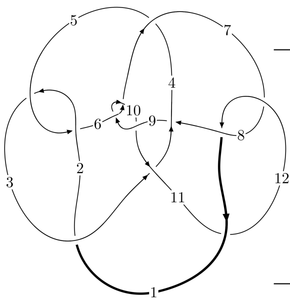
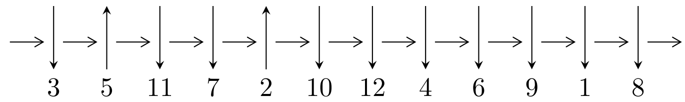
$12a_{0199}$ $(K12a_{0199})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -1.05186 \times 10^{25} u^{29} - 1.43266 \times 10^{24} u^{28} + \cdots + 3.83777 \times 10^{26} b + 2.01209 \times 10^{26}, \\
& 1.20840 \times 10^{25} u^{29} + 2.78546 \times 10^{25} u^{28} + \cdots + 3.83777 \times 10^{26} a - 1.47083 \times 10^{27},\ u^{30} + u^{29} + \cdots - 136u + \\
I_2^u = \langle & 8301956774068 u^{47} a - 1716498814000922 u^{47} + \cdots - 18605403975840 a + 3278970716047515, \\
& 24902419266 u^{47} a + 25380336871 u^{47} + \cdots + 44502374232 a - 179167125090, \\
& u^{48} - 2u^{47} + \cdots + 16u^2 + 1 \rangle \\
I_3^u = \langle & 2au + b - a,\ 4a^2 - 2au + u + 1,\ u^2 + u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 130 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. $I_1^u = \langle -1.05 \times 10^{25} u^{29} - 1.43 \times 10^{24} u^{28} + \cdots + 3.84 \times 10^{26} b + 2.01 \times 10^{26},\ 1.21 \times 10^{25} u^{29} + 2.79 \times 10^{25} u^{28} + \cdots + 3.84 \times 10^{26} a - 1.47 \times 10^{27},\ u^{30} + u^{29} + \cdots - 136u + 16 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0314870u^{29} - 0.0725802u^{28} + \cdots - 3.16309u + 3.83250 \\ 0.0274082u^{29} + 0.00373306u^{28} + \cdots + 1.51313u - 0.524287 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00441977u^{29} + 0.0255666u^{28} + \cdots - 0.244085u - 1.67888 \\ -0.0228435u^{29} + 0.0213127u^{28} + \cdots - 5.26346u + 0.973918 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00435453u^{29} + 0.00268953u^{28} + \cdots + 1.16324u + 0.264419 \\ -0.00450085u^{29} - 0.00348346u^{28} + \cdots + 1.15275u - 0.0963126 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0381470u^{29} - 0.0678968u^{28} + \cdots - 1.73655u + 3.55381 \\ 0.0207481u^{29} + 0.00841644u^{28} + \cdots + 2.93967u - 0.802977 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0397231u^{29} - 0.0645166u^{28} + \cdots - 4.17765u + 2.94412 \\ -0.00367619u^{29} - 0.0461053u^{28} + \cdots + 1.65856u - 0.467412 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0204362u^{29} - 0.0555509u^{28} + \cdots - 0.715574u + 3.27528 \\ 0.0267068u^{29} - 0.0127292u^{28} + \cdots + 6.08279u - 1.17219 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0286036u^{29} - 0.0437086u^{28} + \cdots - 2.32665u + 2.99514 \\ -0.00925796u^{29} - 0.0455321u^{28} + \cdots + 3.42484u - 0.697592 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{12790684592978423102182111}{95944166907326703898487264}u^{29} + \frac{24283871709880963319867825}{95944166907326703898487264}u^{28} + \cdots - \frac{443477214659957979551419763}{11993020863415837987310908}u - \frac{42761849795147821338360495}{5996510431707918993655454}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} + 11u^{29} + \cdots - 12320u + 256$
c_2, c_5	$u^{30} - u^{29} + \cdots + 136u + 16$
c_3, c_4	$16(16u^{30} - 24u^{29} + \cdots + u + 1)$
c_6, c_7, c_9 c_{12}	$u^{30} - 2u^{29} + \cdots + 3u - 1$
c_8	$u^{30} + 5u^{29} + \cdots - 9216u - 1024$
