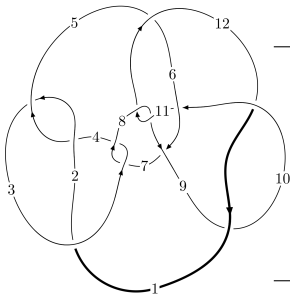
$12n_{0140}$ ($K12n_{0140}$)



A knot diagram[1]

Linearized knot diagam

$$\begin{array}{cccccccccccc} \downarrow & \downarrow & \downarrow & \downarrow & \uparrow & \uparrow & \downarrow & \downarrow & \downarrow & \uparrow & \downarrow & \downarrow \\ 3 & 5 & 8 & 2 & 12 & 9 & 3 & 11 & 1 & 6 & 8 & 10 \end{array}$$

Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -219034042585u^{29} + 477658347892u^{28} + \cdots + 4962190966784b + 2219335787081, \\
& -1283291111693u^{29} + 4041034486657u^{28} + \cdots + 2481095483392a + 21380565133380, \\
& u^{30} - 3u^{29} + \cdots - 14u - 1\rangle \\
I_2^u = \langle & 9.19271 \times 10^{50}u^{41} + 6.53340 \times 10^{51}u^{40} + \cdots + 1.68743 \times 10^{52}b + 4.76895 \times 10^{52}, \\
& -4.05666 \times 10^{51}u^{41} - 1.46559 \times 10^{52}u^{40} + \cdots + 1.18120 \times 10^{53}a - 9.05537 \times 10^{53}, \\
& u^{42} + 8u^{41} + \cdots + 406u + 49\rangle \\
I_3^u = \langle & b,\ -u^3 + u^2 + 4a + 2u + 3,\ u^4 + u^2 - u + 1\rangle \\
I_4^u = \langle & 8a^2 + b + 18a + 4,\ 8a^3 + 20a^2 + 8a + 1,\ u - 1\rangle \\
I_5^u = \langle & b,\ -u^3 + a - u - 1,\ u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1\rangle \\
I_6^u = \langle & au + 4b + a + u - 5,\ a^2 + 4au - 2a + 6u - 3,\ u^2 + 1\rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 89 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. $\boldsymbol{I_1^u = \langle -2.19 \times 10^{11} u^{29} + 4.78 \times 10^{11} u^{28} + \cdots + 4.96 \times 10^{12} b + 2.22 \times 10^{12},\ -1.28 \times 10^{12} u^{29} + 4.04 \times 10^{12} u^{28} + \cdots + 2.48 \times 10^{12} a + 2.14 \times 10^{13},\ u^{30} - 3u^{29} + \cdots - 14u - 1 \rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.517228u^{29} - 1.62873u^{28} + \cdots + 26.8709u - 8.61739 \\ 0.0441406u^{29} - 0.0962596u^{28} + \cdots + 1.16893u - 0.447249 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.146114u^{29} - 0.558009u^{28} + \cdots + 11.5186u - 3.67862 \\ 0.114897u^{29} - 0.286853u^{28} + \cdots - 0.242495u - 0.299101 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.120091u^{29} - 0.480458u^{28} + \cdots + 10.2319u - 3.49919 \\ 0.0593413u^{29} - 0.0838619u^{28} + \cdots - 0.275735u - 0.299617 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.120607u^{29} - 0.426449u^{28} + \cdots + 10.4168u - 3.47317 \\ 0.0588257u^{29} - 0.137871u^{28} + \cdots - 0.460615u - 0.325639 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.366931u^{29} - 1.21295u^{28} + \cdots + 20.1769u - 5.68931 \\ 0.0588257u^{29} - 0.137871u^{28} + \cdots - 0.460615u - 0.325639 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0625000u^{29} + 0.125000u^{28} + \cdots + 2.93750u + 0.0625000 \\ \frac{1}{16}u^{29} - \frac{1}{8}u^{28} + \cdots - \frac{31}{16}u - \frac{1}{16} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{1}{16}u^{29} - \frac{1}{4}u^{28} + \cdots + \frac{13}{16}u + \frac{17}{16} \\ -0.0625000u^{29} + 0.250000u^{28} + \cdots - 0.812500u - 0.0625000 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.473087u^{29} - 1.53247u^{28} + \cdots + 25.7020u - 8.17014 \\ 0.0441406u^{29} - 0.0962596u^{28} + \cdots + 1.16893u - 0.447249 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{29246499640993}{39697527734272}u^{29} + \frac{4877178426605}{2481095483392}u^{28} + \cdots - \frac{648015885883539}{39697527734272}u - \frac{374986321947515}{39697527734272}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30}+14u^{29}+\cdots-2399u+256$
c_2,c_4	$u^{30}-6u^{29}+\cdots-31u+16$
c_3,c_7	$u^{30}-2u^{29}+\cdots-96u-256$
c_5,c_6	$8(8u^{30}+20u^{29}+\cdots+12u+4)$
c_8,c_9,c_{11} c_{12}	$u^{30}+3u^{29}+\cdots+14u-1$
c_{10}	$u^{30}-6u^{29}+\cdots+64u+256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 10y^{29} + \cdots - 6849345y + 65536$
c_2, c_4	$y^{30} - 14y^{29} + \cdots + 2399y + 256$
c_3, c_7	$y^{30} + 18y^{29} + \cdots + 76800y + 65536$
c_5, c_6	$64(64y^{30} - 1360y^{29} + \cdots - 192y + 16)$
c_8, c_9, c_{11} c_{12}	$y^{30} + 23y^{29} + \cdots - 290y + 1$
c_{10}	$y^{30} + 6y^{29} + \cdots - 1789952y + 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.151717 + 0.986186I$ $a = -1.190140 - 0.027428I$ $b = 1.54321 - 0.20318I$	$-5.68347 - 0.58233I$	$-8.3451 + 12.8590I$
$u = 0.151717 - 0.986186I$ $a = -1.190140 + 0.027428I$ $b = 1.54321 + 0.20318I$	$-5.68347 + 0.58233I$	$-8.3451 - 12.8590I$
$u = 0.783732 + 0.743673I$ $a = 0.631228 - 0.256038I$ $b = -0.083764 + 0.794094I$	$-1.33282 - 2.23553I$	$-4.59779 + 3.41546I$
$u = 0.783732 - 0.743673I$ $a = 0.631228 + 0.256038I$ $b = -0.083764 - 0.794094I$	$-1.33282 + 2.23553I$	$-4.59779 - 3.41546I$
$u = 1.09098$ $a = 1.70930$ $b = 0.608605$	-2.65754	30.3480
$u = -0.576049 + 1.073970I$ $a = -0.261951 - 0.195372I$ $b = -0.151381 + 0.594028I$	$1.34016 + 8.01200I$	$2.34579 - 12.49324I$
$u = -0.576049 - 1.073970I$ $a = -0.261951 + 0.195372I$ $b = -0.151381 - 0.594028I$	$1.34016 - 8.01200I$	$2.34579 + 12.49324I$
$u = 0.625133 + 0.199278I$ $a = 1.38297 + 2.15219I$ $b = 0.386290 - 0.372621I$	$-2.83148 - 0.66530I$	$-18.2240 - 6.7846I$
$u = 0.625133 - 0.199278I$ $a = 1.38297 - 2.15219I$ $b = 0.386290 + 0.372621I$	$-2.83148 + 0.66530I$	$-18.2240 + 6.7846I$
$u = -0.117957 + 1.367060I$ $a = 0.699932 - 0.475481I$ $b = -1.78516 + 0.43773I$	$6.76007 + 1.66777I$	$0.57274 - 1.46728I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.117957 - 1.367060I$ $a = 0.699932 + 0.475481I$ $b = -1.78516 - 0.43773I$	$6.76007 - 1.66777I$	$0.57274 + 1.46728I$
