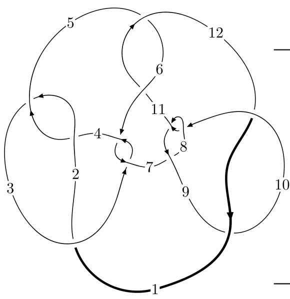
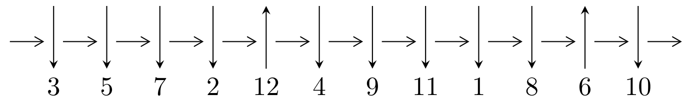
$12a_{0064}$ ($K12a_{0064}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I^u_1 = \langle -3u^{19} - 8u^{18} + \cdots + 2b - 2,\ u^{20} + 2u^{19} + \cdots + 2a - 1,\ u^{21} + 3u^{20} + \cdots - 2u - 1\rangle$

$I^u_2 = \langle -6.83993 \times 10^{145}u^{113} - 6.54937 \times 10^{146}u^{112} + \cdots + 1.45244 \times 10^{144}b - 2.79617 \times 10^{145},$
$\quad - 7.83619 \times 10^{145}u^{113} - 8.19384 \times 10^{146}u^{112} + \cdots + 2.90489 \times 10^{144}a - 4.22987 \times 10^{146},$
$\quad u^{114} + 11u^{113} + \cdots - 244u + 1\rangle$

$I^u_3 = \langle 3u^8 + 4u^7 - 3u^6 - 8u^5 - 2u^4 + 4u^3 + 7u^2 + b + 5u + 2,\ -u^7 - 2u^6 + u^5 + 4u^4 + u^3 - 3u^2 + a - 3u - 2,$
$\quad u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1\rangle$

$I^u_4 = \langle -2a^8 + 3a^7 - 6a^6 + 5a^5 - 9a^4 + 6a^3 - 8a^2 + b + 3a - 4,\ a^9 - a^8 + 2a^7 - a^6 + 3a^5 - a^4 + 2a^3 + a + 1,\ u -$

