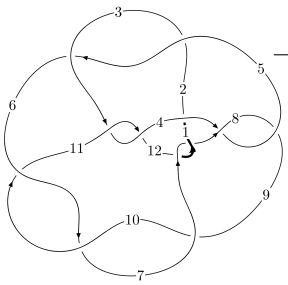
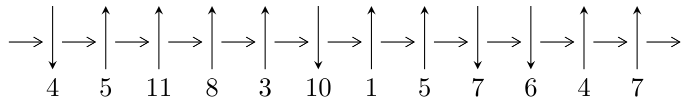
$12n_{0832}$ ($K12n_{0832}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 755u^{20} - 5418u^{19} + \cdots + 1124b + 9500,\ 865u^{20} - 6654u^{19} + \cdots + 2248a - 4904,$$
$$u^{21} - 8u^{20} + \cdots + 84u - 8\rangle$$
$$I_2^u = \langle u^{25}a + 113u^{25} + \cdots - a - 113,\ -u^{25}a + 59u^{25} + \cdots + 35a - 380,\ u^{26} + 3u^{25} + \cdots - 10u - 1\rangle$$
$$I_3^u = \langle u^{10} - u^9 + 6u^8 - 5u^7 + 13u^6 - 8u^5 + 13u^4 - 4u^3 + 6u^2 + b + 1,$$
$$u^9 + 5u^7 + 8u^5 + u^4 + 5u^3 + 4u^2 + a + 2u + 3,$$
$$u^{11} - u^{10} + 7u^9 - 6u^8 + 18u^7 - 13u^6 + 22u^5 - 12u^4 + 14u^3 - 4u^2 + 4u - 1\rangle$$
$$I_4^u = \langle -u^4a + u^3a - u^4 - 4u^2a + u^3 + 4au - 4u^2 + 5b - a + 4u - 6,\ u^4a + 3u^2a - u^3 + a^2 + 3a - u - 1,$$
$$u^5 + 3u^3 + 2u + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 94 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. $\boldsymbol{I_1^u = \langle 755u^{20} - 5418u^{19} + \cdots + 1124b + 9500,\ 865u^{20} - 6654u^{19} + \cdots + 2248a - 4904,\ u^{21} - 8u^{20} + \cdots + 84u - 8\rangle}$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -0.384786u^{20} + 2.95996u^{19} + \cdots + 3.87811u + 2.18149 \\ -0.671708u^{20} + 4.82028u^{19} + \cdots + 82.4751u - 8.45196 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.938167u^{20} + 6.46886u^{19} + \cdots + 51.8496u - 3.19217 \\ -0.118327u^{20} + 1.31139u^{19} + \cdots + 34.5036u - 3.07829 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.46486u^{20} + 10.4733u^{19} + \cdots + 114.085u - 10.8790 \\ -0.601423u^{20} + 4.76690u^{19} + \cdots + 65.6459u - 6.20996 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.776246u^{20} + 5.60854u^{19} + \cdots + 23.2527u + 0.441281 \\ -1.29004u^{20} + 9.63167u^{19} + \cdots + 156.479u - 16.5302 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.978203u^{20} - 6.60053u^{19} + \cdots - 67.8283u + 8.22242 \\ 0.298043u^{20} - 2.75801u^{19} + \cdots - 46.1744u + 4.83630 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.14279u^{20} + 8.33630u^{19} + \cdots + 86.8238u - 7.12456 \\ -0.241993u^{20} + 1.87367u^{19} + \cdots + 31.3043u - 2.69395 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.424822u^{20} + 3.09164u^{19} + \cdots + 19.8568u - 2.84875 \\ 1.07206u^{20} - 7.63701u^{19} + \cdots - 71.7616u + 7.75445 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{797}{281}u^{20} - \frac{5987}{281}u^{19} + \cdots - \frac{114148}{281}u + \frac{15414}{281}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} - 20u^{20} + \cdots + 1600u - 128$
c_2, c_3, c_5 c_{11}	$u^{21} - 8u^{19} + \cdots - 3u - 1$
c_4, c_7, c_8 c_{12}	$u^{21} - 5u^{19} + \cdots + 2u - 1$
c_6, c_9, c_{10}	$u^{21} - 8u^{20} + \cdots + 84u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} + 6y^{20} + \cdots - 692224y - 16384$
c_2, c_3, c_5 c_{11}	$y^{21} - 16y^{20} + \cdots + 25y - 1$
