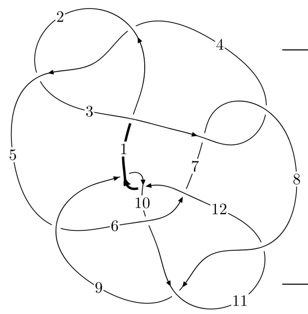
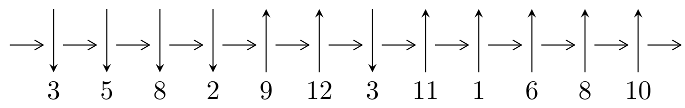
$12n_{0101}$ $(K12n_{0101})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &1.59917\times10^{63}u^{33} - 4.04815\times10^{63}u^{32} + \cdots + 1.01107\times10^{66}b + 7.19589\times10^{65},\\
&2.84744\times10^{64}u^{33} - 3.34343\times10^{64}u^{32} + \cdots + 1.61772\times10^{67}a - 7.28658\times10^{66},\\
&u^{34} - 2u^{33} + \cdots + 400u - 128\rangle\\
I_2^u = \langle &4784545058115u^{24}a + 8814443854630u^{24} + \cdots - 99015474327346a + 74552531293308,\\
&140691453969588u^{24}a + 1943939955417363u^{24} + \cdots + 540597466811832a + 15906220085088582,\\
&u^{25} - u^{24} + \cdots + 4u + 4\rangle\\
I_3^u = \langle &b+1,\ -4u^2 + 2a - 2u - 5,\ u^3 + u^2 + 2u + 1\rangle\\
I_4^u = \langle &2au + b + a + u - 1,\ a^2 - 6au + 10a - 29u + 47,\ u^2 - u - 1\rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ -20v^2 + 13b + 69v - 1,\ 4v^3 - 13v^2 - v - 1\rangle\\
I_2^v &= \langle a,\ b^2 - bv - b + v + 1,\ v^2 + v + 1\rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 98 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. $\boldsymbol{I_1^u =}$ $\boldsymbol{\langle 1.60\times10^{63}u^{33}-4.05\times10^{63}u^{32}+\cdots+1.01\times10^{66}b+7.20\times10^{65},\ 2.85\times10^{64}u^{33}-3.34\times10^{64}u^{32}+\cdots+1.62\times10^{67}a-7.29\times10^{66},\ u^{34}-2u^{33}+\cdots+400u-128\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix}-0.00176016u^{33}+0.00206675u^{32}+\cdots+0.145149u+0.450423\\-0.00158165u^{33}+0.00400381u^{32}+\cdots+2.00876u-0.711707\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.000752148u^{33}+0.00180308u^{32}+\cdots-0.0951497u+0.841117\\0.00232746u^{33}-0.00334332u^{32}+\cdots+0.699372u-0.556479\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.000178509u^{33}-0.00193705u^{32}+\cdots-1.86361u+1.16213\\-0.00158165u^{33}+0.00400381u^{32}+\cdots+2.00876u-0.711707\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.000793255u^{33}+0.000256525u^{32}+\cdots+1.90039u+0.0186257\\-0.00108195u^{33}+0.00161394u^{32}+\cdots-1.21132u+0.797112\end{pmatrix}$$

$$a_5 = \begin{pmatrix}0.00194472u^{33}-0.00378095u^{32}+\cdots-4.35824u+0.981712\\-0.00233421u^{33}+0.00660539u^{32}+\cdots+6.08710u-1.30793\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.000389490u^{33}-0.00282444u^{32}+\cdots-1.72886u+0.326216\\-0.00233421u^{33}+0.00660539u^{32}+\cdots+6.08710u-1.30793\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.000389490u^{33}-0.00282444u^{32}+\cdots-1.72886u+0.326216\\-0.00149271u^{33}+0.00529712u^{32}+\cdots+5.21906u-1.04611\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.00250395u^{33}+0.00347839u^{32}+\cdots+1.84036u+0.964059\\0.00443973u^{33}-0.00740068u^{32}+\cdots-2.07611u-0.614602\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-u\\u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0304081u^{33}+0.0343758u^{32}+\cdots+21.2214u+3.74656$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{34} + 