$I^u_5 = \langle u^2 + b + u - 1,\ a + u,\ u^3 + u^2 - 1\rangle$

$I^u_6 = \langle 4u^2a + 6au + b + 4a + 1,\ -2u^2a + a^2 - au - 2u^2 + 2a - u + 2,\ u^3 + u^2 - 1\rangle$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 162 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$\boldsymbol{I^u_1 = \langle -3u^{19} - 8u^{18} + \cdots + 2b - 2,\ u^{20} + 2u^{19} + \cdots + 2a - 1,\ u^{21} + 3u^{20} + \cdots - 2u - 1 \rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -\frac{1}{2}u^{20} - u^{19} + \cdots - u + \frac{1}{2} \\ \frac{3}{2}u^{19} + 4u^{18} + \cdots + \frac{5}{2}u + 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -\frac{1}{2}u^{20} - \frac{3}{2}u^{19} + \cdots - \frac{7}{2}u^2 - \frac{3}{2}u \\ \frac{1}{2}u^{20} + 2u^{19} + \cdots + 2u + \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{20} - \frac{3}{2}u^{19} + \cdots + \frac{1}{2}u + 2 \\ \frac{1}{2}u^{19} + \frac{3}{2}u^{18} + \cdots + \frac{1}{2}u + \frac{1}{2} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2u^{20} + 4u^{19} + \cdots - 4u^2 - 2 \\ u^{20} + \frac{3}{2}u^{19} + \cdots - u^2 + \frac{1}{2}u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{5}{2}u^{20} - \frac{11}{2}u^{19} + \cdots + \frac{3}{2}u + 3 \\ \frac{1}{2}u^{18} + u^{17} + \cdots + u + \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{5}{2}u^{20} + 5u^{19} + \cdots - u - \frac{5}{2} \\ \frac{1}{2}u^{20} + u^{19} + \cdots - 3u^3 - \frac{3}{2}u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{5}{2}u^{20} + \frac{11}{2}u^{19} + \cdots - \frac{1}{2}u - \frac{5}{2} \\ -\frac{1}{2}u^{20} - \frac{3}{2}u^{19} + \cdots - \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -3u^{20} - 19u^{19} - 28u^{18} + 41u^{17} + 153u^{16} + 64u^{15} - 265u^{14} - 364u^{13} + 97u^{12} + 580u^{11} + 342u^{10} - 375u^9 - 589u^8 - 102u^7 + 336u^6 + 253u^5 - 18u^4 - 116u^3 - 50u^2 - 19u - 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{21} + 11u^{20} + \cdots - 4u + 1$
c_2, c_4, c_8 c_{10}	$u^{21} - 3u^{20} + \cdots - 2u + 1$
c_3, c_6, c_9 c_{12}	$u^{21} - u^{20} + \cdots + 4u + 1$
c_5, c_{11}	$u^{21} + 7u^{20} + \cdots - 24u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{21} + y^{20} + \cdots + 60y - 1$
c_2, c_4, c_8 c_{10}	$y^{21} - 11y^{20} + \cdots - 4y - 1$
c_3, c_6, c_9 c_{12}	$y^{21} + 9y^{20} + \cdots + 4y - 1$
c_5, c_{11}	$y^{21} + 7y^{20} + \cdots + 384y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.397532+0.952972I$ $a=-1.46701+1.70855I$ $b=-1.64079+0.06397I$	$5.42762-7.34188I$	$-2.93735+4.03622I$
$u=-0.397532-0.952972I$ $a=-1.46701-1.70855I$ $b=-1.64079-0.06397I$	$5.42762+7.34188I$	$-2.93735-4.03622I$
$u=-0.463906+0.848244I$ $a=\ 1.78399-0.57848I$ $b=\ 1.53953+0.74905I$	$6.79620-1.15294I$	$-1.115456-0.635021I$
$u=-0.463906-0.848244I$ $a=\ 1.78399+0.57848I$ $b=\ 1.53953-0.74905I$	$6.79620+1.15294I$	$-1.115456+0.635021I$
$u=\ 0.882297+0.334419I$ $a=\ 0.232035+1.015740I$ $b=\ 0.473224-0.788051I$	$-2.27847-1.35735I$	$-12.26664+3.16411I$
$u=\ 0.882297-0.334419I$ $a=\ 0.232035-1.015740I$ $b=\ 0.473224+0.788051I$	$-2.27847+1.35735I$	$-12.26664-3.16411I$
$u=\ 0.931344$ $a=-1.44830$ $b=\ 6.82396$	-2.88079	-73.8270
$u=\ 1.019660+0.542496I$ $a=\ 0.251541+0.051587I$ $b=\ 0.859784+0.625986I$	$-4.35380-5.94110I$	$-11.79339+6.03278I$
$u=\ 1.019660-0.542496I$ $a=\ 0.251541-0.051587I$ $b=\ 0.859784-0.625986I$	$-4.35380+5.94110I$	$-11.79339-6.03278I$
$u=-0.777943+0.303148I$ $a=-0.536058+0.895141I$ $b=-0.287676+0.330307I$	$0.94396+2.98921I$	$-0.51194-9.40250I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.777943 - 0.303148I$ $a = -0.536058 - 0.895141I$ $b = -0.287676 - 0.330307I$	$0.94396 - 2.98921I$	$-0.51194 + 9.40250I$
$u = -1.129490 + 0.380138I$ $a = 0.424670 - 0.157361I$ $b = -0.322627 - 0.310934I$	$-6.57363 + 8.18913I$	$-13.0291 - 11.3346I$
$u = -1.129490 - 0.380138I$ $a = 0.424670 + 0.157361I$ $b = -0.322627 + 0.310934I$	$-6.57363 - 8.18913I$	$-13.0291 + 11.3346I$
$u = 1.241170 + 0.210800I$ $a = 0.75510 - 1.44309I$ $b = 0.44119 - 2.32654I$	$-5.92018 + 0.83164I$	$-11.63192 - 4.49260I$
$u = 1.241170 - 0.210800I$ $a = 0.75510 + 1.44309I$ $b = 0.44119 + 2.32654I$	$-5.92018 - 0.83164I$	$-11.63192 + 4.49260I$
$u = -1.142470 + 0.607681I$ $a = 0.515989 - 1.228650I$ $b = 2.19730 - 0.30131I$	$2.55725 + 12.07520I$	$-7.44072 - 8.70390I$
$u = -1.142470 - 0.607681I$ $a = 0.515989 + 1.228650I$ $b = 2.19730 + 0.30131I$	$2.55725 - 12.07520I$	$-7.44072 + 8.70390I$
$u = -1.202640 + 0.655976I$ $a = -1.51704 + 0.96579I$ $b = -2.94250 - 0.46093I$	$0.4705 + 19.1772I$	$-8.57373 - 11.20098I$
$u = -1.202640 - 0.655976I$ $a = -1.51704 - 0.96579I$ $b = -2.94250 + 0.46093I$	$0.4705 - 19.1772I$	$-8.57373 + 11.20098I$
$u = 0.005183 + 0.428880I$ $a = 1.280940 - 0.328547I$ $b = -0.229418 - 0.478934I$	$-0.56389 - 1.48786I$	$-4.78639 + 4.72577I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.005183 - 0.428880I$ $a = 1.280940 + 0.328547I$ $b = -0.229418 + 0.478934I$	$-0.56389 + 1.48786I$	$-4.78639 - 4.72577I$