c_4, c_7, c_8 c_{12}	$y^{21} - 10y^{20} + \cdots + 12y - 1$
c_6, c_9, c_{10}	$y^{21} + 20y^{20} + \cdots + 528y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.430675 + 0.863692I$ $a = 0.474474 + 0.031759I$ $b = -0.241235 + 0.131245I$	$0.31209 + 1.75113I$	$3.06893 - 1.22304I$
$u = -0.430675 - 0.863692I$ $a = 0.474474 - 0.031759I$ $b = -0.241235 - 0.131245I$	$0.31209 - 1.75113I$	$3.06893 + 1.22304I$
$u = 0.941579 + 0.500830I$ $a = 0.468449 + 0.441296I$ $b = -1.230110 + 0.582897I$	$2.10752 - 11.16100I$	$8.47490 + 8.35858I$
$u = 0.941579 - 0.500830I$ $a = 0.468449 - 0.441296I$ $b = -1.230110 - 0.582897I$	$2.10752 + 11.16100I$	$8.47490 - 8.35858I$
$u = 0.864822 + 0.780507I$ $a = 0.228758 + 0.686980I$ $b = -1.034020 - 0.254427I$	$2.88881 + 5.10968I$	$10.51418 - 4.53183I$
$u = 0.864822 - 0.780507I$ $a = 0.228758 - 0.686980I$ $b = -1.034020 + 0.254427I$	$2.88881 - 5.10968I$	$10.51418 + 4.53183I$
$u = 0.784060 + 0.089570I$ $a = 0.148949 - 0.280369I$ $b = 0.899061 - 0.583293I$	$-0.161111 + 0.298509I$	$5.89200 - 0.80081I$
$u = 0.784060 - 0.089570I$ $a = 0.148949 + 0.280369I$ $b = 0.899061 + 0.583293I$	$-0.161111 - 0.298509I$	$5.89200 + 0.80081I$
$u = 0.337572 + 0.642009I$ $a = -1.027230 - 0.769285I$ $b = 0.807982 - 0.604519I$	$2.55000 - 2.18542I$	$13.17858 + 4.25561I$
$u = 0.337572 - 0.642009I$ $a = -1.027230 + 0.769285I$ $b = 0.807982 + 0.604519I$	$2.55000 + 2.18542I$	$13.17858 - 4.25561I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.445135 + 1.219610I$ $a = -0.175359 - 0.810246I$ $b = 0.671583 + 0.440706I$	$3.28725 - 4.77138I$	$12.62050 + 2.51819I$
$u = 0.445135 - 1.219610I$ $a = -0.175359 + 0.810246I$ $b = 0.671583 - 0.440706I$	$3.28725 + 4.77138I$	$12.62050 - 2.51819I$
$u = 0.274538 + 1.362470I$ $a = -1.61794 - 0.34738I$ $b = 1.32395 - 0.68359I$	$4.45013 - 3.41075I$	$7.62872 + 0.78780I$
$u = 0.274538 - 1.362470I$ $a = -1.61794 + 0.34738I$ $b = 1.32395 + 0.68359I$	$4.45013 + 3.41075I$	$7.62872 - 0.78780I$
$u = 0.09790 + 1.57918I$ $a = -1.59282 + 0.10699I$ $b = 1.107320 - 0.838285I$	$10.08840 - 3.80196I$	$14.3317 + 1.4217I$
$u = 0.09790 - 1.57918I$ $a = -1.59282 - 0.10699I$ $b = 1.107320 + 0.838285I$	$10.08840 + 3.80196I$	$14.3317 - 1.4217I$
$u = 0.34514 + 1.54955I$ $a = 1.75952 + 0.28354I$ $b = -1.50761 + 0.74551I$	$8.7389 - 15.8550I$	$11.09832 + 8.19798I$
$u = 0.34514 - 1.54955I$ $a = 1.75952 - 0.28354I$ $b = -1.50761 - 0.74551I$	$8.7389 + 15.8550I$	$11.09832 - 8.19798I$
$u = 0.19250 + 1.66330I$ $a = 1.163750 + 0.386362I$ $b = -1.076850 + 0.271112I$	$11.34600 + 1.18083I$	$12.33791 - 3.38306I$
$u = 0.19250 - 1.66330I$ $a = 1.163750 - 0.386362I$ $b = -1.076850 - 0.271112I$	$11.34600 - 1.18083I$	$12.33791 + 3.38306I$

Solutions to I_1^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	0.294851		
$a =$	1.33890	0.900446	10.7090
$b =$	0.559847		

