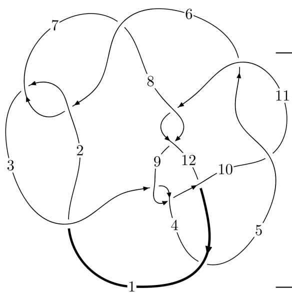
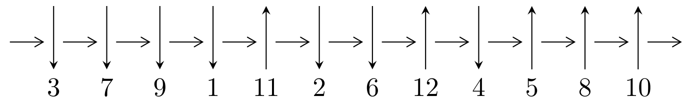
$12a_{0617}$ $(K12a_{0617})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 4.14855 \times 10^{164} u^{108} + 9.91104 \times 10^{164} u^{107} + \cdots + 3.18106 \times 10^{164} b - 5.08463 \times 10^{164}, \\
&\quad 6.17984 \times 10^{164} u^{108} + 1.13910 \times 10^{165} u^{107} + \cdots + 1.59053 \times 10^{164} a - 5.91043 \times 10^{165},\ u^{109} + 2u^{108} + \cdots - \\
I_2^u &= \langle u^{19} + u^{18} + \cdots + b - 4,\ -3u^{19} + u^{18} + \cdots + a + 7,\ u^{20} - 4u^{18} + \cdots - 2u + 1 \rangle \\
I_3^u &= \langle b - 1,\ a,\ u - 1 \rangle \\
I_4^u &= \langle b^2 - b - 1,\ a - 1,\ u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 132 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. $\boldsymbol{I_1^u = \langle 4.15 \times 10^{164} u^{108} + 9.91 \times 10^{164} u^{107} + \cdots + 3.18 \times 10^{164} b - 5.08 \times 10^{164},\ 6.18 \times 10^{164} u^{108} + 1.14 \times 10^{165} u^{107} + \cdots + 1.59 \times 10^{164} a - 5.91 \times 10^{165},\ u^{109} + 2u^{108} + \cdots - u + 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -3.88539u^{108} - 7.16176u^{107} + \cdots + 83.5734u + 37.1601 \\ -1.30414u^{108} - 3.11564u^{107} + \cdots + 2.90688u + 1.59841 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -5.74724u^{108} - 12.0466u^{107} + \cdots + 79.9400u + 36.7275 \\ -2.82416u^{108} - 7.12730u^{107} + \cdots + 4.15601u + 3.73114 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -7.34366u^{108} - 15.8462u^{107} + \cdots + 88.9383u + 26.8680 \\ -6.27613u^{108} - 16.6099u^{107} + \cdots - 1.72407u + 7.60193 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -8.04051u^{108} - 17.6315u^{107} + \cdots + 89.0488u + 27.8585 \\ -7.00281u^{108} - 18.8717u^{107} + \cdots - 6.88071u + 8.02606 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -12.2999u^{108} - 29.7434u^{107} + \cdots + 40.7832u + 37.0813 \\ -4.77830u^{108} - 12.1689u^{107} + \cdots + 10.2999u + 7.68948 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.938066u^{108} - 0.178675u^{107} + \cdots - 64.8311u - 6.66318 \\ 4.49012u^{108} + 12.5916u^{107} + \cdots + 9.61880u - 5.02522 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 43.5911u^{108} + 118.988u^{107} + \cdots + 1.05585u - 49.2425$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{109} + 32u^{108} + \cdots + 55u + 1$
c_2, c_6	$u^{109} - 2u^{108} + \cdots - u - 1$
c_3, c_9	$u^{109} - u^{108} + \cdots + 856u + 293$
c_4	$u^{109} - 2u^{108} + \cdots - 108u + 52$
c_5, c_{10}	$u^{109} + u^{108} + \cdots + 48996u + 21519$
c_8, c_{11}	$u^{109} - u^{108} + \cdots + 18267u - 793$
c_{12}	$u^{109} + 13u^{108} + \cdots - 28u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{109} + 100y^{108} + \cdots + 307y - 1$