c_{10}, c_{11}	$u^{30} + 16u^{29} + \cdots + 9u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 15y^{29} + \cdots - 173031936y + 65536$
c_2, c_5	$y^{30} + 11y^{29} + \cdots - 12320y + 256$
c_3, c_4	$256(256y^{30} + 2752y^{29} + \cdots + y + 1)$
c_6, c_7, c_9 c_{12}	$y^{30} - 16y^{29} + \cdots - 9y + 1$
c_8	$y^{30} + 5y^{29} + \cdots + 21626880y + 1048576$
c_{10}, c_{11}	$y^{30} - 48y^{28} + \cdots + 87y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.513843 + 0.871891I$ $a = -0.446146 - 0.725334I$ $b = 0.38934 - 2.10569I$	$-8.85186 + 2.07542I$	$33.6724 - 61.7857I$
$u = 0.513843 - 0.871891I$ $a = -0.446146 + 0.725334I$ $b = 0.38934 + 2.10569I$	$-8.85186 - 2.07542I$	$33.6724 + 61.7857I$
$u = -0.355475 + 0.904157I$ $a = 0.411047 - 0.455694I$ $b = 0.035443 - 0.584835I$	$-0.39684 - 1.65663I$	$-3.61734 + 2.59404I$
$u = -0.355475 - 0.904157I$ $a = 0.411047 + 0.455694I$ $b = 0.035443 + 0.584835I$	$-0.39684 + 1.65663I$	$-3.61734 - 2.59404I$
$u = 0.886842 + 0.643141I$ $a = 0.108219 + 0.207785I$ $b = 0.056684 - 0.750111I$	$7.28214 - 1.89713I$	$-1.79602 - 0.99400I$
$u = 0.886842 - 0.643141I$ $a = 0.108219 - 0.207785I$ $b = 0.056684 + 0.750111I$	$7.28214 + 1.89713I$	$-1.79602 + 0.99400I$
$u = -0.270910 + 1.074590I$ $a = -1.07328 + 1.52289I$ $b = -0.72130 + 2.24404I$	$-3.48392 - 0.63227I$	$-16.5794 + 0.3609I$
$u = -0.270910 - 1.074590I$ $a = -1.07328 - 1.52289I$ $b = -0.72130 - 2.24404I$	$-3.48392 + 0.63227I$	$-16.5794 - 0.3609I$
$u = 0.989431 + 0.528893I$ $a = 2.04634 - 0.16797I$ $b = 0.906269 - 0.257371I$	$4.1464 - 13.5352I$	$-6.25412 + 8.07209I$
$u = 0.989431 - 0.528893I$ $a = 2.04634 + 0.16797I$ $b = 0.906269 + 0.257371I$	$4.1464 + 13.5352I$	$-6.25412 - 8.07209I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.333835+1.072850I$ $a = 0.15424-1.54650I$ $b = 0.33154-2.61604I$	$-8.69259+3.42736I$	$-19.7102-3.7396I$
$u = 0.333835-1.072850I$ $a = 0.15424+1.54650I$ $b = 0.33154+2.61604I$	$-8.69259-3.42736I$	$-19.7102+3.7396I$
$u = -0.369336+1.114300I$ $a = 0.386505-0.563344I$ $b = -0.127883-0.862401I$	$-0.33657-1.57944I$	$-6.03935+1.36982I$
$u = -0.369336-1.114300I$ $a = 0.386505+0.563344I$ $b = -0.127883+0.862401I$	$-0.33657+1.57944I$	$-6.03935-1.36982I$
$u = -1.146190+0.299068I$ $a = 1.55316+0.09412I$ $b = 0.749359+0.445987I$	$4.59032+3.09332I$	$1.17313-4.12974I$
$u = -1.146190-0.299068I$ $a = 1.55316-0.09412I$ $b = 0.749359-0.445987I$	$4.59032-3.09332I$	$1.17313+4.12974I$
$u = 0.727436+1.053530I$ $a = -0.047464+0.176285I$ $b = 0.776365+0.265918I$	$6.01261+7.86778I$	$-3.60910-3.95992I$
$u = 0.727436-1.053530I$ $a = -0.047464-0.176285I$ $b = 0.776365-0.265918I$	$6.01261-7.86778I$	$-3.60910+3.95992I$
$u = -1.136890+0.641709I$ $a = -0.623817+0.518365I$ $b = -0.279528+1.274650I$	$4.21761-6.91864I$	$-0.34998+9.53979I$
$u = -1.136890-0.641709I$ $a = -0.623817-0.518365I$ $b = -0.279528-1.274650I$	$4.21761+6.91864I$	$-0.34998-9.53979I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.720787 + 1.140920I$ $a = -0.21243 + 2.06553I$ $b = -0.22299 + 3.04110I$	$2.2432 + 19.7483I$	$-8.5481 - 11.6447I$
$u = \ \ 0.720787 - 1.140920I$ $a = -0.21243 - 2.06553I$ $b = -0.22299 - 3.04110I$	$2.2432 - 19.7483I$	$-8.5481 + 11.6447I$
