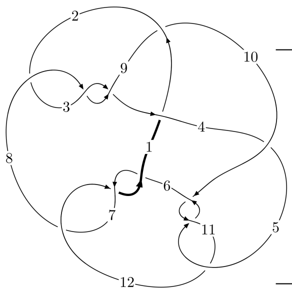
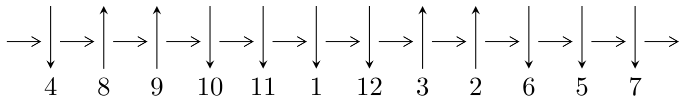
$12a_{1137}$ ($K12a_{1137}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3u^{29} - 5u^{28} + \cdots + b - 3,\ -u^{29} + u^{28} + \cdots + 2a - 1,\ u^{30} - 3u^{29} + \cdots + 3u + 2 \rangle$$
$$I_2^u = \langle u^{22}a - u^{22} + \cdots + b - 1,\ u^{22} - 11u^{20} + \cdots + a^2 + u,\ u^{23} + u^{22} + \cdots - 2u^3 + 1 \rangle$$
$$I_3^u = \langle u^3 + b - u - 1,\ -u^4 + 2u^2 + a - 1,\ u^6 - 3u^4 + 2u^2 + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 82 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.

$$\boldsymbol{I_1^u = \langle 3u^{29} - 5u^{28} + \cdots + b - 3,\ -u^{29} + u^{28} + \cdots + 2a - 1,\ u^{30} - 3u^{29} + \cdots + 3u + 2\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{10} + 5u^8 - 8u^6 + 3u^4 + u^2 + 1 \\ -u^{10} + 4u^8 - 5u^6 + 2u^4 - u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -u^8 + 4u^6 - 4u^4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u^{29} - \frac{1}{2}u^{28} + \cdots - u + \frac{1}{2} \\ -3u^{29} + 5u^{28} + \cdots + 6u + 3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{2}u^{29} - \frac{1}{2}u^{28} + \cdots - 3u - \frac{3}{2} \\ 2u^{29} - 3u^{28} + \cdots - 6u - 3 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{3}{2}u^{29} - \frac{3}{2}u^{28} + \cdots - 9u - \frac{9}{2} \\ 5u^{29} - 7u^{28} + \cdots - 16u - 7 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{29} - \frac{1}{2}u^{28} + \cdots - 2u^2 - \frac{1}{2} \\ -u^{29} + 2u^{28} + \cdots + 3u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{29} - 6u^{28} - 44u^{27} + 58u^{26} + 214u^{25} - 222u^{24} - 596u^{23} + 376u^{22} + 1006u^{21} - 58u^{20} - 920u^{19} - 828u^{18} + 88u^{17} + 1268u^{16} + 752u^{15} - 520u^{14} - 658u^{13} - 320u^{12} + 76u^{11} + 234u^{10} - 14u^9 - 2u^8 + 148u^7 + 92u^6 + 38u^5 - 30u^4 - 80u^3 - 44u^2 - 24u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} - 7u^{29} + \cdots - 415u + 136$
c_2, c_3, c_8	$u^{30} - 3u^{29} + \cdots + 3u + 2$
c_4	$u^{30} + 3u^{29} + \cdots + 320u + 128$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{30} + 16u^{28} + \cdots + u + 1$
c_9	$u^{30} + 9u^{29} + \cdots + 93u + 6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 5y^{29} + \cdots + 17087y + 18496$
c_2, c_3, c_8	$y^{30} - 27y^{29} + \cdots + 15y + 4$
c_4	$y^{30} - 5y^{29} + \cdots + 323584y + 16384$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{30} + 32y^{29} + \cdots + 9y + 1$
c_9	$y^{30} + y^{29} + \cdots - 2433y + 36$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.930902$ $a=\ \ 0.756247$ $b=-1.08322$	-1.46218	-7.28610
