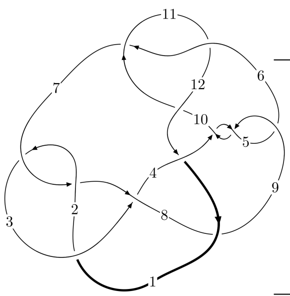
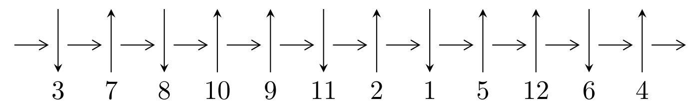
$12a_{0529}$ ($K12a_{0529}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-3.53233 \times 10^{65} u^{75} + 2.53432 \times 10^{65} u^{74} + \cdots + 3.87343 \times 10^{66} b + 4.07069 \times 10^{67},\\
&-6.56457 \times 10^{66} u^{75} + 6.09413 \times 10^{66} u^{74} + \cdots + 6.58484 \times 10^{67} a + 8.05766 \times 10^{68},\\
&u^{76} - u^{75} + \cdots - 158u + 17\rangle\\
I_2^u = \langle &-u^3 + b - u,\ -u^3 + a,\ u^{12} + 4u^{10} + 6u^8 + 5u^6 + 3u^4 - u^3 + u^2 - u + 1\rangle\\
I_3^u = \langle &b - a - u,\ a^6 + 6a^5 u + a^5 + 5a^4 u - 16a^4 - 24a^3 u - 12a^3 - 16a^2 u + 21a^2 + 10au + 12a + 4u - 1,\ u^2 + 1\rangle\\
I_4^u = \langle &-u^3 + b - u,\ -u^3 + a,\ u^{18} + 6u^{16} + \cdots + 2u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 118 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. $\boldsymbol{I_1^u = \langle -3.53 \times 10^{65} u^{75} + 2.53 \times 10^{65} u^{74} + \cdots + 3.87 \times 10^{66} b + 4.07 \times 10^{67},\ -6.56 \times 10^{66} u^{75} + 6.09 \times 10^{66} u^{74} + \cdots + 6.58 \times 10^{67} a + 8.06 \times 10^{68},\ u^{76} - u^{75} + \cdots - 158u + 17 \rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.0996921u^{75} - 0.0925479u^{74} + \cdots + 85.8969u - 12.2367 \\ 0.0911937u^{75} - 0.0654283u^{74} + \cdots + 51.1583u - 10.5093 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.600810u^{75} - 0.591223u^{74} + \cdots + 251.305u - 43.7031 \\ 0.257472u^{75} - 0.267396u^{74} + \cdots + 57.0402u - 9.17170 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.723306u^{75} - 0.563802u^{74} + \cdots + 284.437u - 45.2027 \\ 0.217757u^{75} - 0.0902812u^{74} + \cdots + 78.2752u - 11.1735 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00849846u^{75} - 0.0271196u^{74} + \cdots + 34.7387u - 1.72742 \\ 0.0911937u^{75} - 0.0654283u^{74} + \cdots + 51.1583u - 10.5093 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0993703u^{75} - 0.0950018u^{74} + \cdots + 84.3319u - 12.4324 \\ 0.124410u^{75} - 0.0564865u^{74} + \cdots + 53.1573u - 10.4350 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.625336u^{75} - 0.501248u^{74} + \cdots + 242.513u - 48.2108 \\ -0.0722923u^{75} + 0.0771458u^{74} + \cdots - 12.4899u + 3.80427 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.62071u^{75} - 1.09263u^{74} + \cdots + 534.442u - 76.5897 \\ 0.191754u^{75} - 0.0384194u^{74} + \cdots + 32.9728u - 7.14572 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.569931u^{75} + 0.359505u^{74} + \cdots - 304.744u + 50.6300$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{76} + 36u^{75} + \cdots + 19u + 4$
c_2, c_7	$u^{76} - 2u^{75} + \cdots - 5u + 2$
c_3	$u^{76} + 2u^{75} + \cdots - 1177u + 202$
c_4, c_5, c_9	$u^{76} - u^{75} + \cdots - 158u + 17$