II. $\boldsymbol{I_2^u = \langle u^{25}a + 113u^{25} + \cdots - a - 113,\ -u^{25}a + 59u^{25} + \cdots + 35a - 380,\ u^{26} + 3u^{25} + \cdots - 10u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -0.00204918au^{25} - 0.231557u^{25} + \cdots + 0.00204918a + 0.231557 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.00204918au^{25} + 1.01844u^{25} + \cdots + 1.00205a - 0.0184426 \\ -\frac{5}{4}u^{25} - \frac{13}{4}u^{24} + \cdots - \frac{25}{4}u + \frac{1}{4} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.786885au^{25} + 3.41803u^{25} + \cdots + 0.213115a - 17.9180 \\ -1.01844au^{25} - 0.334016u^{25} + \cdots + 0.0184426a - 2.66598 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0184426au^{25} - 2.08402u^{25} + \cdots - 0.231557a + 17.8340 \\ 0.0184426au^{25} - 1.66598u^{25} + \cdots + 0.231557a + 3.41598 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1.08607au^{25} + 3.60041u^{25} + \cdots - 2.08607a - 18.8504 \\ -0.573770au^{25} + 0.913934u^{25} + \cdots - 1.17623a - 8.41393 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.231557au^{25} + 2.91598u^{25} + \cdots + 0.768443a - 19.1660 \\ -0.323770au^{25} + 1.16393u^{25} + \cdots - 0.176230a - 3.66393 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{25}a - \frac{1}{4}u^{25} + \cdots - \frac{11}{4}a + \frac{35}{4} \\ -0.512295au^{25} - 0.764344u^{25} + \cdots + 1.26230a + 5.76434 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6u^{25} - 16u^{24} - 101u^{23} - 221u^{22} - 726u^{21} - 1318u^{20} - 2920u^{19} - 4393u^{18} - 7154u^{17} - 8772u^{16} - 10705u^{15} - 10189u^{14} - 8827u^{13} - 5415u^{12} - 2068u^{11} + 1201u^{10} + 2439u^9 + 3056u^8 + 1615u^7 + 1083u^6 - 79u^5 - 164u^4 - 80u^3 - 87u^2 + 98u + 43$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{26} + 4u^{25} + \cdots - 14u - 1)^2$
c_2, c_3, c_5 c_{11}	$u^{52} - 16u^{50} + \cdots - 18950u - 3929$
c_4, c_7, c_8 c_{12}	$u^{52} - u^{51} + \cdots - 116u - 173$
c_6, c_9, c_{10}	$(u^{26} + 3u^{25} + \cdots - 10u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{26} - 10y^{25} + \cdots - 44y + 1)^2$
c_2, c_3, c_5 c_{11}	$y^{52} - 32y^{51} + \cdots - 267831830y + 15437041$
c_4, c_7, c_8 c_{12}	$y^{52} - 25y^{51} + \cdots - 356688y + 29929$
c_6, c_9, c_{10}	$(y^{26} + 27y^{25} + \cdots - 64y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.936700+0.371884I$ $a=\ \ 0.462570-0.350885I$ $b=-1.195860-0.440014I$	$-0.05500+4.49672I$	$6.90644-6.32358I$
$u=-0.936700+0.371884I$ $a=-0.039258+0.375495I$ $b=\ \ 0.980992+0.468137I$	$-0.05500+4.49672I$	$6.90644-6.32358I$
$u=-0.936700-0.371884I$ $a=\ \ 0.462570+0.350885I$ $b=-1.195860+0.440014I$	$-0.05500-4.49672I$	$6.90644+6.32358I$
$u=-0.936700-0.371884I$ $a=-0.039258-0.375495I$ $b=\ \ 0.980992-0.468137I$	$-0.05500-4.49672I$	$6.90644+6.32358I$
$u=\ \ 0.161010+0.937138I$ $a=-0.372337-0.320316I$ $b=\ \ 0.594088+0.976193I$	$1.50012+2.81558I$	$10.54904-1.62602I$
$u=\ \ 0.161010+0.937138I$ $a=\ \ 1.69655-0.75534I$ $b=-0.578944+0.313413I$	$1.50012+2.81558I$	$10.54904-1.62602I$
