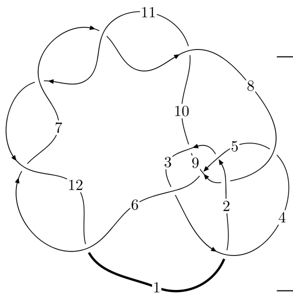
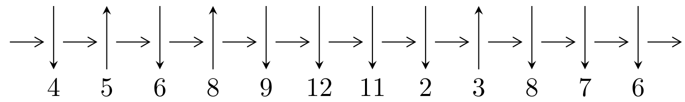
$12n_{0669}$ ($K12n_{0669}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -99u^{27} - 595u^{26} + \cdots + 181b - 1270,\ -7972u^{27} - 42371u^{26} + \cdots + 11403a - 75384,$$
$$u^{28} + 5u^{27} + \cdots + 18u + 9\rangle$$
$$I_2^u = \langle -u^{15}a - 13u^{15} + \cdots + a - 9,\ u^{14}a + u^{15} + \cdots + a + 2,\ u^{16} - 3u^{15} + \cdots + 4u^2 + 1\rangle$$
$$I_3^u = \langle -u^{11} + 3u^{10} - 11u^9 + 22u^8 - 41u^7 + 55u^6 - 63u^5 + 54u^4 - 37u^3 + 18u^2 + b - 6u + 1,$$
$$-u^{11} + 2u^{10} - 9u^9 + 13u^8 - 27u^7 + 26u^6 - 29u^5 + 13u^4 - 4u^3 - 7u^2 + a + 4u - 4,$$
$$u^{12} - 2u^{11} + 10u^{10} - 16u^9 + 37u^8 - 46u^7 + 62u^6 - 56u^5 + 46u^4 - 25u^3 + 13u^2 - 2u + 1\rangle$$