c_6, c_{11}	$u^{76} - u^{75} + \cdots - 100u + 17$
c_8	$u^{76} - 10u^{75} + \cdots - 18835u + 1862$
c_{10}	$u^{76} - 29u^{75} + \cdots - 3906u + 289$
c_{12}	$u^{76} + 8u^{75} + \cdots + 1172713u + 156832$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{76} + 8y^{75} + \cdots + 191y + 16$
c_2, c_7	$y^{76} + 36y^{75} + \cdots + 19y + 4$
c_3	$y^{76} - 20y^{75} + \cdots - 1880229y + 40804$
c_4, c_5, c_9	$y^{76} + 81y^{75} + \cdots - 13438y + 289$
c_6, c_{11}	$y^{76} + 29y^{75} + \cdots + 3906y + 289$
c_8	$y^{76} + 12y^{75} + \cdots + 54812019y + 3467044$
c_{10}	$y^{76} + 49y^{75} + \cdots + 20899954y + 83521$
c_{12}	$y^{76} + 24y^{75} + \cdots + 1500857096879y + 24596276224$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.871703 + 0.337657I$ $a = 0.531191 - 0.397620I$ $b = -0.72291 - 1.41153I$	$-0.96411 + 12.75580I$	0
$u = 0.871703 - 0.337657I$ $a = 0.531191 + 0.397620I$ $b = -0.72291 + 1.41153I$	$-0.96411 - 12.75580I$	0
$u = -0.341605 + 0.864408I$ $a = -0.850996 + 0.602062I$ $b = -0.568836 + 0.390828I$	$-2.34126 - 6.14169I$	0
$u = -0.341605 - 0.864408I$ $a = -0.850996 - 0.602062I$ $b = -0.568836 - 0.390828I$	$-2.34126 + 6.14169I$	0
$u = -0.154405 + 0.907290I$ $a = -0.406956 + 0.726577I$ $b = -0.308364 + 0.691108I$	$-3.62597 + 0.74459I$	0
$u = -0.154405 - 0.907290I$ $a = -0.406956 - 0.726577I$ $b = -0.308364 - 0.691108I$	$-3.62597 - 0.74459I$	0
$u = 0.835900 + 0.374263I$ $a = 0.683754 - 0.340500I$ $b = -0.536338 - 1.288420I$	$-3.08946 + 4.96821I$	0
$u = 0.835900 - 0.374263I$ $a = 0.683754 + 0.340500I$ $b = -0.536338 + 1.288420I$	$-3.08946 - 4.96821I$	0
$u = -0.850183 + 0.331328I$ $a = -0.543534 - 0.324415I$ $b = 0.72960 - 1.31268I$	$1.39164 - 7.76709I$	0
$u = -0.850183 - 0.331328I$ $a = -0.543534 + 0.324415I$ $b = 0.72960 + 1.31268I$	$1.39164 + 7.76709I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.742033 + 0.489974I$ $a = -1.023820 - 0.198435I$ $b = \ \ 0.045626 - 0.959753I$	$-4.05338 - 4.76438I$	$0. + 6.53613I$
$u = -0.742033 - 0.489974I$ $a = -1.023820 + 0.198435I$ $b = \ \ 0.045626 + 0.959753I$	$-4.05338 + 4.76438I$	$0. - 6.53613I$
$u = -0.682242 + 0.569438I$ $a = -1.158730 - 0.084714I$ $b = -0.222157 - 0.733705I$	$-2.82768 + 2.89502I$	0
$u = -0.682242 - 0.569438I$ $a = -1.158730 + 0.084714I$ $b = -0.222157 + 0.733705I$	$-2.82768 - 2.89502I$	0
$u = -0.789625 + 0.287686I$ $a = -0.527894 - 0.089515I$ $b = \ \ 0.842261 - 1.020140I$	$2.89325 - 5.78254I$	$6.56857 + 7.64192I$
$u = -0.789625 - 0.287686I$ $a = -0.527894 + 0.089515I$ $b = \ \ 0.842261 + 1.020140I$	$2.89325 + 5.78254I$	$6.56857 - 7.64192I$
$u = \ \ 0.648168 + 0.502376I$ $a = \ \ 1.058750 - 0.048900I$ $b = -0.003990 - 0.637730I$	$-0.33883 + 1.60186I$	$1.60546 - 3.53406I$
$u = \ \ 0.648168 - 0.502376I$ $a = \ \ 1.058750 + 0.048900I$ $b = -0.003990 + 0.637730I$	$-0.33883 - 1.60186I$	$1.60546 + 3.53406I$
