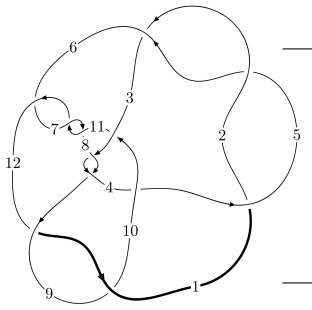
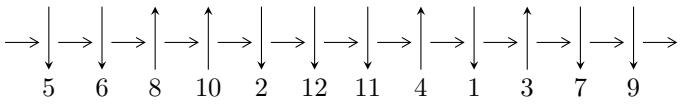
$12a_{1224}$ $(K12a_{1224})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 1.21800 \times 10^{175} u^{86} + 1.10072 \times 10^{176} u^{85} + \cdots + 5.56542 \times 10^{175} b + 9.38658 \times 10^{176}, \\
&\quad - 2.03509 \times 10^{176} u^{86} + 9.22272 \times 10^{176} u^{85} + \cdots + 5.56542 \times 10^{175} a + 3.49997 \times 10^{177}, \\
&\quad u^{87} - 5u^{86} + \cdots - 31u - 1 \rangle \\
I_2^u &= \langle 3u^{20} - 5u^{19} + \cdots + b - 2,\ -3u^{20} + 4u^{19} + \cdots + a + 4,\ u^{21} - 14u^{19} + \cdots + u - 1 \rangle \\
I_3^u &= \langle b + 1,\ -u^5 + 2u^4 + 2u^3 - 4u^2 + a - u + 1,\ u^6 - 3u^5 + 6u^3 - 4u^2 + 1 \rangle \\
I_4^u &= \langle b + 1,\ a - 1,\ u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 115 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. $\boldsymbol{I_1^u = \langle 1.22 \times 10^{175} u^{86} + 1.10 \times 10^{176} u^{85} + \cdots + 5.57 \times 10^{175} b + 9.39 \times 10^{176},\ -2.04 \times 10^{176} u^{86} + 9.22 \times 10^{176} u^{85} + \cdots + 5.57 \times 10^{175} a + 3.50 \times 10^{177},\ u^{87} - 5u^{86} + \cdots - 31u - 1 \rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 3.65668u^{86} - 16.5715u^{85} + \cdots - 1025.07u - 62.8879 \\ -0.218852u^{86} - 1.97778u^{85} + \cdots - 412.229u - 16.8659 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -20.1258u^{86} + 100.004u^{85} + \cdots + 3106.06u + 123.163 \\ 1.01692u^{86} - 6.75872u^{85} + \cdots - 461.880u - 22.8410 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3.43783u^{86} - 18.5492u^{85} + \cdots - 1437.30u - 79.7538 \\ -0.218852u^{86} - 1.97778u^{85} + \cdots - 412.229u - 16.8659 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 20.7323u^{86} - 106.664u^{85} + \cdots - 4060.99u - 176.355 \\ -1.96351u^{86} + 8.22272u^{85} + \cdots + 158.487u + 9.66986 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -21.5377u^{86} + 114.337u^{85} + \cdots + 5556.14u + 273.143 \\ 1.30331u^{86} - 0.885320u^{85} + \cdots + 627.672u + 26.9509 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -3.73334u^{86} + 32.1426u^{85} + \cdots + 2150.24u + 65.7851 \\ 8.70129u^{86} - 35.1065u^{85} + \cdots - 562.970u - 33.7329 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 3.49067u^{86} - 18.8111u^{85} + \cdots - 1445.83u - 79.7310 \\ 0.510581u^{86} - 4.63816u^{85} + \cdots - 407.668u - 16.8546 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.04694u^{86} + 31.0771u^{85} + \cdots + 2704.70u + 109.774$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$u^{87} + 5u^{86} + \cdots - 31u + 1$