II. $\boldsymbol{I_2^u = \langle -6.84 \times 10^{145} u^{113} - 6.55 \times 10^{146} u^{112} + \cdots + 1.45 \times 10^{144} b - 2.80 \times 10^{145},\ -7.84 \times 10^{145} u^{113} - 8.19 \times 10^{146} u^{112} + \cdots + 2.90 \times 10^{144} a - 4.23 \times 10^{146},\ u^{114} + 11 u^{113} + \cdots - 244 u + 1 \rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 26.9759u^{113} + 282.071u^{112} + \cdots - 6802.68u + 145.612 \\ 47.0925u^{113} + 450.920u^{112} + \cdots - 4819.75u + 19.2514 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -8.42016u^{113} - 58.2813u^{112} + \cdots - 3397.00u + 131.106 \\ 43.1668u^{113} + 438.065u^{112} + \cdots - 9408.31u + 37.9280 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -20.6797u^{113} - 207.500u^{112} + \cdots + 4040.09u + 45.5888 \\ -4.04307u^{113} - 53.0186u^{112} + \cdots + 2846.86u - 11.8823 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -11.1969u^{113} - 107.084u^{112} + \cdots + 480.862u + 13.6402 \\ -26.4702u^{113} - 254.764u^{112} + \cdots + 2787.16u - 11.4982 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -46.3066u^{113} - 446.665u^{112} + \cdots + 5731.61u + 42.5602 \\ -12.0229u^{113} - 108.252u^{112} + \cdots - 163.581u + 0.340418 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -5.46063u^{113} - 26.0519u^{112} + \cdots - 4944.78u + 35.7594 \\ 22.1192u^{113} + 237.575u^{112} + \cdots - 7008.51u + 28.5545 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 4.26597u^{113} + 40.3853u^{112} + \cdots - 1062.40u - 58.8348 \\ 1.42212u^{113} + 32.2085u^{112} + \cdots - 3675.04u + 15.2628 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 34.1724u^{113} + 358.780u^{112} + \cdots - 9912.17u + 32.0534$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{114} + 53u^{113} + \cdots + 60814u + 1$
c_2, c_4, c_8 c_{10}	$u^{114} - 11u^{113} + \cdots + 244u + 1$
c_3, c_6, c_9 c_{12}	$u^{114} - 4u^{113} + \cdots + 9216u - 512$
c_5, c_{11}	$(u^{57} - 2u^{56} + \cdots - 28u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{114} + 27y^{113} + \cdots - 3695912450y + 1$
c_2, c_4, c_8 c_{10}	$y^{114} - 53y^{113} + \cdots - 60814y + 1$
c_3, c_6, c_9 c_{12}	$y^{114} + 60y^{113} + \cdots - 63963136y + 262144$
c_5, c_{11}	$(y^{57} + 28y^{56} + \cdots + 976y - 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.935089+0.338704I$ $a=\ \ 0.850752+0.119686I$ $b=-0.335249-0.500643I$	$-5.85242-0.17004I$	0
$u=-0.935089-0.338704I$ $a=\ \ 0.850752-0.119686I$ $b=-0.335249+0.500643I$	$-5.85242+0.17004I$	0
$u=-0.363311+0.900230I$ $a=\ \ 0.178573+0.463078I$ $b=\ \ 0.488212-0.184046I$	$0.38987-6.64143I$	0
$u=-0.363311-0.900230I$ $a=\ \ 0.178573-0.463078I$ $b=\ \ 0.488212+0.184046I$	$0.38987+6.64143I$	0
$u=-0.544457+0.799736I$ $a=-0.47592+1.71750I$ $b=-1.232260-0.150308I$	$7.34550-2.45066I$	0
$u=-0.544457-0.799736I$ $a=-0.47592-1.71750I$ $b=-1.232260+0.150308I$	$7.34550+2.45066I$	0
$u=\ \ 0.913747+0.500557I$ $a=-0.446028-1.336870I$ $b=-2.39965+0.30940I$	$2.00680-0.99841I$	0
$u=\ \ 0.913747-0.500557I$ $a=-0.446028+1.336870I$ $b=-2.39965-0.30940I$	$2.00680+0.99841I$	0
$u=-0.974911+0.375171I$ $a=\ \ 1.04389+1.21197I$ $b=\ \ 0.60060+1.50246I$	$-6.11667+2.79727I$	0
$u=-0.974911-0.375171I$ $a=\ \ 1.04389-1.21197I$ $b=\ \ 0.60060-1.50246I$	$-6.11667-2.79727I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.591439 + 0.742345I$ $a = 1.27791 + 1.47235I$ $b = 1.96110 - 0.21410I$	$-0.66955 + 6.99715I$	0
$u = 0.591439 - 0.742345I$ $a = 1.27791 - 1.47235I$ $b = 1.96110 + 0.21410I$	$-0.66955 - 6.99715I$	0
$u = -0.603204 + 0.724752I$ $a = 0.08992 - 1.53533I$ $b = 1.034000 + 0.309631I$	$6.31677 + 3.78842I$	0
$u = -0.603204 - 0.724752I$ $a = 0.08992 + 1.53533I$ $b = 1.034000 - 0.309631I$	$6.31677 - 3.78842I$	0
$u = -0.361235 + 0.994127I$ $a = 1.67677 - 1.55060I$ $b = 1.73022 - 0.06071I$	$3.05680 - 13.20750I$	0
$u = -0.361235 - 0.994127I$ $a = 1.67677 + 1.55060I$ $b = 1.73022 + 0.06071I$	$3.05680 + 13.20750I$	0
$u = -0.710294 + 0.785669I$ $a = 1.350040 + 0.185786I$ $b = 1.107210 + 0.380959I$	$2.57214 + 2.93898I$	0
$u = -0.710294 - 0.785669I$ $a = 1.350040 - 0.185786I$ $b = 1.107210 - 0.380959I$	$2.57214 - 2.93898I$	0
$u = -0.913827 + 0.203758I$ $a = 0.77987 + 1.28445I$ $b = 0.220732 + 0.951081I$	$-5.07109 - 6.54642I$	0
$u = -0.913827 - 0.203758I$ $a = 0.77987 - 1.28445I$ $b = 0.220732 - 0.951081I$	$-5.07109 + 6.54642I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.934277 + 0.044606I$ $a = -1.27302 + 0.62199I$ $b = 6.22746 - 0.11628I$	-2.88161	0
$u = 0.934277 - 0.044606I$ $a = -1.27302 - 0.62199I$ $b = 6.22746 + 0.11628I$	-2.88161	0
$u = 0.993751 + 0.415165I$ $a = -0.202287 - 0.111454I$ $b = -0.688804 - 0.887752I$	$-2.88934 - 1.48893I$	0
$u = 0.993751 - 0.415165I$ $a = -0.202287 + 0.111454I$ $b = -0.688804 + 0.887752I$	$-2.88934 + 1.48893I$	0
