0.978068+0.620121I$ $a=\ \ 0.72302-2.13025I$ $b=-1.67983-0.94245I$	$-4.76909+9.96079I$	$-0.29431-10.52022I$
$u=-0.978068-0.620121I$ $a=\ \ 0.72302+2.13025I$ $b=-1.67983+0.94245I$	$-4.76909-9.96079I$	$-0.29431+10.52022I$
$u=-0.489195+1.118250I$ $a=-0.0231065+0.1339790I$ $b=-0.082079+0.398889I$	$0.51588+2.41846I$	$-18.3848+14.8561I$
$u=-0.489195-1.118250I$ $a=-0.0231065-0.1339790I$ $b=-0.082079-0.398889I$	$0.51588-2.41846I$	$-18.3848-14.8561I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.664062+0.290359I$ $a=\ 1.342520-0.070390I$ $b=-0.573558-0.232331I$	$1.068270+0.616833I$	$6.43518-10.65020I$
$u=-0.664062-0.290359I$ $a=\ 1.342520+0.070390I$ $b=-0.573558+0.232331I$	$1.068270-0.616833I$	$6.43518+10.65020I$
$u=-1.126390+0.656058I$ $a=-0.447640+0.880451I$ $b=\ 0.433909+0.661466I$	$-1.78072+3.65403I$	$-0.38431-6.17410I$
$u=-1.126390-0.656058I$ $a=-0.447640-0.880451I$ $b=\ 0.433909-0.661466I$	$-1.78072-3.65403I$	$-0.38431+6.17410I$
$u=\ 0.507419+0.431087I$ $a=\ 1.53994-1.09401I$ $b=\ 1.083820-0.150288I$	$-4.81491-6.68255I$	$4.08817+7.62933I$
$u=\ 0.507419-0.431087I$ $a=\ 1.53994+1.09401I$ $b=\ 1.083820+0.150288I$	$-4.81491+6.68255I$	$4.08817-7.62933I$

IV. $I_4^u = \langle -u^6a - 9u^6 + \cdots + 3a + 6,\ -u^6a - 3u^5 + \cdots + 2a + 1,\ u^7 - u^6 - u^5 + u^4 + 2u^3 - u^2 - u + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} a \\ \frac{1}{7}u^6a + \frac{9}{7}u^6 + \cdots - \frac{3}{7}a - \frac{6}{7} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{2}{7}u^6a + \frac{11}{7}u^6 + \cdots - \frac{6}{7}a + \frac{2}{7} \\ \frac{4}{7}u^6a - \frac{6}{7}u^6 + \cdots - \frac{5}{7}a + \frac{4}{7} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{5}{7}u^6a - \frac{18}{7}u^6 + \cdots - \frac{8}{7}a + \frac{19}{7} \\ -\frac{4}{7}u^6a - \frac{8}{7}u^6 + \cdots + \frac{5}{7}a - \frac{4}{7} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{7}u^6a - \frac{9}{7}u^6 + \cdots + \frac{10}{7}a + \frac{6}{7} \\ \frac{1}{7}u^6a + \frac{9}{7}u^6 + \cdots - \frac{3}{7}a - \frac{6}{7} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{9}{7}u^6a + \frac{4}{7}u^6 + \cdots - \frac{6}{7}a + \frac{16}{7} \\ -u^5 + u^4 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^5a - 2u^6 + u^5 - u^3a + 2u^4 + au - 3u^2 + a + 1 \\ \frac{6}{7}u^6a + \frac{5}{7}u^6 + \cdots - \frac{4}{7}a - \frac{1}{7} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^6a + 2u^4a - 3u^2a + u^3 - au + 2a - 1 \\ \frac{3}{7}u^6a + \frac{6}{7}u^6 + \cdots - \frac{2}{7}a + \frac{3}{7} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^6 + 6u^5 - u^3 - 5u^2 + u + 5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^7-3u^6+7u^5-9u^4+10u^3-7u^2+3u-1)^2$