$u=-1.089660+0.308662I$ $a=\ \ 0.099048-1.205780I$ $b=\ \ 1.65581+0.20452I$	$6.92010-7.02665I$	$2.40937+6.27539I$
$u=-1.089660-0.308662I$ $a=\ \ 0.099048+1.205780I$ $b=\ \ 1.65581-0.20452I$	$6.92010+7.02665I$	$2.40937-6.27539I$
$u=-0.704410+0.436123I$ $a=-1.21026+1.24528I$ $b=\ \ 0.040668-0.499528I$	$7.95280+7.12520I$	$2.76356-2.96102I$
$u=-0.704410-0.436123I$ $a=-1.21026-1.24528I$ $b=\ \ 0.040668+0.499528I$	$7.95280-7.12520I$	$2.76356+2.96102I$
$u=-0.304786+0.743959I$ $a=-1.46293+1.06283I$ $b=-1.36076+1.49177I$	$6.54937-11.30350I$	$0.19641+8.01251I$
$u=-0.304786-0.743959I$ $a=-1.46293-1.06283I$ $b=-1.36076-1.49177I$	$6.54937+11.30350I$	$0.19641-8.01251I$
$u=-0.103486+0.765219I$ $a=\ \ 1.73841+0.04408I$ $b=\ \ 1.54138+0.39049I$	$3.91072+3.07613I$	$-0.68680-2.45527I$
$u=-0.103486-0.765219I$ $a=\ \ 1.73841-0.04408I$ $b=\ \ 1.54138-0.39049I$	$3.91072-3.07613I$	$-0.68680+2.45527I$
$u=\ \ 0.463501+0.614076I$ $a=-1.51718-1.19039I$ $b=-0.727847-0.567986I$	$11.82910+2.06121I$	$4.42340-3.33690I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.463501 - 0.614076I$ $a = -1.51718 + 1.19039I$ $b = -0.727847 + 0.567986I$	$11.82910 - 2.06121I$	$4.42340 + 3.33690I$
$u = -0.229240 + 0.685867I$ $a = -0.139869 - 1.010570I$ $b = -0.032234 - 1.383400I$	$-3.39097 - 3.33199I$	$-9.55544 + 5.59326I$
$u = -0.229240 - 0.685867I$ $a = -0.139869 + 1.010570I$ $b = -0.032234 + 1.383400I$	$-3.39097 + 3.33199I$	$-9.55544 - 5.59326I$
$u = -0.680122$ $a = 0.965666$ $b = -0.665414$	-1.48461	-6.75330
$u = 1.307540 + 0.319637I$ $a = 0.353413 + 0.920897I$ $b = 1.132810 - 0.600648I$	$8.31617 + 0.83782I$	$4.44779 + 0.17762I$
$u = 1.307540 - 0.319637I$ $a = 0.353413 - 0.920897I$ $b = 1.132810 + 0.600648I$	$8.31617 - 0.83782I$	$4.44779 - 0.17762I$
$u = 1.352520 + 0.135874I$ $a = 0.381110 + 0.172911I$ $b = -0.383620 + 0.193018I$	$3.75541 + 0.77985I$	$-2.27872 + 2.76052I$
$u = 1.352520 - 0.135874I$ $a = 0.381110 - 0.172911I$ $b = -0.383620 - 0.193018I$	$3.75541 - 0.77985I$	$-2.27872 - 2.76052I$
$u = -1.350210 + 0.200800I$ $a = -0.056070 - 0.361065I$ $b = 0.555528 - 0.782092I$	$4.51414 - 3.42768I$	$-0.15581 + 5.80126I$
$u = -1.350210 - 0.200800I$ $a = -0.056070 + 0.361065I$ $b = 0.555528 + 0.782092I$	$4.51414 + 3.42768I$	$-0.15581 - 5.80126I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.38985 + 0.27006I$ $a = -0.489440 + 0.230842I$ $b = 1.07204 + 1.56270I$	$1.76191 + 6.80641I$	$-4.17068 - 6.44926I$
$u = 1.38985 - 0.27006I$ $a = -0.489440 - 0.230842I$ $b = 1.07204 - 1.56270I$	$1.76191 - 6.80641I$	$-4.17068 + 6.44926I$