c_2, c_6	$y^{109} - 32y^{108} + \cdots + 55y - 1$
c_3, c_9	$y^{109} - 53y^{108} + \cdots + 1837346y - 85849$
c_4	$y^{109} + 10y^{108} + \cdots - 143192y - 2704$
c_5, c_{10}	$y^{109} - 89y^{108} + \cdots + 2877684246y - 463067361$
c_8, c_{11}	$y^{109} - 97y^{108} + \cdots + 200603615y - 628849$
c_{12}	$y^{109} - 15y^{108} + \cdots + 66y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.661165 + 0.742727I$ $a = 0.195427 + 0.540371I$ $b = 0.020213 - 0.477652I$	$-0.20374 + 2.40661I$	0
$u = 0.661165 - 0.742727I$ $a = 0.195427 - 0.540371I$ $b = 0.020213 + 0.477652I$	$-0.20374 - 2.40661I$	0
$u = -0.976334 + 0.252224I$ $a = -0.218270 - 0.871137I$ $b = -0.048014 - 0.939467I$	$-3.46203 + 7.18678I$	0
$u = -0.976334 - 0.252224I$ $a = -0.218270 + 0.871137I$ $b = -0.048014 + 0.939467I$	$-3.46203 - 7.18678I$	0
$u = 1.003040 + 0.144402I$ $a = -1.20964 + 0.87778I$ $b = -1.199990 - 0.023868I$	$3.47317 - 0.24757I$	0
$u = 1.003040 - 0.144402I$ $a = -1.20964 - 0.87778I$ $b = -1.199990 + 0.023868I$	$3.47317 + 0.24757I$	0
$u = -0.905223 + 0.388324I$ $a = -0.02277 + 2.13503I$ $b = 1.141670 - 0.019481I$	$1.72496 + 4.25483I$	0
$u = -0.905223 - 0.388324I$ $a = -0.02277 - 2.13503I$ $b = 1.141670 + 0.019481I$	$1.72496 - 4.25483I$	0
$u = -1.01750$ $a = 1.13768$ $b = -0.284524$	-0.463998	0
$u = -1.014120 + 0.084818I$ $a = -0.516516 + 0.665731I$ $b = -0.130858 + 0.716290I$	$-5.83774 + 2.31727I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.014120 - 0.084818I$ $a = -0.516516 - 0.665731I$ $b = -0.130858 - 0.716290I$	$-5.83774 - 2.31727I$	0
$u = 0.030596 + 0.980436I$ $a = 1.44950 + 0.15540I$ $b = -1.40520 - 0.18421I$	$5.03215 + 7.06267I$	0
$u = 0.030596 - 0.980436I$ $a = 1.44950 - 0.15540I$ $b = -1.40520 + 0.18421I$	$5.03215 - 7.06267I$	0
$u = 0.938705 + 0.234216I$ $a = 1.00187 + 1.50437I$ $b = -1.159070 + 0.428276I$	$-2.74477 - 6.50226I$	0
$u = 0.938705 - 0.234216I$ $a = 1.00187 - 1.50437I$ $b = -1.159070 - 0.428276I$	$-2.74477 + 6.50226I$	0
$u = 1.000280 + 0.373320I$ $a = -1.171100 + 0.055335I$ $b = 0.286618 - 0.275036I$	$-2.85087 + 1.37002I$	0
$u = 1.000280 - 0.373320I$ $a = -1.171100 - 0.055335I$ $b = 0.286618 + 0.275036I$	$-2.85087 - 1.37002I$	0
$u = -0.826944 + 0.398766I$ $a = -0.99871 + 1.45976I$ $b = 0.954266 + 0.392428I$	$0.20457 + 3.66147I$	0
$u = -0.826944 - 0.398766I$ $a = -0.99871 - 1.45976I$ $b = 0.954266 - 0.392428I$	$0.20457 - 3.66147I$	0
$u = -1.000340 + 0.412185I$ $a = 0.207654 - 0.224164I$ $b = -0.988621 + 0.492926I$	$-1.76783 - 1.01134I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.000340 - 0.412185I$ $a = 0.207654 + 0.224164I$ $b = -0.988621 - 0.492926I$	$-1.76783 + 1.01134I$	0
$u = 0.960169 + 0.508207I$ $a = 0.842050 + 0.711747I$ $b = -0.402772 + 0.665401I$	$-3.41610 - 3.37548I$	0
