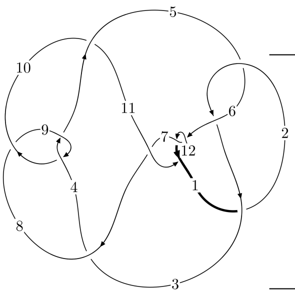
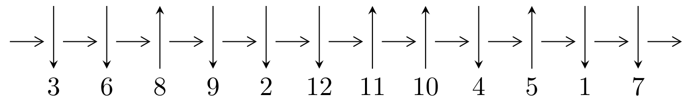
$12a_{0280}$ $(K12a_{0280})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{38} + 3u^{37} + \cdots + b - 3,\ 3u^{39} - 7u^{38} + \cdots + 2a - 4,\ u^{40} - 3u^{39} + \cdots - 6u + 2\rangle$$
$$I_2^u = \langle 205u^{31}a - 187u^{31} + \cdots - 343a + 410,\ -u^{31} - 2u^{30} + \cdots - 4a + 4,\ u^{32} + u^{31} + \cdots - 2u - 1\rangle$$
$$I_3^u = \langle -u^3 + u^2 + b - u + 1,\ u^3 - 2u^2 + 2a - 2,\ u^4 + 2u^2 + 2\rangle$$

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

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 109 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.

$$I_1^u = \langle -u^{38}+3u^{37}+\cdots+b-3,\ 3u^{39}-7u^{38}+\cdots+2a-4,\ u^{40}-3u^{39}+\cdots-6u+2\rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{3}{2}u^{39} + \frac{7}{2}u^{38} + \cdots - 4u + 2 \\ u^{38} - 3u^{37} + \cdots - 5u + 3 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{39} + \frac{3}{2}u^{38} + \cdots - 4u + 3 \\ -u^{38} + 2u^{37} + \cdots + 3u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{7}{2}u^{39} + \frac{17}{2}u^{38} + \cdots - 10u + 3 \\ 2u^{38} - 7u^{37} + \cdots - 11u + 7 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{11} - 2u^9 - 2u^7 - u^3 \\ -u^{13} - 3u^{11} - 5u^9 - 4u^7 - 2u^5 + u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{3}{2}u^{39} - \frac{7}{2}u^{38} + \cdots + 4u - 1 \\ -u^{38} + 3u^{37} + \cdots + 6u - 3 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 2u^{39} - 6u^{38} + 20u^{37} - 54u^{36} + 90u^{35} - 238u^{34} + 238u^{33} - 648u^{32} + 384u^{31} - 1158u^{30} + 312u^{29} - 1278u^{28} - 154u^{27} - 492u^{26} - 898u^{25} + 1018u^{24} - 1550u^{23} + 2192u^{22} - 1746u^{21} + 2064u^{20} - 1346u^{19} + 876u^{18} - 498u^{17} - 254u^{16} + 320u^{15} - 624u^{14} + 616u^{13} - 464u^{12} + 388u^{11} - 200u^{10} + 68u^9 - 16u^8 - 38u^7 + 56u^6 - 38u^5 + 40u^4 - 30u^3 + 8u^2 - 14u + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{40} + 19u^{39} + \cdots + 8u + 1$
c_2, c_5, c_6 c_{12}	$u^{40} + u^{39} + \cdots - 4u^2 + 1$
c_3, c_{10}	$u^{40} + 3u^{39} + \cdots + 62u + 2$
c_4, c_9	$u^{40} - 3u^{39} + \cdots - 6u + 2$
c_7	$u^{40} + 3u^{39} + \cdots - 256u + 256$
c_8	$u^{40} - 21u^{39} + \cdots - 4u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{40} + 13y^{39} + \cdots - 8y + 1$
c_2, c_5, c_6 c_{12}	$y^{40} - 19y^{39} + \cdots - 8y + 1$