$u = \ \ 0.646093$ $a = -1.97921$ $b = -0.298708$	-5.53280	-15.4870
$u = -0.901122 + 1.028260I$ $a = -0.918924 - 0.071187I$ $b = -0.226436 + 0.036666I$	$3.03751 - 0.25657I$	$-1.246747 + 0.314424I$
$u = -0.901122 - 1.028260I$ $a = -0.918924 + 0.071187I$ $b = -0.226436 - 0.036666I$	$3.03751 + 0.25657I$	$-1.246747 - 0.314424I$
$u = -0.095565 + 1.384150I$ $a = \ \ 0.39805 + 1.76502I$ $b = \ \ 0.02520 + 2.54016I$	$-3.39765 - 10.83270I$	$-11.6079 + 10.7508I$
$u = -0.095565 - 1.384150I$ $a = \ \ 0.39805 - 1.76502I$ $b = \ \ 0.02520 - 2.54016I$	$-3.39765 + 10.83270I$	$-11.6079 - 10.7508I$
$u = -0.78951 + 1.26116I$ $a = -0.08887 - 1.76517I$ $b = -0.07406 - 2.52275I$	$1.73617 - 9.98872I$	$-5.29929 + 12.58752I$
$u = -0.78951 - 1.26116I$ $a = -0.08887 + 1.76517I$ $b = -0.07406 + 2.52275I$	$1.73617 + 9.98872I$	$-5.29929 - 12.58752I$
$u = \ \ 0.139554$ $a = \ \ 3.43594$ $b = -0.437309$	-0.810611	-12.3890

II. $\boldsymbol{I_2^u = \langle 8.30 \times 10^{12} a u^{47} - 1.72 \times 10^{15} u^{47} + \cdots - 1.86 \times 10^{13} a + 3.28 \times 10^{15},\ 2.49 \times 10^{10} a u^{47} + 2.54 \times 10^{10} u^{47} + \cdots + 4.45 \times 10^{10} a - 1.79 \times 10^{11},\ u^{48} - 2u^{47} + \cdots + 16u^2 + 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -0.00768508au^{47} + 1.58895u^{47} + \cdots + 0.0172229a - 3.03533 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.913597au^{47} - 1.12318u^{47} + \cdots - 3.05186a - 4.32727 \\ 1.69606au^{47} - 2.47177u^{47} + \cdots + 1.67376a + 0.0264682 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.895600au^{47} + 1.48267u^{47} + \cdots + 1.88285a + 10.0601 \\ -0.805141au^{47} + 0.416548u^{47} + \cdots - 0.739690a + 0.986881 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.222411au^{47} + 0.533718u^{47} + \cdots + 1.07881a - 1.01638 \\ 0.214726au^{47} + 2.12267u^{47} + \cdots + 0.0960309a - 4.05170 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2.20533au^{47} - 1.56856u^{47} + \cdots - 4.28442a - 7.99229 \\ 2.65700au^{47} - 0.108542u^{47} + \cdots - 0.172526a - 3.38343 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.391848au^{47} + 0.489312u^{47} + \cdots + 0.237285a - 5.57041 \\ 0.391848au^{47} + 2.93394u^{47} + \cdots + 0.237285a - 4.59756 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1.89258au^{47} - 1.52697u^{47} + \cdots - 0.347615a - 7.31396 \\ -1.43205au^{47} + 1.08570u^{47} + \cdots + 2.37872a - 4.96729 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{17136040638}{3523750753}u^{47} + \frac{40416089808}{3523750753}u^{46} + \cdots - \frac{10188595612}{3523750753}u - \frac{39541667460}{3523750753}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{48} + 18u^{47} + \cdots + 32u + 1)^2$
c_2, c_5	$(u^{48} + 2u^{47} + \cdots + 16u^2 + 1)^2$
c_3, c_4	$u^{96} - 9u^{95} + \cdots + 130810298u + 122183483$
c_6, c_7, c_9 c_{12}	$u^{96} + 5u^{95} + \cdots + 2u + 1$
c_8	$(u^{48} - 2u^{47} + \cdots + 2u + 1)^2$
c_{10}, c_{11}	$u^{96} + 37u^{95} + \cdots + 408u^3 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{48} + 26y^{47} + \cdots - 264y + 1)^2$
c_2, c_5	$(y^{48} + 18y^{47} + \cdots + 32y + 1)^2$