19u^{33} + \cdots + 24097u + 256$
c_2, c_4	$u^{34} - 5u^{33} + \cdots + 129u + 16$
c_3, c_7	$u^{34} - 2u^{33} + \cdots + 400u - 128$
c_5, c_6	$8(8u^{34} - 12u^{33} + \cdots - 20u - 4)$
c_8, c_9, c_{11} c_{12}	$u^{34} - 3u^{33} + \cdots - 14u + 1$
c_{10}	$u^{34} + 6u^{33} + \cdots - 960u - 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{34} - 3y^{33} + \cdots - 473567809y + 65536$
c_2, c_4	$y^{34} - 19y^{33} + \cdots - 24097y + 256$
c_3, c_7	$y^{34} + 12y^{33} + \cdots - 83200y + 16384$
c_5, c_6	$64(64y^{34} - 336y^{33} + \cdots - 672y + 16)$
c_8, c_9, c_{11} c_{12}	$y^{34} + 15y^{33} + \cdots - 100y + 1$
c_{10}	$y^{34} + 22y^{33} + \cdots - 872448y + 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.794712 + 0.456011I$ $a = -0.188293 + 1.208770I$ $b = -0.240887 - 0.522076I$	$-1.49824 + 0.24728I$	$0.14004 - 3.83407I$
$u = -0.794712 - 0.456011I$ $a = -0.188293 - 1.208770I$ $b = -0.240887 + 0.522076I$	$-1.49824 - 0.24728I$	$0.14004 + 3.83407I$
$u = -0.832178 + 0.785945I$ $a = 0.447308 - 0.208329I$ $b = -0.408436 + 0.761565I$	$-1.67003 - 2.80421I$	$0.86901 + 5.38758I$
$u = -0.832178 - 0.785945I$ $a = 0.447308 + 0.208329I$ $b = -0.408436 - 0.761565I$	$-1.67003 + 2.80421I$	$0.86901 - 5.38758I$
$u = -0.059447 + 1.230540I$ $a = -1.319320 + 0.166847I$ $b = -1.210090 + 0.579679I$	$5.21011 - 1.36737I$	$3.81985 - 1.34255I$
$u = -0.059447 - 1.230540I$ $a = -1.319320 - 0.166847I$ $b = -1.210090 - 0.579679I$	$5.21011 + 1.36737I$	$3.81985 + 1.34255I$
$u = 0.393005 + 1.221530I$ $a = -1.127800 - 0.513887I$ $b = -1.39318 - 0.40476I$	$4.28492 - 4.01263I$	$-0.30460 + 7.28252I$
$u = 0.393005 - 1.221530I$ $a = -1.127800 + 0.513887I$ $b = -1.39318 + 0.40476I$	$4.28492 + 4.01263I$	$-0.30460 - 7.28252I$
$u = 0.720618 + 1.080510I$ $a = -0.955921 - 0.511219I$ $b = -0.583998 + 0.942648I$	$2.44267 - 4.12024I$	$3.28639 + 5.00197I$
$u = 0.720618 - 1.080510I$ $a = -0.955921 + 0.511219I$ $b = -0.583998 - 0.942648I$	$2.44267 + 4.12024I$	$3.28639 - 5.00197I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.650367 + 0.044010I$ $a = 1.12796 - 1.09386I$ $b = -0.930560 + 0.199538I$	$0.690195 + 0.080524I$	$8.8969 - 15.6686I$
$u = 0.650367 - 0.044010I$ $a = 1.12796 + 1.09386I$ $b = -0.930560 - 0.199538I$	$0.690195 - 0.080524I$	$8.8969 + 15.6686I$
