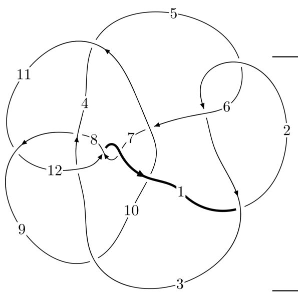
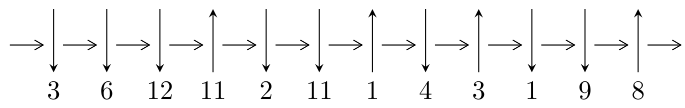
$12n_{0450}$ ($K12n_{0450}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.60444 \times 10^{22} u^{28} + 2.55663 \times 10^{22} u^{27} + \cdots + 2.54971 \times 10^{22} b - 4.79237 \times 10^{21},\ a - 1,$$
$$u^{29} - 2u^{28} + \cdots - 3u + 1 \rangle$$
$$I_2^u = \langle -101u^{19} + 163u^{18} + \cdots + 83b - 171,\ a + 1,\ u^{20} + u^{19} + \cdots - 2u + 1 \rangle$$
$$I_3^u = \langle -3.73965 \times 10^{51} u^{39} - 8.54778 \times 10^{51} u^{38} + \cdots + 4.04316 \times 10^{50} b + 1.36063 \times 10^{52},$$
$$- 3.50215 \times 10^{83} u^{39} - 8.75016 \times 10^{83} u^{38} + \cdots + 9.39462 \times 10^{81} a + 3.79380 \times 10^{83},$$
$$u^{40} + 2u^{39} + \cdots - 13u + 1 \rangle$$
$$I_4^u = \langle -u^3 - 2u^2 + 2b - 2u + 1,\ u^3 + 2a - 5,\ u^4 + u^3 + 2u^2 - u + 1 \rangle$$
$$I_5^u = \langle b + u + 1,\ a - 1,\ u^2 + u + 1 \rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 95 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. $\boldsymbol{I_1^u = \langle -1.60 \times 10^{22} u^{28} + 2.56 \times 10^{22} u^{27} + \cdots + 2.55 \times 10^{22} b - 4.79 \times 10^{21},\ a - 1,\ u^{29} - 2u^{28} + \cdots - 3u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ 0.629264u^{28} - 1.00271u^{27} + \cdots + 4.09043u + 0.187957 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.629264u^{28} - 1.00271u^{27} + \cdots + 4.09043u + 1.18796 \\ 0.629264u^{28} - 1.00271u^{27} + \cdots + 4.09043u + 0.187957 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ 0.255815u^{28} - 0.468311u^{27} + \cdots + 3.07575u - 0.629264 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.572071u^{28} - 0.965425u^{27} + \cdots + 3.54331u + 0.766462 \\ 0.0578442u^{28} - 0.0712994u^{27} + \cdots + 0.481981u + 0.447834 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.81161u^{28} - 3.20172u^{27} + \cdots + 12.3104u - 1.73946 \\ 1.18234u^{28} - 2.19901u^{27} + \cdots + 8.21997u - 2.92741 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.629264u^{28} - 1.00271u^{27} + \cdots + 4.09043u + 1.18796 \\ 0.672582u^{28} - 1.03859u^{27} + \cdots + 4.22861u - 0.0678573 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.575794u^{28} - 1.20888u^{27} + \cdots + 6.02284u - 2.35424 \\ 0.299202u^{28} - 0.691078u^{27} + \cdots + 3.19943u - 1.66768 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.13473u^{28} - 2.13653u^{27} + \cdots + 8.11688u - 1.69516 \\ 0.493538u^{28} - 1.13834u^{27} + \cdots + 4.35556u - 1.96801 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0433177u^{28} + 0.0358776u^{27} + \cdots - 0.138180u + 1.25581 \\ 0.0355816u^{28} - 0.0476050u^{27} + \cdots + 0.517900u + 0.626552 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{196813313274625050756 7}{254971166975963008348 99}u^{28} + \frac{519521974399022619914 97}{254971166975963008348 99}u^{27} + \cdots - \frac{276922517104029225550000}{25497116697596300834899}u + \frac{47895990870458513606664}{25497116697596300834899}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{29} + 9u^{28} + \cdots - 861u + 441$
c_2, c_5	$u^{29} + 9u^{28} + \cdots + 105u + 21$
c_3, c_8	$u^{29} - 2u^{28} + \cdots - 3u + 1$
c_4, c_9	$u^{29} - u^{28} + \cdots + 19u + 17$
c_6, c_{10}	$u^{29} + 3u^{28} + \cdots + 29u + 1$
c_7, c_{12}	$u^{29} - 18u^{28} + \cdots - 2560u + 512$
c_{11}	$u^{29} - 18u^{28} + \cdots + 294u - 21$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{29} + 31y^{28} + \cdots + 2190447y - 194481$
c_2, c_5	$y^{29} - 9y^{28} + \cdots - 861y - 441$