$$I_1^v = \langle a,\ b - 1,\ v - 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 73 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. $\boldsymbol{I_1^u = \langle -99u^{27} - 595u^{26} + \cdots + 181b - 1270,\ -7972u^{27} - 42371u^{26} + \cdots + 11403a - 75384,\ u^{28} + 5u^{27} + \cdots + 18u + 9\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.699114u^{27} + 3.71578u^{26} + \cdots + 13.4910u + 6.61089 \\ 0.546961u^{27} + 3.28729u^{26} + \cdots + 8.67956u + 7.01657 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1.45523u^{27} + 7.64395u^{26} + \cdots + 37.2140u + 25.2139 \\ -1.21547u^{27} - 3.08287u^{26} + \cdots + 5.82320u + 13.6298 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.559414u^{27} + 2.93677u^{26} + \cdots + 11.9148u + 11.6456 \\ -0.220205u^{27} - 0.414365u^{26} + \cdots + 5.97316u + 6.29203 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.419714u^{27} + 2.15777u^{26} + \cdots + 8.33868u + 6.68035 \\ 0.122336u^{27} + 0.563536u^{26} + \cdots - 0.540647u + 3.05998 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.11225u^{27} - 4.07980u^{26} + \cdots - 12.1491u - 1.59984 \\ -0.775848u^{27} - 2.30939u^{26} + \cdots - 0.764799u + 3.32281 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1388}{1267}u^{27} - \frac{1029}{181}u^{26} + \cdots - \frac{71766}{1267}u + \frac{12063}{1267}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{28} + 2u^{27} + \cdots - 4u + 1$
c_2	$u^{28} + 18u^{27} + \cdots + 72u + 9$
c_4, c_9	$u^{28} - 2u^{27} + \cdots - u + 8$
c_5, c_8	$u^{28} - u^{27} + \cdots + u + 1$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{28} - 5u^{27} + \cdots - 18u + 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{28} - 34y^{27} + \cdots - 12y + 1$
c_2	$y^{28} + 46y^{26} + \cdots + 1260y + 81$
c_4, c_9	$y^{28} + 10y^{27} + \cdots + 879y + 64$
c_5, c_8	$y^{28} - 11y^{27} + \cdots - 27y + 1$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{28} + 33y^{27} + \cdots - 90y + 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.279310 + 1.005780I$ $a = 0.111453 - 0.538123I$ $b = -0.460280 - 0.329159I$	$2.15334 - 3.08002I$	$-5.41932 + 2.17495I$
$u = 0.279310 - 1.005780I$ $a = 0.111453 + 0.538123I$ $b = -0.460280 + 0.329159I$	$2.15334 + 3.08002I$	$-5.41932 - 2.17495I$
$u = -0.720208 + 0.617732I$ $a = -0.067974 - 1.221620I$ $b = -0.518022 + 0.676690I$	$-5.18301 + 11.95320I$	$-6.36826 - 8.35721I$
$u = -0.720208 - 0.617732I$ $a = -0.067974 + 1.221620I$ $b = -0.518022 - 0.676690I$	$-5.18301 - 11.95320I$	$-6.36826 + 8.35721I$
$u = -0.778368 + 0.420776I$ $a = 0.148251 - 0.811625I$ $b = -1.044860 + 0.185626I$	$-5.77287 - 6.98018I$	$-7.82028 + 3.54637I$
$u = -0.778368 - 0.420776I$ $a = 0.148251 + 0.811625I$ $b = -1.044860 - 0.185626I$	$-5.77287 + 6.98018I$	$-7.82028 - 3.54637I$
$u = -0.588348 + 0.532762I$ $a = -0.326563 + 1.326180I$ $b = 0.777651 - 0.025379I$	$-4.60494 + 0.48065I$	$-11.27827 + 0.66157I$
$u = -0.588348 - 0.532762I$ $a = -0.326563 - 1.326180I$ $b = 0.777651 + 0.025379I$	$-4.60494 - 0.48065I$	$-11.27827 - 0.66157I$
$u = -0.609349 + 0.472094I$ $a = 0.554010 + 1.282630I$ $b = 0.814858 - 0.516381I$	$-4.78529 + 3.61019I$	$-12.2949 - 8.1596I$
$u = -0.609349 - 0.472094I$ $a = 0.554010 - 1.282630I$ $b = 0.814858 + 0.516381I$	$-4.78529 - 3.61019I$	$-12.2949 + 8.1596I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.230601 + 0.555602I$ $a = -0.857392 - 0.551333I$ $b = -0.249740 + 0.519303I$	$0.39899 - 1.65572I$	$-2.33445 + 5.92900I$
$u = 0.230601 - 0.555602I$ $a = -0.857392 + 0.551333I$ $b = -0.249740 - 0.519303I$	$0.39899 + 1.65572I$	$-2.33445 - 5.92900I$
$u = 0.02508 + 1.41638I$ $a = -0.74984 + 1.49379I$ $b = -0.20717 + 2.40362I$	$3.21161 - 0.20656I$	$-6.00000 - 0.51080I$
$u = 0.02508 - 1.41638I$ $a = -0.74984 - 1.49379I$ $b = -0.20717 - 2.40362I$	$3.21161 + 0.20656I$	$-6.00000 + 0.51080I$
$u = -0.29358 + 1.42827I$ $a = 1.004870 - 0.924707I$ $b = 1.49328 - 0.86181I$	$0.13364 - 3.10062I$	$-6.00000 + 3.00953I$
$u = -0.29358 - 1.42827I$ $a = 1.004870 + 0.924707I$ $b = 1.49328 + 0.86181I$	$0.13364 + 3.10062I$	$-6.00000 - 3.00953I$
$u = -0.18111 + 1.50663I$ $a = -0.84422 + 2.04492I$ $b = -1.34773 + 3.07117I$	$1.71233 + 6.43075I$	$-9.24234 - 8.11110I$
$u = -0.18111 - 1.50663I$ $a = -0.84422 - 2.04492I$ $b = -1.34773 - 3.07117I$	$1.71233 - 6.43075I$	$-9.24234 + 8.11110I$
$u = 0.05585 + 1.53567I$ $a = -0.229321 - 1.036530I$ $b = -1.01658 - 1.57906I$	$7.40879 - 2.63530I$	$0. + 1.41712I$
$u = 0.05585 - 1.53567I$ $a = -0.229321 + 1.036530I$ $b = -1.01658 + 1.57906I$	$7.40879 + 2.63530I$	$0. - 1.41712I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.449761 + 0.053633I$ $a = -0.698805 - 0.615735I$ $b = 0.311401 + 0.365904I$	$-1.113100 - 0.415234I$	$-10.08873 + 1.99111I$
$u = 0.449761 - 0.053633I$ $a = -0.698805 + 0.615735I$ $b = 0.311401 - 0.365904I$	$-1.113100 + 0.415234I$	$-10.08873 - 1.99111I$
$u = -0.17350 + 1.54958I$ $a = -1.34694 + 1.07933I$ $b = -2.24580 + 1.72156I$	$2.33140 + 3.21187I$	$-6.00000 + 0.I$
$u = -0.17350 - 1.54958I$ $a = -1.34694 - 1.07933I$ $b = -2.24580 - 1.72156I$	$2.33140 - 3.21187I$	$-6.00000 + 0.I$
$u = -0.24174 + 1.57099I$ $a = 0.93340 - 1.79161I$ $b = 1.98417 - 2.74478I$	$2.0404 + 15.5256I$	$-6.00000 - 8.00298I$
$u = -0.24174 - 1.57099I$ $a = 0.93340 + 1.79161I$ $b = 1.98417 + 2.74478I$	$2.0404 - 15.5256I$	$-6.00000 + 8.00298I$
$u = 0.04560 + 1.71954I$ $a = 0.369072 - 0.185559I$ $b = 0.708836 - 0.625204I$	$11.93830 - 4.23690I$	0
$u = 0.04560 - 1.71954I$ $a = 0.369072 + 0.185559I$ $b = 0.708836 + 0.625204I$	$11.93830 + 4.23690I$	0