$u = 1.42853 + 0.29221I$ $a = 0.046116 - 1.008880I$ $b = -2.90289 - 1.59266I$	$12.0906 + 15.0680I$	$4.25091 - 8.34423I$
$u = 1.42853 - 0.29221I$ $a = 0.046116 + 1.008880I$ $b = -2.90289 + 1.59266I$	$12.0906 - 15.0680I$	$4.25091 + 8.34423I$
$u = 1.46604 + 0.09649I$ $a = -0.257035 - 0.974980I$ $b = 0.50288 - 1.41355I$	$14.8637 - 5.5424I$	$6.83012 + 3.12730I$
$u = 1.46604 - 0.09649I$ $a = -0.257035 + 0.974980I$ $b = 0.50288 + 1.41355I$	$14.8637 + 5.5424I$	$6.83012 - 3.12730I$
$u = -1.46325 + 0.21014I$ $a = -0.110662 + 1.025770I$ $b = -1.28614 + 1.87885I$	$18.0378 - 5.0287I$	$7.86103 + 3.20489I$
$u = -1.46325 - 0.21014I$ $a = -0.110662 - 1.025770I$ $b = -1.28614 - 1.87885I$	$18.0378 + 5.0287I$	$7.86103 - 3.20489I$
$u = 0.142590 + 0.468477I$ $a = 0.514389 + 0.535305I$ $b = 0.066704 + 0.337976I$	$-0.231238 + 0.878798I$	$-5.31548 - 7.61341I$
$u = 0.142590 - 0.468477I$ $a = 0.514389 - 0.535305I$ $b = 0.066704 - 0.337976I$	$-0.231238 - 0.878798I$	$-5.31548 + 7.61341I$

II.
$\boldsymbol{I_2^u = \langle u^{22}a - u^{22} + \cdots + b - 1,\ u^{22} - 11u^{20} + \cdots + a^2 + u,\ u^{23} + u^{22} + \cdots - 2u^3 + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{10} + 5u^8 - 8u^6 + 3u^4 + u^2 + 1 \\ -u^{10} + 4u^8 - 5u^6 + 2u^4 - u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ -u^8 + 4u^6 - 4u^4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -u^{22}a + u^{22} + \cdots - u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{22} + u^{21} + \cdots - u^2 + 1 \\ -u^{22}a + u^{21} + \cdots - a + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{22} + u^{21} + \cdots + au + 1 \\ -u^{22}a + u^{21} + \cdots - a + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{17} - 8u^{15} + \cdots + a + 1 \\ -u^{22}a + u^{22} + \cdots - u^2a + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{20} + 36u^{18} - 4u^{17} - 132u^{16} + 32u^{15} + 244u^{14} - 100u^{13} - 220u^{12} + 144u^{11} + 60u^{10} - 80u^9 + 24u^8 + 4u^6 - 12u^5 - 8u^4 + 20u^3 - 4u^2 - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{23} - 5u^{22} + \cdots + 32u - 7)^2$
c_2, c_3, c_8	$(u^{23} + u^{22} + \cdots - 2u^3 + 1)^2$
c_4	$(u^{23} - u^{22} + \cdots - 8u + 5)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{46} - u^{45} + \cdots - 18u + 5$
c_9	$(u^{23} - 3u^{22} + \cdots + 4u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{23}+7y^{22}+\cdots-404y-49)^2$
c_2, c_3, c_8	$(y^{23}-21y^{22}+\cdots-6y^2-1)^2$
c_4	$(y^{23}-5y^{22}+\cdots+264y-25)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{46}+35y^{45}+\cdots-264y+25$