$u = \ \ 0.296301 + 0.763935I$ $a = \ \ 0.741212 + 0.381539I$ $b = \ \ 0.358971 + 0.318208I$	$-0.23116 + 1.74291I$	$-0.33130 - 4.94390I$
$u = \ \ 0.296301 - 0.763935I$ $a = \ \ 0.741212 - 0.381539I$ $b = \ \ 0.358971 - 0.318208I$	$-0.23116 - 1.74291I$	$-0.33130 + 4.94390I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.737315 + 0.251878I$ $a = 0.553553 + 0.102566I$ $b = -0.910825 - 0.780758I$	$2.01584 + 1.14854I$	$5.44751 - 1.47076I$
$u = 0.737315 - 0.251878I$ $a = 0.553553 - 0.102566I$ $b = -0.910825 + 0.780758I$	$2.01584 - 1.14854I$	$5.44751 + 1.47076I$
$u = 0.075673 + 1.290750I$ $a = -0.992398 + 0.464694I$ $b = -1.59071 + 0.73360I$	$-1.73230 - 4.32456I$	0
$u = 0.075673 - 1.290750I$ $a = -0.992398 - 0.464694I$ $b = -1.59071 - 0.73360I$	$-1.73230 + 4.32456I$	0
$u = -0.096475 + 1.302650I$ $a = 0.965712 + 0.242844I$ $b = 1.61430 + 0.52832I$	$0.119164 - 0.754172I$	0
$u = -0.096475 - 1.302650I$ $a = 0.965712 - 0.242844I$ $b = 1.61430 - 0.52832I$	$0.119164 + 0.754172I$	0
$u = -0.147580 + 1.317830I$ $a = 0.943837 - 0.268717I$ $b = 1.69097 + 0.06926I$	$0.41502 - 3.35037I$	0
$u = -0.147580 - 1.317830I$ $a = 0.943837 + 0.268717I$ $b = 1.69097 - 0.06926I$	$0.41502 + 3.35037I$	0
$u = 0.172897 + 1.322130I$ $a = -0.933142 - 0.519121I$ $b = -1.72379 - 0.15408I$	$-1.15919 + 8.40041I$	0
$u = 0.172897 - 1.322130I$ $a = -0.933142 + 0.519121I$ $b = -1.72379 + 0.15408I$	$-1.15919 - 8.40041I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.096112 + 1.369190I$ $a = -0.414099 + 0.096497I$ $b = -1.162900 + 0.290588I$	$-4.86388 + 2.38505I$	0
$u = 0.096112 - 1.369190I$ $a = -0.414099 - 0.096497I$ $b = -1.162900 - 0.290588I$	$-4.86388 - 2.38505I$	0
$u = 0.574787 + 0.059330I$ $a = 0.755800 + 1.027700I$ $b = -1.230110 + 0.059628I$	$3.16394 + 5.76384I$	$7.59245 - 6.65665I$
$u = 0.574787 - 0.059330I$ $a = 0.755800 - 1.027700I$ $b = -1.230110 - 0.059628I$	$3.16394 - 5.76384I$	$7.59245 + 6.65665I$
$u = -0.15045 + 1.41553I$ $a = -0.03804 + 1.43925I$ $b = -0.619065 + 1.211410I$	$-5.22619 + 0.59013I$	0
$u = -0.15045 - 1.41553I$ $a = -0.03804 - 1.43925I$ $b = -0.619065 - 1.211410I$	$-5.22619 - 0.59013I$	0
$u = 0.19788 + 1.43555I$ $a = 0.03726 + 1.65451I$ $b = 0.61403 + 1.34363I$	$-4.71578 + 4.11924I$	0
$u = 0.19788 - 1.43555I$ $a = 0.03726 - 1.65451I$ $b = 0.61403 - 1.34363I$	$-4.71578 - 4.11924I$	0
$u = 0.28500 + 1.42398I$ $a = -0.01702 - 1.54807I$ $b = -1.07658 - 1.19558I$	$-3.37812 + 4.85193I$	0
$u = 0.28500 - 1.42398I$ $a = -0.01702 + 1.54807I$ $b = -1.07658 + 1.19558I$	$-3.37812 - 4.85193I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.278329 + 0.467042I$ $a = 0.924246 - 0.203547I$ $b = -0.054022 + 0.191619I$	$0.259106 + 1.284090I$	$2.32882 - 5.74974I$
$u = 0.278329 - 0.467042I$ $a = 0.924246 + 0.203547I$ $b = -0.054022 - 0.191619I$	$0.259106 - 1.284090I$	$2.32882 + 5.74974I$