$u = -0.244597 + 1.352860I$ $a = 0.31073 + 1.77800I$ $b = -0.22783 - 1.65229I$	$5.09939 + 5.42433I$	$-0.68852 - 4.20178I$
$u = -0.244597 - 1.352860I$ $a = 0.31073 - 1.77800I$ $b = -0.22783 + 1.65229I$	$5.09939 - 5.42433I$	$-0.68852 + 4.20178I$
$u = 0.259417 + 1.365310I$ $a = -0.19856 + 1.74019I$ $b = -0.91810 - 1.71117I$	$10.78970 - 8.07891I$	$-0.53452 + 5.22614I$
$u = 0.259417 - 1.365310I$ $a = -0.19856 - 1.74019I$ $b = -0.91810 + 1.71117I$	$10.78970 + 8.07891I$	$-0.53452 - 5.22614I$
$u = -0.35445 + 1.40429I$ $a = -0.544865 + 0.390463I$ $b = 1.65162 + 0.07394I$	$7.38806 + 8.84406I$	$-1.28461 - 6.03116I$
$u = -0.35445 - 1.40429I$ $a = -0.544865 - 0.390463I$ $b = 1.65162 - 0.07394I$	$7.38806 - 8.84406I$	$-1.28461 + 6.03116I$
$u = 0.06550 + 1.45294I$ $a = -0.04154 - 1.68423I$ $b = 0.69837 + 1.94525I$	$13.33180 - 0.21203I$	$1.73134 + 0.I$
$u = 0.06550 - 1.45294I$ $a = -0.04154 + 1.68423I$ $b = 0.69837 - 1.94525I$	$13.33180 + 0.21203I$	$1.73134 + 0.I$
$u = 0.339570 + 0.379677I$ $a = 0.592119 + 0.913683I$ $b = -0.452974 - 0.318485I$	$-0.505428 - 1.105530I$	$-5.83661 + 6.57696I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.339570 - 0.379677I$ $a = 0.592119 - 0.913683I$ $b = -0.452974 + 0.318485I$	$-0.505428 + 1.105530I$	$-5.83661 - 6.57696I$
$u = 1.52530 + 0.11249I$ $a = 0.155403 + 0.304847I$ $b = 0.24118 - 1.48607I$	$2.40331 + 3.17859I$	$0. - 3.79440I$
$u = 1.52530 - 0.11249I$ $a = 0.155403 - 0.304847I$ $b = 0.24118 + 1.48607I$	$2.40331 - 3.17859I$	$0. + 3.79440I$
$u = -0.58141 + 1.45298I$ $a = 0.76540 + 1.55713I$ $b = 0.78764 - 1.58037I$	$12.0126 + 17.2447I$	$-2.29441 - 8.43337I$
$u = -0.58141 - 1.45298I$ $a = 0.76540 - 1.55713I$ $b = 0.78764 + 1.58037I$	$12.0126 - 17.2447I$	$-2.29441 + 8.43337I$
$u = -0.414284 + 0.113025I$ $a = 0.170265 - 1.051000I$ $b = -0.229191 - 1.205720I$	$2.31731 - 2.61856I$	$1.56244 + 2.01080I$
$u = -0.414284 - 0.113025I$ $a = 0.170265 + 1.051000I$ $b = -0.229191 + 1.205720I$	$2.31731 + 2.61856I$	$1.56244 - 2.01080I$
$u = -0.47748 + 1.50384I$ $a = -0.58934 - 1.58578I$ $b = -0.50245 + 1.81791I$	$14.1647 + 9.9224I$	$0. - 4.39684I$
$u = -0.47748 - 1.50384I$ $a = -0.58934 + 1.58578I$ $b = -0.50245 - 1.81791I$	$14.1647 - 9.9224I$	$0. + 4.39684I$
$u = -0.0592723$ $a = -10.2226$ $b = -0.523532$	-1.19030	-8.24210

II. $\boldsymbol{I^u_2 = \langle 9.19 \times 10^{50}u^{41} + 6.53 \times 10^{51}u^{40} + \cdots + 1.69 \times 10^{52}b + 4.77 \times 10^{52},\ -4.06 \times 10^{51}u^{41} - 1.47 \times 10^{52}u^{40} + \cdots + 1.18 \times 10^{53}a - 9.06 \times 10^{53},\ u^{42} + 8u^{41} + \cdots + 406u + 49\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0343435u^{41} + 0.124076u^{40} + \cdots + 50.6244u + 7.66624 \\ -0.0544776u^{41} - 0.387181u^{40} + \cdots - 17.0063u - 2.82616 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.137949u^{41} - 1.03303u^{40} + \cdots - 26.6535u - 2.02469 \\ -0.0157309u^{41} - 0.0881611u^{40} + \cdots + 22.8491u + 3.77512 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.162962u^{41} - 1.21826u^{40} + \cdots - 71.3909u - 9.25731 \\ -0.0118963u^{41} - 0.0998927u^{40} + \cdots + 18.0364u + 3.04637 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.146119u^{41} - 1.10192u^{40} + \cdots - 47.1902u - 5.30246 \\ -0.0287391u^{41} - 0.216234u^{40} + \cdots - 6.16428u - 0.908484 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.187628u^{41} + 1.31124u^{40} + \cdots + 100.721u + 14.2062 \\ -0.0287391u^{41} - 0.216234u^{40} + \cdots - 6.16428u - 0.908484 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0204082u^{41} + 0.163265u^{40} + \cdots + 36.6122u + 8.28571 \\ 0.0941921u^{41} + 0.708146u^{40} + \cdots + 54.1974u + 8.58973 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.175301u^{41} + 1.30821u^{40} + \cdots + 114.966u + 16.9746 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.0888211u^{41} + 0.511257u^{40} + \cdots + 67.6307u + 10.4924 \\ -0.0544776u^{41} - 0.387181u^{40} + \cdots - 17.0063u - 2.82616 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.137513u^{41} - 1.10677u^{40} + \cdots - 86.1411u - 17.7083$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{21}+6u^{20}+\cdots-2u+1)^2$
c_2, c_4	$(u^{21}-4u^{20}+\cdots-2u+1)^2$
c_3, c_7	$(u^{21}-u^{20}+\cdots+4u+8)^2$
c_5, c_6	$u^{42}+8u^{41}+\cdots+859266u+387139$
c_8, c_9, c_{11} c_{12}	$u^{42}-8u^{41}+\cdots-406u+49$
c_{10}	$(u^{21}+2u^{20}+\cdots+u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{21}+22y^{20}+\cdots+66y-1)^2$
c_2, c_4	$(y^{21}-6y^{20}+\cdots-2y-1)^2$
c_3, c_7	$(y^{21}+21y^{20}+\cdots-176y-64)^2$
c_5, c_6	$y^{42}-26y^{41}+\cdots-934716639340y+149876605321$
c_8, c_9, c_{11} c_{12}	$y^{42}+30y^{41}+\cdots+10976y+2401$
c_{10}	$(y^{21}-8y^{20}+\cdots+17y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.041887 + 1.002630I$ $a = -8.74756 - 5.85633I$ $b = -0.492750$	2.07989	$-13.37190 + 0.I$
$u = -0.041887 - 1.002630I$ $a = -8.74756 + 5.85633I$ $b = -0.492750$	2.07989	$-13.37190 + 0.I$
$u = -0.870370 + 0.220126I$ $a = 1.199530 - 0.425810I$ $b = 1.088250 - 0.021385I$	$2.22124 + 4.45806I$	$-4.43689 - 6.14529I$
$u = -0.870370 - 0.220126I$ $a = 1.199530 + 0.425810I$ $b = 1.088250 + 0.021385I$	$2.22124 - 4.45806I$	$-4.43689 + 6.14529I$
$u = -0.769906 + 0.433901I$ $a = 0.483221 - 0.092871I$ $b = -0.006772 - 0.621655I$	$-0.56968 - 2.93752I$	$-1.02400 + 3.43881I$
$u = -0.769906 - 0.433901I$ $a = 0.483221 + 0.092871I$ $b = -0.006772 + 0.621655I$	$-0.56968 + 2.93752I$	$-1.02400 - 3.43881I$