$u=\ \ 0.161010-0.937138I$ $a=-0.372337+0.320316I$ $b=\ \ 0.594088-0.976193I$	$1.50012-2.81558I$	$10.54904+1.62602I$
$u=\ \ 0.161010-0.937138I$ $a=\ \ 1.69655+0.75534I$ $b=-0.578944-0.313413I$	$1.50012-2.81558I$	$10.54904+1.62602I$
$u=-0.708992+0.951444I$ $a=\ \ 0.651485-0.808528I$ $b=-1.011240+0.204754I$	$1.64103+1.22347I$	$13.51964+0.98097I$
$u=-0.708992+0.951444I$ $a=-0.181917+0.494490I$ $b=\ \ 0.829524+0.085781I$	$1.64103+1.22347I$	$13.51964+0.98097I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.708992 - 0.951444I$ $a = 0.651485 + 0.808528I$ $b = -1.011240 - 0.204754I$	$1.64103 - 1.22347I$	$13.51964 - 0.98097I$
$u = -0.708992 - 0.951444I$ $a = -0.181917 - 0.494490I$ $b = 0.829524 - 0.085781I$	$1.64103 - 1.22347I$	$13.51964 - 0.98097I$
$u = -0.182776 + 1.209640I$ $a = -0.090918 - 0.481727I$ $b = 0.060610 + 1.140650I$	$0.96206 + 2.92695I$	$6.81519 - 4.13402I$
$u = -0.182776 + 1.209640I$ $a = 1.70603 - 0.03119I$ $b = -0.791516 - 0.157097I$	$0.96206 + 2.92695I$	$6.81519 - 4.13402I$
$u = -0.182776 - 1.209640I$ $a = -0.090918 + 0.481727I$ $b = 0.060610 - 1.140650I$	$0.96206 - 2.92695I$	$6.81519 + 4.13402I$
$u = -0.182776 - 1.209640I$ $a = 1.70603 + 0.03119I$ $b = -0.791516 + 0.157097I$	$0.96206 - 2.92695I$	$6.81519 + 4.13402I$
$u = 0.742160$ $a = -1.06248$ $b = -1.03522$	8.17916	11.6390
$u = 0.742160$ $a = 0.161952$ $b = -1.55683$	8.17916	11.6390
$u = -0.102954 + 1.349080I$ $a = -0.610876 + 0.469921I$ $b = 0.63694 - 1.34522I$	$3.48444 + 1.51475I$	$10.09301 - 0.89690I$
$u = -0.102954 + 1.349080I$ $a = -2.20534 - 0.51903I$ $b = 1.178160 + 0.125283I$	$3.48444 + 1.51475I$	$10.09301 - 0.89690I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.102954-1.349080I$ $a=-0.610876-0.469921I$ $b=0.63694+1.34522I$	$3.48444-1.51475I$	$10.09301+0.89690I$
$u=-0.102954-1.349080I$ $a=-2.20534+0.51903I$ $b=1.178160-0.125283I$	$3.48444-1.51475I$	$10.09301+0.89690I$
$u=-0.610623$ $a=0.940549+0.478437I$ $b=-0.356583+0.750287I$	-2.72154	0.113340
$u=-0.610623$ $a=0.940549-0.478437I$ $b=-0.356583-0.750287I$	-2.72154	0.113340
$u=-0.064094+1.398480I$ $a=1.071330-0.853228I$ $b=-0.900991-0.546298I$	$12.03230+0.75720I$	$11.78661+1.87156I$
$u=-0.064094+1.398480I$ $a=-2.30664+0.33287I$ $b=1.94629+0.32791I$	$12.03230+0.75720I$	$11.78661+1.87156I$
$u=-0.064094-1.398480I$ $a=1.071330+0.853228I$ $b=-0.900991+0.546298I$	$12.03230-0.75720I$	$11.78661-1.87156I$
$u=-0.064094-1.398480I$ $a=-2.30664-0.33287I$ $b=1.94629-0.32791I$	$12.03230-0.75720I$	$11.78661-1.87156I$
$u=0.29359+1.38566I$ $a=0.917664+0.651922I$ $b=-1.089370+0.544537I$	$12.72520-3.76756I$	$12.82417+5.83874I$
$u=0.29359+1.38566I$ $a=1.92497+0.71873I$ $b=-1.70830+0.11335I$	$12.72520-3.76756I$	$12.82417+5.83874I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.29359 - 1.38566I$ $a = 0.917664 - 0.651922I$ $b = -1.089370 - 0.544537I$	$12.72520 + 3.76756I$	$12.82417 - 5.83874I$
$u = 0.29359 - 1.38566I$ $a = 1.92497 - 0.71873I$ $b = -1.70830 - 0.11335I$	$12.72520 + 3.76756I$	$12.82417 - 5.83874I$