c_3, c_8	$u^{87} + 2u^{86} + \cdots + 1867u - 1459$
c_4	$u^{87} - u^{86} + \cdots - 108842u + 15817$
c_6, c_7, c_{11}	$u^{87} + 2u^{86} + \cdots - 36u + 7$
c_9, c_{12}	$u^{87} - 9u^{86} + \cdots + 784u - 8$
c_{10}	$u^{87} + 3u^{86} + \cdots + 619168u + 590297$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y^{87} - 91y^{86} + \cdots + 301y - 1$
c_3, c_8	$y^{87} - 64y^{86} + \cdots + 35213103y - 2128681$
c_4	$y^{87} + 33y^{86} + \cdots + 197455366y - 250177489$
c_6, c_7, c_{11}	$y^{87} + 90y^{86} + \cdots + 2206y - 49$
c_9, c_{12}	$y^{87} - 59y^{86} + \cdots + 638432y - 64$
c_{10}	$y^{87} - 25y^{86} + \cdots + 7264616979632y - 348450548209$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.919570 + 0.341269I$ $a = -0.230219 - 1.291490I$ $b = 1.018910 + 0.767688I$	$4.92914 - 3.18573I$	0
$u = 0.919570 - 0.341269I$ $a = -0.230219 + 1.291490I$ $b = 1.018910 - 0.767688I$	$4.92914 + 3.18573I$	0
$u = 0.643376 + 0.795200I$ $a = -0.443359 - 0.859364I$ $b = 1.129980 + 0.180708I$	$-3.41783 - 2.87585I$	0
$u = 0.643376 - 0.795200I$ $a = -0.443359 + 0.859364I$ $b = 1.129980 - 0.180708I$	$-3.41783 + 2.87585I$	0
$u = -0.801927 + 0.529130I$ $a = -1.221220 - 0.403028I$ $b = -0.518441 + 0.530723I$	$8.78928 - 2.20079I$	0
$u = -0.801927 - 0.529130I$ $a = -1.221220 + 0.403028I$ $b = -0.518441 - 0.530723I$	$8.78928 + 2.20079I$	0
$u = -0.605395 + 0.915337I$ $a = 0.449296 - 1.181010I$ $b = -1.230940 + 0.562762I$	$6.97761 + 12.04090I$	0
$u = -0.605395 - 0.915337I$ $a = 0.449296 + 1.181010I$ $b = -1.230940 - 0.562762I$	$6.97761 - 12.04090I$	0
$u = -0.524939 + 0.728503I$ $a = -0.50181 + 1.52469I$ $b = 1.221130 - 0.467400I$	$0.17465 + 8.23740I$	0
$u = -0.524939 - 0.728503I$ $a = -0.50181 - 1.52469I$ $b = 1.221130 + 0.467400I$	$0.17465 - 8.23740I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.146280 + 0.016740I$ $a = -0.218153 + 1.254070I$ $b = 0.883487 - 0.824717I$	$5.16086 + 3.06951I$	0
$u = 1.146280 - 0.016740I$ $a = -0.218153 - 1.254070I$ $b = 0.883487 + 0.824717I$	$5.16086 - 3.06951I$	0
$u = -0.421925 + 0.731310I$ $a = -0.889218 + 0.084686I$ $b = 1.110590 + 0.288943I$	$0.35974 - 3.47491I$	0
$u = -0.421925 - 0.731310I$ $a = -0.889218 - 0.084686I$ $b = 1.110590 - 0.288943I$	$0.35974 + 3.47491I$	0
$u = 0.073826 + 0.813368I$ $a = -1.60062 + 0.49196I$ $b = 0.899591 - 0.403821I$	$7.79839 - 0.95510I$	0
$u = 0.073826 - 0.813368I$ $a = -1.60062 - 0.49196I$ $b = 0.899591 + 0.403821I$	$7.79839 + 0.95510I$	0