c_3, c_{10}	$y^{40} - 27y^{39} + \cdots - 1244y + 4$
c_4, c_9	$y^{40} + 21y^{39} + \cdots + 4y + 4$
c_7	$y^{40} + 17y^{39} + \cdots - 1441792y + 65536$
c_8	$y^{40} - 3y^{39} + \cdots + 80y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.032066 + 0.987972I$ $a = 0.79918 - 1.21680I$ $b = -0.098470 + 0.680905I$	$2.63292 + 1.38793I$	$3.69460 - 3.72098I$
$u = 0.032066 - 0.987972I$ $a = 0.79918 + 1.21680I$ $b = -0.098470 - 0.680905I$	$2.63292 - 1.38793I$	$3.69460 + 3.72098I$
$u = -0.603533 + 0.828822I$ $a = -1.69497 - 1.57214I$ $b = 0.15771 + 1.68881I$	$-6.26949 + 10.98300I$	$-9.24065 - 9.80825I$
$u = -0.603533 - 0.828822I$ $a = -1.69497 + 1.57214I$ $b = 0.15771 - 1.68881I$	$-6.26949 - 10.98300I$	$-9.24065 + 9.80825I$
$u = -0.621730 + 0.712285I$ $a = 1.139040 + 0.396240I$ $b = -0.95556 - 1.55078I$	$-6.60486 - 6.20651I$	$-10.15571 + 3.67210I$
$u = -0.621730 - 0.712285I$ $a = 1.139040 - 0.396240I$ $b = -0.95556 + 1.55078I$	$-6.60486 + 6.20651I$	$-10.15571 - 3.67210I$
$u = -0.481507 + 0.789783I$ $a = 0.648708 + 0.018988I$ $b = -0.141348 + 0.130562I$	$-0.36391 + 1.99287I$	$-2.40004 - 3.73815I$
$u = -0.481507 - 0.789783I$ $a = 0.648708 - 0.018988I$ $b = -0.141348 - 0.130562I$	$-0.36391 - 1.99287I$	$-2.40004 + 3.73815I$
$u = 0.491208 + 0.978630I$ $a = -0.81937 + 1.39099I$ $b = 0.109214 - 1.360820I$	$-0.16272 - 6.27605I$	$-4.06803 + 10.74221I$
$u = 0.491208 - 0.978630I$ $a = -0.81937 - 1.39099I$ $b = 0.109214 + 1.360820I$	$-0.16272 + 6.27605I$	$-4.06803 - 10.74221I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.231511 + 1.113940I$ $a = 0.38329 + 1.48578I$ $b = -0.133956 - 1.058470I$	$-0.38661 - 7.27037I$	$-2.50119 + 7.55106I$
$u = 0.231511 - 1.113940I$ $a = 0.38329 - 1.48578I$ $b = -0.133956 + 1.058470I$	$-0.38661 + 7.27037I$	$-2.50119 - 7.55106I$
$u = 0.810351 + 0.193335I$ $a = -1.06622 - 1.29812I$ $b = 0.94040 - 1.69712I$	$-3.06749 + 12.23140I$	$-7.51087 - 7.91346I$
$u = 0.810351 - 0.193335I$ $a = -1.06622 + 1.29812I$ $b = 0.94040 + 1.69712I$	$-3.06749 - 12.23140I$	$-7.51087 + 7.91346I$
$u = -0.482698 + 1.065100I$ $a = -0.201840 - 0.655189I$ $b = 0.187841 + 0.901163I$	$0.58711 + 3.31811I$	$-0.88906 - 1.84785I$
$u = -0.482698 - 1.065100I$ $a = -0.201840 + 0.655189I$ $b = 0.187841 - 0.901163I$	$0.58711 - 3.31811I$	$-0.88906 + 1.84785I$
$u = 0.735874 + 0.291866I$ $a = 1.005670 + 0.058018I$ $b = -0.688345 - 0.001466I$	$-4.71000 - 4.49018I$	$-9.32153 + 4.94666I$