$u = -0.607754 + 0.690667I$ $a = -2.55750 + 0.99847I$ $b = -1.97548 - 1.05995I$	$0.91644 + 1.21025I$	0
$u = -0.607754 - 0.690667I$ $a = -2.55750 - 0.99847I$ $b = -1.97548 + 1.05995I$	$0.91644 - 1.21025I$	0
$u = 0.651838 + 0.645048I$ $a = -1.03350 - 1.59021I$ $b = -2.00486 + 0.31771I$	$1.42672 + 1.76217I$	0
$u = 0.651838 - 0.645048I$ $a = -1.03350 + 1.59021I$ $b = -2.00486 - 0.31771I$	$1.42672 - 1.76217I$	0
$u = -0.353913 + 0.845498I$ $a = 1.40632 - 2.46214I$ $b = 1.50509 - 0.30868I$	$-0.72077 - 3.96419I$	0
$u = -0.353913 - 0.845498I$ $a = 1.40632 + 2.46214I$ $b = 1.50509 + 0.30868I$	$-0.72077 + 3.96419I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.003140 + 0.412990I$ $a = 0.134567 - 1.062100I$ $b = 0.253159 - 0.330157I$	-0.0831767	0
$u = -1.003140 - 0.412990I$ $a = 0.134567 + 1.062100I$ $b = 0.253159 + 0.330157I$	-0.0831767	0
$u = -0.882583 + 0.631624I$ $a = 0.556823 + 1.098240I$ $b = -0.050659 + 0.752253I$	$2.11375 + 2.54354I$	0
$u = -0.882583 - 0.631624I$ $a = 0.556823 - 1.098240I$ $b = -0.050659 - 0.752253I$	$2.11375 - 2.54354I$	0
$u = -0.365682 + 0.836149I$ $a = -1.71940 + 0.32564I$ $b = -1.43084 - 0.77704I$	$4.87423 - 6.70670I$	0
$u = -0.365682 - 0.836149I$ $a = -1.71940 - 0.32564I$ $b = -1.43084 + 0.77704I$	$4.87423 + 6.70670I$	0
$u = -0.855779 + 0.303645I$ $a = -0.788708 - 1.168320I$ $b = -0.514747 - 0.982746I$	$-1.75595 - 1.61826I$	0
$u = -0.855779 - 0.303645I$ $a = -0.788708 + 1.168320I$ $b = -0.514747 + 0.982746I$	$-1.75595 + 1.61826I$	0
$u = -1.001490 + 0.442923I$ $a = -0.534520 - 0.168120I$ $b = 0.235876 + 0.485155I$	$-2.71251 + 4.62043I$	0
$u = -1.001490 - 0.442923I$ $a = -0.534520 + 0.168120I$ $b = 0.235876 - 0.485155I$	$-2.71251 - 4.62043I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.513607+0.741605I$ $a=-1.283240-0.030725I$ $b=-0.982627+0.066544I$	$2.00680-0.99841I$	0
$u=-0.513607-0.741605I$ $a=-1.283240+0.030725I$ $b=-0.982627-0.066544I$	$2.00680+0.99841I$	0
$u=-0.408525+0.785138I$ $a=-0.141578-0.526635I$ $b=-0.544167+0.043679I$	$1.42672-1.76217I$	0
$u=-0.408525-0.785138I$ $a=-0.141578+0.526635I$ $b=-0.544167-0.043679I$	$1.42672+1.76217I$	0
$u=-0.092244+0.870800I$ $a=\ 0.273591+0.305144I$ $b=\ 0.196994-0.274279I$	$-1.75595-1.61826I$	0
$u=-0.092244-0.870800I$ $a=\ 0.273591-0.305144I$ $b=\ 0.196994+0.274279I$	$-1.75595+1.61826I$	0
$u=\ 1.018750+0.476916I$ $a=\ 0.350624+1.161860I$ $b=\ 2.48100-0.15060I$	$0.39261-6.15931I$	0
$u=\ 1.018750-0.476916I$ $a=\ 0.350624-1.161860I$ $b=\ 2.48100+0.15060I$	$0.39261+6.15931I$	0
$u=\ 0.756655+0.420921I$ $a=\ 1.214540+0.652117I$ $b=\ 1.89236-1.84847I$	$2.57214-2.93898I$	0
$u=\ 0.756655-0.420921I$ $a=\ 1.214540-0.652117I$ $b=\ 1.89236+1.84847I$	$2.57214+2.93898I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.685449 + 0.914736I$ $a = 1.50544 - 1.21375I$ $b = 1.69664 + 0.39127I$	$7.34550 + 2.45066I$	0
$u = -0.685449 - 0.914736I$ $a = 1.50544 + 1.21375I$ $b = 1.69664 - 0.39127I$	$7.34550 - 2.45066I$	0
$u = 1.031590 + 0.492984I$ $a = -1.80812 - 0.87554I$ $b = -3.16106 + 1.51186I$	$-5.22774 - 3.33747I$	0
$u = 1.031590 - 0.492984I$ $a = -1.80812 + 0.87554I$ $b = -3.16106 - 1.51186I$	$-5.22774 + 3.33747I$	0
$u = 0.989207 + 0.597613I$ $a = 1.46479 + 0.94667I$ $b = 2.63360 - 1.11009I$	$0.38987 - 6.64143I$	0
$u = 0.989207 - 0.597613I$ $a = 1.46479 - 0.94667I$ $b = 2.63360 + 1.11009I$	$0.38987 + 6.64143I$	0
$u = 1.138690 + 0.225773I$ $a = -0.091897 - 0.232614I$ $b = 0.485769 - 1.286550I$	$-3.38914 - 0.67754I$	0
$u = 1.138690 - 0.225773I$ $a = -0.091897 + 0.232614I$ $b = 0.485769 + 1.286550I$	$-3.38914 + 0.67754I$	0
$u = -1.004000 + 0.595357I$ $a = 0.73786 - 1.91783I$ $b = 2.55639 - 0.40972I$	$-0.28156 + 3.75363I$	0
$u = -1.004000 - 0.595357I$ $a = 0.73786 + 1.91783I$ $b = 2.55639 + 0.40972I$	$-0.28156 - 3.75363I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.916494+0.738189I$ $a=\ \ 0.26382+2.19070I$ $b=-0.94011+1.28799I$	$1.99622+2.68142I$	0
$u=-0.916494-0.738189I$ $a=\ \ 0.26382-2.19070I$ $b=-0.94011-1.28799I$	$1.99622-2.68142I$	0
$u=-1.002740+0.618362I$ $a=-1.299220-0.163820I$ $b=-2.08563-1.17049I$	$5.11807+1.34577I$	0
$u=-1.002740-0.618362I$ $a=-1.299220+0.163820I$ $b=-2.08563+1.17049I$	$5.11807-1.34577I$	0
$u=\ \ 0.179685+0.801420I$ $a=-0.545647-0.416620I$ $b=-0.086027+0.476561I$	$-2.71251-4.62043I$	0
$u=\ \ 0.179685-0.801420I$ $a=-0.545647+0.416620I$ $b=-0.086027-0.476561I$	$-2.71251+4.62043I$	0
$u=\ \ 0.819663$ $a=\ \ 0.328152$ $b=-0.477779$	-1.19406	0
$u=-0.760316+0.943701I$ $a=-1.28155+1.33638I$ $b=-1.62449-0.22495I$	$5.81781+7.86530I$	0
$u=-0.760316-0.943701I$ $a=-1.28155-1.33638I$ $b=-1.62449+0.22495I$	$5.81781-7.86530I$	0
$u=\ \ 1.036360+0.631451I$ $a=-1.41429-1.05458I$ $b=-2.66301+0.86744I$	$-2.02455-12.24910I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.036360 - 0.631451I$ $a = -1.41429 + 1.05458I$ $b = -2.66301 - 0.86744I$	$-2.02455 + 12.24910I$	0