c_9	$(y^{23}-y^{22}+\cdots+4y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.070060 + 0.182203I$ $a = -0.070084 + 1.156430I$ $b = 1.59533 - 0.13562I$	$2.26450 + 3.60580I$	$-2.88555 - 4.48858I$
$u = 1.070060 + 0.182203I$ $a = 0.603866 - 0.224449I$ $b = -1.405470 - 0.026465I$	$2.26450 + 3.60580I$	$-2.88555 - 4.48858I$
$u = 1.070060 - 0.182203I$ $a = -0.070084 - 1.156430I$ $b = 1.59533 + 0.13562I$	$2.26450 - 3.60580I$	$-2.88555 + 4.48858I$
$u = 1.070060 - 0.182203I$ $a = 0.603866 + 0.224449I$ $b = -1.405470 + 0.026465I$	$2.26450 - 3.60580I$	$-2.88555 + 4.48858I$
$u = -1.15018$ $a = -0.261144 + 0.980051I$ $b = 1.95558 - 0.15361I$	5.24303	1.52610
$u = -1.15018$ $a = -0.261144 - 0.980051I$ $b = 1.95558 + 0.15361I$	5.24303	1.52610
$u = 0.285113 + 0.703745I$ $a = -0.120117 + 1.147110I$ $b = 0.22592 + 1.52660I$	$1.28846 + 7.02777I$	$-3.56401 - 7.34039I$
$u = 0.285113 + 0.703745I$ $a = -1.49794 - 1.02732I$ $b = -1.14402 - 1.60438I$	$1.28846 + 7.02777I$	$-3.56401 - 7.34039I$
$u = 0.285113 - 0.703745I$ $a = -0.120117 - 1.147110I$ $b = 0.22592 - 1.52660I$	$1.28846 - 7.02777I$	$-3.56401 + 7.34039I$
$u = 0.285113 - 0.703745I$ $a = -1.49794 + 1.02732I$ $b = -1.14402 + 1.60438I$	$1.28846 - 7.02777I$	$-3.56401 + 7.34039I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.625021 + 0.336059I$ $a = 1.106610 - 0.179524I$ $b = -0.474160 - 0.683912I$	$2.66992 - 3.26242I$	$-0.80376 + 2.26815I$
$u = 0.625021 + 0.336059I$ $a = -1.18555 - 1.45591I$ $b = 0.343202 + 0.182577I$	$2.66992 - 3.26242I$	$-0.80376 + 2.26815I$
$u = 0.625021 - 0.336059I$ $a = 1.106610 + 0.179524I$ $b = -0.474160 + 0.683912I$	$2.66992 + 3.26242I$	$-0.80376 - 2.26815I$
$u = 0.625021 - 0.336059I$ $a = -1.18555 + 1.45591I$ $b = 0.343202 - 0.182577I$	$2.66992 + 3.26242I$	$-0.80376 - 2.26815I$
$u = -0.284234 + 0.630366I$ $a = 1.56548 + 0.06970I$ $b = 0.841978 + 0.781651I$	$3.51028 - 2.29224I$	$-0.17333 + 3.81893I$
$u = -0.284234 + 0.630366I$ $a = -1.60090 + 1.02304I$ $b = -0.68342 + 1.61231I$	$3.51028 - 2.29224I$	$-0.17333 + 3.81893I$
$u = -0.284234 - 0.630366I$ $a = 1.56548 - 0.06970I$ $b = 0.841978 - 0.781651I$	$3.51028 + 2.29224I$	$-0.17333 - 3.81893I$
$u = -0.284234 - 0.630366I$ $a = -1.60090 - 1.02304I$ $b = -0.68342 - 1.61231I$	$3.51028 + 2.29224I$	$-0.17333 - 3.81893I$
$u = 0.143415 + 0.670993I$ $a = -0.229021 + 0.764912I$ $b = -0.467867 + 1.159790I$	$-0.452611 - 0.303352I$	$-7.41146 - 0.40480I$
$u = 0.143415 + 0.670993I$ $a = 1.68536 - 0.02244I$ $b = 1.182440 - 0.435170I$	$-0.452611 - 0.303352I$	$-7.41146 - 0.40480I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.143415 - 0.670993I$ $a = -0.229021 - 0.764912I$ $b = -0.467867 - 1.159790I$	$-0.452611 + 0.303352I$	$-7.41146 + 0.40480I$