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle -u^{15}a - 13u^{15} + \cdots + a - 9,\ u^{14}a + u^{15} + \cdots + a + 2,\ u^{16} - 3u^{15} + \cdots + 4u^2 + 1 \rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ 0.0454545au^{15} + 0.590909u^{15} + \cdots - 0.0454545a + 0.409091 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.590909au^{15} - 0.318182u^{15} + \cdots + 0.409091a - 0.681818 \\ 0.409091au^{15} - 0.681818u^{15} + \cdots - 0.409091a - 0.318182 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0454545au^{15} + 0.590909u^{15} + \cdots + 0.954545a + 0.409091 \\ u^{15} - 4u^{14} + \cdots + au + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.181818au^{15} + 0.363636u^{15} + \cdots + 0.818182a + 0.636364 \\ 0.136364au^{15} + 0.772727u^{15} + \cdots - 0.136364a + 0.227273 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.0454545au^{15} + 0.409091u^{15} + \cdots + 1.04545a - 0.409091 \\ -0.181818au^{15} + 0.636364u^{15} + \cdots + 0.181818a + 0.363636 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{15} - 4u^{14} + 28u^{13} - 16u^{12} + 52u^{11} + 16u^{10} - 40u^9 + 164u^8 - 224u^7 + 284u^6 - 232u^5 + 188u^4 - 88u^3 + 40u^2 - 16u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{32} + u^{31} + \cdots - 27u + 976$
c_2	$(u^{16} - 7u^{15} + \cdots + 4u^2 + 1)^2$
c_4, c_9	$u^{32} + u^{31} + \cdots + 298u + 43$
c_5, c_8	$u^{32} + u^{31} + \cdots + 13u + 8$
c_6, c_7, c_{10} c_{11}, c_{12}	$(u^{16} + 3u^{15} + \cdots + 4u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{32} - 9y^{31} + \cdots + 352583y + 952576$
c_2	$(y^{16} + y^{15} + \cdots + 8y + 1)^2$
c_4, c_9	$y^{32} + 11y^{31} + \cdots - 23702y + 1849$
c_5, c_8	$y^{32} + 7y^{31} + \cdots - 377y + 64$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^{16} + 17y^{15} + \cdots + 8y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.736907 + 0.630715I$ $a = -0.347357 - 1.185090I$ $b = 0.346570 + 0.897786I$	$-3.73069 - 3.30359I$	$-11.5550 + 13.2403I$
$u = 0.736907 + 0.630715I$ $a = -0.097352 + 0.707530I$ $b = -0.595615 - 0.098261I$	$-3.73069 - 3.30359I$	$-11.5550 + 13.2403I$
$u = 0.736907 - 0.630715I$ $a = -0.347357 + 1.185090I$ $b = 0.346570 - 0.897786I$	$-3.73069 + 3.30359I$	$-11.5550 - 13.2403I$
$u = 0.736907 - 0.630715I$ $a = -0.097352 - 0.707530I$ $b = -0.595615 + 0.098261I$	$-3.73069 + 3.30359I$	$-11.5550 - 13.2403I$
$u = 0.770485 + 0.383157I$ $a = -0.501042 + 0.870322I$ $b = -0.419626 - 0.267018I$	$-4.45888 - 1.70911I$	$-18.3582 + 0.4103I$
$u = 0.770485 + 0.383157I$ $a = -0.250273 - 0.516782I$ $b = 1.35131 + 0.47758I$	$-4.45888 - 1.70911I$	$-18.3582 + 0.4103I$
$u = 0.770485 - 0.383157I$ $a = -0.501042 - 0.870322I$ $b = -0.419626 + 0.267018I$	$-4.45888 + 1.70911I$	$-18.3582 - 0.4103I$
$u = 0.770485 - 0.383157I$ $a = -0.250273 + 0.516782I$ $b = 1.35131 - 0.47758I$	$-4.45888 + 1.70911I$	$-18.3582 - 0.4103I$
$u = 0.23207 + 1.42418I$ $a = 0.22218 + 1.51395I$ $b = 0.52047 + 2.40459I$	$1.25225 - 5.27528I$	$-9.67373 + 5.08255I$