$u = 0.600601 + 0.944887I$ $a = -0.154802 + 0.082043I$ $b = -0.006772 - 0.621655I$	$-0.56968 - 2.93752I$	$0. + 3.43881I$
$u = 0.600601 - 0.944887I$ $a = -0.154802 - 0.082043I$ $b = -0.006772 + 0.621655I$	$-0.56968 + 2.93752I$	$0. - 3.43881I$
$u = -0.475850 + 1.016220I$ $a = 0.272799 + 0.705259I$ $b = 0.528856 + 0.467306I$	$4.75904 + 0.34630I$	$1.96536 + 0.I$
$u = -0.475850 - 1.016220I$ $a = 0.272799 - 0.705259I$ $b = 0.528856 - 0.467306I$	$4.75904 - 0.34630I$	$1.96536 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.053090 + 1.155400I$ $a = -0.058655 - 0.325592I$ $b = -0.899194 - 0.226112I$	$1.45515 - 0.21101I$	$-6.00000 + 0.I$
$u = 0.053090 - 1.155400I$ $a = -0.058655 + 0.325592I$ $b = -0.899194 + 0.226112I$	$1.45515 + 0.21101I$	$-6.00000 + 0.I$
$u = 0.216321 + 1.202960I$ $a = -0.33507 - 2.15389I$ $b = -0.157544 + 0.891019I$	$0.26332 - 2.36605I$	0
$u = 0.216321 - 1.202960I$ $a = -0.33507 + 2.15389I$ $b = -0.157544 - 0.891019I$	$0.26332 + 2.36605I$	0
$u = 0.474335 + 0.591031I$ $a = 1.05367 + 1.22545I$ $b = 0.00145 + 1.46011I$	$6.58039 + 1.36266I$	$-4.18856 - 2.27516I$
$u = 0.474335 - 0.591031I$ $a = 1.05367 - 1.22545I$ $b = 0.00145 - 1.46011I$	$6.58039 - 1.36266I$	$-4.18856 + 2.27516I$
$u = -0.185639 + 1.238440I$ $a = -0.70977 - 2.01041I$ $b = -0.45321 + 1.45865I$	$5.71484 + 4.94435I$	0
$u = -0.185639 - 1.238440I$ $a = -0.70977 + 2.01041I$ $b = -0.45321 - 1.45865I$	$5.71484 - 4.94435I$	0
$u = -0.021801 + 1.271800I$ $a = 0.50394 + 2.30405I$ $b = 0.00145 - 1.46011I$	$6.58039 - 1.36266I$	0
$u = -0.021801 - 1.271800I$ $a = 0.50394 - 2.30405I$ $b = 0.00145 + 1.46011I$	$6.58039 + 1.36266I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.252620 + 0.261440I$ $a = -0.093957 - 0.166544I$ $b = -0.15224 + 1.62071I$	$8.50490 + 3.89686I$	0
$u = -1.252620 - 0.261440I$ $a = -0.093957 + 0.166544I$ $b = -0.15224 - 1.62071I$	$8.50490 - 3.89686I$	0
$u = -1.302650 + 0.047271I$ $a = 0.370885 + 0.223986I$ $b = 0.55439 - 1.54207I$	$7.25306 + 10.68720I$	0
$u = -1.302650 - 0.047271I$ $a = 0.370885 - 0.223986I$ $b = 0.55439 + 1.54207I$	$7.25306 - 10.68720I$	0
$u = -0.226174 + 1.289570I$ $a = 0.560692 + 0.745306I$ $b = 0.528856 - 0.467306I$	$4.75904 - 0.34630I$	0
$u = -0.226174 - 1.289570I$ $a = 0.560692 - 0.745306I$ $b = 0.528856 + 0.467306I$	$4.75904 + 0.34630I$	0
$u = 0.588336 + 0.271246I$ $a = -0.350608 - 1.017080I$ $b = -0.45321 - 1.45865I$	$5.71484 - 4.94435I$	$-5.24866 + 2.70559I$
$u = 0.588336 - 0.271246I$ $a = -0.350608 + 1.017080I$ $b = -0.45321 + 1.45865I$	$5.71484 + 4.94435I$	$-5.24866 - 2.70559I$
$u = 0.319588 + 1.353120I$ $a = -0.014969 - 0.198168I$ $b = 1.088250 + 0.021385I$	$2.22124 - 4.45806I$	0