$u = -1.055580 + 0.612560I$ $a = 0.024962 - 1.265440I$ $b = 0.465183 - 0.429798I$	$0.39261 + 6.15931I$	0
$u = -1.055580 - 0.612560I$ $a = 0.024962 + 1.265440I$ $b = 0.465183 + 0.429798I$	$0.39261 - 6.15931I$	0
$u = 1.210960 + 0.201725I$ $a = 0.246902 + 0.934548I$ $b = 0.730080 - 0.057414I$	$-0.28156 + 3.75363I$	0
$u = 1.210960 - 0.201725I$ $a = 0.246902 - 0.934548I$ $b = 0.730080 + 0.057414I$	$-0.28156 - 3.75363I$	0
$u = 1.227000 + 0.083482I$ $a = -0.314738 - 0.955394I$ $b = -0.929505 - 0.362390I$	$0.91644 - 1.21025I$	0
$u = 1.227000 - 0.083482I$ $a = -0.314738 + 0.955394I$ $b = -0.929505 + 0.362390I$	$0.91644 + 1.21025I$	0
$u = -1.052070 + 0.643114I$ $a = 1.43787 - 0.11164I$ $b = 2.37341 + 1.12747I$	$5.81781 + 7.86530I$	0
$u = -1.052070 - 0.643114I$ $a = 1.43787 + 0.11164I$ $b = 2.37341 - 1.12747I$	$5.81781 - 7.86530I$	0
$u = 0.517991 + 0.549703I$ $a = -0.650153 - 0.900346I$ $b = -0.085921 + 0.705389I$	$-2.88934 + 1.48893I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.517991 - 0.549703I$ $a = -0.650153 + 0.900346I$ $b = -0.085921 - 0.705389I$	$-2.88934 - 1.48893I$	0
$u = 0.731384 + 0.164640I$ $a = -0.653476 - 0.496177I$ $b = -1.48203 + 2.77131I$	$1.99622 + 2.68142I$	$0. + 16.3931I$
$u = 0.731384 - 0.164640I$ $a = -0.653476 + 0.496177I$ $b = -1.48203 - 2.77131I$	$1.99622 - 2.68142I$	$0. - 16.3931I$
$u = -1.114310 + 0.603665I$ $a = -0.194103 - 0.275883I$ $b = -0.173420 + 0.457226I$	$-0.66955 + 6.99715I$	0
$u = -1.114310 - 0.603665I$ $a = -0.194103 + 0.275883I$ $b = -0.173420 - 0.457226I$	$-0.66955 - 6.99715I$	0
$u = -1.104900 + 0.647613I$ $a = -0.72162 + 1.28759I$ $b = -2.27486 + 0.23636I$	$4.87423 + 6.70670I$	0
$u = -1.104900 - 0.647613I$ $a = -0.72162 - 1.28759I$ $b = -2.27486 - 0.23636I$	$4.87423 - 6.70670I$	0
$u = 1.201390 + 0.483404I$ $a = 0.164242 - 0.057254I$ $b = 0.711703 + 0.194974I$	$-5.85242 - 0.17004I$	0
$u = 1.201390 - 0.483404I$ $a = 0.164242 + 0.057254I$ $b = 0.711703 - 0.194974I$	$-5.85242 + 0.17004I$	0
$u = -1.028230 + 0.790978I$ $a = -1.31506 + 0.93346I$ $b = -2.23776 - 0.11435I$	$6.31677 + 3.78842I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.028230 - 0.790978I$ $a = -1.31506 - 0.93346I$ $b = -2.23776 + 0.11435I$	$6.31677 - 3.78842I$	0
$u = 1.285900 + 0.178551I$ $a = -0.021664 + 0.315043I$ $b = -1.18986 + 0.88462I$	$-5.22774 + 3.33747I$	0
$u = 1.285900 - 0.178551I$ $a = -0.021664 - 0.315043I$ $b = -1.18986 - 0.88462I$	$-5.22774 - 3.33747I$	0
$u = -1.147930 + 0.609222I$ $a = -1.97009 + 0.65340I$ $b = -3.16991 - 1.05389I$	$-3.08563 + 9.35831I$	0
$u = -1.147930 - 0.609222I$ $a = -1.97009 - 0.65340I$ $b = -3.16991 + 1.05389I$	$-3.08563 - 9.35831I$	0
$u = -0.993984 + 0.853696I$ $a = 1.40031 - 0.65532I$ $b = 2.08860 + 0.21266I$	$5.11807 - 1.34577I$	0
$u = -0.993984 - 0.853696I$ $a = 1.40031 + 0.65532I$ $b = 2.08860 - 0.21266I$	$5.11807 + 1.34577I$	0
$u = -1.207130 + 0.510791I$ $a = -0.024746 + 0.196336I$ $b = 0.239684 - 0.075811I$	$-5.07109 + 6.54642I$	0
$u = -1.207130 - 0.510791I$ $a = -0.024746 - 0.196336I$ $b = 0.239684 + 0.075811I$	$-5.07109 - 6.54642I$	0
$u = -1.163600 + 0.628049I$ $a = 0.142909 + 0.301527I$ $b = 0.289119 - 0.406103I$	$-2.02455 + 12.24910I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.163600 - 0.628049I$ $a = 0.142909 - 0.301527I$ $b = 0.289119 + 0.406103I$	$-2.02455 - 12.24910I$	0
$u = 1.332370 + 0.130005I$ $a = -0.391141 + 1.285310I$ $b = -0.209248 + 1.386280I$	$-0.72077 + 3.96419I$	0
$u = 1.332370 - 0.130005I$ $a = -0.391141 - 1.285310I$ $b = -0.209248 - 1.386280I$	$-0.72077 - 3.96419I$	0
$u = 1.288330 + 0.366402I$ $a = -0.096677 + 0.174502I$ $b = -0.820998 + 0.303703I$	$-6.11667 - 2.79727I$	0
$u = 1.288330 - 0.366402I$ $a = -0.096677 - 0.174502I$ $b = -0.820998 - 0.303703I$	$-6.11667 + 2.79727I$	0
$u = -1.173290 + 0.657195I$ $a = 1.57584 - 0.80785I$ $b = 2.90418 + 0.65113I$	$3.05680 + 13.20750I$	0
$u = -1.173290 - 0.657195I$ $a = 1.57584 + 0.80785I$ $b = 2.90418 - 0.65113I$	$3.05680 - 13.20750I$	0
$u = 1.377950 + 0.169180I$ $a = 0.294813 - 1.373240I$ $b = -0.140571 - 1.374840I$	$-3.08563 + 9.35831I$	0
$u = 1.377950 - 0.169180I$ $a = 0.294813 + 1.373240I$ $b = -0.140571 + 1.374840I$	$-3.08563 - 9.35831I$	0
$u = 0.337881 + 0.475409I$ $a = 1.49606 + 2.67220I$ $b = 1.46334 - 0.31833I$	$-3.38914 - 0.67754I$	$-11.03837 - 0.57218I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.337881 - 0.475409I$ $a = 1.49606 - 2.67220I$ $b = 1.46334 + 0.31833I$	$-3.38914 + 0.67754I$	$-11.03837 + 0.57218I$
$u = 0.242095 + 0.261744I$ $a = -1.75583 - 1.65677I$ $b = -0.638812 + 1.260710I$	$2.11375 + 2.54354I$	$-0.09108 - 1.48335I$
$u = 0.242095 - 0.261744I$ $a = -1.75583 + 1.65677I$ $b = -0.638812 - 1.260710I$	$2.11375 - 2.54354I$	$-0.09108 + 1.48335I$
$u = 0.00405574$ $a = 117.803$ $b = -0.520574$	-1.19406	-8.42600