$u = 0.39356 + 1.36168I$ $a = 1.203780 - 0.501729I$ $b = 0.474808 - 1.157210I$	$-6.44421 - 6.99411I$	$-2.98433 + 6.50573I$
$u = 0.39356 - 1.36168I$ $a = 1.203780 + 0.501729I$ $b = 0.474808 + 1.157210I$	$-6.44421 + 6.99411I$	$-2.98433 - 6.50573I$
$u = -0.87961 + 1.15587I$ $a = -0.913426 + 0.382143I$ $b = -0.464763 - 1.155720I$	$-0.80760 + 9.64229I$	$-2.05779 - 8.26691I$
$u = -0.87961 - 1.15587I$ $a = -0.913426 - 0.382143I$ $b = -0.464763 + 1.155720I$	$-0.80760 - 9.64229I$	$-2.05779 + 8.26691I$
$u = 1.35864 + 0.52500I$ $a = 0.193842 - 0.210406I$ $b = 0.541334 + 1.208100I$	$-5.25087 + 10.27080I$	$-2.87805 - 7.59115I$
$u = 1.35864 - 0.52500I$ $a = 0.193842 + 0.210406I$ $b = 0.541334 - 1.208100I$	$-5.25087 - 10.27080I$	$-2.87805 + 7.59115I$
$u = -1.45769 + 0.28609I$ $a = 0.190522 + 0.239926I$ $b = 0.437920 - 1.051280I$	$-3.76533 - 4.11043I$	$-1.57621 + 5.08065I$
$u = -1.45769 - 0.28609I$ $a = 0.190522 - 0.239926I$ $b = 0.437920 + 1.051280I$	$-3.76533 + 4.11043I$	$-1.57621 - 5.08065I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.20308+1.50476I$ $a=\ 0.650989-0.156764I$ $b=\ 0.450406-0.473646I$	$3.73592+1.81982I$	$0.08831+1.82850I$
$u=-0.20308-1.50476I$ $a=\ 0.650989+0.156764I$ $b=\ 0.450406+0.473646I$	$3.73592-1.81982I$	$0.08831-1.82850I$
$u=-0.475511$ $a=\ 1.67568$ $b=-0.0960916$	-1.21807	-10.2050
$u=\ 0.81913+1.33067I$ $a=\ 1.41026+0.17074I$ $b=\ 0.64527-1.33926I$	$-2.5846-17.9258I$	$-1.78648+9.71152I$
$u=\ 0.81913-1.33067I$ $a=\ 1.41026-0.17074I$ $b=\ 0.64527+1.33926I$	$-2.5846+17.9258I$	$-1.78648-9.71152I$
$u=\ 0.042281+0.429124I$ $a=\ 0.167290-0.199986I$ $b=\ 0.23202+1.50109I$	$-10.86120+5.07702I$	$13.61431+1.23428I$
$u=\ 0.042281-0.429124I$ $a=\ 0.167290+0.199986I$ $b=\ 0.23202-1.50109I$	$-10.86120-5.07702I$	$13.61431-1.23428I$
$u=-0.68128+1.43732I$ $a=\ 1.280410+0.028747I$ $b=\ 0.641425+1.240980I$	$0.15639+11.56040I$	$0.62674-6.67003I$
$u=-0.68128-1.43732I$ $a=\ 1.280410-0.028747I$ $b=\ 0.641425-1.240980I$	$0.15639-11.56040I$	$0.62674+6.67003I$
$u=-0.09648+1.64631I$ $a=\ 0.710357+0.202519I$ $b=\ 0.514600+0.733387I$	$3.88573+4.85584I$	$1.37960-7.57560I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.09648 - 1.64631I$ $a = 0.710357 - 0.202519I$ $b = 0.514600 - 0.733387I$	$3.88573 - 4.85584I$	$1.37960 + 7.57560I$
$u = 0.327433$ $a = 1.02586$ $b = -0.565142$	0.885375	11.5390
$u = 1.70092 + 0.16271I$ $a = 0.068129 - 0.255918I$ $b = 0.124754 + 0.960782I$	$-12.03160 + 0.52686I$	$0. - 14.5498I$
$u = 1.70092 - 0.16271I$ $a = 0.068129 + 0.255918I$ $b = 0.124754 - 0.960782I$	$-12.03160 - 0.52686I$	$0. + 14.5498I$

II.