$u = -0.30726 + 1.43756I$ $a = -0.10602 - 1.73731I$ $b = 0.99502 - 1.37945I$	$-2.64476 - 9.75402I$	0
$u = -0.30726 - 1.43756I$ $a = -0.10602 + 1.73731I$ $b = 0.99502 + 1.37945I$	$-2.64476 + 9.75402I$	0
$u = -0.512415 + 0.037742I$ $a = -1.03347 + 1.23529I$ $b = 1.150490 + 0.265747I$	$4.65569 - 1.02094I$	$10.89176 + 0.78170I$
$u = -0.512415 - 0.037742I$ $a = -1.03347 - 1.23529I$ $b = 1.150490 - 0.265747I$	$4.65569 + 1.02094I$	$10.89176 - 0.78170I$
$u = -0.33234 + 1.46432I$ $a = -0.34154 - 1.94756I$ $b = 0.81603 - 1.59781I$	$-4.37511 - 12.05130I$	0
$u = -0.33234 - 1.46432I$ $a = -0.34154 + 1.94756I$ $b = 0.81603 + 1.59781I$	$-4.37511 + 12.05130I$	0
$u = 0.23373 + 1.48440I$ $a = -0.06822 + 1.91050I$ $b = 0.55244 + 1.51628I$	$-6.60995 + 6.08840I$	0
$u = 0.23373 - 1.48440I$ $a = -0.06822 - 1.91050I$ $b = 0.55244 - 1.51628I$	$-6.60995 - 6.08840I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.22302 + 1.48750I$ $a = 0.518649 - 1.000800I$ $b = -0.533732 - 0.791660I$	$-6.77024 + 4.75215I$	0
$u = 0.22302 - 1.48750I$ $a = 0.518649 + 1.000800I$ $b = -0.533732 + 0.791660I$	$-6.77024 - 4.75215I$	0
$u = 0.34151 + 1.47055I$ $a = 0.39657 - 2.02539I$ $b = -0.77786 - 1.67431I$	$-6.7695 + 17.1494I$	0
$u = 0.34151 - 1.47055I$ $a = 0.39657 + 2.02539I$ $b = -0.77786 + 1.67431I$	$-6.7695 - 17.1494I$	0
$u = -0.09089 + 1.50978I$ $a = 0.495455 + 1.282740I$ $b = -0.266796 + 1.066350I$	$-8.01141 + 1.22205I$	0
$u = -0.09089 - 1.50978I$ $a = 0.495455 - 1.282740I$ $b = -0.266796 - 1.066350I$	$-8.01141 - 1.22205I$	0
$u = 0.31811 + 1.48037I$ $a = 0.47750 - 1.82213I$ $b = -0.67878 - 1.50521I$	$-9.06725 + 9.15754I$	0
$u = 0.31811 - 1.48037I$ $a = 0.47750 + 1.82213I$ $b = -0.67878 + 1.50521I$	$-9.06725 - 9.15754I$	0
$u = -0.24631 + 1.49576I$ $a = 0.07793 + 1.99376I$ $b = -0.54974 + 1.57474I$	$-9.0697 - 11.1049I$	0
$u = -0.24631 - 1.49576I$ $a = 0.07793 - 1.99376I$ $b = -0.54974 - 1.57474I$	$-9.0697 + 11.1049I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.21177 + 1.50566I$ $a = 0.21791 + 1.87599I$ $b = -0.44690 + 1.49711I$	$-11.13890 - 3.08586I$	0
$u = -0.21177 - 1.50566I$ $a = 0.21791 - 1.87599I$ $b = -0.44690 - 1.49711I$	$-11.13890 + 3.08586I$	0
$u = -0.20729 + 1.51082I$ $a = -0.712545 - 0.860726I$ $b = 0.347976 - 0.695792I$	$-9.63663 - 0.24582I$	0
$u = -0.20729 - 1.51082I$ $a = -0.712545 + 0.860726I$ $b = 0.347976 + 0.695792I$	$-9.63663 + 0.24582I$	0
$u = -0.24937 + 1.50646I$ $a = -0.687883 - 1.221840I$ $b = 0.415475 - 1.005740I$	$-10.56700 - 8.34790I$	0
$u = -0.24937 - 1.50646I$ $a = -0.687883 + 1.221840I$ $b = 0.415475 + 1.005740I$	$-10.56700 + 8.34790I$	0
$u = 0.12347 + 1.52923I$ $a = -0.54368 + 1.49764I$ $b = 0.218811 + 1.221180I$	$-12.01490 + 2.19277I$	0
$u = 0.12347 - 1.52923I$ $a = -0.54368 - 1.49764I$ $b = 0.218811 - 1.221180I$	$-12.01490 - 2.19277I$	0