$u = 0.23207 + 1.42418I$ $a = -1.29258 - 1.32241I$ $b = -1.73185 - 1.01396I$	$1.25225 - 5.27528I$	$-9.67373 + 5.08255I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.23207 - 1.42418I$ $a = 0.22218 - 1.51395I$ $b = 0.52047 - 2.40459I$	$1.25225 + 5.27528I$	$-9.67373 - 5.08255I$
$u = 0.23207 - 1.42418I$ $a = -1.29258 + 1.32241I$ $b = -1.73185 + 1.01396I$	$1.25225 + 5.27528I$	$-9.67373 - 5.08255I$
$u = -0.113421 + 0.521878I$ $a = -1.094860 + 0.565660I$ $b = -1.051420 + 0.591620I$	$1.35067 - 2.72058I$	$-0.320802 - 0.633673I$
$u = -0.113421 + 0.521878I$ $a = -1.72097 - 2.11921I$ $b = 0.195684 + 0.312539I$	$1.35067 - 2.72058I$	$-0.320802 - 0.633673I$
$u = -0.113421 - 0.521878I$ $a = -1.094860 - 0.565660I$ $b = -1.051420 - 0.591620I$	$1.35067 + 2.72058I$	$-0.320802 + 0.633673I$
$u = -0.113421 - 0.521878I$ $a = -1.72097 + 2.11921I$ $b = 0.195684 - 0.312539I$	$1.35067 + 2.72058I$	$-0.320802 + 0.633673I$
$u = -0.07564 + 1.47034I$ $a = 0.804239 + 0.140801I$ $b = 2.39710 + 0.12858I$	$6.50466 + 5.66478I$	$-1.14168 - 7.61626I$
$u = -0.07564 + 1.47034I$ $a = 0.46427 + 2.67817I$ $b = 0.20535 + 3.65834I$	$6.50466 + 5.66478I$	$-1.14168 - 7.61626I$
$u = -0.07564 - 1.47034I$ $a = 0.804239 - 0.140801I$ $b = 2.39710 - 0.12858I$	$6.50466 - 5.66478I$	$-1.14168 + 7.61626I$
$u = -0.07564 - 1.47034I$ $a = 0.46427 - 2.67817I$ $b = 0.20535 - 3.65834I$	$6.50466 - 5.66478I$	$-1.14168 + 7.61626I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.00370 + 1.51777I$ $a = 0.594067 - 0.444832I$ $b = -0.016890 - 0.443911I$	$8.17367 - 2.54285I$	$2.47471 + 1.82426I$
$u = 0.00370 + 1.51777I$ $a = -0.60427 - 2.10333I$ $b = -1.19623 - 3.64553I$	$8.17367 - 2.54285I$	$2.47471 + 1.82426I$
$u = 0.00370 - 1.51777I$ $a = 0.594067 + 0.444832I$ $b = -0.016890 + 0.443911I$	$8.17367 + 2.54285I$	$2.47471 - 1.82426I$
$u = 0.00370 - 1.51777I$ $a = -0.60427 + 2.10333I$ $b = -1.19623 + 3.64553I$	$8.17367 + 2.54285I$	$2.47471 - 1.82426I$
$u = -0.307694 + 0.311549I$ $a = 0.85542 + 1.13412I$ $b = -0.08749 - 1.42606I$	$0.57349 + 4.39205I$	$-7.1332 - 12.4476I$
$u = -0.307694 + 0.311549I$ $a = 2.63362 - 1.90072I$ $b = 0.530367 + 0.052913I$	$0.57349 + 4.39205I$	$-7.1332 - 12.4476I$
$u = -0.307694 - 0.311549I$ $a = 0.85542 - 1.13412I$ $b = -0.08749 + 1.42606I$	$0.57349 - 4.39205I$	$-7.1332 + 12.4476I$
$u = -0.307694 - 0.311549I$ $a = 2.63362 + 1.90072I$ $b = 0.530367 - 0.052913I$	$0.57349 - 4.39205I$	$-7.1332 + 12.4476I$
$u = 0.25359 + 1.56853I$ $a = 0.667535 + 1.052820I$ $b = 1.12652 + 1.60326I$	$3.49430 - 7.00115I$	$-2.29217 + 10.66775I$
$u = 0.25359 + 1.56853I$ $a = -0.83262 - 1.61500I$ $b = -2.07424 - 2.36731I$	$3.49430 - 7.00115I$	$-2.29217 + 10.66775I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.25359 - 1.56853I$ $a = 0.667535 - 1.052820I$ $b = 1.12652 - 1.60326I$	$3.49430 + 7.00115I$	$-2.29217 - 10.66775I$
$u = 0.25359 - 1.56853I$ $a = -0.83262 + 1.61500I$ $b = -2.07424 + 2.36731I$	$3.49430 + 7.00115I$	$-2.29217 - 10.66775I$