$\boldsymbol{I_2^u = \langle 4.78\times10^{12}au^{24}+8.81\times10^{12}u^{24}+\cdots-9.90\times10^{13}a+7.46\times10^{13},\ 1.41\times10^{14}au^{24}+1.94\times10^{15}u^{24}+\cdots+5.41\times10^{14}a+1.59\times10^{16},\ u^{25}-u^{24}+\cdots+4u+4\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -0.258951au^{24} - 0.477058u^{24} + \cdots + 5.35894a - 4.03495 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.124665au^{24} - 3.59160u^{24} + \cdots + 1.27680a - 26.1250 \\ -0.924644au^{24} + 1.04931u^{24} + \cdots + 1.62244a - 2.89924 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.258951au^{24} + 0.477058u^{24} + \cdots - 4.35894a + 4.03495 \\ -0.258951au^{24} - 0.477058u^{24} + \cdots + 5.35894a - 4.03495 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.08855au^{24} + 0.147616u^{24} + \cdots - 0.207055a - 8.18295 \\ 1.26334au^{24} - 1.09943u^{24} + \cdots - 2.69616a + 4.52566 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.663007u^{24} + 0.208677u^{23} + \cdots - 5.67662u - 0.806984 \\ 0.644979u^{24} - 0.740559u^{23} + \cdots + 3.48093u - 1.06790 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0180278u^{24} + 0.531881u^{23} + \cdots + 2.19569u + 1.87488 \\ 0.644979u^{24} - 0.740559u^{23} + \cdots + 3.48093u - 1.06790 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0180278u^{24} + 0.531881u^{23} + \cdots + 2.19569u + 1.87488 \\ 0.651848u^{24} - 0.230278u^{23} + \cdots + 5.75268u + 1.13174 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.477058au^{24} + 0.192998u^{24} + \cdots - 4.03495a - 6.54862 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{6062761600965}{9238337702138}u^{24} - \frac{3225176474347}{9238337702138}u^{23} + \cdots - \frac{61042729884201}{9238337702138}u - \frac{9798007398656}{4619168851069}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{25}+11u^{24}+\cdots-2u+1)^2$
c_2, c_4	$(u^{25}-3u^{24}+\cdots-4u+1)^2$
c_3, c_7	$(u^{25}-u^{24}+\cdots+4u+4)^2$
c_5, c_6	$u^{50}-4u^{49}+\cdots+9832u+2407$
c_8, c_9, c_{11} c_{12}	$u^{50}+8u^{49}+\cdots+434u+49$
c_{10}	$(u^{25}-2u^{24}+\cdots+3u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{25} + 9y^{24} + \cdots - 2y - 1)^2$
c_2, c_4	$(y^{25} - 11y^{24} + \cdots - 2y - 1)^2$
c_3, c_7	$(y^{25} + 15y^{24} + \cdots - 88y - 16)^2$
c_5, c_6	$y^{50} + 18y^{49} + \cdots + 211966944y + 5793649$
c_8, c_9, c_{11} c_{12}	$y^{50} + 30y^{49} + \cdots + 4704y + 2401$
c_{10}	$(y^{25} + 8y^{24} + \cdots + 11y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.111975 + 0.962557I$ $a = 1.72008 - 0.26684I$ $b = 0.665176 + 0.113324I$	$-3.49154 - 2.66172I$	$1.28523 + 3.57661I$
$u = 0.111975 + 0.962557I$ $a = -1.13128 + 1.66859I$ $b = -0.381710 + 1.094260I$	$-3.49154 - 2.66172I$	$1.28523 + 3.57661I$
$u = 0.111975 - 0.962557I$ $a = 1.72008 + 0.26684I$ $b = 0.665176 - 0.113324I$	$-3.49154 + 2.66172I$	$1.28523 - 3.57661I$
$u = 0.111975 - 0.962557I$ $a = -1.13128 - 1.66859I$ $b = -0.381710 - 1.094260I$	$-3.49154 + 2.66172I$	$1.28523 - 3.57661I$
$u = -1.061780 + 0.135314I$ $a = 0.240534 + 0.826928I$ $b = 0.394082 - 0.313244I$	$-1.76494 + 0.43356I$	$0.911962 + 0.045065I$