III. $I_3^u = \langle 3u^8 + 4u^7 + \cdots + b + 2,\ -u^7 - 2u^6 + u^5 + 4u^4 + u^3 - 3u^2 + a - 3u - 2,\ u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 42u^8 + 74u^7 - 19u^6 - 137u^5 - 75u^4 + 54u^3 + 135u^2 + 112u + 44$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_6	u^9
c_4	$(u+1)^9$
c_5	$u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1$
c_7	$u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1$
c_8	$u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1$
c_9	$u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1$
c_{10}	$u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1$
c_{11}	$u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1$
c_{12}	$u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_6	y^9
c_5, c_{11}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_7	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_8, c_{10}	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_9, c_{12}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.772920 + 0.510351I$ $a = 1.082180 + 0.329167I$ $b = 0.162031 + 0.927542I$	$0.13850 + 2.09337I$	$-6.65973 - 4.50528I$
$u = -0.772920 - 0.510351I$ $a = 1.082180 - 0.329167I$ $b = 0.162031 - 0.927542I$	$0.13850 - 2.09337I$	$-6.65973 + 4.50528I$
$u = 0.825933$ $a = 4.61221$ $b = -9.89910$	-2.84338	193.930
$u = 1.173910 + 0.391555I$ $a = 0.271310 + 0.634428I$ $b = 0.990590 + 0.515152I$	$-6.01628 - 1.33617I$	$-13.00050 + 1.13735I$
$u = 1.173910 - 0.391555I$ $a = 0.271310 - 0.634428I$ $b = 0.990590 - 0.515152I$	$-6.01628 + 1.33617I$	$-13.00050 - 1.13735I$
$u = -0.141484 + 0.739668I$ $a = -0.996034 + 0.562654I$ $b = -0.405386 + 0.113252I$	$-2.26187 - 2.45442I$	$-9.69685 + 4.13179I$
$u = -0.141484 - 0.739668I$ $a = -0.996034 - 0.562654I$ $b = -0.405386 - 0.113252I$	$-2.26187 + 2.45442I$	$-9.69685 - 4.13179I$
$u = -1.172470 + 0.500383I$ $a = 0.336447 - 0.398473I$ $b = 0.702315 - 0.150499I$	$-5.24306 + 7.08493I$	$-11.6081 - 10.4867I$
$u = -1.172470 - 0.500383I$ $a = 0.336447 + 0.398473I$ $b = 0.702315 + 0.150499I$	$-5.24306 - 7.08493I$	$-11.6081 + 10.4867I$