$u = 0.16283 + 1.41681I$ $a = 0.100131 + 0.909513I$ $b = -0.22302 - 1.66557I$	$4.47253 - 7.65205I$	$11.23629 + 6.29966I$
$u = 0.16283 + 1.41681I$ $a = -2.22930 + 0.31922I$ $b = 1.051180 - 0.297212I$	$4.47253 - 7.65205I$	$11.23629 + 6.29966I$
$u = 0.16283 - 1.41681I$ $a = 0.100131 - 0.909513I$ $b = -0.22302 + 1.66557I$	$4.47253 + 7.65205I$	$11.23629 - 6.29966I$
$u = 0.16283 - 1.41681I$ $a = -2.22930 - 0.31922I$ $b = 1.051180 + 0.297212I$	$4.47253 + 7.65205I$	$11.23629 - 6.29966I$
$u = 0.493206 + 0.200165I$ $a = 1.076770 - 0.731073I$ $b = -0.326392 - 1.066810I$	$-0.80371 - 5.33299I$	$4.24998 + 6.99887I$
$u = 0.493206 + 0.200165I$ $a = -2.05186 - 0.89000I$ $b = 0.729963 - 0.736528I$	$-0.80371 - 5.33299I$	$4.24998 + 6.99887I$
$u = 0.493206 - 0.200165I$ $a = 1.076770 + 0.731073I$ $b = -0.326392 + 1.066810I$	$-0.80371 + 5.33299I$	$4.24998 - 6.99887I$
$u = 0.493206 - 0.200165I$ $a = -2.05186 + 0.89000I$ $b = 0.729963 + 0.736528I$	$-0.80371 + 5.33299I$	$4.24998 - 6.99887I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.35604 + 1.48740I$ $a = -1.43298 + 0.24002I$ $b = 1.30868 + 0.78884I$	$5.91538 + 9.14466I$	$9.03397 - 5.78146I$
$u = -0.35604 + 1.48740I$ $a = 1.78847 - 0.40103I$ $b = -1.48606 - 0.55120I$	$5.91538 + 9.14466I$	$9.03397 - 5.78146I$
$u = -0.35604 - 1.48740I$ $a = -1.43298 - 0.24002I$ $b = 1.30868 - 0.78884I$	$5.91538 - 9.14466I$	$9.03397 + 5.78146I$
$u = -0.35604 - 1.48740I$ $a = 1.78847 + 0.40103I$ $b = -1.48606 + 0.55120I$	$5.91538 - 9.14466I$	$9.03397 + 5.78146I$
$u = -0.09423 + 1.62135I$ $a = -1.44999 - 0.23090I$ $b = 1.30588 + 0.80444I$	$10.65970 + 3.56149I$	$13.44467 - 2.96926I$
$u = -0.09423 + 1.62135I$ $a = 1.36417 - 0.54374I$ $b = -0.916341 - 0.287709I$	$10.65970 + 3.56149I$	$13.44467 - 2.96926I$
$u = -0.09423 - 1.62135I$ $a = -1.44999 + 0.23090I$ $b = 1.30588 - 0.80444I$	$10.65970 - 3.56149I$	$13.44467 + 2.96926I$
$u = -0.09423 - 1.62135I$ $a = 1.36417 + 0.54374I$ $b = -0.916341 + 0.287709I$	$10.65970 - 3.56149I$	$13.44467 + 2.96926I$
$u = -0.323487$ $a = -3.05669 + 1.44801I$ $b = 0.747118 + 0.692393I$	-0.934190	4.31950
$u = -0.323487$ $a = -3.05669 - 1.44801I$ $b = 0.747118 - 0.692393I$	-0.934190	4.31950

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.137752$ $a = \quad 4.04980$ $b = \quad 1.83276$	7.19870	28.0100
$u = -0.137752$ $a = -12.4944$ $b = -0.810333$	7.19870	28.0100

III. $\boldsymbol{I^u_3 = \langle u^{10} - u^9 + \cdots + b + 1,\ u^9 + 5u^7 + 8u^5 + u^4 + 5u^3 + 4u^2 + a + 2u + 3,\ u^{11} - u^{10} + \cdots + 4u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^9 - 5u^7 - 8u^5 - u^4 - 5u^3 - 4u^2 - 2u - 3 \\ -u^{10} + u^9 - 6u^8 + 5u^7 - 13u^6 + 8u^5 - 13u^4 + 4u^3 - 6u^2 - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^8 - 5u^6 + u^5 - 9u^4 + 3u^3 - 8u^2 + u - 4 \\ -u^{10} - 5u^8 - 8u^6 - u^5 - 5u^4 - 4u^3 - 2u^2 - 3u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{10} - u^9 + 8u^8 - 6u^7 + 22u^6 - 12u^5 + 26u^4 - 9u^3 + 15u^2 - u + 5 \\ u^{10} + 5u^8 + 9u^6 - u^5 + 9u^4 - u^3 + 6u^2 + u + 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{10} + 7u^8 - u^7 + 18u^6 - 4u^5 + 21u^4 - 3u^3 + 13u^2 + 2u + 5 \\ u^{10} - u^9 + 6u^8 - 5u^7 + 13u^6 - 9u^5 + 14u^4 - 7u^3 + 8u^2 - 2u + 2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2u^{10} - 3u^9 + \cdots - 5u + 5 \\ u^9 - u^8 + 5u^7 - 4u^6 + 8u^5 - 4u^4 + 5u^3 + u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{10} - u^9 + 9u^8 - 7u^7 + 27u^6 - 16u^5 + 34u^4 - 13u^3 + 20u^2 - u + 6 \\ 2u^{10} - u^9 + 10u^8 - 4u^7 + 17u^6 - 5u^5 + 14u^4 - u^3 + 7u^2 + u + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -2u^{10} + 2u^9 + \cdots + 6u - 8 \\ -u^8 - 4u^6 - 5u^4 + u^3 - 4u^2 - 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 5u^{10} - 6u^9 + 31u^8 - 31u^7 + 68u^6 - 50u^5 + 66u^4 - 24u^3 + 29u^2 + 2u + 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{11} - 5u^{10} + \cdots + 14u - 4$
c_2, c_{11}	$u^{11} - 3u^9 - 3u^8 + 3u^7 + 6u^6 + 4u^5 - u^4 - 5u^3 - 5u^2 - 3u - 1$
c_3, c_5	$u^{11} - 3u^9 + 3u^8 + 3u^7 - 6u^6 + 4u^5 + u^4 - 5u^3 + 5u^2 - 3u + 1$
c_4, c_7	$u^{11} - 4u^9 + 7u^7 + u^6 - 7u^5 - 2u^4 + 3u^3 + u^2 - 1$
c_6	$u^{11} - u^{10} + \cdots + 4u - 1$
c_8, c_{12}	$u^{11} - 4u^9 + 7u^7 - u^6 - 7u^5 + 2u^4 + 3u^3 - u^2 + 1$
c_9, c_{10}	$u^{11} + u^{10} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{11} + 7y^{10} + \cdots + 28y - 16$
c_2, c_3, c_5 c_{11}	$y^{11} - 6y^{10} + \cdots - y - 1$
c_4, c_7, c_8 c_{12}	$y^{11} - 8y^{10} + \cdots + 2y - 1$
c_6, c_9, c_{10}	$y^{11} + 13y^{10} + \cdots + 8y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.634650 + 0.752345I$ $a = -0.414999 - 0.526959I$ $b = 0.765011 - 0.194619I$	$0.93793 - 2.36076I$	$9.00561 + 6.24789I$
$u = 0.634650 - 0.752345I$ $a = -0.414999 + 0.526959I$ $b = 0.765011 + 0.194619I$	$0.93793 + 2.36076I$	$9.00561 - 6.24789I$
$u = -0.223462 + 1.156870I$ $a = 0.598154 - 0.899354I$ $b = 0.026934 + 0.755329I$	$2.36275 + 5.98555I$	$8.86300 - 5.80132I$
$u = -0.223462 - 1.156870I$ $a = 0.598154 + 0.899354I$ $b = 0.026934 - 0.755329I$	$2.36275 - 5.98555I$	$8.86300 + 5.80132I$
$u = -0.243172 + 0.670452I$ $a = -1.41482 + 0.55978I$ $b = 0.345053 - 0.686432I$	$0.64563 - 4.10616I$	$7.55706 + 5.69313I$
$u = -0.243172 - 0.670452I$ $a = -1.41482 - 0.55978I$ $b = 0.345053 + 0.686432I$	$0.64563 + 4.10616I$	$7.55706 - 5.69313I$
$u = 0.11829 + 1.45395I$ $a = 1.61152 + 0.63237I$ $b = -1.43809 + 0.37083I$	$14.7672 - 1.4480I$	$15.9428 + 0.5637I$
$u = 0.11829 - 1.45395I$ $a = 1.61152 - 0.63237I$ $b = -1.43809 - 0.37083I$	$14.7672 + 1.4480I$	$15.9428 - 0.5637I$
$u = 0.08190 + 1.61228I$ $a = -1.42381 + 0.09154I$ $b = 1.001200 - 0.733988I$	$9.37084 - 4.46108I$	$6.94249 + 7.37115I$
$u = 0.08190 - 1.61228I$ $a = -1.42381 - 0.09154I$ $b = 1.001200 + 0.733988I$	$9.37084 + 4.46108I$	$6.94249 - 7.37115I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.263581$ $a = -3.91208$ $b = -1.40022$	9.62873	16.3780

IV.