III.

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

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} u^{11} - 2u^{10} + \cdots - 4u + 4 \\ u^{11} - 3u^{10} + \cdots + 6u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{11} + 2u^{10} + \cdots - 16u + 1 \\ u^{11} - 2u^{10} + 8u^9 - 12u^8 + 22u^7 - 23u^6 + 24u^5 - 15u^4 + 9u^3 - u^2 + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{11} - 2u^{10} + \cdots + u + 3 \\ -u^{10} + 3u^9 + \cdots + 6u - 1 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} u^{11} - 2u^{10} + \cdots - u + 4 \\ -u^{10} + 3u^9 + \cdots + 5u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{11} + 2u^{10} + \cdots - 8u - 1 \\ u^6 - 2u^5 + 5u^4 - 6u^3 + 6u^2 - 3u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -3u^9 + 12u^8 - 31u^7 + 71u^6 - 97u^5 + 129u^4 - 106u^3 + 70u^2 - 28u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{12} + y^{11} + \cdots + 12y + 1$
c_2	$y^{12} - y^{11} + \cdots - 4y + 1$
c_4, c_9	$y^{12} + 5y^{11} + \cdots + 4y + 1$
c_5, c_8	$y^{12} + 4y^{11} + \cdots + 5y + 1$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{12} + 16y^{11} + \cdots + 22y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.062845 + 0.891437I$ $a = -0.628237 + 0.822197I$ $b = -0.566446 + 0.024137I$	$3.05705 - 3.82507I$	$1.89342 + 5.86722I$
$u = 0.062845 - 0.891437I$ $a = -0.628237 - 0.822197I$ $b = -0.566446 - 0.024137I$	$3.05705 + 3.82507I$	$1.89342 - 5.86722I$
$u = 0.707140 + 0.501490I$ $a = -0.069670 + 0.915815I$ $b = -0.685751 - 0.402378I$	$-3.69632 - 2.35930I$	$-7.76501 + 3.34696I$
$u = 0.707140 - 0.501490I$ $a = -0.069670 - 0.915815I$ $b = -0.685751 + 0.402378I$	$-3.69632 + 2.35930I$	$-7.76501 - 3.34696I$
$u = 0.22473 + 1.49020I$ $a = 0.66766 + 1.50515I$ $b = 1.17799 + 2.08028I$	$2.75451 - 5.74454I$	$-3.13416 + 4.41804I$
$u = 0.22473 - 1.49020I$ $a = 0.66766 - 1.50515I$ $b = 1.17799 - 2.08028I$	$2.75451 + 5.74454I$	$-3.13416 - 4.41804I$
$u = -0.01439 + 1.51623I$ $a = 0.49936 - 1.54519I$ $b = 1.57217 - 2.22848I$	$7.50866 + 3.81798I$	$-0.96857 - 7.15164I$
$u = -0.01439 - 1.51623I$ $a = 0.49936 + 1.54519I$ $b = 1.57217 + 2.22848I$	$7.50866 - 3.81798I$	$-0.96857 + 7.15164I$
$u = -0.013723 + 0.332523I$ $a = 3.15459 - 1.45385I$ $b = 0.441210 + 0.948917I$	$1.08380 + 3.67567I$	$-0.27845 - 6.20952I$
$u = -0.013723 - 0.332523I$ $a = 3.15459 + 1.45385I$ $b = 0.441210 - 0.948917I$	$1.08380 - 3.67567I$	$-0.27845 + 6.20952I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.03339 + 1.69695I$ $a = -0.123705 + 0.529063I$ $b = -0.439173 + 1.086920I$	$12.32140 - 4.31104I$	$8.75276 + 5.09710I$
$u = 0.03339 - 1.69695I$ $a = -0.123705 - 0.529063I$ $b = -0.439173 - 1.086920I$	$12.32140 + 4.31104I$	$8.75276 - 5.09710I$