$u = 0.960169 - 0.508207I$ $a = 0.842050 - 0.711747I$ $b = -0.402772 - 0.665401I$	$-3.41610 + 3.37548I$	0
$u = -0.858846 + 0.694130I$ $a = 0.508624 + 0.649041I$ $b = 0.048170 - 0.665084I$	$2.60155 + 2.66611I$	0
$u = -0.858846 - 0.694130I$ $a = 0.508624 - 0.649041I$ $b = 0.048170 + 0.665084I$	$2.60155 - 2.66611I$	0
$u = -0.799149 + 0.781766I$ $a = 2.19590 - 0.45743I$ $b = -1.44513 - 0.32787I$	$3.81951 + 0.94067I$	0
$u = -0.799149 - 0.781766I$ $a = 2.19590 + 0.45743I$ $b = -1.44513 + 0.32787I$	$3.81951 - 0.94067I$	0
$u = -1.059690 + 0.358007I$ $a = -0.038766 - 1.274390I$ $b = -1.352230 - 0.381056I$	$4.74029 + 6.33732I$	0
$u = -1.059690 - 0.358007I$ $a = -0.038766 + 1.274390I$ $b = -1.352230 + 0.381056I$	$4.74029 - 6.33732I$	0
$u = 0.803376 + 0.807377I$ $a = -0.528767 - 0.357828I$ $b = -0.131242 - 0.659880I$	$5.32098 - 1.05831I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.803376 - 0.807377I$ $a = -0.528767 + 0.357828I$ $b = -0.131242 + 0.659880I$	$5.32098 + 1.05831I$	0
$u = -0.830444 + 0.797738I$ $a = -1.58731 - 0.18078I$ $b = 1.367240 - 0.252886I$	$9.36477 + 1.39425I$	0
$u = -0.830444 - 0.797738I$ $a = -1.58731 + 0.18078I$ $b = 1.367240 + 0.252886I$	$9.36477 - 1.39425I$	0
$u = 0.836899 + 0.122080I$ $a = 1.30312 - 1.30535I$ $b = 1.48765 - 1.06513I$	$0.182204 - 0.255174I$	0
$u = 0.836899 - 0.122080I$ $a = 1.30312 + 1.30535I$ $b = 1.48765 + 1.06513I$	$0.182204 + 0.255174I$	0
$u = 0.803929 + 0.835678I$ $a = 0.330209 - 0.714142I$ $b = 0.474741 + 1.283770I$	$3.52710 + 5.55369I$	0
$u = 0.803929 - 0.835678I$ $a = 0.330209 + 0.714142I$ $b = 0.474741 - 1.283770I$	$3.52710 - 5.55369I$	0
$u = -0.823089 + 0.828104I$ $a = -2.37812 + 0.90318I$ $b = 1.326080 - 0.143246I$	$3.96993 - 4.50077I$	0
$u = -0.823089 - 0.828104I$ $a = -2.37812 - 0.90318I$ $b = 1.326080 + 0.143246I$	$3.96993 + 4.50077I$	0
$u = -0.867552 + 0.788920I$ $a = 0.07285 - 1.80338I$ $b = -1.35517 + 1.82595I$	$5.49744 + 2.55035I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.867552 - 0.788920I$ $a = 0.07285 + 1.80338I$ $b = -1.35517 - 1.82595I$	$5.49744 - 2.55035I$	0
$u = -0.660985 + 0.988388I$ $a = -1.368010 + 0.150443I$ $b = 1.40381 - 0.21039I$	$10.41470 - 2.04001I$	0
$u = -0.660985 - 0.988388I$ $a = -1.368010 - 0.150443I$ $b = 1.40381 + 0.21039I$	$10.41470 + 2.04001I$	0
$u = -0.152507 + 0.790804I$ $a = -1.367890 + 0.290651I$ $b = 1.43084 - 0.17609I$	$7.76885 - 2.34135I$	0
$u = -0.152507 - 0.790804I$ $a = -1.367890 - 0.290651I$ $b = 1.43084 + 0.17609I$	$7.76885 + 2.34135I$	0
$u = -0.907115 + 0.777894I$ $a = -2.40586 + 0.08420I$ $b = 1.29801 + 1.84173I$	$5.37410 + 3.34707I$	0
$u = -0.907115 - 0.777894I$ $a = -2.40586 - 0.08420I$ $b = 1.29801 - 1.84173I$	$5.37410 - 3.34707I$	0
$u = 0.785186 + 0.904351I$ $a = -1.63676 - 0.60027I$ $b = 1.65977 + 0.48170I$	$13.13880 + 5.17289I$	0