$u = 1.20375$ $a = 0.466459$ $b = 0.00998561$	-2.53324	0
$u = -0.635177 + 1.044370I$ $a = 0.662353 - 0.064701I$ $b = -1.059810 - 0.347777I$	$7.02919 - 5.71442I$	0
$u = -0.635177 - 1.044370I$ $a = 0.662353 + 0.064701I$ $b = -1.059810 + 0.347777I$	$7.02919 + 5.71442I$	0
$u = 0.509200 + 1.127410I$ $a = 0.472655 + 0.551529I$ $b = -1.195790 - 0.258865I$	$1.51094 - 5.10157I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.509200 - 1.127410I$ $a = 0.472655 - 0.551529I$ $b = -1.195790 + 0.258865I$	$1.51094 + 5.10157I$	0
$u = -0.365776 + 0.653749I$ $a = -0.081284 + 1.401450I$ $b = -0.287242 - 1.062190I$	$10.02620 + 6.30984I$	0
$u = -0.365776 - 0.653749I$ $a = -0.081284 - 1.401450I$ $b = -0.287242 + 1.062190I$	$10.02620 - 6.30984I$	0
$u = 0.129351 + 0.704209I$ $a = -0.679190 - 0.828173I$ $b = 0.103762 + 0.686088I$	$5.33081 - 1.86604I$	$0. + 3.90648I$
$u = 0.129351 - 0.704209I$ $a = -0.679190 + 0.828173I$ $b = 0.103762 - 0.686088I$	$5.33081 + 1.86604I$	$0. - 3.90648I$
$u = 1.223970 + 0.401442I$ $a = -0.462473 - 0.267648I$ $b = -0.073035 - 0.139352I$	$2.07456 - 2.27551I$	0
$u = 1.223970 - 0.401442I$ $a = -0.462473 + 0.267648I$ $b = -0.073035 + 0.139352I$	$2.07456 + 2.27551I$	0
$u = -1.263230 + 0.374502I$ $a = -0.746639 + 0.577828I$ $b = 0.860702 + 0.092884I$	$3.67205 + 5.24598I$	0
$u = -1.263230 - 0.374502I$ $a = -0.746639 - 0.577828I$ $b = 0.860702 - 0.092884I$	$3.67205 - 5.24598I$	0
$u = -0.266580 + 0.588131I$ $a = 1.35207 - 2.09086I$ $b = -1.122390 + 0.353863I$	$0.18453 + 2.81647I$	$-0.56699 - 5.14375I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.266580-0.588131I$ $a=\ \ 1.35207+2.09086I$ $b=-1.122390-0.353863I$	$0.18453-2.81647I$	$-0.56699+5.14375I$
$u=-0.383725+0.510780I$ $a=-0.35311-1.52762I$ $b=\ \ 0.127056+0.881304I$	$3.55177+3.39819I$	$0.84018-6.92415I$
$u=-0.383725-0.510780I$ $a=-0.35311+1.52762I$ $b=\ \ 0.127056-0.881304I$	$3.55177-3.39819I$	$0.84018+6.92415I$
$u=-0.631511$ $a=\ \ 0.479038$ $b=-1.15135$	-1.55302	-7.94170
$u=\ \ 1.382990+0.055539I$ $a=\ \ 0.565031-0.732391I$ $b=-0.238430+0.708558I$	$-2.35948-0.82108I$	0
$u=\ \ 1.382990-0.055539I$ $a=\ \ 0.565031+0.732391I$ $b=-0.238430-0.708558I$	$-2.35948+0.82108I$	0
$u=-1.375540+0.190726I$ $a=\ \ 0.047286+0.731163I$ $b=\ \ 0.378703-1.174100I$	$0.57233+4.93402I$	0
$u=-1.375540-0.190726I$ $a=\ \ 0.047286-0.731163I$ $b=\ \ 0.378703+1.174100I$	$0.57233-4.93402I$	0
$u=-1.391300+0.009231I$ $a=\ \ 0.421080+0.806075I$ $b=\ \ 1.57036-0.71094I$	$-2.89241+2.70347I$	0