$u = -1.061780 + 0.135314I$ $a = 0.157939 + 0.550535I$ $b = -0.287348 - 0.868580I$	$-1.76494 + 0.43356I$	$0.911962 + 0.045065I$
$u = -1.061780 - 0.135314I$ $a = 0.240534 - 0.826928I$ $b = 0.394082 + 0.313244I$	$-1.76494 - 0.43356I$	$0.911962 - 0.045065I$
$u = -1.061780 - 0.135314I$ $a = 0.157939 - 0.550535I$ $b = -0.287348 + 0.868580I$	$-1.76494 - 0.43356I$	$0.911962 - 0.045065I$
$u = 0.465035 + 1.033020I$ $a = 1.48303 - 0.11082I$ $b = 0.86062 - 1.16851I$	$-5.20581 - 5.41987I$	$-3.35697 + 6.54919I$
$u = 0.465035 + 1.033020I$ $a = 0.034490 + 0.179256I$ $b = 0.30041 + 1.61643I$	$-5.20581 - 5.41987I$	$-3.35697 + 6.54919I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.465035 - 1.033020I$ $a = 1.48303 + 0.11082I$ $b = 0.86062 + 1.16851I$	$-5.20581 + 5.41987I$	$-3.35697 - 6.54919I$
$u = 0.465035 - 1.033020I$ $a = 0.034490 - 0.179256I$ $b = 0.30041 - 1.61643I$	$-5.20581 + 5.41987I$	$-3.35697 - 6.54919I$
$u = 1.096160 + 0.296196I$ $a = 0.424515 + 0.723296I$ $b = 0.877631 - 0.175572I$	$-2.14901 + 5.11531I$	$-0.18255 - 5.48464I$
$u = 1.096160 + 0.296196I$ $a = 0.133523 + 0.354909I$ $b = -0.531250 - 1.162460I$	$-2.14901 + 5.11531I$	$-0.18255 - 5.48464I$
$u = 1.096160 - 0.296196I$ $a = 0.424515 - 0.723296I$ $b = 0.877631 + 0.175572I$	$-2.14901 - 5.11531I$	$-0.18255 + 5.48464I$
$u = 1.096160 - 0.296196I$ $a = 0.133523 - 0.354909I$ $b = -0.531250 + 1.162460I$	$-2.14901 - 5.11531I$	$-0.18255 + 5.48464I$
$u = -0.202658 + 1.122680I$ $a = -1.19686 + 1.38943I$ $b = -0.194773 - 1.170190I$	$-1.18805 + 2.44039I$	$3.83401 - 3.61173I$
$u = -0.202658 + 1.122680I$ $a = -1.88921 - 0.26546I$ $b = -0.315193 + 0.999419I$	$-1.18805 + 2.44039I$	$3.83401 - 3.61173I$
$u = -0.202658 - 1.122680I$ $a = -1.19686 - 1.38943I$ $b = -0.194773 + 1.170190I$	$-1.18805 - 2.44039I$	$3.83401 + 3.61173I$
$u = -0.202658 - 1.122680I$ $a = -1.88921 + 0.26546I$ $b = -0.315193 - 0.999419I$	$-1.18805 - 2.44039I$	$3.83401 + 3.61173I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.641188+0.544744I$ $a = -0.583198+1.057510I$ $b = 0.440569+1.132290I$	$-6.75523+1.05922I$	$-7.39395-0.37058I$
$u = 0.641188+0.544744I$ $a = 3.42198+0.62987I$ $b = 0.321269-1.257010I$	$-6.75523+1.05922I$	$-7.39395-0.37058I$
$u = 0.641188-0.544744I$ $a = -0.583198-1.057510I$ $b = 0.440569-1.132290I$	$-6.75523-1.05922I$	$-7.39395+0.37058I$
$u = 0.641188-0.544744I$ $a = 3.42198-0.62987I$ $b = 0.321269+1.257010I$	$-6.75523-1.05922I$	$-7.39395+0.37058I$
$u = 0.082989+0.805818I$ $a = 1.048640+0.674364I$ $b = 0.914155+0.667714I$	$-3.91328+1.39976I$	$0.957222-0.060617I$
$u = 0.082989+0.805818I$ $a = 0.258734+0.032072I$ $b = -0.07533-1.53307I$	$-3.91328+1.39976I$	$0.957222-0.060617I$
$u = 0.082989-0.805818I$ $a = 1.048640-0.674364I$ $b = 0.914155-0.667714I$	$-3.91328-1.39976I$	$0.957222+0.060617I$
$u = 0.082989-0.805818I$ $a = 0.258734-0.032072I$ $b = -0.07533+1.53307I$	$-3.91328-1.39976I$	$0.957222+0.060617I$
$u = -0.340493+0.559321I$ $a = 0.708209-0.192820I$ $b = 0.071939-1.290900I$	$-3.62565+1.50728I$	$1.02072-4.31266I$