$u = 0.785186 - 0.904351I$ $a = -1.63676 + 0.60027I$ $b = 1.65977 - 0.48170I$	$13.13880 - 5.17289I$	0
$u = 0.997125 + 0.679627I$ $a = -0.882367 + 0.217636I$ $b = 0.075534 - 0.535629I$	$-1.20586 - 7.83499I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.997125 - 0.679627I$ $a = -0.882367 - 0.217636I$ $b = 0.075534 + 0.535629I$	$-1.20586 + 7.83499I$	0
$u = 0.885220 + 0.832751I$ $a = 1.92957 + 0.89808I$ $b = -1.361340 - 0.152144I$	$7.36684 - 0.19643I$	0
$u = 0.885220 - 0.832751I$ $a = 1.92957 - 0.89808I$ $b = -1.361340 + 0.152144I$	$7.36684 + 0.19643I$	0
$u = -0.753469 + 0.954538I$ $a = 1.62545 - 0.42562I$ $b = -1.57315 + 0.44747I$	$10.0462 - 11.6265I$	0
$u = -0.753469 - 0.954538I$ $a = 1.62545 + 0.42562I$ $b = -1.57315 - 0.44747I$	$10.0462 + 11.6265I$	0
$u = -0.958887 + 0.748825I$ $a = -1.52024 + 1.38193I$ $b = 1.44205 - 0.14285I$	$3.32664 + 4.84834I$	0
$u = -0.958887 - 0.748825I$ $a = -1.52024 - 1.38193I$ $b = 1.44205 + 0.14285I$	$3.32664 - 4.84834I$	0
$u = -0.941747 + 0.770309I$ $a = 1.46084 - 1.90678I$ $b = -1.292380 - 0.282727I$	$9.02024 + 4.50855I$	0
$u = -0.941747 - 0.770309I$ $a = 1.46084 + 1.90678I$ $b = -1.292380 + 0.282727I$	$9.02024 - 4.50855I$	0
$u = 0.849900 + 0.872637I$ $a = 1.81852 + 0.00530I$ $b = -1.350050 - 0.223970I$	$9.66398 + 1.44155I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.849900 - 0.872637I$ $a = 1.81852 - 0.00530I$ $b = -1.350050 + 0.223970I$	$9.66398 - 1.44155I$	0
$u = -0.878995 + 0.850021I$ $a = 0.535980 - 0.185923I$ $b = 0.091462 - 0.615375I$	$5.39001 + 4.55531I$	0
$u = -0.878995 - 0.850021I$ $a = 0.535980 + 0.185923I$ $b = 0.091462 + 0.615375I$	$5.39001 - 4.55531I$	0
$u = 0.913156 + 0.825065I$ $a = -2.11779 - 0.87152I$ $b = 1.381070 - 0.248120I$	$7.28142 - 5.98080I$	0
$u = 0.913156 - 0.825065I$ $a = -2.11779 + 0.87152I$ $b = 1.381070 + 0.248120I$	$7.28142 + 5.98080I$	0
$u = 0.964405 + 0.765387I$ $a = -0.168809 - 0.324984I$ $b = -0.028739 - 0.713563I$	$4.82272 - 4.85805I$	0
$u = 0.964405 - 0.765387I$ $a = -0.168809 + 0.324984I$ $b = -0.028739 + 0.713563I$	$4.82272 + 4.85805I$	0
$u = -0.955783 + 0.787070I$ $a = 2.35933 - 0.99223I$ $b = -1.374010 - 0.211633I$	$3.55812 + 10.54490I$	0
$u = -0.955783 - 0.787070I$ $a = 2.35933 + 0.99223I$ $b = -1.374010 + 0.211633I$	$3.55812 - 10.54490I$	0
$u = -0.926398 + 0.832788I$ $a = 0.181087 - 0.141302I$ $b = 0.011496 - 0.664221I$	$5.24216 + 1.69899I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.926398 - 0.832788I$ $a = 0.181087 + 0.141302I$ $b = 0.011496 + 0.664221I$	$5.24216 - 1.69899I$	0
$u = 0.969659 + 0.783750I$ $a = 1.186520 - 0.050474I$ $b = -0.369041 + 1.351730I$	$3.01438 - 11.60760I$	0
$u = 0.969659 - 0.783750I$ $a = 1.186520 + 0.050474I$ $b = -0.369041 - 1.351730I$	$3.01438 + 11.60760I$	0