$u = 0.319588 - 1.353120I$ $a = -0.014969 + 0.198168I$ $b = 1.088250 - 0.021385I$	$2.22124 + 4.45806I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.579219+0.187158I$ $a=-1.56373+0.83045I$ $b=-0.157544-0.891019I$	$0.26332+2.36605I$	$-4.59037-2.67274I$
$u=-0.579219-0.187158I$ $a=-1.56373-0.83045I$ $b=-0.157544+0.891019I$	$0.26332-2.36605I$	$-4.59037+2.67274I$
$u=-0.239978+0.362151I$ $a=-3.20155+1.86451I$ $b=-0.899194+0.226112I$	$1.45515+0.21101I$	$-7.18710-0.57244I$
$u=-0.239978-0.362151I$ $a=-3.20155-1.86451I$ $b=-0.899194-0.226112I$	$1.45515-0.21101I$	$-7.18710+0.57244I$
$u=\ \ 0.62069+1.53093I$ $a=\ \ 0.66906-1.34449I$ $b=\ \ 0.55439+1.54207I$	$7.25306-10.68720I$	0
$u=\ \ 0.62069-1.53093I$ $a=\ \ 0.66906+1.34449I$ $b=\ \ 0.55439-1.54207I$	$7.25306+10.68720I$	0
$u=\ \ 0.45894+1.59821I$ $a=-0.42722+1.36484I$ $b=-0.15224-1.62071I$	$8.50490-3.89686I$	0
$u=\ \ 0.45894-1.59821I$ $a=-0.42722-1.36484I$ $b=-0.15224+1.62071I$	$8.50490+3.89686I$	0
$u=-0.76320+1.48676I$ $a=\ \ 0.794802+1.042100I$ $b=\ \ 0.24239-1.67299I$	$12.12580+3.51416I$	0
$u=-0.76320-1.48676I$ $a=\ \ 0.794802-1.042100I$ $b=\ \ 0.24239+1.67299I$	$12.12580-3.51416I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.60260+1.60806I$ $a=-0.536403-1.053510I$ $b=\quad 0.24239+1.67299I$	$12.12580-3.51416I$	0
$u=-0.60260-1.60806I$ $a=-0.536403+1.053510I$ $b=\quad 0.24239-1.67299I$	$12.12580+3.51416I$	0

III. $\boldsymbol{I_3^u = \langle b,\ -u^3+u^2+4a+2u+3,\ u^4+u^2-u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{49}{16}u^3 + \frac{43}{16}u^2 + \frac{21}{8}u - \frac{163}{16}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.547424 + 0.585652I$ $a = -1.112690 - 0.371716I$ $b = 0$	$-2.62503 - 1.39709I$	$-10.08957 + 4.25783I$
$u = 0.547424 - 0.585652I$ $a = -1.112690 + 0.371716I$ $b = 0$	$-2.62503 + 1.39709I$	$-10.08957 - 4.25783I$
$u = -0.547424 + 1.120870I$ $a = 0.237691 - 0.353773I$ $b = 0$	$0.98010 + 7.64338I$	$-8.37918 - 1.58240I$
$u = -0.547424 - 1.120870I$ $a = 0.237691 + 0.353773I$ $b = 0$	$0.98010 - 7.64338I$	$-8.37918 + 1.58240I$

IV. $\boldsymbol{I_4^u = \langle 8a^2 + b + 18a + 4,\ 8a^3 + 20a^2 + 8a + 1,\ u - 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -8a^2 - 18a - 4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2a^2 - 4a \\ -4a^2 - 8a \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ -2a^2 - 4a \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2a^2 + 4a \\ -4a^2 - 8a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2a^2 - 4a - 2 \\ -4a^2 - 8a \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 8a^2 + 19a + 4 \\ -8a^2 - 18a - 4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3a^2 + \frac{61}{2}a - \frac{5}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_7	$y^3 + 3y^2 + 2y - 1$
c_2, c_4	$y^3 - y^2 + 2y - 1$
c_5, c_6	$64(64y^3 - 80y^2 + 40y - 1)$
c_8, c_9, c_{11} c_{12}	$(y-1)^3$
c_{10}	y^3