c_3, c_4	$y^{96} + 47y^{95} + \cdots + 239047203594444768y + 14928803518011289$
c_6, c_7, c_9 c_{12}	$y^{96} - 37y^{95} + \cdots - 408y^3 + 1$
c_8	$(y^{48} + 10y^{47} + \cdots + 20y + 1)^2$
c_{10}, c_{11}	$y^{96} + 43y^{95} + \cdots + 2144y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.484781 + 0.850953I$ $a = -3.37504 + 5.83345I$ $b = -3.33055 + 4.82375I$	$-0.02738 - 1.96363I$	$2.8944 + 51.2708I$
$u = -0.484781 + 0.850953I$ $a = \ \ 0.20739 - 7.60050I$ $b = -0.64315 - 8.14498I$	$-0.02738 - 1.96363I$	$2.8944 + 51.2708I$
$u = -0.484781 - 0.850953I$ $a = -3.37504 - 5.83345I$ $b = -3.33055 - 4.82375I$	$-0.02738 + 1.96363I$	$2.8944 - 51.2708I$
$u = -0.484781 - 0.850953I$ $a = \ \ 0.20739 + 7.60050I$ $b = -0.64315 + 8.14498I$	$-0.02738 + 1.96363I$	$2.8944 - 51.2708I$
$u = \ \ 0.097067 + 1.022650I$ $a = -0.406779 + 0.448418I$ $b = \ \ 0.253041 + 0.768046I$	$-3.99758 + 0.49161I$	$-13.81533 - 0.65955I$
$u = \ \ 0.097067 + 1.022650I$ $a = -0.72794 + 1.49597I$ $b = -0.61571 + 2.57000I$	$-3.99758 + 0.49161I$	$-13.81533 - 0.65955I$
$u = \ \ 0.097067 - 1.022650I$ $a = -0.406779 - 0.448418I$ $b = \ \ 0.253041 - 0.768046I$	$-3.99758 - 0.49161I$	$-13.81533 + 0.65955I$
$u = \ \ 0.097067 - 1.022650I$ $a = -0.72794 - 1.49597I$ $b = -0.61571 - 2.57000I$	$-3.99758 - 0.49161I$	$-13.81533 + 0.65955I$
$u = \ \ 0.716038 + 0.740578I$ $a = -1.58024 + 0.04054I$ $b = -0.327130 - 0.220538I$	$4.67401 - 3.43632I$	$-1.94110 + 3.09138I$
$u = \ \ 0.716038 + 0.740578I$ $a = \ \ 0.292211 - 0.016004I$ $b = -0.626333 - 0.371523I$	$4.67401 - 3.43632I$	$-1.94110 + 3.09138I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.716038 - 0.740578I$ $a = -1.58024 - 0.04054I$ $b = -0.327130 + 0.220538I$	$4.67401 + 3.43632I$	$-1.94110 - 3.09138I$
$u = 0.716038 - 0.740578I$ $a = 0.292211 + 0.016004I$ $b = -0.626333 + 0.371523I$	$4.67401 + 3.43632I$	$-1.94110 - 3.09138I$
$u = -0.685446 + 0.778575I$ $a = -0.298304 - 0.757635I$ $b = -0.444479 - 0.452774I$	$1.43924 - 0.31691I$	$-6.77030 + 0.34002I$
$u = -0.685446 + 0.778575I$ $a = -1.15899 - 1.04942I$ $b = -0.234179 - 0.846072I$	$1.43924 - 0.31691I$	$-6.77030 + 0.34002I$
$u = -0.685446 - 0.778575I$ $a = -0.298304 + 0.757635I$ $b = -0.444479 + 0.452774I$	$1.43924 + 0.31691I$	$-6.77030 - 0.34002I$
$u = -0.685446 - 0.778575I$ $a = -1.15899 + 1.04942I$ $b = -0.234179 + 0.846072I$	$1.43924 + 0.31691I$	$-6.77030 - 0.34002I$
$u = 0.636609 + 0.849934I$ $a = 0.078084 + 1.162150I$ $b = -0.09338 + 2.45454I$	$2.20823 + 2.48736I$	$-1.52867 - 3.91872I$
$u = 0.636609 + 0.849934I$ $a = 1.311060 + 0.127836I$ $b = 0.091787 + 0.556421I$	$2.20823 + 2.48736I$	$-1.52867 - 3.91872I$
$u = 0.636609 - 0.849934I$ $a = 0.078084 - 1.162150I$ $b = -0.09338 - 2.45454I$	$2.20823 - 2.48736I$	$-1.52867 + 3.91872I$
$u = 0.636609 - 0.849934I$ $a = 1.311060 - 0.127836I$ $b = 0.091787 - 0.556421I$	$2.20823 - 2.48736I$	$-1.52867 + 3.91872I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.936905 + 0.579477I$ $a = -0.055387 - 0.251475I$ $b = -0.074157 + 0.690139I$	$5.72343 - 7.74189I$	$-4.00692 + 3.57032I$
$u = \quad 0.936905 + 0.579477I$ $a = -1.97766 + 0.12581I$ $b = -0.810338 + 0.148751I$	$5.72343 - 7.74189I$	$-4.00692 + 3.57032I$