c_2	$(u^7+u^6-u^5-u^4+2u^3+u^2-u-1)^2$
c_3, c_{10}	$u^{14}+2u^{12}+\cdots+8u+1$
c_4, c_8	$u^{14}+6u^{12}+\cdots-8u+1$
c_5, c_{12}	$u^{14}+6u^{12}+\cdots+8u+1$
c_6	$(u^7-u^6-u^5+u^4+2u^3-u^2-u+1)^2$
c_7, c_9	$u^{14}-6u^{13}+\cdots+2u+1$
c_{11}	$(u^7-u^6+u^5-u^3+u^2-u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^7+5y^6+15y^5+23y^4+10y^3-7y^2-5y-1)^2$
c_2, c_6	$(y^7-3y^6+7y^5-9y^4+10y^3-7y^2+3y-1)^2$
c_3, c_{10}	$y^{14}+4y^{13}+\cdots-20y+1$
c_4, c_5, c_8 c_{12}	$y^{14}+12y^{13}+\cdots-22y+1$
c_7, c_9	$y^{14}-6y^{13}+\cdots-2y+1$
c_{11}	$(y^7+y^6-y^5-2y^4+y^3+y^2-y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.793128+0.750889I$ $a=-1.041400+0.521858I$ $b=-0.374224+1.276980I$	$-0.14750+2.89342I$	$11.30111-4.94456I$
$u=-0.793128+0.750889I$ $a=\ \ 0.202445-0.608018I$ $b=\ \ 0.245978+0.103384I$	$-0.14750+2.89342I$	$11.30111-4.94456I$
$u=-0.793128-0.750889I$ $a=-1.041400-0.521858I$ $b=-0.374224-1.276980I$	$-0.14750-2.89342I$	$11.30111+4.94456I$
$u=-0.793128-0.750889I$ $a=\ \ 0.202445+0.608018I$ $b=\ \ 0.245978-0.103384I$	$-0.14750-2.89342I$	$11.30111+4.94456I$
$u=-0.879508$ $a=-1.08614+2.37333I$ $b=\ \ 0.12875+1.47876I$	-9.61603	-3.61290
$u=-0.879508$ $a=-1.08614-2.37333I$ $b=\ \ 0.12875-1.47876I$	-9.61603	-3.61290
$u=\ \ 0.610619+0.459179I$ $a=-1.084060+0.541554I$ $b=\ \ 0.815763+0.636072I$	$-1.51174+1.30245I$	$3.84837-2.49326I$
$u=\ \ 0.610619+0.459179I$ $a=\ \ 1.21917+1.56352I$ $b=-1.251260+0.609775I$	$-1.51174+1.30245I$	$3.84837-2.49326I$
$u=\ \ 0.610619-0.459179I$ $a=-1.084060-0.541554I$ $b=\ \ 0.815763-0.636072I$	$-1.51174-1.30245I$	$3.84837+2.49326I$
$u=\ \ 0.610619-0.459179I$ $a=\ \ 1.21917-1.56352I$ $b=-1.251260-0.609775I$	$-1.51174-1.30245I$	$3.84837+2.49326I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.122260 + 0.611121I$ $a = 0.157373 - 0.805766I$ $b = 1.032020 - 0.131730I$	$-3.40236 - 5.75449I$	$-1.84300 + 2.06964I$
$u = 1.122260 + 0.611121I$ $a = 0.63262 + 1.93130I$ $b = -0.597022 + 1.117100I$	$-3.40236 - 5.75449I$	$-1.84300 + 2.06964I$