$$\boldsymbol{I^u_4 = \langle -u^4a - u^4 + \cdots - a - 6,\ u^4a + 3u^2a - u^3 + a^2 + 3a - u - 1,\ u^5 + 3u^3 + 2u + 1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ \frac{1}{5}u^4a + \frac{1}{5}u^4 + \cdots + \frac{1}{5}a + \frac{6}{5} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{5}u^4a + \frac{1}{5}u^4 + \cdots + \frac{6}{5}a + \frac{1}{5} \\ -au - u + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{2}{5}u^4a + \frac{2}{5}u^4 + \cdots + \frac{7}{5}a - \frac{3}{5} \\ -\frac{1}{5}u^4a - \frac{6}{5}u^4 + \cdots - \frac{1}{5}a - \frac{1}{5} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{5}u^4a - \frac{1}{5}u^4 + \cdots - \frac{1}{5}a + \frac{4}{5} \\ \frac{1}{5}u^4a + \frac{6}{5}u^4 + \cdots + \frac{1}{5}a + \frac{11}{5} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^4a - 2u^2a + u^3 - u^2 + 2u - 1 \\ \frac{1}{5}u^4a - \frac{9}{5}u^4 + \cdots - \frac{4}{5}a - \frac{14}{5} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{5}u^4a - \frac{1}{5}u^4 + \cdots + \frac{4}{5}a - \frac{6}{5} \\ \frac{1}{5}u^4a - \frac{4}{5}u^4 + \cdots + \frac{1}{5}a - \frac{4}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{3}{5}u^4a - \frac{3}{5}u^4 + \cdots - \frac{8}{5}a - \frac{3}{5} \\ -\frac{2}{5}u^4a - \frac{2}{5}u^4 + \cdots - \frac{2}{5}a - \frac{7}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^4 + 4u^3 - 10u^2 + 7u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^5 - 3y^4 + 11y^3 - 19y^2 + 6y - 1)^2$
c_2, c_3, c_5 c_{11}	$y^{10} - 11y^9 + \cdots - 2y + 1$
c_4, c_7, c_8 c_{12}	$y^{10} - 8y^9 + \cdots - 8y + 1$
c_6, c_9, c_{10}	$(y^5 + 6y^4 + 13y^3 + 12y^2 + 4y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.351694 + 0.989493I$ $a = -1.055910 - 0.933285I$ $b = 0.699891 + 0.503450I$	$0.60622 - 1.36579I$	$5.56321 - 0.05864I$
$u = 0.351694 + 0.989493I$ $a = 0.374825 + 0.036018I$ $b = 0.300109 - 0.503450I$	$0.60622 - 1.36579I$	$5.56321 - 0.05864I$
$u = 0.351694 - 0.989493I$ $a = -1.055910 + 0.933285I$ $b = 0.699891 - 0.503450I$	$0.60622 + 1.36579I$	$5.56321 + 0.05864I$
$u = 0.351694 - 0.989493I$ $a = 0.374825 - 0.036018I$ $b = 0.300109 + 0.503450I$	$0.60622 + 1.36579I$	$5.56321 + 0.05864I$
$u = -0.15201 + 1.49915I$ $a = 0.971714 - 0.799823I$ $b = -0.812288 - 0.425220I$	$12.36630 + 2.10101I$	$14.7849 - 2.0648I$