$u = 0.735874 - 0.291866I$ $a = 1.005670 - 0.058018I$ $b = -0.688345 + 0.001466I$	$-4.71000 + 4.49018I$	$-9.32153 - 4.94666I$
$u = -0.789239 + 0.057041I$ $a = -0.060699 + 1.159700I$ $b = 0.92550 + 1.37773I$	$3.56585 - 5.08226I$	$-1.98598 + 6.14285I$
$u = -0.789239 - 0.057041I$ $a = -0.060699 - 1.159700I$ $b = 0.92550 - 1.37773I$	$3.56585 + 5.08226I$	$-1.98598 - 6.14285I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.762371 + 0.132104I$ $a = 0.507160 + 0.391032I$ $b = 0.517802 + 1.069740I$	$2.25804 + 2.12425I$	$-0.766744 - 0.783432I$
$u = 0.762371 - 0.132104I$ $a = 0.507160 - 0.391032I$ $b = 0.517802 - 1.069740I$	$2.25804 - 2.12425I$	$-0.766744 + 0.783432I$
$u = 0.538422 + 1.126370I$ $a = 0.287354 + 0.772248I$ $b = -0.106299 - 0.840485I$	$-2.27245 - 0.32612I$	$-6.24945 - 1.38108I$
$u = 0.538422 - 1.126370I$ $a = 0.287354 - 0.772248I$ $b = -0.106299 + 0.840485I$	$-2.27245 + 0.32612I$	$-6.24945 + 1.38108I$
$u = 0.388105 + 1.189300I$ $a = -0.30780 - 1.56210I$ $b = 1.45365 + 0.93184I$	$6.10895 - 1.76564I$	$3.66057 + 2.94812I$
$u = 0.388105 - 1.189300I$ $a = -0.30780 + 1.56210I$ $b = 1.45365 - 0.93184I$	$6.10895 + 1.76564I$	$3.66057 - 2.94812I$
$u = 0.337429 + 1.206360I$ $a = -0.76113 + 1.19834I$ $b = -1.13289 - 1.65527I$	$1.21656 + 8.48940I$	$-2.44558 - 5.23918I$
$u = 0.337429 - 1.206360I$ $a = -0.76113 - 1.19834I$ $b = -1.13289 + 1.65527I$	$1.21656 - 8.48940I$	$-2.44558 + 5.23918I$
$u = 0.555044 + 0.497691I$ $a = 0.945907 - 0.128380I$ $b = -0.639235 + 0.882559I$	$-1.53333 + 2.02570I$	$-6.72849 - 5.03536I$
$u = 0.555044 - 0.497691I$ $a = 0.945907 + 0.128380I$ $b = -0.639235 - 0.882559I$	$-1.53333 - 2.02570I$	$-6.72849 + 5.03536I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.423526 + 1.205050I$ $a = -1.32062 - 1.13513I$ $b = -0.30701 + 2.10725I$	$7.28327 - 0.83841I$	$2.11651 + 2.51174I$
$u = -0.423526 - 1.205050I$ $a = -1.32062 + 1.13513I$ $b = -0.30701 - 2.10725I$	$7.28327 + 0.83841I$	$2.11651 - 2.51174I$
$u = 0.502221 + 1.179890I$ $a = -1.38981 + 0.79030I$ $b = 0.34238 - 1.75306I$	$5.30301 - 6.80866I$	$2.17056 + 4.01789I$
$u = 0.502221 - 1.179890I$ $a = -1.38981 - 0.79030I$ $b = 0.34238 + 1.75306I$	$5.30301 + 6.80866I$	$2.17056 - 4.01789I$
$u = -0.474723 + 1.200460I$ $a = -0.12740 + 2.43272I$ $b = 2.04029 - 2.13554I$	$6.92248 + 9.66949I$	$1.06879 - 9.19482I$
$u = -0.474723 - 1.200460I$ $a = -0.12740 - 2.43272I$ $b = 2.04029 + 2.13554I$	$6.92248 - 9.66949I$	$1.06879 + 9.19482I$
$u = 0.532636 + 1.182860I$ $a = 0.58956 - 2.71881I$ $b = 1.56465 + 3.20864I$	$-0.1411 - 17.1898I$	$-4.00000 + 11.05603I$