$u = 0.740769 + 0.123273I$ $a = 0.464865 + 0.234971I$ $b = 0.489198 + 0.364767I$	$-1.161380 - 0.158674I$	$-9.36316 + 0.I$
$u = 0.740769 - 0.123273I$ $a = 0.464865 - 0.234971I$ $b = 0.489198 - 0.364767I$	$-1.161380 + 0.158674I$	$-9.36316 + 0.I$
$u = 1.196090 + 0.360754I$ $a = -0.201276 - 1.003410I$ $b = 1.352590 - 0.348516I$	$1.00912 - 11.66170I$	0
$u = 1.196090 - 0.360754I$ $a = -0.201276 + 1.003410I$ $b = 1.352590 + 0.348516I$	$1.00912 + 11.66170I$	0
$u = 0.961642 + 0.827717I$ $a = -1.83141 - 1.63588I$ $b = 1.311060 - 0.257851I$	$9.31141 - 7.75148I$	0
$u = 0.961642 - 0.827717I$ $a = -1.83141 + 1.63588I$ $b = 1.311060 + 0.257851I$	$9.31141 + 7.75148I$	0
$u = 0.808053 + 1.005860I$ $a = 1.43540 + 0.26996I$ $b = -1.390190 - 0.199565I$	$10.29570 - 1.65032I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.808053 - 1.005860I$ $a = 1.43540 - 0.26996I$ $b = -1.390190 + 0.199565I$	$10.29570 + 1.65032I$	0
$u = 1.010470 + 0.808639I$ $a = 1.84396 + 1.37838I$ $b = -1.64199 + 0.55881I$	$12.4282 - 11.5053I$	0
$u = 1.010470 - 0.808639I$ $a = 1.84396 - 1.37838I$ $b = -1.64199 - 0.55881I$	$12.4282 + 11.5053I$	0
$u = 1.32214$ $a = -0.235795$ $b = -1.26721$	2.76277	0
$u = 0.664276 + 0.109625I$ $a = -0.12102 - 1.76636I$ $b = -1.00911 - 1.32316I$	$0.671854 - 0.543097I$	$12.7069 - 20.8624I$
$u = 0.664276 - 0.109625I$ $a = -0.12102 + 1.76636I$ $b = -1.00911 + 1.32316I$	$0.671854 + 0.543097I$	$12.7069 + 20.8624I$
$u = -1.049790 + 0.814406I$ $a = -1.73565 + 1.37041I$ $b = 1.56386 + 0.51012I$	$9.1037 + 18.1194I$	0
$u = -1.049790 - 0.814406I$ $a = -1.73565 - 1.37041I$ $b = 1.56386 - 0.51012I$	$9.1037 - 18.1194I$	0
$u = -1.306190 + 0.300163I$ $a = 0.003658 + 0.585361I$ $b = 1.268940 - 0.067403I$	$0.38996 - 2.48227I$	0
$u = -1.306190 - 0.300163I$ $a = 0.003658 - 0.585361I$ $b = 1.268940 + 0.067403I$	$0.38996 + 2.48227I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.328002 + 0.562591I$ $a = -0.014485 - 0.398339I$ $b = 0.278009 + 0.578098I$	$-1.76193 - 0.69910I$	$-3.72710 + 0.40694I$
$u = 0.328002 - 0.562591I$ $a = -0.014485 + 0.398339I$ $b = 0.278009 - 0.578098I$	$-1.76193 + 0.69910I$	$-3.72710 - 0.40694I$
$u = -0.333528 + 0.552545I$ $a = 2.17032 + 0.30515I$ $b = -1.398850 - 0.045827I$	$3.48691 - 0.72395I$	$2.18612 - 0.71861I$
$u = -0.333528 - 0.552545I$ $a = 2.17032 - 0.30515I$ $b = -1.398850 + 0.045827I$	$3.48691 + 0.72395I$	$2.18612 + 0.71861I$
$u = 1.043740 + 0.881657I$ $a = -1.45373 - 1.09184I$ $b = 1.345900 - 0.286525I$	$9.54338 - 5.20763I$	0
$u = 1.043740 - 0.881657I$ $a = -1.45373 + 1.09184I$ $b = 1.345900 + 0.286525I$	$9.54338 + 5.20763I$	0
$u = -1.109850 + 0.800965I$ $a = 1.17004 - 1.21199I$ $b = -1.336920 - 0.304212I$	$9.02417 + 8.57896I$	0
$u = -1.109850 - 0.800965I$ $a = 1.17004 + 1.21199I$ $b = -1.336920 + 0.304212I$	$9.02417 - 8.57896I$	0