$u = -0.340493+0.559321I$ $a = 1.57740+1.43813I$ $b = 0.478126+0.780931I$	$-3.62565+1.50728I$	$1.02072-4.31266I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.340493 - 0.559321I$ $a = 0.708209 + 0.192820I$ $b = 0.071939 + 1.290900I$	$-3.62565 - 1.50728I$	$1.02072 + 4.31266I$
$u = -0.340493 - 0.559321I$ $a = 1.57740 - 1.43813I$ $b = 0.478126 - 0.780931I$	$-3.62565 - 1.50728I$	$1.02072 + 4.31266I$
$u = 0.291960 + 1.368920I$ $a = 1.040950 + 0.164703I$ $b = 0.535319 - 0.817834I$	$3.63887 + 0.59688I$	$4.46758 - 1.80507I$
$u = 0.291960 + 1.368920I$ $a = -0.439291 - 0.194912I$ $b = -0.625618 - 0.508372I$	$3.63887 + 0.59688I$	$4.46758 - 1.80507I$
$u = 0.291960 - 1.368920I$ $a = 1.040950 - 0.164703I$ $b = 0.535319 + 0.817834I$	$3.63887 - 0.59688I$	$4.46758 + 1.80507I$
$u = 0.291960 - 1.368920I$ $a = -0.439291 + 0.194912I$ $b = -0.625618 + 0.508372I$	$3.63887 - 0.59688I$	$4.46758 + 1.80507I$
$u = -0.414621 + 1.342760I$ $a = 1.111960 - 0.253905I$ $b = 1.076060 - 0.322023I$	$3.05811 + 5.44271I$	$3.50171 - 3.51350I$
$u = -0.414621 + 1.342760I$ $a = -1.225620 - 0.254682I$ $b = -0.730267 - 1.190880I$	$3.05811 + 5.44271I$	$3.50171 - 3.51350I$
$u = -0.414621 - 1.342760I$ $a = 1.111960 + 0.253905I$ $b = 1.076060 + 0.322023I$	$3.05811 - 5.44271I$	$3.50171 + 3.51350I$
$u = -0.414621 - 1.342760I$ $a = -1.225620 + 0.254682I$ $b = -0.730267 + 1.190880I$	$3.05811 - 5.44271I$	$3.50171 + 3.51350I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.55118 + 1.32473I$ $a = 1.144470 - 0.278607I$ $b = 0.393415 + 1.053730I$	$2.03395 + 5.36637I$	$2.46678 - 3.05337I$
$u = -0.55118 + 1.32473I$ $a = -0.537601 - 0.047197I$ $b = -0.643930 + 0.168348I$	$2.03395 + 5.36637I$	$2.46678 - 3.05337I$
$u = -0.55118 - 1.32473I$ $a = 1.144470 + 0.278607I$ $b = 0.393415 - 1.053730I$	$2.03395 - 5.36637I$	$2.46678 + 3.05337I$
$u = -0.55118 - 1.32473I$ $a = -0.537601 + 0.047197I$ $b = -0.643930 - 0.168348I$	$2.03395 - 5.36637I$	$2.46678 + 3.05337I$
$u = 0.64072 + 1.29917I$ $a = 1.012980 + 0.450455I$ $b = 1.221550 + 0.193871I$	$1.04287 - 11.39030I$	$0.71017 + 7.76664I$
$u = 0.64072 + 1.29917I$ $a = -1.376020 - 0.045093I$ $b = -0.73317 + 1.35425I$	$1.04287 - 11.39030I$	$0.71017 + 7.76664I$
$u = 0.64072 - 1.29917I$ $a = 1.012980 - 0.450455I$ $b = 1.221550 - 0.193871I$	$1.04287 + 11.39030I$	$0.71017 - 7.76664I$
$u = 0.64072 - 1.29917I$ $a = -1.376020 + 0.045093I$ $b = -0.73317 - 1.35425I$	$1.04287 + 11.39030I$	$0.71017 - 7.76664I$
$u = -0.518583$ $a = -15.1403 + 19.4448I$ $b = -0.031733 - 1.001510I$	-4.48394	-4.44380
$u = -0.518583$ $a = -15.1403 - 19.4448I$ $b = -0.031733 + 1.001510I$	-4.48394	-4.44380

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} \frac{1}{4}u^2+\frac{1}{2} \\ -\frac{1}{2}u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2u^2+u+\frac{7}{2} \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2u^2+u+\frac{9}{2} \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 2u^2+u+\frac{7}{2} \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{95}{4}u^2 - \frac{49}{4}u - \frac{153}{4}$

(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_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = -1.039800 + 0.182582I$ $b = -1.00000$	$4.66906 + 2.82812I$	$3.86575 - 2.65834I$