$u = 0.532636 - 1.182860I$ $a = 0.58956 + 2.71881I$ $b = 1.56465 - 3.20864I$	$-0.1411 + 17.1898I$	$-4.00000 - 11.05603I$
$u = -0.540282 + 0.409606I$ $a = 0.943993 - 0.013383I$ $b = -0.536333 - 0.185294I$	$-1.31907 + 0.83318I$	$-6.05634 - 4.23853I$
$u = -0.540282 - 0.409606I$ $a = 0.943993 + 0.013383I$ $b = -0.536333 + 0.185294I$	$-1.31907 - 0.83318I$	$-6.05634 + 4.23853I$

II. $I_2^u = \langle 205u^{31}a - 187u^{31} + \cdots - 343a + 410,\ -u^{31} - 2u^{30} + \cdots - 4a + 4,\ u^{32} + u^{31} + \cdots - 2u - 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ -2.38372au^{31} + 2.17442u^{31} + \cdots + 3.98837a - 4.76744 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2.17442au^{31} + 2.48837u^{31} + \cdots + 4.76744a - 4.84884 \\ 1.30233au^{31} - 1.04651u^{31} + \cdots - 1.93023a + 2.60465 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -2.33721au^{31} + 2.74419u^{31} + \cdots + 4.88372a - 4.17442 \\ -4.06977au^{31} + 3.89535u^{31} + \cdots + 6.40698a - 7.63953 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{11} - 2u^9 - 2u^7 - u^3 \\ -u^{13} - 3u^{11} - 5u^9 - 4u^7 - 2u^5 + u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2.38372au^{31} + 2.17442u^{31} + \cdots + 4.98837a - 4.76744 \\ -0.918605au^{31} + 0.872093u^{31} + \cdots + 1.94186a - 2.83721 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{30} - 4u^{29} - 32u^{28} - 32u^{27} - 124u^{26} - 128u^{25} - 292u^{24} - 316u^{23} - 448u^{22} - 516u^{21} - 440u^{20} - 540u^{19} - 232u^{18} - 292u^{17} + 20u^{16} + 64u^{15} + 140u^{14} + 232u^{13} + 108u^{12} + 144u^{11} + 24u^{10} - 16u^9 - 28u^8 - 64u^7 - 24u^6 - 28u^5 - 8u^4 + 12u^3 + 8u^2 + 12u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{64} + 37u^{63} + \cdots - 24u^2 + 1$
c_2, c_5, c_6 c_{12}	$u^{64} + u^{63} + \cdots - 2u - 1$
c_3, c_{10}	$(u^{32} - u^{31} + \cdots + 14u - 5)^2$
c_4, c_9	$(u^{32} + u^{31} + \cdots - 2u - 1)^2$
c_7	$(u^{32} + 3u^{31} + \cdots - 4u^4 + 1)^2$
c_8	$(u^{32} - 17u^{31} + \cdots - 8u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{64} - 21y^{63} + \cdots - 48y + 1$
c_2, c_5, c_6 c_{12}	$y^{64} - 37y^{63} + \cdots - 24y^2 + 1$
c_3, c_{10}	$(y^{32} - 23y^{31} + \cdots - 296y + 25)^2$
c_4, c_9	$(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$
c_7	$(y^{32} + 17y^{31} + \cdots - 8y^2 + 1)^2$