$u=-1.391300-0.009231I$ $a=\ \ 0.421080-0.806075I$ $b=\ \ 1.57036+0.71094I$	$-2.89241-2.70347I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.491766+0.337151I$ $a=\ 1.52671+1.10854I$ $b=\ 0.131068-0.467644I$	$3.13228-0.27068I$	$1.77490-1.85357I$
$u=-0.491766-0.337151I$ $a=\ 1.52671-1.10854I$ $b=\ 0.131068+0.467644I$	$3.13228+0.27068I$	$1.77490+1.85357I$
$u=-1.41338+0.09716I$ $a=\ 1.63265-0.41394I$ $b=\ 1.024190-0.080144I$	$3.14701+6.03465I$	0
$u=-1.41338-0.09716I$ $a=\ 1.63265+0.41394I$ $b=\ 1.024190+0.080144I$	$3.14701-6.03465I$	0
$u=\ 1.42796+0.02959I$ $a=\ 0.701919+0.520870I$ $b=\ 1.53124-0.11552I$	$-3.60289-2.95271I$	0
$u=\ 1.42796-0.02959I$ $a=\ 0.701919-0.520870I$ $b=\ 1.53124+0.11552I$	$-3.60289+2.95271I$	0
$u=-1.43990+0.06670I$ $a=-0.012806-0.753944I$ $b=-0.183222+0.885034I$	$-5.79294+2.10750I$	0
$u=-1.43990-0.06670I$ $a=-0.012806+0.753944I$ $b=-0.183222-0.885034I$	$-5.79294-2.10750I$	0
$u=\ 1.43586+0.20746I$ $a=-0.41468+1.49380I$ $b=-1.226660-0.529473I$	$-5.35379-5.68624I$	0
$u=\ 1.43586-0.20746I$ $a=-0.41468-1.49380I$ $b=-1.226660+0.529473I$	$-5.35379+5.68624I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.45502 + 0.14563I$ $a = -0.310433 + 0.637258I$ $b = 0.052332 - 1.193180I$	$-2.41136 - 5.70802I$	0
$u = 1.45502 - 0.14563I$ $a = -0.310433 - 0.637258I$ $b = 0.052332 + 1.193180I$	$-2.41136 + 5.70802I$	0
$u = 0.427368 + 0.306228I$ $a = 0.86564 + 1.62484I$ $b = -1.109570 - 0.540320I$	$-1.27209 - 2.61374I$	$-8.1476 + 11.5732I$
$u = 0.427368 - 0.306228I$ $a = 0.86564 - 1.62484I$ $b = -1.109570 + 0.540320I$	$-1.27209 + 2.61374I$	$-8.1476 - 11.5732I$
$u = 1.47311 + 0.21321I$ $a = 0.208305 - 0.640823I$ $b = -0.17007 + 1.45424I$	$4.02421 - 9.40391I$	0
$u = 1.47311 - 0.21321I$ $a = 0.208305 + 0.640823I$ $b = -0.17007 - 1.45424I$	$4.02421 + 9.40391I$	0
$u = 1.49510 + 0.04344I$ $a = -0.581323 + 0.412900I$ $b = -1.51105 - 0.29367I$	$-8.12584 - 0.44534I$	0
$u = 1.49510 - 0.04344I$ $a = -0.581323 - 0.412900I$ $b = -1.51105 + 0.29367I$	$-8.12584 + 0.44534I$	0
$u = -0.469577 + 0.132148I$ $a = 0.607127 + 0.383204I$ $b = 1.022440 - 0.664659I$	$2.30869 + 3.10979I$	$6.28767 + 0.10476I$
$u = -0.469577 - 0.132148I$ $a = 0.607127 - 0.383204I$ $b = 1.022440 + 0.664659I$	$2.30869 - 3.10979I$	$6.28767 - 0.10476I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.51638+0.07781I$ $a=-0.311568-0.786453I$ $b=-1.38732+0.85466I$	$-7.83146+3.89655I$	0
$u=-1.51638-0.07781I$ $a=-0.311568+0.786453I$ $b=-1.38732-0.85466I$	$-7.83146-3.89655I$	0