IV.

$\boldsymbol{I^u_4 = \langle -2a^8+b+\cdots+3a-4,\ a^9-a^8+2a^7-a^6+3a^5-a^4+2a^3+a+1,\ u-1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix}0\\1\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}a\\2a^8-3a^7+6a^6-5a^5+9a^4-6a^3+8a^2-3a+4\end{pmatrix}$$

$$a_7 = \begin{pmatrix}0\\-1\end{pmatrix}$$

$$a_3 = \begin{pmatrix}a\\2a^8-3a^7+6a^6-5a^5+9a^4-6a^3+8a^2-4a+4\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-a^2\\a^8-2a^7+3a^6-3a^5+4a^4-4a^3+3a^2-2a+1\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}a^4\\0\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-a^6-a^2\\a^8-2a^7+3a^6-3a^5+4a^4-4a^3+3a^2-2a+1\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_1 = \begin{pmatrix}a^4\\0\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-a^6-a^2\\a^8-2a^7+4a^6-3a^5+6a^4-4a^3+6a^2-2a+3\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 45a^8-63a^7+119a^6-104a^5+184a^4-133a^3+157a^2-83a+73$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1$
c_2	$u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1$
c_3	$u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1$
c_4	$u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1$
c_5	$u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1$
c_6	$u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1$
c_7, c_8	$(u-1)^9$
c_9, c_{12}	u^9
c_{10}	$(u+1)^9$
c_{11}	$u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_2, c_4	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_3, c_6	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_5, c_{11}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_7, c_8, c_{10}	$(y-1)^9$
c_9, c_{12}	y^9