$u = -0.215080 - 1.307140I$ $a = -1.039800 - 0.182582I$ $b = -1.00000$	$4.66906 - 2.82812I$	$3.86575 + 2.65834I$
$u = -0.569840$ $a = 2.57960$ $b = -1.00000$	0.531480	-38.9820

IV. $I_4^u = \langle 2au + b + a + u - 1,\ a^2 - 6au + 10a - 29u + 47,\ u^2 - u - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -2au - a - u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 3au - 5a + 18u - 28 \\ au + 2u - 6 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2au + 2a + u - 1 \\ -2au - a - u + 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -au + a - 7u + 11 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ -u - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ -3u - 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -4au - a - 7u + 10 \\ 13au + 8a + 2u + 2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(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_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = -6.85410 + 4.23607I$ $b = 1.000000I$	-4.27683	-8.00000
$u = -0.618034$ $a = -6.85410 - 4.23607I$ $b = -1.000000I$	-4.27683	-8.00000
$u = 1.61803$ $a = -0.145898 + 0.236068I$ $b = -1.000000I$	-12.1725	-8.00000
$u = 1.61803$ $a = -0.145898 - 0.236068I$ $b = 1.000000I$	-12.1725	-8.00000

V. $I_1^v = \langle a,\ -20v^2+13b+69v-1,\ 4v^3-13v^2-v-1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ \frac{20}{13}v^2 - \frac{69}{13}v + \frac{1}{13} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ \frac{12}{13}v^2 - \frac{31}{13}v - \frac{28}{13} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{20}{13}v^2 + \frac{69}{13}v - \frac{1}{13} \\ \frac{20}{13}v^2 - \frac{69}{13}v + \frac{1}{13} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{12}{13}v^2 - \frac{31}{13}v - \frac{15}{13} \\ -\frac{12}{13}v^2 + \frac{31}{13}v + \frac{28}{13} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{20}{13}v^2 + \frac{69}{13}v - \frac{1}{13} \\ 4v^2 - 13v - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{20}{13}v^2 - \frac{56}{13}v + \frac{1}{13} \\ -4v^2 + 13v + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{20}{13}v^2 - \frac{69}{13}v + \frac{1}{13} \\ -4v^2 + 13v + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -\frac{8}{13}v^2 + \frac{38}{13}v - \frac{42}{13} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{71}{13}v^2 + \frac{373}{13}v - \frac{246}{13}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.048505 + 0.268962I$ $a = 0$ $b = 0.22670 - 1.46771I$	$-11.08570 - 5.13794I$	$-19.9326 + 7.8597I$
$v = -0.048505 - 0.268962I$ $a = 0$ $b = 0.22670 + 1.46771I$	$-11.08570 + 5.13794I$	$-19.9326 - 7.8597I$
$v = 3.34701$ $a = 0$ $b = -0.453398$	-0.857735	15.9280

VI. $I_2^v = \langle a,\ b^2 - bv - b + v + 1,\ v^2 + v + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ b \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ bv + b - v - 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} bv + b - v \\ -bv - b + v + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} bv + v + 2 \\ -v - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -bv - 2 \\ v + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -bv - v - 2 \\ v + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -b + v \\ 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 3$