$u = 0.143415 - 0.670993I$ $a = 1.68536 + 0.02244I$ $b = 1.182440 + 0.435170I$	$-0.452611 + 0.303352I$	$-7.41146 + 0.40480I$
$u = -1.347540 + 0.251864I$ $a = 0.317756 - 0.706992I$ $b = 0.719514 + 0.327199I$	$4.24683 - 3.02476I$	$-2.12213 + 2.21609I$
$u = -1.347540 + 0.251864I$ $a = -0.312944 - 0.116370I$ $b = 0.63476 - 1.57084I$	$4.24683 - 3.02476I$	$-2.12213 + 2.21609I$
$u = -1.347540 - 0.251864I$ $a = 0.317756 + 0.706992I$ $b = 0.719514 - 0.327199I$	$4.24683 + 3.02476I$	$-2.12213 - 2.21609I$
$u = -1.347540 - 0.251864I$ $a = -0.312944 + 0.116370I$ $b = 0.63476 + 1.57084I$	$4.24683 + 3.02476I$	$-2.12213 - 2.21609I$
$u = -0.405548 + 0.414027I$ $a = 0.39267 - 1.50726I$ $b = 0.861333 - 0.590644I$	$4.30391 - 0.94673I$	$2.43633 + 4.33310I$
$u = -0.405548 + 0.414027I$ $a = -1.66459 + 1.46493I$ $b = 0.245747 + 0.579180I$	$4.30391 - 0.94673I$	$2.43633 + 4.33310I$
$u = -0.405548 - 0.414027I$ $a = 0.39267 + 1.50726I$ $b = 0.861333 + 0.590644I$	$4.30391 + 0.94673I$	$2.43633 - 4.33310I$
$u = -0.405548 - 0.414027I$ $a = -1.66459 - 1.46493I$ $b = 0.245747 - 0.579180I$	$4.30391 + 0.94673I$	$2.43633 - 4.33310I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41968 + 0.16903I$ $a = -0.155020 - 0.948878I$ $b = -0.25191 - 2.81816I$	$10.07070 + 3.16234I$	$5.66460 - 3.46689I$
$u = 1.41968 + 0.16903I$ $a = -0.365183 + 0.593904I$ $b = 1.25657 + 0.90144I$	$10.07070 + 3.16234I$	$5.66460 - 3.46689I$
$u = 1.41968 - 0.16903I$ $a = -0.155020 + 0.948878I$ $b = -0.25191 + 2.81816I$	$10.07070 - 3.16234I$	$5.66460 + 3.46689I$
$u = 1.41968 - 0.16903I$ $a = -0.365183 - 0.593904I$ $b = 1.25657 - 0.90144I$	$10.07070 - 3.16234I$	$5.66460 + 3.46689I$
$u = -1.42608 + 0.11950I$ $a = -0.215286 + 0.943925I$ $b = 0.61581 + 2.08277I$	$8.93108 + 1.73636I$	$3.79313 - 2.46590I$
$u = -1.42608 + 0.11950I$ $a = 0.567183 - 0.228717I$ $b = -0.479254 + 0.173931I$	$8.93108 + 1.73636I$	$3.79313 - 2.46590I$
$u = -1.42608 - 0.11950I$ $a = -0.215286 - 0.943925I$ $b = 0.61581 - 2.08277I$	$8.93108 - 1.73636I$	$3.79313 + 2.46590I$
$u = -1.42608 - 0.11950I$ $a = 0.567183 + 0.228717I$ $b = -0.479254 - 0.173931I$	$8.93108 - 1.73636I$	$3.79313 + 2.46590I$
$u = 1.41107 + 0.24900I$ $a = -0.025103 - 0.955027I$ $b = -2.65658 - 2.58973I$	$8.92938 + 5.52406I$	$4.27222 - 3.52157I$
$u = 1.41107 + 0.24900I$ $a = 0.505997 + 0.609997I$ $b = 0.287249 - 0.596485I$	$8.92938 + 5.52406I$	$4.27222 - 3.52157I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41107 - 0.24900I$ $a = -0.025103 + 0.955027I$ $b = -2.65658 + 2.58973I$	$8.92938 - 5.52406I$	$4.27222 + 3.52157I$