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.140343 + 0.966856I$ $b = -0.302374 + 0.039314I$	$0.13850 + 2.09337I$	$-6.65973 - 4.50528I$
$u = 1.00000$ $a = -0.140343 - 0.966856I$ $b = -0.302374 - 0.039314I$	$0.13850 - 2.09337I$	$-6.65973 + 4.50528I$
$u = 1.00000$ $a = -0.628449 + 0.875112I$ $b = -0.223063 + 0.988364I$	$-2.26187 + 2.45442I$	$-9.69685 - 4.13179I$
$u = 1.00000$ $a = -0.628449 - 0.875112I$ $b = -0.223063 - 0.988364I$	$-2.26187 - 2.45442I$	$-9.69685 + 4.13179I$
$u = 1.00000$ $a = 0.796005 + 0.733148I$ $b = -0.194585 + 1.248300I$	$-6.01628 + 1.33617I$	$-13.00050 - 1.13735I$
$u = 1.00000$ $a = 0.796005 - 0.733148I$ $b = -0.194585 - 1.248300I$	$-6.01628 - 1.33617I$	$-13.00050 + 1.13735I$
$u = 1.00000$ $a = 0.728966 + 0.986295I$ $b = 0.026651 + 0.835796I$	$-5.24306 - 7.08493I$	$-11.6081 + 10.4867I$
$u = 1.00000$ $a = 0.728966 - 0.986295I$ $b = 0.026651 - 0.835796I$	$-5.24306 + 7.08493I$	$-11.6081 - 10.4867I$
$u = 1.00000$ $a = -0.512358$ $b = 9.38674$	-2.84338	193.930

V. $I_5^u = \langle u^2 + b + u - 1,\ a + u,\ u^3 + u^2 - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=\ \ 0.877439-0.744862I$ $b=\ \ 1.66236+0.56228I$	$6.04826+5.65624I$	$-4.98049-5.95889I$
$u=-0.877439-0.744862I$ $a=\ \ 0.877439+0.744862I$ $b=\ \ 1.66236-0.56228I$	$6.04826-5.65624I$	$-4.98049+5.95889I$
$u=\ \ 0.754878$ $a=-0.754878$ $b=-0.324718$	-2.22691	-18.0390

VI.

$\boldsymbol{I^u_6 = \langle 4u^2a+6au+b+4a+1,\ -2u^2a+a^2-au-2u^2+2a-u+2,\ u^3+u^2-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 24u^2a+29au+29a-19u-15$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_6	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = -1.069840 + 0.424452I$ $b = -1.75488 - 0.64082I$	6.04826	$-3.50653 + 0.I$
$u = -0.877439 + 0.744862I$ $a = -1.37744 - 2.29387I$ $b = \quad 0.18504 - 1.97346I$	$1.91067 + 2.82812I$	$-32.7467 - 20.6881I$
$u = -0.877439 - 0.744862I$ $a = -1.069840 - 0.424452I$ $b = -1.75488 + 0.64082I$	6.04826	$-3.50653 + 0.I$
$u = -0.877439 - 0.744862I$ $a = -1.37744 + 2.29387I$ $b = \quad 0.18504 + 1.97346I$	$1.91067 - 2.82812I$	$-32.7467 + 20.6881I$
$u = \quad 0.754878$ $a = -0.052721 + 0.320410I$ $b = -0.43016 - 3.46319I$	$1.91067 - 2.82812I$	$-32.7467 + 20.6881I$
$u = \quad 0.754878$ $a = -0.052721 - 0.320410I$ $b = -0.43016 + 3.46319I$	$1.91067 + 2.82812I$	$-32.7467 - 20.6881I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u-1)^9(u^3-u^2+2u-1)^3$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{21}+11u^{20}+\cdots-4u+1)(u^{114}+53u^{113}+\cdots+60814u+1)$
c_2, c_8	$(u-1)^9(u^3+u^2-1)^3(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{21}-3u^{20}+\cdots-2u+1)(u^{114}-11u^{113}+\cdots+244u+1)$
c_3, c_9	$u^9(u^3-u^2+2u-1)^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{21}-u^{20}+\cdots+4u+1)(u^{114}-4u^{113}+\cdots+9216u-512)$
c_4, c_{10}	$(u+1)^9(u^3-u^2+1)^3(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{21}-3u^{20}+\cdots-2u+1)(u^{114}-11u^{113}+\cdots+244u+1)$
c_5, c_{11}	$u^9(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{21}+7u^{20}+\cdots-24u-8)(u^{57}-2u^{56}+\cdots-28u+8)^2$
c_6, c_{12}	$u^9(u^3+u^2+2u+1)^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{21}-u^{20}+\cdots+4u+1)(u^{114}-4u^{113}+\cdots+9216u-512)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y-1)^9(y^3+3y^2+2y-1)^3$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{21}+y^{20}+\cdots+60y-1)(y^{114}+27y^{113}+\cdots-3695912450y+1)$
c_2, c_4, c_8 c_{10}	$(y-1)^9(y^3-y^2+2y-1)^3$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{21}-11y^{20}+\cdots-4y-1)(y^{114}-53y^{113}+\cdots-60814y+1)$
c_3, c_6, c_9 c_{12}	$y^9(y^3+3y^2+2y-1)^3$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{21}+9y^{20}+\cdots+4y-1)$ $\cdot(y^{114}+60y^{113}+\cdots-63963136y+262144)$
c_5, c_{11}	$y^9(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^2$ $\cdot(y^{21}+7y^{20}+\cdots+384y-64)(y^{57}+28y^{56}+\cdots+976y-64)^2$