$u = -0.418261 + 0.453237I$ $a = -1.96959 + 1.66953I$ $b = 0.977043 + 0.528463I$	$0.04799 + 4.72568I$	$2.25367 - 4.11714I$
$u = -0.418261 - 0.453237I$ $a = -1.96959 - 1.66953I$ $b = 0.977043 - 0.528463I$	$0.04799 - 4.72568I$	$2.25367 + 4.11714I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.606220$ $a = -3.01282$ $b = 1.43104$	5.28454	-10.6430
$u = -0.365739 + 0.332574I$ $a = 1.93085 - 1.18009I$ $b = -0.804586 + 0.142577I$	$1.42084 - 0.59712I$	$4.39475 + 0.33799I$
$u = -0.365739 - 0.332574I$ $a = 1.93085 + 1.18009I$ $b = -0.804586 - 0.142577I$	$1.42084 + 0.59712I$	$4.39475 - 0.33799I$
$u = 0.113491 + 0.448845I$ $a = 1.77694 + 0.91984I$ $b = 0.384609 - 0.417184I$	$-0.52625 - 4.68055I$	$-0.31458 + 5.32328I$
$u = 0.113491 - 0.448845I$ $a = 1.77694 - 0.91984I$ $b = 0.384609 + 0.417184I$	$-0.52625 + 4.68055I$	$-0.31458 - 5.32328I$
$u = -0.329231 + 0.097875I$ $a = 1.98377 + 2.48287I$ $b = -0.527899 - 0.109148I$	$1.41436 + 0.46555I$	$7.20348 - 0.07782I$
$u = -0.329231 - 0.097875I$ $a = 1.98377 - 2.48287I$ $b = -0.527899 + 0.109148I$	$1.41436 - 0.46555I$	$7.20348 + 0.07782I$
$u = 0.285434 + 0.027526I$ $a = 0.03601 - 6.35580I$ $b = 0.764995 + 0.255245I$	$-0.38421 + 4.63897I$	$-2.39558 - 3.93267I$
$u = 0.285434 - 0.027526I$ $a = 0.03601 + 6.35580I$ $b = 0.764995 - 0.255245I$	$-0.38421 - 4.63897I$	$-2.39558 + 3.93267I$

II.

$$\boldsymbol{I_2^u = \langle u^{19}+u^{18}+\cdots+b-4,\ -3u^{19}+u^{18}+\cdots+a+7,\ u^{20}-4u^{18}+\cdots-2u+1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 3u^{19}-u^{18}+\cdots-7u-7 \\ -u^{19}-u^{18}+\cdots-2u+4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2u^{19}-u^{18}+\cdots-4u-5 \\ -u^{19}-u^{18}+\cdots-u+4 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5-u^3+u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 4u^{19}+3u^{18}+\cdots-u-8 \\ -u^{19}+4u^{17}+\cdots+4u+2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 3u^{19}+3u^{18}+\cdots-2u-7 \\ -2u^{19}-u^{18}+\cdots+5u+3 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -3u^{19}-3u^{18}+\cdots-4u+7 \\ 2u^{19}-7u^{17}+\cdots-3u-1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -5u^{19}-2u^{18}+\cdots-56u^2+13 \\ 3u^{19}+u^{18}+\cdots-u-6 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -21u^{19}-11u^{18}+77u^{17}+84u^{16}-202u^{15}-238u^{14}+339u^{13}+528u^{12}-433u^{11}-799u^{10}+367u^{9}+931u^{8}-206u^{7}-784u^{6}+40u^{5}+466u^{4}+40u^{3}-168u^{2}-8u+34$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} - 8u^{19} + \cdots - 14u + 1$
c_2	$u^{20} - 4u^{18} + \cdots + 2u + 1$
c_3	$u^{20} - 2u^{18} + \cdots + 4u^2 - 1$
c_4	$u^{20} + 3u^{19} + \cdots - 25u - 5$
c_5	$u^{20} - 4u^{18} + \cdots + 2u^2 - 1$
c_6	$u^{20} - 4u^{18} + \cdots - 2u + 1$