c_8	$(y^{32} - 3y^{31} + \cdots - 16y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.565288 + 0.826638I$ $a = 0.626478 + 0.116978I$ $b = -0.192527 - 0.250322I$	$-3.22871 - 6.17510I$	$-6.26933 + 6.90538I$
$u = 0.565288 + 0.826638I$ $a = -1.61740 + 1.74426I$ $b = 0.09474 - 1.67827I$	$-3.22871 - 6.17510I$	$-6.26933 + 6.90538I$
$u = 0.565288 - 0.826638I$ $a = 0.626478 - 0.116978I$ $b = -0.192527 + 0.250322I$	$-3.22871 + 6.17510I$	$-6.26933 - 6.90538I$
$u = 0.565288 - 0.826638I$ $a = -1.61740 - 1.74426I$ $b = 0.09474 + 1.67827I$	$-3.22871 + 6.17510I$	$-6.26933 - 6.90538I$
$u = -0.180753 + 1.016980I$ $a = 0.521524 + 0.939074I$ $b = 0.184906 - 0.499212I$	$1.71612 + 2.81562I$	$1.51638 - 3.82546I$
$u = -0.180753 + 1.016980I$ $a = 0.52552 - 1.67676I$ $b = -0.216370 + 1.014450I$	$1.71612 + 2.81562I$	$1.51638 - 3.82546I$
$u = -0.180753 - 1.016980I$ $a = 0.521524 - 0.939074I$ $b = 0.184906 + 0.499212I$	$1.71612 - 2.81562I$	$1.51638 + 3.82546I$
$u = -0.180753 - 1.016980I$ $a = 0.52552 + 1.67676I$ $b = -0.216370 - 1.014450I$	$1.71612 - 2.81562I$	$1.51638 + 3.82546I$
$u = -0.561289 + 0.769750I$ $a = 1.320700 + 0.336643I$ $b = -1.28891 - 1.60281I$	$-7.30442 + 2.24194I$	$-11.34310 - 3.79727I$
$u = -0.561289 + 0.769750I$ $a = -1.90844 - 1.90270I$ $b = 0.06984 + 1.78121I$	$-7.30442 + 2.24194I$	$-11.34310 - 3.79727I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.561289 - 0.769750I$ $a = 1.320700 - 0.336643I$ $b = -1.28891 + 1.60281I$	$-7.30442 - 2.24194I$	$-11.34310 + 3.79727I$
$u = -0.561289 - 0.769750I$ $a = -1.90844 + 1.90270I$ $b = 0.06984 - 1.78121I$	$-7.30442 - 2.24194I$	$-11.34310 + 3.79727I$
$u = 0.570562 + 0.700867I$ $a = 1.170860 - 0.296591I$ $b = -1.08158 + 1.40420I$	$-3.58638 + 1.65231I$	$-7.40697 - 0.15309I$
$u = 0.570562 + 0.700867I$ $a = 0.770876 + 0.069511I$ $b = -0.296211 - 0.127275I$	$-3.58638 + 1.65231I$	$-7.40697 - 0.15309I$
$u = 0.570562 - 0.700867I$ $a = 1.170860 + 0.296591I$ $b = -1.08158 - 1.40420I$	$-3.58638 - 1.65231I$	$-7.40697 + 0.15309I$
$u = 0.570562 - 0.700867I$ $a = 0.770876 - 0.069511I$ $b = -0.296211 + 0.127275I$	$-3.58638 - 1.65231I$	$-7.40697 + 0.15309I$
$u = -0.792800 + 0.172177I$ $a = 0.445791 - 0.255610I$ $b = 0.417388 - 1.139860I$	$-0.15402 - 7.01747I$	$-4.33777 + 4.88322I$
$u = -0.792800 + 0.172177I$ $a = -0.90083 + 1.44235I$ $b = 0.98440 + 1.65747I$	$-0.15402 - 7.01747I$	$-4.33777 + 4.88322I$
$u = -0.792800 - 0.172177I$ $a = 0.445791 + 0.255610I$ $b = 0.417388 + 1.139860I$	$-0.15402 + 7.01747I$	$-4.33777 - 4.88322I$