$u = 0.07739 + 1.53445I$ $a = -0.659918 + 1.245080I$ $b = 0.147057 + 1.026510I$	$-10.74150 - 5.90257I$	0
$u = 0.07739 - 1.53445I$ $a = -0.659918 - 1.245080I$ $b = 0.147057 - 1.026510I$	$-10.74150 + 5.90257I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.405149 + 0.030083I$ $a = -1.61760 - 1.88667I$ $b = 1.048300 - 0.659964I$	$4.09237 - 1.00331I$	$10.38328 + 0.46979I$
$u = -0.405149 - 0.030083I$ $a = -1.61760 + 1.88667I$ $b = 1.048300 + 0.659964I$	$4.09237 + 1.00331I$	$10.38328 - 0.46979I$
$u = 0.373698 + 0.075865I$ $a = 1.72252 - 2.37204I$ $b = -1.054630 - 0.839020I$	$2.05319 + 5.88077I$	$6.97041 - 5.00849I$
$u = 0.373698 - 0.075865I$ $a = 1.72252 + 2.37204I$ $b = -1.054630 + 0.839020I$	$2.05319 - 5.88077I$	$6.97041 + 5.00849I$
$u = 0.256387 + 0.066382I$ $a = 3.22271 + 0.78997I$ $b = -0.548321 + 0.680367I$	$-0.110048 + 1.027080I$	$3.94313 - 1.31174I$
$u = 0.256387 - 0.066382I$ $a = 3.22271 - 0.78997I$ $b = -0.548321 - 0.680367I$	$-0.110048 - 1.027080I$	$3.94313 + 1.31174I$

II.

$\boldsymbol{I_2^u = \langle -u^3 + b - u,\ -u^3 + a,\ u^{12} + 4u^{10} + 6u^8 + 5u^6 + 3u^4 - u^3 + u^2 - u + 1\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^9 + 2u^7 + u^5 - u \\ u^9 + 3u^7 + 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{10} - u^9 + 3u^8 - 2u^7 + 4u^6 - u^5 + 3u^4 + u^2 + 1 \\ -u^9 - 3u^7 + u^6 - 3u^5 + 2u^4 - 2u^3 + u^2 - u + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ -u^5 - u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^4 + u^2 + 1 \\ -u^6 - 2u^4 - u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{10} - u^9 + 3u^8 - 3u^7 + 4u^6 - 3u^5 + 3u^4 - 2u^3 + u^2 - u + 1 \\ u^6 + 2u^4 - u^3 + u^2 - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^9 - 12u^7 - 4u^6 - 12u^5 - 8u^4 - 4u^3 - 4u^2 + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.400261 + 0.917946I$ $a = 0.947685 - 0.332294I$ $b = 0.547424 + 0.585652I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = -0.400261 - 0.917946I$ $a = 0.947685 + 0.332294I$ $b = 0.547424 - 0.585652I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$
$u = 0.590343 + 0.870977I$ $a = -1.137770 + 0.249897I$ $b = -0.547424 + 1.120870I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = 0.590343 - 0.870977I$ $a = -1.137770 - 0.249897I$ $b = -0.547424 - 1.120870I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = -0.709936 + 0.494274I$ $a = 0.162512 + 0.626600I$ $b = -0.547424 + 1.120870I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$
$u = -0.709936 - 0.494274I$ $a = 0.162512 - 0.626600I$ $b = -0.547424 - 1.120870I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = -0.152052 + 1.241420I$ $a = 0.69948 - 1.82707I$ $b = 0.547424 - 0.585652I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$