c_7	$u^{20} + 8u^{19} + \cdots + 14u + 1$
c_8	$u^{20} - 8u^{19} + \cdots - 4u + 1$
c_9	$u^{20} - 2u^{18} + \cdots + 4u^2 - 1$
c_{10}	$u^{20} - 4u^{18} + \cdots + 2u^2 - 1$
c_{11}	$u^{20} + 8u^{19} + \cdots + 4u + 1$
c_{12}	$u^{20} - 4u^{19} + \cdots - 12u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{20} + 16y^{19} + \cdots - 22y + 1$
c_2, c_6	$y^{20} - 8y^{19} + \cdots - 14y + 1$
c_3, c_9	$y^{20} - 4y^{19} + \cdots - 8y + 1$
c_4	$y^{20} + y^{19} + \cdots + 15y + 25$
c_5, c_{10}	$y^{20} - 8y^{19} + \cdots - 4y + 1$
c_8, c_{11}	$y^{20} - 20y^{19} + \cdots - 8y + 1$
c_{12}	$y^{20} - 6y^{19} + \cdots - 24y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.728618 + 0.611457I$ $a = -0.50308 - 1.36076I$ $b = -0.707461 + 0.383094I$	$0.68545 - 3.45384I$	$1.05823 + 2.65940I$
$u = -0.728618 - 0.611457I$ $a = -0.50308 + 1.36076I$ $b = -0.707461 - 0.383094I$	$0.68545 + 3.45384I$	$1.05823 - 2.65940I$
$u = 0.859847 + 0.664460I$ $a = 0.850334 - 1.113260I$ $b = -0.029313 + 0.797315I$	$3.13994 - 2.57396I$	$11.64294 + 3.03636I$
$u = 0.859847 - 0.664460I$ $a = 0.850334 + 1.113260I$ $b = -0.029313 - 0.797315I$	$3.13994 + 2.57396I$	$11.64294 - 3.03636I$
$u = 1.053280 + 0.321186I$ $a = -0.805082 - 0.480764I$ $b = 0.852892 + 0.263674I$	$-2.03747 + 2.49614I$	$-3.26688 - 5.12322I$
$u = 1.053280 - 0.321186I$ $a = -0.805082 + 0.480764I$ $b = 0.852892 - 0.263674I$	$-2.03747 - 2.49614I$	$-3.26688 + 5.12322I$
$u = -0.974683 + 0.605885I$ $a = -0.505808 - 0.144583I$ $b = 0.694162 + 0.315826I$	$-0.10942 + 8.27031I$	$0.82347 - 8.04504I$
$u = -0.974683 - 0.605885I$ $a = -0.505808 + 0.144583I$ $b = 0.694162 - 0.315826I$	$-0.10942 - 8.27031I$	$0.82347 + 8.04504I$
$u = -0.794716 + 0.899725I$ $a = -1.51174 - 0.06899I$ $b = 1.309590 - 0.209101I$	$9.45777 - 0.46305I$	$2.26958 - 1.89503I$
$u = -0.794716 - 0.899725I$ $a = -1.51174 + 0.06899I$ $b = 1.309590 + 0.209101I$	$9.45777 + 0.46305I$	$2.26958 + 1.89503I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.894870 + 0.803962I$ $a = -0.701199 + 0.176411I$ $b = -0.022957 - 1.138260I$	$5.82936 - 3.01398I$	$1.54320 + 2.64580I$
$u = 0.894870 - 0.803962I$ $a = -0.701199 - 0.176411I$ $b = -0.022957 + 1.138260I$	$5.82936 + 3.01398I$	$1.54320 - 2.64580I$
$u = -0.753583 + 0.142607I$ $a = 0.71080 + 1.30459I$ $b = -0.075777 + 0.956686I$	$0.376061 + 0.589442I$	$-2.89294 + 2.96900I$
$u = -0.753583 - 0.142607I$ $a = 0.71080 - 1.30459I$ $b = -0.075777 - 0.956686I$	$0.376061 - 0.589442I$	$-2.89294 - 2.96900I$
$u = 1.23437$ $a = -0.541146$ $b = -1.20687$	2.12941	-5.93270
$u = 0.618967 + 0.364095I$ $a = 1.38714 + 3.06211I$ $b = -0.859186 + 0.407319I$	$-0.40553 - 5.47295I$	$-3.49503 + 13.06566I$
$u = 0.618967 - 0.364095I$ $a = 1.38714 - 3.06211I$ $b = -0.859186 - 0.407319I$	$-0.40553 + 5.47295I$	$-3.49503 - 13.06566I$