$u = -0.792800 - 0.172177I$ $a = -0.90083 - 1.44235I$ $b = 0.98440 - 1.65747I$	$-0.15402 + 7.01747I$	$-4.33777 - 4.88322I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.362087 + 1.159290I$ $a = 0.251876 + 1.266260I$ $b = -0.111636 - 1.060770I$	$-0.945525 - 0.397373I$	$-4.16402 - 0.58140I$
$u = 0.362087 + 1.159290I$ $a = -0.78876 + 1.68341I$ $b = -1.52186 - 2.26685I$	$-0.945525 - 0.397373I$	$-4.16402 - 0.58140I$
$u = 0.362087 - 1.159290I$ $a = 0.251876 - 1.266260I$ $b = -0.111636 + 1.060770I$	$-0.945525 + 0.397373I$	$-4.16402 + 0.58140I$
$u = 0.362087 - 1.159290I$ $a = -0.78876 - 1.68341I$ $b = -1.52186 + 2.26685I$	$-0.945525 + 0.397373I$	$-4.16402 + 0.58140I$
$u = -0.433982 + 1.139380I$ $a = 0.161663 - 1.092680I$ $b = -0.076534 + 1.012240I$	$0.99219 + 3.88889I$	$-1.10872 - 4.90467I$
$u = -0.433982 + 1.139380I$ $a = -1.44549 + 1.30887I$ $b = 2.44483 + 0.25840I$	$0.99219 + 3.88889I$	$-1.10872 - 4.90467I$
$u = -0.433982 - 1.139380I$ $a = 0.161663 + 1.092680I$ $b = -0.076534 - 1.012240I$	$0.99219 - 3.88889I$	$-1.10872 + 4.90467I$
$u = -0.433982 - 1.139380I$ $a = -1.44549 - 1.30887I$ $b = 2.44483 - 0.25840I$	$0.99219 - 3.88889I$	$-1.10872 + 4.90467I$
$u = 0.192477 + 0.755088I$ $a = 0.992213 + 0.146819I$ $b = -1.71332 + 0.31259I$	$-2.78881 - 1.03498I$	$-4.81241 + 6.41402I$
$u = 0.192477 + 0.755088I$ $a = 1.40705 + 3.44547I$ $b = -0.85803 - 1.20724I$	$-2.78881 - 1.03498I$	$-4.81241 + 6.41402I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.192477 - 0.755088I$ $a = 0.992213 - 0.146819I$ $b = -1.71332 - 0.31259I$	$-2.78881 + 1.03498I$	$-4.81241 - 6.41402I$
$u = 0.192477 - 0.755088I$ $a = 1.40705 - 3.44547I$ $b = -0.85803 + 1.20724I$	$-2.78881 + 1.03498I$	$-4.81241 - 6.41402I$
$u = 0.778647$ $a = 0.238256 + 0.927510I$ $b = 0.84157 + 1.23904I$	4.02976	-0.517490
$u = 0.778647$ $a = 0.238256 - 0.927510I$ $b = 0.84157 - 1.23904I$	4.02976	-0.517490
$u = 0.747372 + 0.188735I$ $a = 1.025140 + 0.038278I$ $b = -0.732319 + 0.001696I$	$-4.85609 + 3.15266I$	$-9.32272 - 3.41480I$
$u = 0.747372 + 0.188735I$ $a = -1.06088 - 1.87811I$ $b = 1.09181 - 1.72211I$	$-4.85609 + 3.15266I$	$-9.32272 - 3.41480I$
$u = 0.747372 - 0.188735I$ $a = 1.025140 - 0.038278I$ $b = -0.732319 - 0.001696I$	$-4.85609 - 3.15266I$	$-9.32272 + 3.41480I$
$u = 0.747372 - 0.188735I$ $a = -1.06088 + 1.87811I$ $b = 1.09181 + 1.72211I$	$-4.85609 - 3.15266I$	$-9.32272 + 3.41480I$
$u = -0.492704 + 1.133860I$ $a = 0.198910 - 0.896949I$ $b = -0.073037 + 0.921498I$	$0.60843 + 3.89503I$	$-2.64939 - 2.90091I$