$u=1.54839+0.05770I$ $a=0.443126-0.341427I$ $b=1.47115+0.67450I$	$-4.62587-3.85006I$	0
$u=1.54839-0.05770I$ $a=0.443126+0.341427I$ $b=1.47115-0.67450I$	$-4.62587+3.85006I$	0
$u=1.52731+0.26111I$ $a=0.475990-1.199960I$ $b=1.36229+0.58251I$	$-6.51610-11.88980I$	0
$u=1.52731-0.26111I$ $a=0.475990+1.199960I$ $b=1.36229-0.58251I$	$-6.51610+11.88980I$	0
$u=-1.54118+0.17061I$ $a=-0.318296-1.038990I$ $b=-1.170070+0.386041I$	$-8.66512+2.45063I$	0
$u=-1.54118-0.17061I$ $a=-0.318296+1.038990I$ $b=-1.170070-0.386041I$	$-8.66512-2.45063I$	0
$u=0.277564+0.317493I$ $a=0.560535+1.041500I$ $b=-0.079901-0.308666I$	$-0.183792-0.864472I$	$-4.29913+7.86972I$
$u=0.277564-0.317493I$ $a=0.560535-1.041500I$ $b=-0.079901+0.308666I$	$-0.183792+0.864472I$	$-4.29913-7.86972I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.56054+0.25243I$ $a=\ 0.375410+0.928178I$ $b=\ 1.353380-0.393780I$	$-10.60940+6.66212I$	0
$u=-1.56054-0.25243I$ $a=\ 0.375410-0.928178I$ $b=\ 1.353380+0.393780I$	$-10.60940-6.66212I$	0
$u=-1.55851+0.35179I$ $a=-0.349517-0.886182I$ $b=-1.44084+0.41048I$	$-5.19961+10.21640I$	0
$u=-1.55851-0.35179I$ $a=-0.349517+0.886182I$ $b=-1.44084-0.41048I$	$-5.19961-10.21640I$	0
$u=\ 1.57773+0.32081I$ $a=-0.413286+1.072970I$ $b=-1.42145-0.65571I$	$-0.1084-16.5867I$	0
$u=\ 1.57773-0.32081I$ $a=-0.413286-1.072970I$ $b=-1.42145+0.65571I$	$-0.1084+16.5867I$	0
$u=-1.60922+0.08030I$ $a=\ 0.270773+0.717828I$ $b=\ 1.37271-1.07445I$	$-3.46237+4.60398I$	0
$u=-1.60922-0.08030I$ $a=\ 0.270773-0.717828I$ $b=\ 1.37271+1.07445I$	$-3.46237-4.60398I$	0
$u=\ 0.125878+0.322657I$ $a=\ 3.80205-2.84036I$ $b=\ 0.779351+0.457129I$	$8.28711-4.58904I$	$1.66459+8.40382I$
$u=\ 0.125878-0.322657I$ $a=\ 3.80205+2.84036I$ $b=\ 0.779351-0.457129I$	$8.28711+4.58904I$	$1.66459-8.40382I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.55309 + 0.60898I$ $a = -0.171676 + 0.555702I$ $b = -1.234490 - 0.047231I$	$-1.64260 - 2.30540I$	0
$u = 1.55309 - 0.60898I$ $a = -0.171676 - 0.555702I$ $b = -1.234490 + 0.047231I$	$-1.64260 + 2.30540I$	0
$u = 1.64697 + 0.30699I$ $a = 0.307607 - 0.488246I$ $b = 1.146860 + 0.090509I$	$-6.04528 - 1.09420I$	0
$u = 1.64697 - 0.30699I$ $a = 0.307607 + 0.488246I$ $b = 1.146860 - 0.090509I$	$-6.04528 + 1.09420I$	0
$u = -0.124790$ $a = 13.9437$ $b = -0.470722$	2.89659	10.5150
$u = -0.0876446 + 0.0176727I$ $a = 2.61863 - 7.91258I$ $b = 1.41551 - 0.34649I$	$1.67209 + 2.65200I$	$-6.68294 + 0.54441I$
$u = -0.0876446 - 0.0176727I$ $a = 2.61863 + 7.91258I$ $b = 1.41551 + 0.34649I$	$1.67209 - 2.65200I$	$-6.68294 - 0.54441I$

II.