$u = \quad 0.936905 - 0.579477I$ $a = -0.055387 + 0.251475I$ $b = -0.074157 - 0.690139I$	$5.72343 + 7.74189I$	$-4.00692 - 3.57032I$
$u = \quad 0.936905 - 0.579477I$ $a = -1.97766 - 0.12581I$ $b = -0.810338 - 0.148751I$	$5.72343 + 7.74189I$	$-4.00692 - 3.57032I$
$u = \quad 0.717956 + 0.851849I$ $a = \quad 0.251023 - 0.019875I$ $b = -0.076809 - 0.959910I$	$6.27413 + 2.73487I$	$0. - 3.17064I$
$u = \quad 0.717956 + 0.851849I$ $a = -0.220056 + 0.082656I$ $b = \quad 0.693660 + 0.338468I$	$6.27413 + 2.73487I$	$0. - 3.17064I$
$u = \quad 0.717956 - 0.851849I$ $a = \quad 0.251023 + 0.019875I$ $b = -0.076809 + 0.959910I$	$6.27413 - 2.73487I$	$0. + 3.17064I$
$u = \quad 0.717956 - 0.851849I$ $a = -0.220056 - 0.082656I$ $b = \quad 0.693660 - 0.338468I$	$6.27413 - 2.73487I$	$0. + 3.17064I$
$u = -0.684569 + 0.885432I$ $a = \quad 0.497504 + 0.678613I$ $b = \quad 0.594605 + 0.365341I$	$1.11254 - 4.96052I$	$-8.00000 + 5.40900I$
$u = -0.684569 + 0.885432I$ $a = \quad 1.10653 + 0.94980I$ $b = \quad 1.18189 + 1.90242I$	$1.11254 - 4.96052I$	$-8.00000 + 5.40900I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.684569 - 0.885432I$ $a = 0.497504 - 0.678613I$ $b = 0.594605 - 0.365341I$	$1.11254 + 4.96052I$	$-8.00000 - 5.40900I$
$u = -0.684569 - 0.885432I$ $a = 1.10653 - 0.94980I$ $b = 1.18189 - 1.90242I$	$1.11254 + 4.96052I$	$-8.00000 - 5.40900I$
$u = -0.420414 + 0.772149I$ $a = 3.55803 + 1.71143I$ $b = 2.51087 + 1.16971I$	$-0.14530 + 2.51169I$	$-9.91381 + 1.94946I$
$u = -0.420414 + 0.772149I$ $a = -2.15258 + 3.37249I$ $b = -1.24231 + 4.05910I$	$-0.14530 + 2.51169I$	$-9.91381 + 1.94946I$
$u = -0.420414 - 0.772149I$ $a = 3.55803 - 1.71143I$ $b = 2.51087 - 1.16971I$	$-0.14530 - 2.51169I$	$-9.91381 - 1.94946I$
$u = -0.420414 - 0.772149I$ $a = -2.15258 - 3.37249I$ $b = -1.24231 - 4.05910I$	$-0.14530 - 2.51169I$	$-9.91381 - 1.94946I$
$u = 0.733465 + 0.467600I$ $a = -1.65111 - 0.38305I$ $b = -0.445586 - 1.014770I$	$-0.96653 - 6.30841I$	$-9.45390 + 5.38910I$
$u = 0.733465 + 0.467600I$ $a = 1.86018 - 0.33304I$ $b = 0.410288 - 0.363694I$	$-0.96653 - 6.30841I$	$-9.45390 + 5.38910I$
$u = 0.733465 - 0.467600I$ $a = -1.65111 + 0.38305I$ $b = -0.445586 + 1.014770I$	$-0.96653 + 6.30841I$	$-9.45390 - 5.38910I$
$u = 0.733465 - 0.467600I$ $a = 1.86018 + 0.33304I$ $b = 0.410288 + 0.363694I$	$-0.96653 + 6.30841I$	$-9.45390 - 5.38910I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.605495 + 0.621445I$ $a = 1.241810 + 0.446110I$ $b = 0.123749 + 1.329770I$	$0.278716 - 0.472036I$	$-6.31074 + 2.15424I$
$u = 0.605495 + 0.621445I$ $a = -0.463331 - 0.287948I$ $b = -0.267791 + 0.963683I$	$0.278716 - 0.472036I$	$-6.31074 + 2.15424I$
$u = 0.605495 - 0.621445I$ $a = 1.241810 - 0.446110I$ $b = 0.123749 - 1.329770I$	$0.278716 + 0.472036I$	$-6.31074 - 2.15424I$
$u = 0.605495 - 0.621445I$ $a = -0.463331 + 0.287948I$ $b = -0.267791 - 0.963683I$	$0.278716 + 0.472036I$	$-6.31074 - 2.15424I$
$u = -0.490818 + 1.023000I$ $a = 0.994900 - 0.202633I$ $b = 0.826814 - 0.594067I$	$-0.41863 - 1.44578I$	$-8.00000 - 1.12617I$
$u = -0.490818 + 1.023000I$ $a = -0.116576 - 0.595943I$ $b = -0.743474 - 0.981271I$	$-0.41863 - 1.44578I$	$-8.00000 - 1.12617I$