$u = -0.15201 + 1.49915I$ $a = -2.03866 + 0.13957I$ $b = 1.81229 + 0.42522I$	$12.36630 + 2.10101I$	$14.7849 - 2.0648I$
$u = -0.15201 - 1.49915I$ $a = 0.971714 + 0.799823I$ $b = -0.812288 + 0.425220I$	$12.36630 - 2.10101I$	$14.7849 + 2.0648I$
$u = -0.15201 - 1.49915I$ $a = -2.03866 - 0.13957I$ $b = 1.81229 - 0.42522I$	$12.36630 - 2.10101I$	$14.7849 + 2.0648I$
$u = -0.399372$ $a = 0.147064$ $b = 1.76271$	6.95362	-5.69630
$u = -0.399372$ $a = -3.65100$ $b = -0.762709$	6.95362	-5.69630

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^5+3u^4+3u^3-u^2-2u+1)^2)(u^{11}-5u^{10}+\cdots+14u-4)$ $\cdot(u^{21}-20u^{20}+\cdots+1600u-128)(u^{26}+4u^{25}+\cdots-14u-1)^2$
c_2, c_{11}	$(u^{10}+5u^9+7u^8-2u^7-10u^6-2u^5+7u^4+5u^3-u^2-2u-1)$ $\cdot(u^{11}-3u^9-3u^8+3u^7+6u^6+4u^5-u^4-5u^3-5u^2-3u-1)$ $\cdot(u^{21}-8u^{19}+\cdots-3u-1)(u^{52}-16u^{50}+\cdots-18950u-3929)$
c_3, c_5	$(u^{10}-5u^9+7u^8+2u^7-10u^6+2u^5+7u^4-5u^3-u^2+2u-1)$ $\cdot(u^{11}-3u^9+3u^8+3u^7-6u^6+4u^5+u^4-5u^3+5u^2-3u+1)$ $\cdot(u^{21}-8u^{19}+\cdots-3u-1)(u^{52}-16u^{50}+\cdots-18950u-3929)$
c_4, c_7	$(u^{10}-4u^8-u^7+6u^6+3u^5-6u^4-u^3+4u^2-1)$ $\cdot(u^{11}-4u^9+7u^7+u^6-7u^5-2u^4+3u^3+u^2-1)$ $\cdot(u^{21}-5u^{19}+\cdots+2u-1)(u^{52}-u^{51}+\cdots-116u-173)$
c_6	$((u^5+3u^3+2u+1)^2)(u^{11}-u^{10}+\cdots+4u-1)$ $\cdot(u^{21}-8u^{20}+\cdots+84u-8)(u^{26}+3u^{25}+\cdots-10u-1)^2$
c_8, c_{12}	$(u^{10}-4u^8+u^7+6u^6-3u^5-6u^4+u^3+4u^2-1)$ $\cdot(u^{11}-4u^9+7u^7-u^6-7u^5+2u^4+3u^3-u^2+1)$ $\cdot(u^{21}-5u^{19}+\cdots+2u-1)(u^{52}-u^{51}+\cdots-116u-173)$
c_9, c_{10}	$((u^5+3u^3+2u-1)^2)(u^{11}+u^{10}+\cdots+4u+1)$ $\cdot(u^{21}-8u^{20}+\cdots+84u-8)(u^{26}+3u^{25}+\cdots-10u-1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^5-3y^4+11y^3-19y^2+6y-1)^2)(y^{11}+7y^{10}+\cdots+28y-16)$ $\cdot(y^{21}+6y^{20}+\cdots-692224y-16384)(y^{26}-10y^{25}+\cdots-44y+1)^2$
c_2, c_3, c_5 c_{11}	$(y^{10}-11y^9+\cdots-2y+1)(y^{11}-6y^{10}+\cdots-y-1)$ $\cdot(y^{21}-16y^{20}+\cdots+25y-1)$ $\cdot(y^{52}-32y^{51}+\cdots-267831830y+15437041)$
c_4, c_7, c_8 c_{12}	$(y^{10}-8y^9+\cdots-8y+1)(y^{11}-8y^{10}+\cdots+2y-1)$ $\cdot(y^{21}-10y^{20}+\cdots+12y-1)(y^{52}-25y^{51}+\cdots-356688y+29929)$
c_6, c_9, c_{10}	$((y^5+6y^4+13y^3+12y^2+4y-1)^2)(y^{11}+13y^{10}+\cdots+8y-1)$ $\cdot(y^{21}+20y^{20}+\cdots+528y-64)(y^{26}+27y^{25}+\cdots-64y+1)^2$