$u = -0.152052 - 1.241420I$ $a = 0.69948 + 1.82707I$ $b = 0.547424 + 0.585652I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.552313 + 0.323472I$ $a = -0.004890 + 0.262180I$ $b = 0.547424 + 0.585652I$	$0.98010 + 1.39709I$	$3.77019 - 3.86736I$
$u = 0.552313 - 0.323472I$ $a = -0.004890 - 0.262180I$ $b = 0.547424 - 0.585652I$	$0.98010 - 1.39709I$	$3.77019 + 3.86736I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.119592 + 1.365250I$ $a = -0.66702 - 2.48612I$ $b = -0.547424 - 1.120870I$	$-2.62503 + 7.64338I$	$-1.77019 - 6.51087I$
$u = \quad 0.119592 - 1.365250I$ $a = -0.66702 + 2.48612I$ $b = -0.547424 + 1.120870I$	$-2.62503 - 7.64338I$	$-1.77019 + 6.51087I$

III. $\boldsymbol{I_3^u = \langle b - a - u,\ 6a^5u + 5a^4u + \cdots + 12a - 1,\ u^2 + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} a \\ a + u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} a^4 + 3a^3u - 4a^2 - 3au + 2 \\ a^4 + 4a^3u - 6a^2 - 4au + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ a + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ a + 2u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} a^5u - 4a^4 - 8a^3u + 9a^2 + 6au - 1 \\ a^5 + 5a^4u + a^4 + 4a^3u - 12a^3 - 16a^2u - 7a^2 - 6au + 12a + 4u + 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a^4 - 16a^3u + 28a^2 + 24au + 4a + 4u - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.073950 - 0.441248I$ $b = -1.073950 + 0.558752I$	$-5.69302I$	$2.00000 + 5.51057I$
$u = 1.000000I$ $a = 1.002190 - 0.704458I$ $b = 1.002190 + 0.295542I$	$1.89061 + 0.92430I$	$5.71672 - 0.79423I$
$u = 1.000000I$ $a = -0.428243 - 0.335469I$ $b = -0.428243 + 0.664531I$	$-1.89061 + 0.92430I$	$-1.71672 - 0.79423I$
$u = 1.000000I$ $a = 1.00219 - 1.29554I$ $b = 1.002190 - 0.295542I$	$1.89061 - 0.92430I$	$5.71672 + 0.79423I$
$u = 1.000000I$ $a = -0.42824 - 1.66453I$ $b = -0.428243 - 0.664531I$	$-1.89061 - 0.92430I$	$-1.71672 + 0.79423I$
$u = 1.000000I$ $a = -1.07395 - 1.55875I$ $b = -1.073950 - 0.558752I$	$5.69302I$	$2.00000 - 5.51057I$
$u = -1.000000I$ $a = -1.073950 + 0.441248I$ $b = -1.073950 - 0.558752I$	$5.69302I$	$2.00000 - 5.51057I$
$u = -1.000000I$ $a = 1.002190 + 0.704458I$ $b = 1.002190 - 0.295542I$	$1.89061 - 0.92430I$	$5.71672 + 0.79423I$
$u = -1.000000I$ $a = -0.428243 + 0.335469I$ $b = -0.428243 - 0.664531I$	$-1.89061 - 0.92430I$	$-1.71672 + 0.79423I$
$u = -1.000000I$ $a = 1.00219 + 1.29554I$ $b = 1.002190 + 0.295542I$	$1.89061 + 0.92430I$	$5.71672 - 0.79423I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad - 1.000000I$ $a = -0.42824 + 1.66453I$ $b = -0.428243 + 0.664531I$	$-1.89061 + 0.92430I$	$-1.71672 - 0.79423I$
$u = \quad - 1.000000I$ $a = -1.07395 + 1.55875I$ $b = -1.073950 + 0.558752I$	$- 5.69302I$	$2.00000 + 5.51057I$