$u = -0.490818 - 1.023000I$ $a = 0.994900 + 0.202633I$ $b = 0.826814 + 0.594067I$	$-0.41863 + 1.44578I$	$-8.00000 + 1.12617I$
$u = -0.490818 - 1.023000I$ $a = -0.116576 + 0.595943I$ $b = -0.743474 + 0.981271I$	$-0.41863 + 1.44578I$	$-8.00000 + 1.12617I$
$u = 0.679611 + 0.941578I$ $a = 0.01271 - 1.46261I$ $b = 0.11344 - 2.62787I$	$4.06736 + 8.78436I$	$-3.69204 - 9.06876I$
$u = 0.679611 + 0.941578I$ $a = -0.239559 + 0.117695I$ $b = 0.175598 + 0.973145I$	$4.06736 + 8.78436I$	$-3.69204 - 9.06876I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.679611 - 0.941578I$ $a = 0.01271 + 1.46261I$ $b = 0.11344 + 2.62787I$	$4.06736 - 8.78436I$	$-3.69204 + 9.06876I$
$u = 0.679611 - 0.941578I$ $a = -0.239559 - 0.117695I$ $b = 0.175598 - 0.973145I$	$4.06736 - 8.78436I$	$-3.69204 + 9.06876I$
$u = 0.618516 + 0.996648I$ $a = 0.70483 + 1.36867I$ $b = 0.13252 + 2.33095I$	$-0.83388 + 5.37086I$	$-8.00000 - 6.82742I$
$u = 0.618516 + 0.996648I$ $a = 0.155618 - 0.259413I$ $b = -0.791151 - 0.314501I$	$-0.83388 + 5.37086I$	$-8.00000 - 6.82742I$
$u = 0.618516 - 0.996648I$ $a = 0.70483 - 1.36867I$ $b = 0.13252 - 2.33095I$	$-0.83388 - 5.37086I$	$-8.00000 + 6.82742I$
$u = 0.618516 - 0.996648I$ $a = 0.155618 + 0.259413I$ $b = -0.791151 + 0.314501I$	$-0.83388 - 5.37086I$	$-8.00000 + 6.82742I$
$u = 0.092633 + 1.183130I$ $a = 0.407430 + 1.310510I$ $b = -0.13398 + 2.18038I$	$-6.20332 - 4.21770I$	$-16.5470 + 3.6832I$
$u = 0.092633 + 1.183130I$ $a = 0.70859 - 1.82338I$ $b = 0.66013 - 2.74184I$	$-6.20332 - 4.21770I$	$-16.5470 + 3.6832I$
$u = 0.092633 - 1.183130I$ $a = 0.407430 - 1.310510I$ $b = -0.13398 - 2.18038I$	$-6.20332 + 4.21770I$	$-16.5470 - 3.6832I$
$u = 0.092633 - 1.183130I$ $a = 0.70859 + 1.82338I$ $b = 0.66013 + 2.74184I$	$-6.20332 + 4.21770I$	$-16.5470 - 3.6832I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.453428+1.117910I$ $a=-1.45632+0.78848I$ $b=-1.23263+1.33171I$	$-1.33452-5.77158I$	$-8.00000+6.31105I$
$u=-0.453428+1.117910I$ $a=-0.19465-2.16584I$ $b=-0.06297-3.08092I$	$-1.33452-5.77158I$	$-8.00000+6.31105I$
$u=-0.453428-1.117910I$ $a=-1.45632-0.78848I$ $b=-1.23263-1.33171I$	$-1.33452+5.77158I$	$-8.00000-6.31105I$
$u=-0.453428-1.117910I$ $a=-0.19465+2.16584I$ $b=-0.06297+3.08092I$	$-1.33452+5.77158I$	$-8.00000-6.31105I$
$u=-1.140860+0.475100I$ $a=\ \ 0.830481-0.288484I$ $b=\ \ 0.383709-1.036000I$	$4.44182-1.91664I$	0
$u=-1.140860+0.475100I$ $a=-1.53836-0.13415I$ $b=-0.738598-0.364252I$	$4.44182-1.91664I$	0
$u=-1.140860-0.475100I$ $a=\ \ 0.830481+0.288484I$ $b=\ \ 0.383709+1.036000I$	$4.44182+1.91664I$	0
$u=-1.140860-0.475100I$ $a=-1.53836+0.13415I$ $b=-0.738598+0.364252I$	$4.44182+1.91664I$	0
$u=\ \ 0.628445+1.067610I$ $a=-0.68712-1.58177I$ $b=-0.18687-2.48633I$	$-2.68228+11.51390I$	0
$u=\ \ 0.628445+1.067610I$ $a=-0.37642+1.72589I$ $b=-0.34089+2.80245I$	$-2.68228+11.51390I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.628445 - 1.067610I$ $a = -0.68712 + 1.58177I$ $b = -0.18687 + 2.48633I$	$-2.68228 - 11.51390I$	0
$u = 0.628445 - 1.067610I$ $a = -0.37642 - 1.72589I$ $b = -0.34089 - 2.80245I$	$-2.68228 - 11.51390I$	0