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.230101 + 0.091291I$ $b = -0.215080 - 1.307140I$	$1.37919 - 2.82812I$	$-8.13425 + 2.65834I$
$u = 1.00000$ $a = -0.230101 - 0.091291I$ $b = -0.215080 + 1.307140I$	$1.37919 + 2.82812I$	$-8.13425 - 2.65834I$
$u = 1.00000$ $a = -2.03980$ $b = -0.569840$	-2.75839	-50.9820

V. $I_5^u = \langle b,\ -u^3 + a - u - 1,\ u^6 + u^5 + 2u^4 + 2u^3 + 2u^2 + 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^5 + 3u^3 - 2u^2 + 3u - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.498832+1.001300I$		
$a=$	$0.122561+0.744862I$	$-1.37919-2.82812I$	$-11.71191+2.59975I$
$b=$	0		
$u=$	$0.498832-1.001300I$		
$a=$	$0.122561-0.744862I$	$-1.37919+2.82812I$	$-11.71191-2.59975I$
$b=$	0		
$u=$	$-0.284920+1.115140I$		
$a=$	1.75488	2.75839	$-60.423824+0.10I$
$b=$	0		
$u=$	$-0.284920-1.115140I$		
$a=$	1.75488	2.75839	$-60.423824+0.10I$
$b=$	0		
$u=$	$-0.713912+0.305839I$		
$a=$	$0.122561+0.744862I$	$-1.37919-2.82812I$	$-11.71191+2.59975I$
$b=$	0		
$u=$	$-0.713912-0.305839I$		
$a=$	$0.122561-0.744862I$	$-1.37919+2.82812I$	$-11.71191-2.59975I$
$b=$	0		

VI. $I^u_6 = \langle au + 4b + a + u - 5,\ a^2 + 4au - 2a + 6u - 3,\ u^2 + 1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -\frac{1}{4}au - \frac{1}{4}a - \frac{1}{4}u + \frac{5}{4} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{4}au + \frac{1}{4}a - \frac{3}{4}u + \frac{13}{4} \\ \frac{1}{4}au + \frac{1}{4}a + \frac{1}{4}u - \frac{9}{4} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{4}au - \frac{1}{4}a - \frac{1}{4}u + \frac{9}{4} \\ \frac{1}{4}au + \frac{3}{4}a - \frac{1}{4}u - \frac{5}{4} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{4}au + \frac{1}{4}a - \frac{3}{4}u + \frac{13}{4} \\ \frac{1}{4}au + \frac{1}{4}a + \frac{1}{4}u - \frac{9}{4} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}au - u + \frac{7}{2} \\ \frac{1}{4}au + \frac{1}{4}a + \frac{1}{4}u - \frac{9}{4} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{3}{4}au - \frac{3}{4}a - \frac{7}{4}u + \frac{23}{4} \\ \frac{3}{4}au + \frac{3}{4}a + \frac{3}{4}u - \frac{23}{4} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{3}{4}au - \frac{3}{4}a - \frac{23}{4}u - \frac{3}{4} \\ -\frac{3}{4}au + \frac{3}{4}a + \frac{23}{4}u - \frac{1}{4} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{4}au + \frac{5}{4}a + \frac{1}{4}u - \frac{5}{4} \\ -\frac{1}{4}au - \frac{1}{4}a - \frac{1}{4}u + \frac{5}{4} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^2 - 3u + 1)^2$
c_2, c_3	$(u^2 + u - 1)^2$
c_4, c_7	$(u^2 - u - 1)^2$
c_5	$u^4 - 6u^3 + 18u^2 - 12u + 4$
c_6	$u^4 + 6u^3 + 18u^2 + 12u + 4$
c_8, c_9, c_{11} c_{12}	$(u^2 + 1)^2$
c_{10}	$u^4 + 7u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^2 - 7y + 1)^2$