$u = -0.492704 + 1.133860I$ $a = -1.34942 - 0.57930I$ $b = 0.65246 + 1.62226I$	$0.60843 + 3.89503I$	$-2.64939 - 2.90091I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.492704 - 1.133860I$ $a = 0.198910 + 0.896949I$ $b = -0.073037 - 0.921498I$	$0.60843 - 3.89503I$	$-2.64939 + 2.90091I$
$u = -0.492704 - 1.133860I$ $a = -1.34942 + 0.57930I$ $b = 0.65246 - 1.62226I$	$0.60843 - 3.89503I$	$-2.64939 + 2.90091I$
$u = -0.357265 + 1.197710I$ $a = -0.13206 + 1.45967I$ $b = 1.16104 - 0.93427I$	$3.96080 - 3.23058I$	$0.64791 + 1.85611I$
$u = -0.357265 + 1.197710I$ $a = -0.87084 - 1.30274I$ $b = -1.08042 + 1.88128I$	$3.96080 - 3.23058I$	$0.64791 + 1.85611I$
$u = -0.357265 - 1.197710I$ $a = -0.13206 - 1.45967I$ $b = 1.16104 + 0.93427I$	$3.96080 + 3.23058I$	$0.64791 - 1.85611I$
$u = -0.357265 - 1.197710I$ $a = -0.87084 + 1.30274I$ $b = -1.08042 - 1.88128I$	$3.96080 + 3.23058I$	$0.64791 - 1.85611I$
$u = 0.514933 + 1.164400I$ $a = 0.312133 + 0.896388I$ $b = -0.133391 - 0.910523I$	$-2.01515 - 7.88151I$	$-5.80444 + 6.68910I$
$u = 0.514933 + 1.164400I$ $a = 0.46489 - 3.12097I$ $b = 2.11990 + 3.49281I$	$-2.01515 - 7.88151I$	$-5.80444 + 6.68910I$
$u = 0.514933 - 1.164400I$ $a = 0.312133 - 0.896388I$ $b = -0.133391 + 0.910523I$	$-2.01515 + 7.88151I$	$-5.80444 - 6.68910I$
$u = 0.514933 - 1.164400I$ $a = 0.46489 + 3.12097I$ $b = 2.11990 - 3.49281I$	$-2.01515 + 7.88151I$	$-5.80444 - 6.68910I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.450235+1.200350I$ $a=-1.41612+1.00160I$ $b=-0.00388-2.05017I$	$7.53680-4.39858I$	$2.80847+3.53545I$
$u=\ \ 0.450235+1.200350I$ $a=-0.30788-2.18180I$ $b=\ \ 1.99857+1.67012I$	$7.53680-4.39858I$	$2.80847+3.53545I$
$u=\ \ 0.450235-1.200350I$ $a=-1.41612-1.00160I$ $b=-0.00388+2.05017I$	$7.53680+4.39858I$	$2.80847-3.53545I$
$u=\ \ 0.450235-1.200350I$ $a=-0.30788+2.18180I$ $b=\ \ 1.99857-1.67012I$	$7.53680+4.39858I$	$2.80847-3.53545I$
$u=-0.521034+1.182060I$ $a=-1.35096-0.79083I$ $b=\ \ 0.32647+1.66351I$	$2.81659+11.87580I$	$-1.22046-7.99531I$
$u=-0.521034+1.182060I$ $a=\ \ 0.45108+2.79230I$ $b=\ \ 1.78779-3.13635I$	$2.81659+11.87580I$	$-1.22046-7.99531I$
$u=-0.521034-1.182060I$ $a=-1.35096+0.79083I$ $b=\ \ 0.32647-1.66351I$	$2.81659-11.87580I$	$-1.22046+7.99531I$
$u=-0.521034-1.182060I$ $a=\ \ 0.45108-2.79230I$ $b=\ \ 1.78779+3.13635I$	$2.81659-11.87580I$	$-1.22046+7.99531I$
$u=-0.649942+0.248644I$ $a=\ \ 0.999339-0.033712I$ $b=-0.710884-0.045639I$	$-1.96053+0.52783I$	$-6.40552-0.64788I$