$u = -0.178050 + 1.254860I$ $a = -0.395666 + 0.536799I$ $b = 0.133593 + 0.820738I$	$-1.79384 - 6.04938I$	0
$u = -0.178050 + 1.254860I$ $a = -0.18971 - 1.75408I$ $b = 0.14118 - 2.61617I$	$-1.79384 - 6.04938I$	0
$u = -0.178050 - 1.254860I$ $a = -0.395666 - 0.536799I$ $b = 0.133593 - 0.820738I$	$-1.79384 + 6.04938I$	0
$u = -0.178050 - 1.254860I$ $a = -0.18971 + 1.75408I$ $b = 0.14118 + 2.61617I$	$-1.79384 + 6.04938I$	0
$u = 0.722062 + 1.101140I$ $a = 0.004104 - 0.197466I$ $b = -0.795178 - 0.256311I$	$4.1071 + 13.8241I$	0
$u = 0.722062 + 1.101140I$ $a = 0.15676 - 1.95744I$ $b = 0.18592 - 2.96149I$	$4.1071 + 13.8241I$	0
$u = 0.722062 - 1.101140I$ $a = 0.004104 + 0.197466I$ $b = -0.795178 + 0.256311I$	$4.1071 - 13.8241I$	0
$u = 0.722062 - 1.101140I$ $a = 0.15676 + 1.95744I$ $b = 0.18592 + 2.96149I$	$4.1071 - 13.8241I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.197836 + 0.635066I$ $a = 1.62396 - 0.06057I$ $b = 1.78812 - 1.67082I$	$-0.31620 - 5.25869I$	$-10.26177 + 8.82936I$
$u = -0.197836 + 0.635066I$ $a = 0.43158 - 2.15416I$ $b = -0.109316 - 0.694850I$	$-0.31620 - 5.25869I$	$-10.26177 + 8.82936I$
$u = -0.197836 - 0.635066I$ $a = 1.62396 + 0.06057I$ $b = 1.78812 + 1.67082I$	$-0.31620 + 5.25869I$	$-10.26177 - 8.82936I$
$u = -0.197836 - 0.635066I$ $a = 0.43158 + 2.15416I$ $b = -0.109316 + 0.694850I$	$-0.31620 + 5.25869I$	$-10.26177 - 8.82936I$
$u = -0.597205 + 0.122097I$ $a = 0.047679 - 1.266580I$ $b = -0.062307 - 0.611788I$	$1.90373 - 2.42418I$	$-2.94951 + 3.72567I$
$u = -0.597205 + 0.122097I$ $a = 1.53323 + 1.07170I$ $b = 0.385306 - 0.194369I$	$1.90373 - 2.42418I$	$-2.94951 + 3.72567I$
$u = -0.597205 - 0.122097I$ $a = 0.047679 + 1.266580I$ $b = -0.062307 + 0.611788I$	$1.90373 + 2.42418I$	$-2.94951 - 3.72567I$
$u = -0.597205 - 0.122097I$ $a = 1.53323 - 1.07170I$ $b = 0.385306 + 0.194369I$	$1.90373 + 2.42418I$	$-2.94951 - 3.72567I$
$u = -0.84747 + 1.14529I$ $a = 0.784607 - 0.096523I$ $b = 0.142080 - 0.240249I$	$2.44671 - 5.11859I$	0
$u = -0.84747 + 1.14529I$ $a = 0.11082 + 1.54830I$ $b = 0.15082 + 2.32934I$	$2.44671 - 5.11859I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.84747 - 1.14529I$ $a = 0.784607 + 0.096523I$ $b = 0.142080 + 0.240249I$	$2.44671 + 5.11859I$	0
$u = -0.84747 - 1.14529I$ $a = 0.11082 - 1.54830I$ $b = 0.15082 - 2.32934I$	$2.44671 + 5.11859I$	0
$u = -0.003925 + 0.294268I$ $a = -0.09066 - 2.76849I$ $b = -1.231110 + 0.466867I$	$-0.218311 - 0.283540I$	$-10.30249 + 1.71239I$
$u = -0.003925 + 0.294268I$ $a = -3.05863 - 2.20591I$ $b = -0.918738 + 0.418014I$	$-0.218311 - 0.283540I$	$-10.30249 + 1.71239I$
$u = -0.003925 - 0.294268I$ $a = -0.09066 + 2.76849I$ $b = -1.231110 - 0.466867I$	$-0.218311 + 0.283540I$	$-10.30249 - 1.71239I$
$u = -0.003925 - 0.294268I$ $a = -3.05863 + 2.20591I$ $b = -0.918738 - 0.418014I$	$-0.218311 + 0.283540I$	$-10.30249 - 1.71239I$