$\boldsymbol{I_2^u = \langle 3u^{20}-5u^{19}+\cdots+b-2,\ -3u^{20}+4u^{19}+\cdots+a+4,\ u^{21}-14u^{19}+\cdots+u-1\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 3u^{20}-4u^{19}+\cdots+12u-4 \\ -3u^{20}+5u^{19}+\cdots-4u+2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} u^{19}-3u^{18}+\cdots+8u-2 \\ -3u^{20}+5u^{19}+\cdots-4u+2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -3u^{20}+3u^{19}+\cdots-7u+5 \\ u^{20}-u^{19}+\cdots+2u-2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2u^{20}-3u^{19}+\cdots+8u-3 \\ u^{19}-u^{18}+\cdots-5u^2-2u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -3u^{20}+4u^{19}+\cdots-4u+3 \\ -u^{20}+3u^{19}+\cdots-u+1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2u^{20}+4u^{19}+\cdots-5u^2+5u \\ -7u^{20}+10u^{19}+\cdots-9u+5 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= 7u^{20}-13u^{19}-84u^{18}+158u^{17}+425u^{16}-809u^{15}-1168u^{14}+2256u^{13}+1870u^{12}-3697u^{11}-1742u^{10}+3586u^9+919u^8-1994u^7-306u^6+636u^5+87u^4-158u^3+7u^2+24u-16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$u^{21} - 14u^{19} + \cdots + u - 1$
c_3	$u^{21} + u^{20} + \cdots - u + 1$
c_4	$u^{21} - 2u^{19} + \cdots - 2u - 1$
c_5	$u^{21} - 14u^{19} + \cdots + u + 1$
c_6, c_7	$u^{21} + u^{20} + \cdots - 9u^2 - 1$
c_8	$u^{21} - u^{20} + \cdots - u - 1$
c_9	$u^{21} + 3u^{20} + \cdots + 9u^2 - 1$
c_{10}	$u^{21} + 3u^{19} + \cdots - 8u^2 + 1$
c_{11}	$u^{21} - u^{20} + \cdots + 9u^2 + 1$
c_{12}	$u^{21} - 3u^{20} + \cdots - 9u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y^{21} - 28y^{20} + \cdots + 9y - 1$
c_3, c_8	$y^{21} - 21y^{20} + \cdots + 11y - 1$
c_4	$y^{21} - 4y^{20} + \cdots - 10y - 1$
c_6, c_7, c_{11}	$y^{21} + 21y^{20} + \cdots - 18y - 1$
c_9, c_{12}	$y^{21} - 17y^{20} + \cdots + 18y - 1$
c_{10}	$y^{21} + 6y^{20} + \cdots + 16y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.980123 + 0.287889I$ $a = -0.202219 - 0.402737I$ $b = 0.821250 + 0.530110I$	$1.64253 - 3.32447I$	$-6.73227 + 3.23371I$
$u = 0.980123 - 0.287889I$ $a = -0.202219 + 0.402737I$ $b = 0.821250 - 0.530110I$	$1.64253 + 3.32447I$	$-6.73227 - 3.23371I$
$u = 1.12877$ $a = 0.459570$ $b = -0.644952$	-3.11468	-14.6860
$u = -1.23262$ $a = 1.72801$ $b = -0.411550$	-0.191889	1.35120
$u = -1.267400 + 0.189837I$ $a = -1.145350 + 0.468508I$ $b = 0.372541 - 0.430174I$	$5.01252 + 5.95890I$	$0.38975 - 5.02691I$
$u = -1.267400 - 0.189837I$ $a = -1.145350 - 0.468508I$ $b = 0.372541 + 0.430174I$	$5.01252 - 5.95890I$	$0.38975 + 5.02691I$