$u = 1.41107 - 0.24900I$ $a = 0.505997 - 0.609997I$ $b = 0.287249 + 0.596485I$	$8.92938 - 5.52406I$	$4.27222 + 3.52157I$
$u = -1.41586 + 0.27635I$ $a = 0.023737 + 0.976168I$ $b = -2.96691 + 1.96056I$	$6.72129 - 10.59580I$	$1.03092 + 7.47788I$
$u = -1.41586 + 0.27635I$ $a = -0.565778 - 0.293599I$ $b = 1.26416 - 1.54071I$	$6.72129 - 10.59580I$	$1.03092 + 7.47788I$
$u = -1.41586 - 0.27635I$ $a = 0.023737 - 0.976168I$ $b = -2.96691 - 1.96056I$	$6.72129 + 10.59580I$	$1.03092 - 7.47788I$
$u = -1.41586 - 0.27635I$ $a = -0.565778 + 0.293599I$ $b = 1.26416 + 1.54071I$	$6.72129 + 10.59580I$	$1.03092 - 7.47788I$

III. $I^u_3 = \langle u^3 + b - u - 1,\ -u^4 + 2u^2 + a - 1,\ u^6 - 3u^4 + 2u^2 + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^4 + 8u^2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.307140 + 0.215080I$ $a = 0.122561 + 0.744862I$ $b = 0.255138 - 0.877439I$	$6.31400 + 2.82812I$	$3.50976 - 2.97945I$
$u = 1.307140 - 0.215080I$ $a = 0.122561 - 0.744862I$ $b = 0.255138 + 0.877439I$	$6.31400 - 2.82812I$	$3.50976 + 2.97945I$
$u = -1.307140 + 0.215080I$ $a = 0.122561 - 0.744862I$ $b = 1.74486 - 0.87744I$	$6.31400 - 2.82812I$	$3.50976 + 2.97945I$
$u = -1.307140 - 0.215080I$ $a = 0.122561 + 0.744862I$ $b = 1.74486 + 0.87744I$	$6.31400 + 2.82812I$	$3.50976 - 2.97945I$
$u = 0.569840I$ $a = 1.75488$ $b = 1.000000 + 0.754878I$	2.17641	−3.01950
$u = -0.569840I$ $a = 1.75488$ $b = 1.000000 - 0.754878I$	2.17641	−3.01950

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^3+u^2-1)^2)(u^{23}-5u^{22}+\cdots+32u-7)^2$ $\cdot(u^{30}-7u^{29}+\cdots-415u+136)$
c_2, c_3, c_8	$(u^6-3u^4+2u^2+1)(u^{23}+u^{22}+\cdots-2u^3+1)^2$ $\cdot(u^{30}-3u^{29}+\cdots+3u+2)$
c_4	$u^6(u^{23}-u^{22}+\cdots-8u+5)^2(u^{30}+3u^{29}+\cdots+320u+128)$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$((u^2+1)^3)(u^{30}+16u^{28}+\cdots+u+1)(u^{46}-u^{45}+\cdots-18u+5)$
c_9	$(u^6+u^4+2u^2+1)(u^{23}-3u^{22}+\cdots+4u-1)^2$ $\cdot(u^{30}+9u^{29}+\cdots+93u+6)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^3 - y^2 + 2y - 1)^2)(y^{23} + 7y^{22} + \cdots - 404y - 49)^2$ $\cdot (y^{30} + 5y^{29} + \cdots + 17087y + 18496)$
c_2, c_3, c_8	$((y^3 - 3y^2 + 2y + 1)^2)(y^{23} - 21y^{22} + \cdots - 6y^2 - 1)^2$ $\cdot (y^{30} - 27y^{29} + \cdots + 15y + 4)$
c_4	$y^6(y^{23} - 5y^{22} + \cdots + 264y - 25)^2$ $\cdot (y^{30} - 5y^{29} + \cdots + 323584y + 16384)$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$((y + 1)^6)(y^{30} + 32y^{29} + \cdots + 9y + 1)(y^{46} + 35y^{45} + \cdots - 264y + 25)$
c_9	$((y^3 + y^2 + 2y + 1)^2)(y^{23} - y^{22} + \cdots + 4y - 1)^2$ $\cdot (y^{30} + y^{29} + \cdots - 2433y + 36)$