$u = -1.010830 + 0.835159I$ $a = 1.47623 - 1.41537I$ $b = -1.254460 - 0.261696I$	$8.80052 + 6.87719I$	$0.50911 - 3.15662I$
$u = -1.010830 - 0.835159I$ $a = 1.47623 + 1.41537I$ $b = -1.254460 + 0.261696I$	$8.80052 - 6.87719I$	$0.50911 + 3.15662I$
$u = 0.436549$ $a = -4.25403$ $b = 1.39188$	5.61485	14.5490

III. $I_3^u = \langle b-1,\ a,\ u-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = 1.00000$	-1.64493	-6.00000

IV. $I_4^u = \langle b^2 - b - 1,\ a - 1,\ u + 1 \rangle$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ b \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ b - 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} b + 1 \\ b + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} b + 1 \\ b + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2b \\ -b - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ b \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=\quad 1.00000$ $b=-0.618034$	0	5.00000
$u=-1.00000$ $a=\quad 1.00000$ $b=\quad 1.61803$	0	5.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u+1)(u^{20}-8u^{19}+\cdots-14u+1)$ $\cdot(u^{109}+32u^{108}+\cdots+55u+1)$
c_2	$((u-1)^2)(u+1)(u^{20}-4u^{18}+\cdots+2u+1)(u^{109}-2u^{108}+\cdots-u-1)$
c_3	$(u+1)(u^2-u-1)(u^{20}-2u^{18}+\cdots+4u^2-1)$ $\cdot(u^{109}-u^{108}+\cdots+856u+293)$
c_4	$u^3(u^{20}+3u^{19}+\cdots-25u-5)(u^{109}-2u^{108}+\cdots-108u+52)$
c_5	$(u+1)(u^2-u-1)(u^{20}-4u^{18}+\cdots+2u^2-1)$ $\cdot(u^{109}+u^{108}+\cdots+48996u+21519)$
c_6	$((u+1)^3)(u^{20}-4u^{18}+\cdots-2u+1)(u^{109}-2u^{108}+\cdots-u-1)$
c_7	$((u+1)^3)(u^{20}+8u^{19}+\cdots+14u+1)(u^{109}+32u^{108}+\cdots+55u+1)$
c_8	$u(u+1)^2(u^{20}-8u^{19}+\cdots-4u+1)(u^{109}-u^{108}+\cdots+18267u-793)$
c_9	$(u+1)(u^2+u-1)(u^{20}-2u^{18}+\cdots+4u^2-1)$ $\cdot(u^{109}-u^{108}+\cdots+856u+293)$
c_{10}	$(u+1)(u^2+u-1)(u^{20}-4u^{18}+\cdots+2u^2-1)$ $\cdot(u^{109}+u^{108}+\cdots+48996u+21519)$
c_{11}	$u(u-1)^2(u^{20}+8u^{19}+\cdots+4u+1)(u^{109}-u^{108}+\cdots+18267u-793)$
c_{12}	$(u-1)(u^2-u-1)(u^{20}-4u^{19}+\cdots-12u+1)$ $\cdot(u^{109}+13u^{108}+\cdots-28u-1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$((y-1)^3)(y^{20}+16y^{19}+\cdots-22y+1)(y^{109}+100y^{108}+\cdots+307y-1)$
c_2, c_6	$((y-1)^3)(y^{20}-8y^{19}+\cdots-14y+1)(y^{109}-32y^{108}+\cdots+55y-1)$
c_3, c_9	$(y-1)(y^2-3y+1)(y^{20}-4y^{19}+\cdots-8y+1)$ $\cdot\,(y^{109}-53y^{108}+\cdots+1837346y-85849)$
c_4	$y^3(y^{20}+y^{19}+\cdots+15y+25)(y^{109}+10y^{108}+\cdots-143192y-2704)$
c_5, c_{10}	$(y-1)(y^2-3y+1)(y^{20}-8y^{19}+\cdots-4y+1)$ $\cdot\,(y^{109}-89y^{108}+\cdots+2877684246y-463067361)$
c_8, c_{11}	$y(y-1)^2(y^{20}-20y^{19}+\cdots-8y+1)$ $\cdot\,(y^{109}-97y^{108}+\cdots+200603615y-628849)$
c_{12}	$(y-1)(y^2-3y+1)(y^{20}-6y^{19}+\cdots-24y+1)$ $\cdot\,(y^{109}-15y^{108}+\cdots+66y-1)$