IV. $\boldsymbol{I_4^u = \langle -u^3 + b - u,\ -u^3 + a,\ u^{18} + 6u^{16} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^9 + 2u^7 + u^5 - u \\ u^9 + 3u^7 + 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{16} + u^{15} + \cdots + 2u + 2 \\ u^{15} + 5u^{13} + 10u^{11} + 12u^9 + 11u^7 + u^6 + 7u^5 + 2u^4 + 4u^3 + u^2 + 2u + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ -u^5 - u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^4 + u^2 + 1 \\ -u^6 - 2u^4 - u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2u^{16} + 10u^{14} + \cdots + 2u + 1 \\ 2u^{15} + 10u^{13} + \cdots + 3u + 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^9 - 12u^7 - 12u^5 - 8u^3 - 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$(u^6 + 3u^5 + 4u^4 + 2u^3 + 1)^3$
c_2, c_7, c_{12}	$(u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1)^3$
c_3	$(u^3 + u^2 - 1)^6$
c_4, c_5, c_6 c_9, c_{11}	$u^{18} + 6u^{16} + \cdots + 2u + 1$
c_{10}	$u^{18} - 12u^{17} + \cdots - 2u^3 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^6 - y^5 + 4y^4 - 2y^3 + 8y^2 + 1)^3$
c_2, c_7, c_{12}	$(y^6 + 3y^5 + 4y^4 + 2y^3 + 1)^3$
c_3	$(y^3 - y^2 + 2y - 1)^6$
c_4, c_5, c_6 c_9, c_{11}	$y^{18} + 12y^{17} + \cdots + 2y^3 + 1$
c_{10}	$y^{18} - 12y^{17} + \cdots + 32y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.548726 + 0.858326I$ $a = 1.047560 + 0.142976I$ $b = 0.498832 + 1.001300I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = -0.548726 - 0.858326I$ $a = 1.047560 - 0.142976I$ $b = 0.498832 - 1.001300I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = 0.588153 + 0.781101I$ $a = -0.873073 + 0.334040I$ $b = -0.284920 + 1.115140I$	-4.40332	$-5.01951 + 0.I$
$u = 0.588153 - 0.781101I$ $a = -0.873073 - 0.334040I$ $b = -0.284920 - 1.115140I$	-4.40332	$-5.01951 + 0.I$
$u = 0.345660 + 1.030350I$ $a = -1.059570 - 0.724507I$ $b = -0.713912 + 0.305839I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.345660 - 1.030350I$ $a = -1.059570 + 0.724507I$ $b = -0.713912 - 0.305839I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.651446 + 0.573590I$ $a = 0.366526 + 0.541550I$ $b = -0.284920 + 1.115140I$	-4.40332	$-5.01951 + 0.I$
$u = -0.651446 - 0.573590I$ $a = 0.366526 - 0.541550I$ $b = -0.284920 - 1.115140I$	-4.40332	$-5.01951 + 0.I$
$u = 0.663361 + 0.478912I$ $a = -0.164529 + 0.522390I$ $b = 0.498832 + 1.001300I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.663361 - 0.478912I$ $a = -0.164529 - 0.522390I$ $b = 0.498832 - 1.001300I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.224719 + 1.187070I$ $a = -0.93863 - 1.49291I$ $b = -0.713912 - 0.305839I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = 0.224719 - 1.187070I$ $a = -0.93863 + 1.49291I$ $b = -0.713912 + 0.305839I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = -0.114635 + 1.337240I$ $a = 0.61347 - 2.33854I$ $b = 0.498832 - 1.001300I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.114635 - 1.337240I$ $a = 0.61347 + 2.33854I$ $b = 0.498832 + 1.001300I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.063294 + 1.354690I$ $a = -0.34821 - 2.46983I$ $b = -0.284920 - 1.115140I$	-4.40332	$-5.01951 + 0.I$