c_2, c_3, c_4 c_7	$(y^2 - 3y + 1)^2$
c_5, c_6	$y^4 + 188y^2 + 16$
c_8, c_9, c_{11} c_{12}	$(y + 1)^4$
c_{10}	$(y^2 + 7y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.236070 + 0.236068I$ $b = 1.61803$	-5.59278	-4.00000
$u = 1.000000I$ $a = 3.23607 - 4.23607I$ $b = -0.618034$	2.30291	-4.00000
$u = -1.000000I$ $a = -1.236070 - 0.236068I$ $b = 1.61803$	-5.59278	-4.00000
$u = -1.000000I$ $a = 3.23607 + 4.23607I$ $b = -0.618034$	2.30291	-4.00000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^2-3u+1)^2(u^3-u^2+2u-1)(u^{21}+6u^{20}+\cdots-2u+1)^2$ $\cdot(u^{30}+14u^{29}+\cdots-2399u+256)$
c_2	$((u-1)^{10})(u^2+u-1)^2(u^3+u^2-1)(u^{21}-4u^{20}+\cdots-2u+1)^2$ $\cdot(u^{30}-6u^{29}+\cdots-31u+16)$
c_3	$u^{10}(u^2+u-1)^2(u^3-u^2+2u-1)(u^{21}-u^{20}+\cdots+4u+8)^2$ $\cdot(u^{30}-2u^{29}+\cdots-96u-256)$
c_4	$((u+1)^{10})(u^2-u-1)^2(u^3-u^2+1)(u^{21}-4u^{20}+\cdots-2u+1)^2$ $\cdot(u^{30}-6u^{29}+\cdots-31u+16)$
c_5	$64(8u^3-12u^2+4u+1)(u^4-6u^3+18u^2-12u+4)$ $\cdot(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(8u^{30}+20u^{29}+\cdots+12u+4)(u^{42}+8u^{41}+\cdots+859266u+387139)$
c_6	$64(8u^3+12u^2+4u-1)(u^4+2u^3+3u^2+u+1)$ $\cdot(u^4+6u^3+18u^2+12u+4)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(8u^{30}+20u^{29}+\cdots+12u+4)(u^{42}+8u^{41}+\cdots+859266u+387139)$
c_7	$u^{10}(u^2-u-1)^2(u^3+u^2+2u+1)(u^{21}-u^{20}+\cdots+4u+8)^2$ $\cdot(u^{30}-2u^{29}+\cdots-96u-256)$
c_8, c_9	$((u-1)^3)(u^2+1)^2(u^4+u^2-u+1)(u^6+u^5+\cdots+2u+1)$ $\cdot(u^{30}+3u^{29}+\cdots+14u-1)(u^{42}-8u^{41}+\cdots-406u+49)$
c_{10}	$u^3(u^3-u^2+1)^2(u^4+7u^2+1)(u^4+3u^3+4u^2+3u+2)$ $\cdot((u^{21}+2u^{20}+\cdots+u-1)^2)(u^{30}-6u^{29}+\cdots+64u+256)$
c_{11}, c_{12}	$((u+1)^3)(u^2+1)^2(u^4+u^2+u+1)(u^6-u^5+\cdots-2u+1)$ $\cdot(u^{30}+3u^{29}+\cdots+14u-1)(u^{42}-8u^{41}+\cdots-406u+49)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^{10}(y^2-7y+1)^2(y^3+3y^2+2y-1)$ $\cdot(y^{21}+22y^{20}+\cdots+66y-1)^2$ $\cdot(y^{30}+10y^{29}+\cdots-6849345y+65536)$
c_2, c_4	$((y-1)^{10})(y^2-3y+1)^2(y^3-y^2+2y-1)(y^{21}-6y^{20}+\cdots-2y-1)^2$ $\cdot(y^{30}-14y^{29}+\cdots+2399y+256)$
c_3, c_7	$y^{10}(y^2-3y+1)^2(y^3+3y^2+2y-1)(y^{21}+21y^{20}+\cdots-176y-64)^2$ $\cdot(y^{30}+18y^{29}+\cdots+76800y+65536)$
c_5, c_6	$4096(64y^3-80y^2+40y-1)(y^4+188y^2+16)(y^4+2y^3+\cdots+5y+1)$ $\cdot(y^6-y^5+4y^4-2y^3+8y^2+1)(64y^{30}-1360y^{29}+\cdots-192y+16)$ $\cdot(y^{42}-26y^{41}+\cdots-934716639340y+149876605321)$
c_8, c_9, c_{11} c_{12}	$((y-1)^3)(y+1)^4(y^4+2y^3+\cdots+y+1)(y^6+3y^5+\cdots+2y^3+1)$ $\cdot(y^{30}+23y^{29}+\cdots-290y+1)(y^{42}+30y^{41}+\cdots+10976y+2401)$
c_{10}	$y^3(y^2+7y+1)^2(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot((y^{21}-8y^{20}+\cdots+17y-1)^2)(y^{30}+6y^{29}+\cdots-1789952y+65536)$