IV. $\boldsymbol{I_1^v = \langle a,\ b-1,\ v-1 \rangle}$

(i) Arc colorings

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

$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

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

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

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

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

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

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

$a_9 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v =$	1.00000		
$a =$	0	-1.64493	-6.00000
$b =$	1.00000		

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3	$(u+1)(u^{12}-5u^{11}+\cdots-4u+1)(u^{28}+2u^{27}+\cdots-4u+1)$ $\cdot(u^{32}+u^{31}+\cdots-27u+976)$
c_2	$u(u^{12}+7u^{11}+\cdots-2u^2+1)(u^{16}-7u^{15}+\cdots+4u^2+1)^2$ $\cdot(u^{28}+18u^{27}+\cdots+72u+9)$
c_4, c_9	$(u+1)$ $\cdot(u^{12}-u^{11}+3u^{10}-2u^9+4u^8-2u^7+5u^6-2u^5+5u^4-u^3+2u^2+1)$ $\cdot(u^{28}-2u^{27}+\cdots-u+8)(u^{32}+u^{31}+\cdots+298u+43)$
c_5, c_8	$(u+1)(u^{12}+2u^{10}+\cdots+u+1)$ $\cdot(u^{28}-u^{27}+\cdots+u+1)(u^{32}+u^{31}+\cdots+13u+8)$
c_6, c_7	$u(u^{12}-2u^{11}+\cdots-2u+1)(u^{16}+3u^{15}+\cdots+4u^2+1)^2$ $\cdot(u^{28}-5u^{27}+\cdots-18u+9)$
c_{10}, c_{11}, c_{12}	$u(u^{12}+2u^{11}+\cdots+2u+1)(u^{16}+3u^{15}+\cdots+4u^2+1)^2$ $\cdot(u^{28}-5u^{27}+\cdots-18u+9)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y-1)(y^{12}+y^{11}+\cdots+12y+1)(y^{28}-34y^{27}+\cdots-12y+1)$ $\cdot(y^{32}-9y^{31}+\cdots+352583y+952576)$
c_2	$y(y^{12}-y^{11}+\cdots-4y+1)(y^{16}+y^{15}+\cdots+8y+1)^2$ $\cdot(y^{28}+46y^{26}+\cdots+1260y+81)$
c_4, c_9	$(y-1)(y^{12}+5y^{11}+\cdots+4y+1)(y^{28}+10y^{27}+\cdots+879y+64)$ $\cdot(y^{32}+11y^{31}+\cdots-23702y+1849)$
c_5, c_8	$(y-1)(y^{12}+4y^{11}+\cdots+5y+1)(y^{28}-11y^{27}+\cdots-27y+1)$ $\cdot(y^{32}+7y^{31}+\cdots-377y+64)$
c_6, c_7, c_{10} c_{11}, c_{12}	$y(y^{12}+16y^{11}+\cdots+22y+1)(y^{16}+17y^{15}+\cdots+8y+1)^2$ $\cdot(y^{28}+33y^{27}+\cdots-90y+81)$