$u = 0.063294 - 1.354690I$ $a = -0.34821 + 2.46983I$ $b = -0.284920 + 1.115140I$	-4.40332	$-5.01951 + 0.I$
$u = -0.570379 + 0.156725I$ $a = -0.143533 + 0.149114I$ $b = -0.713912 + 0.305839I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = -0.570379 - 0.156725I$ $a = -0.143533 - 0.149114I$ $b = -0.713912 - 0.305839I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4+2u^3+3u^2+u+1)^3(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot((u^6+3u^5+4u^4+2u^3+1)^3)(u^{76}+36u^{75}+\cdots+19u+4)$
c_2, c_7	$(u^4+u^2-u+1)^3(u^6+u^5+2u^4+2u^3+2u^2+2u+1)^3$ $\cdot(u^{12}+3u^{10}+\cdots+u^2+1)(u^{76}-2u^{75}+\cdots-5u+2)$
c_3	$(u^3+u^2-1)^6(u^4-3u^3+4u^2-3u+2)^3$ $\cdot(u^{12}-u^{10}+5u^8+6u^4-3u^2+1)(u^{76}+2u^{75}+\cdots-1177u+202)$
c_4, c_5, c_9	$(u^2+1)^6(u^{12}+4u^{10}+6u^8+5u^6+3u^4-u^3+u^2-u+1)$ $\cdot(u^{18}+6u^{16}+\cdots+2u+1)(u^{76}-u^{75}+\cdots-158u+17)$
c_6, c_{11}	$(u^2+1)^6(u^{12}+4u^{10}+6u^8+5u^6+3u^4-u^3+u^2-u+1)$ $\cdot(u^{18}+6u^{16}+\cdots+2u+1)(u^{76}-u^{75}+\cdots-100u+17)$
c_8	$(u^4+2u^3+3u^2+u+1)^3(u^6+3u^5+4u^4+2u^3+1)^3$ $\cdot(u^{12}+3u^{10}+5u^8+4u^6+2u^4+u^2+1)$ $\cdot(u^{76}-10u^{75}+\cdots-18835u+1862)$
c_{10}	$((u+1)^{12})(u^{12}-8u^{11}+\cdots-u+1)(u^{18}-12u^{17}+\cdots-2u^3+1)$ $\cdot(u^{76}-29u^{75}+\cdots-3906u+289)$
c_{12}	$(u^4+u^2-u+1)^3(u^6-u^5-u^4+2u^3-u+1)^2$ $\cdot(u^6+u^5+2u^4+2u^3+2u^2+2u+1)^3$ $\cdot(u^{76}+8u^{75}+\cdots+1172713u+156832)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+2y^3+7y^2+5y+1)^3(y^6-y^5+4y^4-2y^3+8y^2+1)^3$ $\cdot((y^6+y^5+5y^4+6y^2+3y+1)^2)(y^{76}+8y^{75}+\cdots+191y+16)$
c_2, c_7	$(y^4+2y^3+3y^2+y+1)^3(y^6+3y^5+4y^4+2y^3+1)^3$ $\cdot((y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2)(y^{76}+36y^{75}+\cdots+19y+4)$
c_3	$(y^3-y^2+2y-1)^6(y^4-y^3+2y^2+7y+4)^3$ $\cdot(y^6-y^5+5y^4+6y^2-3y+1)^2$ $\cdot(y^{76}-20y^{75}+\cdots-1880229y+40804)$
c_4, c_5, c_9	$((y+1)^{12})(y^{12}+8y^{11}+\cdots+y+1)(y^{18}+12y^{17}+\cdots+2y^3+1)$ $\cdot(y^{76}+81y^{75}+\cdots-13438y+289)$
c_6, c_{11}	$((y+1)^{12})(y^{12}+8y^{11}+\cdots+y+1)(y^{18}+12y^{17}+\cdots+2y^3+1)$ $\cdot(y^{76}+29y^{75}+\cdots+3906y+289)$
c_8	$(y^4+2y^3+7y^2+5y+1)^3(y^6-y^5+4y^4-2y^3+8y^2+1)^3$ $\cdot(y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2$ $\cdot(y^{76}+12y^{75}+\cdots+54812019y+3467044)$
c_{10}	$((y-1)^{12})(y^{12}-8y^{11}+\cdots+9y+1)(y^{18}-12y^{17}+\cdots+32y^2+1)$ $\cdot(y^{76}+49y^{75}+\cdots+20899954y+83521)$
c_{12}	$(y^4+2y^3+3y^2+y+1)^3(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^6+3y^5+4y^4+2y^3+1)^3$ $\cdot(y^{76}+24y^{75}+\cdots+1500857096879y+24596276224)$