$u = 1.122260 - 0.611121I$ $a = 0.157373 + 0.805766I$ $b = 1.032020 + 0.131730I$	$-3.40236 + 5.75449I$	$-1.84300 - 2.06964I$
$u = 1.122260 - 0.611121I$ $a = 0.63262 - 1.93130I$ $b = -0.597022 - 1.117100I$	$-3.40236 + 5.75449I$	$-1.84300 - 2.06964I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^7-3u^6+7u^5-9u^4+10u^3-7u^2+3u-1)^2$ $\cdot(u^{16}-5u^{15}+\cdots-6u+1)(u^{41}+14u^{40}+\cdots+1308u+144)$ $\cdot(u^{53}+21u^{52}+\cdots+187u+9)^2$
c_2	$((u^7+u^6+\cdots-u-1)^2)(u^{16}-3u^{15}+\cdots-2u+1)$ $\cdot(u^{41}-8u^{40}+\cdots+102u-12)(u^{53}+3u^{52}+\cdots-7u-3)^2$
c_3, c_{10}	$(u^{14}+2u^{12}+\cdots+8u+1)(u^{16}-4u^{14}+\cdots-2u+1)$ $\cdot(u^{41}+12u^{39}+\cdots+13u-7)(u^{106}+u^{105}+\cdots-102u+283)$
c_4, c_8	$(u^{14}+6u^{12}+\cdots-8u+1)(u^{16}-u^{15}+\cdots-2u+1)$ $\cdot(u^{41}+u^{40}+\cdots+5u-1)(u^{106}+5u^{105}+\cdots-34u+1)$
c_5, c_{12}	$(u^{14}+6u^{12}+\cdots+8u+1)(u^{16}+u^{15}+\cdots+2u+1)$ $\cdot(u^{41}+u^{40}+\cdots+5u-1)(u^{106}+5u^{105}+\cdots-34u+1)$
c_6	$((u^7-u^6+\cdots-u+1)^2)(u^{16}+3u^{15}+\cdots+2u+1)$ $\cdot(u^{41}-8u^{40}+\cdots+102u-12)(u^{53}+3u^{52}+\cdots-7u-3)^2$
c_7, c_9	$(u^{14}-6u^{13}+\cdots+2u+1)(u^{16}+3u^{15}+\cdots+3u+1)$ $\cdot(u^{41}+3u^{40}+\cdots-10u-1)(u^{106}+u^{105}+\cdots+38u+1)$
c_{11}	$((u^7-u^6+u^5-u^3+u^2-u+1)^2)(u^{16}-12u^{15}+\cdots-121u+7)$ $\cdot(u^{41}+29u^{40}+\cdots-31212u-2196)$ $\cdot(u^{53}-19u^{52}+\cdots+603u-55)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^7+5y^6+15y^5+23y^4+10y^3-7y^2-5y-1)^2$ $\cdot(y^{16}+7y^{15}+\cdots+14y+1)(y^{41}+18y^{40}+\cdots+259056y-20736)$ $\cdot(y^{53}+27y^{52}+\cdots+1651y-81)^2$
c_2, c_6	$(y^7-3y^6+7y^5-9y^4+10y^3-7y^2+3y-1)^2$ $\cdot(y^{16}-5y^{15}+\cdots-6y+1)(y^{41}-14y^{40}+\cdots+1308y-144)$ $\cdot(y^{53}-21y^{52}+\cdots+187y-9)^2$
c_3, c_{10}	$(y^{14}+4y^{13}+\cdots-20y+1)(y^{16}-8y^{15}+\cdots+8y+1)$ $\cdot(y^{41}+24y^{40}+\cdots-2197y-49)$ $\cdot(y^{106}-9y^{105}+\cdots+484280y+80089)$
c_4, c_5, c_8 c_{12}	$(y^{14}+12y^{13}+\cdots-22y+1)(y^{16}+13y^{15}+\cdots+14y+1)$ $\cdot(y^{41}+41y^{40}+\cdots+13y-1)(y^{106}+75y^{105}+\cdots-698y+1)$
c_7, c_9	$(y^{14}-6y^{13}+\cdots-2y+1)(y^{16}+y^{15}+\cdots+7y+1)$ $\cdot(y^{41}-3y^{40}+\cdots-44y-1)(y^{106}-3y^{105}+\cdots-230y+1)$
c_{11}	$(y^7+y^6-y^5-2y^4+y^3+y^2-y-1)^2$ $\cdot(y^{16}+16y^{15}+\cdots-2503y+49)$ $\cdot(y^{41}-y^{40}+\cdots+18265752y-4822416)$ $\cdot(y^{53}+27y^{52}+\cdots-30081y-3025)^2$