(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, c_8 c_9	$u^4 - u^3 + 2u^2 - 2u + 1$
c_{10}	$(u^2+u+1)^2$
c_{11}, c_{12}	$u^4 + u^3 + 2u^2 + 2u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = 0.621744 - 0.440597I$	$-4.93480 - 2.02988I$	$-5.00000 + 3.46410I$
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -0.121744 + 1.306620I$	$-4.93480 - 2.02988I$	$-5.00000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = 0.621744 + 0.440597I$	$-4.93480 + 2.02988I$	$-5.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -0.121744 - 1.306620I$	$-4.93480 + 2.02988I$	$-5.00000 - 3.46410I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^7(u^2-3u+1)^2(u^3-u^2+2u-1)$ $\cdot((u^{25}+11u^{24}+\cdots-2u+1)^2)(u^{34}+19u^{33}+\cdots+24097u+256)$
c_2	$((u-1)^7)(u^2+u-1)^2(u^3+u^2-1)(u^{25}-3u^{24}+\cdots-4u+1)^2$ $\cdot(u^{34}-5u^{33}+\cdots+129u+16)$
c_3	$u^7(u^2+u-1)^2(u^3-u^2+2u-1)(u^{25}-u^{24}+\cdots+4u+4)^2$ $\cdot(u^{34}-2u^{33}+\cdots+400u-128)$
c_4	$((u+1)^7)(u^2-u-1)^2(u^3-u^2+1)(u^{25}-3u^{24}+\cdots-4u+1)^2$ $\cdot(u^{34}-5u^{33}+\cdots+129u+16)$
c_5	$64(u^3+2u+1)(8u^3+12u^2+4u-1)(u^4-6u^3+\cdots-12u+4)$ $\cdot(u^4-u^3+2u^2-2u+1)(8u^{34}-12u^{33}+\cdots-20u-4)$ $\cdot(u^{50}-4u^{49}+\cdots+9832u+2407)$
c_6	$64(u^3+2u+1)(8u^3-12u^2+4u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(u^4+6u^3+18u^2+12u+4)(8u^{34}-12u^{33}+\cdots-20u-4)$ $\cdot(u^{50}-4u^{49}+\cdots+9832u+2407)$
c_7	$u^7(u^2-u-1)^2(u^3+u^2+2u+1)(u^{25}-u^{24}+\cdots+4u+4)^2$ $\cdot(u^{34}-2u^{33}+\cdots+400u-128)$
c_8, c_9	$(u+1)^3(u^2+1)^2(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(u^{34}-3u^{33}+\cdots-14u+1)(u^{50}+8u^{49}+\cdots+434u+49)$
c_{10}	$u^3(u^2+u+1)^2(u^3-3u^2+5u-2)(u^4+7u^2+1)$ $\cdot((u^{25}-2u^{24}+\cdots+3u-1)^2)(u^{34}+6u^{33}+\cdots-960u-256)$
c_{11}, c_{12}	$(u-1)^3(u^2+1)^2(u^3+2u-1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{34}-3u^{33}+\cdots-14u+1)(u^{50}+8u^{49}+\cdots+434u+49)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^7(y^2-7y+1)^2(y^3+3y^2+2y-1)$ $\cdot\,(y^{25}+9y^{24}+\cdots-2y-1)^2$ $\cdot\,(y^{34}-3y^{33}+\cdots-473567809y+65536)$
c_2, c_4	$(y-1)^7(y^2-3y+1)^2(y^3-y^2+2y-1)$ $\cdot\,((y^{25}-11y^{24}+\cdots-2y-1)^2)(y^{34}-19y^{33}+\cdots-24097y+256)$
c_3, c_7	$y^7(y^2-3y+1)^2(y^3+3y^2+2y-1)(y^{25}+15y^{24}+\cdots-88y-16)^2$ $\cdot\,(y^{34}+12y^{33}+\cdots-83200y+16384)$
c_5, c_6	$4096(y^3+4y^2+4y-1)(64y^3-80y^2+40y-1)(y^4+188y^2+16)$ $\cdot\,(y^4+3y^3+2y^2+1)(64y^{34}-336y^{33}+\cdots-672y+16)$ $\cdot\,(y^{50}+18y^{49}+\cdots+211966944y+5793649)$
c_8, c_9, c_{11} c_{12}	$(y-1)^3(y+1)^4(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot\,(y^{34}+15y^{33}+\cdots-100y+1)(y^{50}+30y^{49}+\cdots+4704y+2401)$
c_{10}	$y^3(y^2+y+1)^2(y^2+7y+1)^2(y^3+y^2+13y-4)$ $\cdot\,((y^{25}+8y^{24}+\cdots+11y-1)^2)(y^{34}+22y^{33}+\cdots-872448y+65536)$