$u=-0.649942+0.248644I$ $a=\ \ 0.767259-0.110823I$ $b=\ \ 0.166974-0.813857I$	$-1.96053+0.52783I$	$-6.40552-0.64788I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.649942 - 0.248644I$ $a = \quad 0.999339 + 0.033712I$ $b = -0.710884 + 0.045639I$	$-1.96053 - 0.52783I$	$-6.40552 + 0.64788I$
$u = -0.649942 - 0.248644I$ $a = \quad 0.767259 + 0.110823I$ $b = \quad 0.166974 + 0.813857I$	$-1.96053 - 0.52783I$	$-6.40552 + 0.64788I$
$u = -0.605013$ $a = \quad 1.01438$ $b = -0.783099$	-2.06165	-3.73830
$u = -0.605013$ $a = \quad 1.98066$ $b = \quad 1.27956$	-2.06165	-3.73830

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.455090 + 1.098680I$ $a = 0.77689 + 1.32180I$ $b = -1.098680 - 0.544910I$	$-0.82247 - 3.66386I$	$-8.00000 + 4.00000I$
$u = 0.455090 - 1.098680I$ $a = 0.77689 - 1.32180I$ $b = -1.098680 + 0.544910I$	$-0.82247 + 3.66386I$	$-8.00000 - 4.00000I$
$u = -0.455090 + 1.098680I$ $a = -0.776887 - 0.678203I$ $b = 1.09868 + 1.45509I$	$-0.82247 + 3.66386I$	$-8.00000 - 4.00000I$
$u = -0.455090 - 1.098680I$ $a = -0.776887 + 0.678203I$ $b = 1.09868 - 1.45509I$	$-0.82247 - 3.66386I$	$-8.00000 + 4.00000I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = \quad 0$ $b = -1.00000$	-3.28987	-12.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$((u-1)^5)(u^{40}+19u^{39}+\cdots+8u+1)(u^{64}+37u^{63}+\cdots-24u^2+1)$
c_2, c_6	$(u-1)(u+1)^4(u^{40}+u^{39}+\cdots-4u^2+1)(u^{64}+u^{63}+\cdots-2u-1)$
c_3, c_{10}	$u(u^4-2u^2+2)(u^{32}-u^{31}+\cdots+14u-5)^2(u^{40}+3u^{39}+\cdots+62u+2)$
c_4, c_9	$u(u^4+2u^2+2)(u^{32}+u^{31}+\cdots-2u-1)^2(u^{40}-3u^{39}+\cdots-6u+2)$
c_5, c_{12}	$((u-1)^4)(u+1)(u^{40}+u^{39}+\cdots-4u^2+1)(u^{64}+u^{63}+\cdots-2u-1)$
c_7	$u^5(u^{32}+3u^{31}+\cdots-4u^4+1)^2(u^{40}+3u^{39}+\cdots-256u+256)$
c_8	$u(u^2+2u+2)^2(u^{32}-17u^{31}+\cdots-8u^2+1)^2$ $\cdot\,(u^{40}-21u^{39}+\cdots-4u+4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$((y-1)^5)(y^{40}+13y^{39}+\cdots-8y+1)(y^{64}-21y^{63}+\cdots-48y+1)$
c_2, c_5, c_6 c_{12}	$((y-1)^5)(y^{40}-19y^{39}+\cdots-8y+1)(y^{64}-37y^{63}+\cdots-24y^2+1)$
c_3, c_{10}	$y(y^2-2y+2)^2(y^{32}-23y^{31}+\cdots-296y+25)^2$ $\cdot(y^{40}-27y^{39}+\cdots-1244y+4)$
c_4, c_9	$y(y^2+2y+2)^2(y^{32}+17y^{31}+\cdots-8y^2+1)^2$ $\cdot(y^{40}+21y^{39}+\cdots+4y+4)$
c_7	$y^5(y^{32}+17y^{31}+\cdots-8y^2+1)^2$ $\cdot(y^{40}+17y^{39}+\cdots-1441792y+65536)$
c_8	$y(y^2+4)^2(y^{32}-3y^{31}+\cdots-16y+1)^2(y^{40}-3y^{39}+\cdots+80y+16)$