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ -2au + a \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -a + \frac{1}{2}u \\ 2au - a - \frac{1}{2}u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ -u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a + \frac{1}{2} \\ \frac{1}{2}au - \frac{1}{2}a + u + \frac{1}{2} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -a \\ -2au - a \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 3a + \frac{1}{2}u \\ 2au + 3a - \frac{1}{2}u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -a \\ -2au - a \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} a - \frac{1}{2}u \\ 2au + a - \frac{3}{2}u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 64au - 4a - \frac{51}{4}u - 30$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^2 - u + 1)^2$
c_2	$(u^2 + u + 1)^2$
c_3	$16(16u^4 + 8u^3 + 8u^2 - 2u + 1)$
c_4	$16(16u^4 - 8u^3 + 8u^2 + 2u + 1)$
c_6, c_7	$(u^2 + u - 1)^2$
c_8	u^4
c_9, c_{12}	$(u^2 - u - 1)^2$
c_{10}	$(u^2 + 3u + 1)^2$
c_{11}	$(u^2 - 3u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y^2 + y + 1)^2$
c_3, c_4	$256(256y^4 + 192y^3 + 128y^2 + 12y + 1)$
c_6, c_7, c_9 c_{12}	$(y^2 - 3y + 1)^2$
c_8	y^4
c_{10}, c_{11}	$(y^2 - 7y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.404508 + 0.700629I$ $b = \ \ 0.40451 + 2.10189I$	$-8.88264 - 2.02988I$	$-47.8955 - 58.6846I$
$u = -0.500000 + 0.866025I$ $a = \ \ 0.154508 - 0.267617I$ $b = -0.154508 - 0.802850I$	$-0.98696 - 2.02988I$	$-14.3545 + 7.1561I$
$u = -0.500000 - 0.866025I$ $a = -0.404508 - 0.700629I$ $b = \ \ 0.40451 - 2.10189I$	$-8.88264 + 2.02988I$	$-47.8955 + 58.6846I$
$u = -0.500000 - 0.866025I$ $a = \ \ 0.154508 + 0.267617I$ $b = -0.154508 + 0.802850I$	$-0.98696 + 2.02988I$	$-14.3545 - 7.1561I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^{30}+11u^{29}+\cdots-12320u+256)$ $\cdot(u^{48}+18u^{47}+\cdots+32u+1)^2$
c_2	$((u^2+u+1)^2)(u^{30}-u^{29}+\cdots+136u+16)$ $\cdot(u^{48}+2u^{47}+\cdots+16u^2+1)^2$
c_3	$256(16u^4+8u^3+\cdots-2u+1)(16u^{30}-24u^{29}+\cdots+u+1)$ $\cdot(u^{96}-9u^{95}+\cdots+130810298u+122183483)$
c_4	$256(16u^4-8u^3+\cdots+2u+1)(16u^{30}-24u^{29}+\cdots+u+1)$ $\cdot(u^{96}-9u^{95}+\cdots+130810298u+122183483)$
c_5	$((u^2-u+1)^2)(u^{30}-u^{29}+\cdots+136u+16)$ $\cdot(u^{48}+2u^{47}+\cdots+16u^2+1)^2$
c_6, c_7	$((u^2+u-1)^2)(u^{30}-2u^{29}+\cdots+3u-1)(u^{96}+5u^{95}+\cdots+2u+1)$
c_8	$u^4(u^{30}+5u^{29}+\cdots-9216u-1024)(u^{48}-2u^{47}+\cdots+2u+1)^2$
c_9, c_{12}	$((u^2-u-1)^2)(u^{30}-2u^{29}+\cdots+3u-1)(u^{96}+5u^{95}+\cdots+2u+1)$
c_{10}	$((u^2+3u+1)^2)(u^{30}+16u^{29}+\cdots+9u+1)$ $\cdot(u^{96}+37u^{95}+\cdots+408u^3+1)$
c_{11}	$((u^2-3u+1)^2)(u^{30}+16u^{29}+\cdots+9u+1)$ $\cdot(u^{96}+37u^{95}+\cdots+408u^3+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^2)(y^{30}+15y^{29}+\cdots-1.73032\times10^8y+65536)$ $\cdot(y^{48}+26y^{47}+\cdots-264y+1)^2$
c_2, c_5	$((y^2+y+1)^2)(y^{30}+11y^{29}+\cdots-12320y+256)$ $\cdot(y^{48}+18y^{47}+\cdots+32y+1)^2$
c_3, c_4	$65536(256y^4+192y^3+128y^2+12y+1)$ $\cdot(256y^{30}+2752y^{29}+\cdots+y+1)$ $\cdot(y^{96}+47y^{95}+\cdots+239047203594444768y+14928803518011289)$
c_6, c_7, c_9 c_{12}	$((y^2-3y+1)^2)(y^{30}-16y^{29}+\cdots-9y+1)$ $\cdot(y^{96}-37y^{95}+\cdots-408y^3+1)$
c_8	$y^4(y^{30}+5y^{29}+\cdots+2.16269\times10^7y+1048576)$ $\cdot(y^{48}+10y^{47}+\cdots+20y+1)^2$
c_{10}, c_{11}	$((y^2-7y+1)^2)(y^{30}-48y^{28}+\cdots+87y+1)$ $\cdot(y^{96}+43y^{95}+\cdots+2144y^2+1)$