$u = 0.513299 + 0.356158I$ $a = -0.298859 - 0.889580I$ $b = 1.198820 + 0.616343I$	$1.84979 - 3.43907I$	$-5.77787 + 8.99517I$
$u = 0.513299 - 0.356158I$ $a = -0.298859 + 0.889580I$ $b = 1.198820 - 0.616343I$	$1.84979 + 3.43907I$	$-5.77787 - 8.99517I$
$u = -0.428378 + 0.445644I$ $a = 0.59208 + 1.78035I$ $b = 0.635250 + 0.374830I$	$8.00683 - 3.75384I$	$-1.41538 + 0.52564I$
$u = -0.428378 - 0.445644I$ $a = 0.59208 - 1.78035I$ $b = 0.635250 - 0.374830I$	$8.00683 + 3.75384I$	$-1.41538 - 0.52564I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.50488+0.09457I$ $a=-0.300529-0.973392I$ $b=-1.25356+0.73428I$	$-7.16310+3.43030I$	$-3.74353-1.15763I$
$u=-1.50488-0.09457I$ $a=-0.300529+0.973392I$ $b=-1.25356-0.73428I$	$-7.16310-3.43030I$	$-3.74353+1.15763I$
$u=-1.54873+0.07946I$ $a=\ \ 0.337710+0.596656I$ $b=\ \ 1.56117-0.99590I$	$-5.11343+4.80864I$	$-8.81380-6.84118I$
$u=-1.54873-0.07946I$ $a=\ \ 0.337710-0.596656I$ $b=\ \ 1.56117+0.99590I$	$-5.11343-4.80864I$	$-8.81380+6.84118I$
$u=-0.428907$ $a=-3.99233$ $b=-0.611834$	2.58386	-16.1200
$u=\ \ 1.55858+0.20556I$ $a=-0.410534+0.603726I$ $b=-1.123510-0.131583I$	$-5.66515-0.90405I$	$-2.75648-2.17520I$
$u=\ \ 1.55858-0.20556I$ $a=-0.410534-0.603726I$ $b=-1.123510+0.131583I$	$-5.66515+0.90405I$	$-2.75648+2.17520I$
$u=\ \ 0.213126+0.328797I$ $a=\ \ 2.06155+1.99092I$ $b=-1.118860-0.369484I$	$-1.13219-1.99292I$	$-5.58755-0.19985I$
$u=\ \ 0.213126-0.328797I$ $a=\ \ 2.06155-1.99092I$ $b=-1.118860+0.369484I$	$-1.13219+1.99292I$	$-5.58755+0.19985I$
$u=\ \ 1.75063+0.30855I$ $a=\ \ 0.268529-0.284726I$ $b=\ \ 1.241070+0.159795I$	$-2.01124-1.49085I$	$-8.33532+1.09996I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.75063-0.30855I$		
$a=$	$0.268529+0.284726I$	$-2.01124+1.49085I$	$-8.33532-1.09996I$
$b=$	$1.241070-0.159795I$		

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

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} u^5-2u^4-2u^3+4u^2+u-1 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^4-2u^3-u^2+2u+1 \\ u^5-2u^4-2u^3+5u^2-1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^5-2u^4-2u^3+4u^2+u-2 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^3+2u^2-2 \\ -u^5+2u^4+u^3-4u^2+u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^5-2u^4-2u^3+4u^2+u-1 \\ -1 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -u^5+u^4+2u^3-2u^2+2u \\ -3u^5+4u^4+6u^3-7u^2+2u+1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_8	$y^6 - 9y^5 + 28y^4 - 34y^3 + 16y^2 - 8y + 1$
c_4	$y^6 - 5y^5 - 16y^4 - 22y^3 - 12y^2 - 12y + 1$
c_6, c_7, c_{10} c_{11}	$y^6 + 3y^5 - 6y^3 - 4y^2 + 1$
c_9, c_{12}	$(y-1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.558227 + 0.461646I$ $a = 0.64026 + 1.59235I$ $b = -1.00000$	-1.64493	-6.00000
$u = 0.558227 - 0.461646I$ $a = 0.64026 - 1.59235I$ $b = -1.00000$	-1.64493	-6.00000
$u = -1.39152$ $a = -1.97338$ $b = -1.00000$	-1.64493	-6.00000
$u = -0.401914$ $a = -0.688603$ $b = -1.00000$	-1.64493	-6.00000
$u = 1.83849 + 0.16576I$ $a = -0.309272 + 0.392670I$ $b = -1.00000$	-1.64493	-6.00000
$u = 1.83849 - 0.16576I$ $a = -0.309272 - 0.392670I$ $b = -1.00000$	-1.64493	-6.00000

IV. $I_4^u = \langle b+1,\ a-1,\ u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=\ \ 1.00000$ $b=-1.00000$	-1.64493	-6.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)(u^6+3u^5+\cdots-4u^2+1)(u^{21}-14u^{19}+\cdots+u-1)$ $\cdot(u^{87}+5u^{86}+\cdots-31u+1)$
c_3	$(u+1)(u^6-3u^5+\cdots-4u^2+1)(u^{21}+u^{20}+\cdots-u+1)$ $\cdot(u^{87}+2u^{86}+\cdots+1867u-1459)$
c_4	$(u-1)(u^6+u^5+\cdots+2u+1)(u^{21}-2u^{19}+\cdots-2u-1)$ $\cdot(u^{87}-u^{86}+\cdots-108842u+15817)$
c_5	$(u-1)(u^6+3u^5+\cdots-4u^2+1)(u^{21}-14u^{19}+\cdots+u+1)$ $\cdot(u^{87}+5u^{86}+\cdots-31u+1)$
c_6, c_7	$(u+1)(u^6-u^5+2u^4-2u^3-1)(u^{21}+u^{20}+\cdots-9u^2-1)$ $\cdot(u^{87}+2u^{86}+\cdots-36u+7)$
c_8	$(u+1)(u^6-3u^5+\cdots-4u^2+1)(u^{21}-u^{20}+\cdots-u-1)$ $\cdot(u^{87}+2u^{86}+\cdots+1867u-1459)$
c_9	$((u+1)^7)(u^{21}+3u^{20}+\cdots+9u^2-1)(u^{87}-9u^{86}+\cdots+784u-8)$
c_{10}	$(u+1)(u^6-u^5+2u^4-2u^3-1)(u^{21}+3u^{19}+\cdots-8u^2+1)$ $\cdot(u^{87}+3u^{86}+\cdots+619168u+590297)$
c_{11}	$(u+1)(u^6-u^5+2u^4-2u^3-1)(u^{21}-u^{20}+\cdots+9u^2+1)$ $\cdot(u^{87}+2u^{86}+\cdots-36u+7)$
c_{12}	$((u+1)^7)(u^{21}-3u^{20}+\cdots-9u^2+1)(u^{87}-9u^{86}+\cdots+784u-8)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)(y^6-9y^5+28y^4-34y^3+16y^2-8y+1)$ $\cdot(y^{21}-28y^{20}+\cdots+9y-1)(y^{87}-91y^{86}+\cdots+301y-1)$
c_3, c_8	$(y-1)(y^6-9y^5+28y^4-34y^3+16y^2-8y+1)$ $\cdot(y^{21}-21y^{20}+\cdots+11y-1)$ $\cdot(y^{87}-64y^{86}+\cdots+35213103y-2128681)$
c_4	$(y-1)(y^6-5y^5-16y^4-22y^3-12y^2-12y+1)$ $\cdot(y^{21}-4y^{20}+\cdots-10y-1)$ $\cdot(y^{87}+33y^{86}+\cdots+197455366y-250177489)$
c_6, c_7, c_{11}	$(y-1)(y^6+3y^5+\cdots-4y^2+1)(y^{21}+21y^{20}+\cdots-18y-1)$ $\cdot(y^{87}+90y^{86}+\cdots+2206y-49)$
c_9, c_{12}	$((y-1)^7)(y^{21}-17y^{20}+\cdots+18y-1)$ $\cdot(y^{87}-59y^{86}+\cdots+638432y-64)$
c_{10}	$(y-1)(y^6+3y^5+\cdots-4y^2+1)(y^{21}+6y^{20}+\cdots+16y-1)$ $\cdot(y^{87}-25y^{86}+\cdots+7264616979632y-348450548209)$