c_3, c_8	$y^{29} + 28y^{27} + \cdots - 11y - 1$
c_4, c_9	$y^{29} - 15y^{28} + \cdots + 3183y - 289$
c_6, c_{10}	$y^{29} + 45y^{28} + \cdots + 331y - 1$
c_7, c_{12}	$y^{29} + 12y^{28} + \cdots + 7864320y - 262144$
c_{11}	$y^{29} + 4y^{28} + \cdots + 1344y - 441$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.553569 + 0.834452I$ $a = \quad 1.00000$ $b = -1.086080 - 0.257296I$	$1.07593 + 3.51673I$	$-0.88547 - 6.06083I$
$u = -0.553569 - 0.834452I$ $a = \quad 1.00000$ $b = -1.086080 + 0.257296I$	$1.07593 - 3.51673I$	$-0.88547 + 6.06083I$
$u = -0.898744 + 0.481411I$ $a = \quad 1.00000$ $b = -1.04286 - 1.29908I$	$4.54760 + 1.43626I$	$-5.55282 - 2.76214I$
$u = -0.898744 - 0.481411I$ $a = \quad 1.00000$ $b = -1.04286 + 1.29908I$	$4.54760 - 1.43626I$	$-5.55282 + 2.76214I$
$u = \quad 0.885586 + 0.378627I$ $a = \quad 1.00000$ $b = -1.05204 + 1.35554I$	$4.49815 - 7.86181I$	$-6.63470 + 7.85058I$
$u = \quad 0.885586 - 0.378627I$ $a = \quad 1.00000$ $b = -1.05204 - 1.35554I$	$4.49815 + 7.86181I$	$-6.63470 - 7.85058I$
$u = \quad 0.390658 + 0.859931I$ $a = \quad 1.00000$ $b = -0.766543 - 0.146226I$	$2.79783 + 0.59845I$	$2.09571 - 1.89566I$
$u = \quad 0.390658 - 0.859931I$ $a = \quad 1.00000$ $b = -0.766543 + 0.146226I$	$2.79783 - 0.59845I$	$2.09571 + 1.89566I$
$u = -0.631994 + 0.882834I$ $a = \quad 1.00000$ $b = -1.47686 + 0.36781I$	$9.81309 + 8.93318I$	$-1.43468 - 7.09429I$
$u = -0.631994 - 0.882834I$ $a = \quad 1.00000$ $b = -1.47686 - 0.36781I$	$9.81309 - 8.93318I$	$-1.43468 + 7.09429I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.622317 + 0.918963I$ $a = 1.00000$ $b = -1.37238 - 0.35412I$	$10.54740 - 2.08899I$	$-0.28693 + 2.13318I$
$u = 0.622317 - 0.918963I$ $a = 1.00000$ $b = -1.37238 + 0.35412I$	$10.54740 + 2.08899I$	$-0.28693 - 2.13318I$
$u = -0.246064 + 0.681299I$ $a = 1.00000$ $b = -0.291258 - 0.850239I$	$-0.06368 + 1.78512I$	$-1.17437 - 4.76019I$
$u = -0.246064 - 0.681299I$ $a = 1.00000$ $b = -0.291258 + 0.850239I$	$-0.06368 - 1.78512I$	$-1.17437 + 4.76019I$
$u = 1.040160 + 0.774644I$ $a = 1.00000$ $b = 0.003744 + 1.185610I$	$-4.83952 + 0.52966I$	$-8.94722 - 4.42653I$
$u = 1.040160 - 0.774644I$ $a = 1.00000$ $b = 0.003744 - 1.185610I$	$-4.83952 - 0.52966I$	$-8.94722 + 4.42653I$
$u = -0.662685$ $a = 1.00000$ $b = 0.179578$	-1.45974	-5.50510
$u = -0.954244 + 0.980591I$ $a = 1.00000$ $b = -0.384074 - 1.189700I$	$-0.41230 + 3.60972I$	$-1.66995 - 2.14870I$
$u = -0.954244 - 0.980591I$ $a = 1.00000$ $b = -0.384074 + 1.189700I$	$-0.41230 - 3.60972I$	$-1.66995 + 2.14870I$
$u = 0.447072 + 0.358702I$ $a = 1.00000$ $b = -0.44229 + 1.60778I$	$-2.94431 - 4.31709I$	$-9.8550 + 12.7269I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.447072 - 0.358702I$ $a = 1.00000$ $b = -0.44229 - 1.60778I$	$-2.94431 + 4.31709I$	$-9.8550 - 12.7269I$
$u = 1.08646 + 1.01922I$ $a = 1.00000$ $b = -0.47265 + 1.42228I$	$-4.10333 - 8.99973I$	$-2.77388 + 6.56416I$
$u = 1.08646 - 1.01922I$ $a = 1.00000$ $b = -0.47265 - 1.42228I$	$-4.10333 + 8.99973I$	$-2.77388 - 6.56416I$
$u = -1.16230 + 1.12800I$ $a = 1.00000$ $b = -0.74251 - 1.33081I$	$7.38506 + 9.34813I$	$-2.85483 - 4.48281I$
$u = -1.16230 - 1.12800I$ $a = 1.00000$ $b = -0.74251 + 1.33081I$	$7.38506 - 9.34813I$	$-2.85483 + 4.48281I$
$u = 0.117027 + 0.360629I$ $a = 1.00000$ $b = 0.817618 + 0.957619I$	$-2.13866 + 1.52424I$	$-4.33983 - 3.48956I$
$u = 0.117027 - 0.360629I$ $a = 1.00000$ $b = 0.817618 - 0.957619I$	$-2.13866 - 1.52424I$	$-4.33983 + 3.48956I$
$u = 1.18898 + 1.11285I$ $a = 1.00000$ $b = -0.78159 + 1.34575I$	$6.6428 - 16.5676I$	$-4.00000 + 8.49370I$
$u = 1.18898 - 1.11285I$ $a = 1.00000$ $b = -0.78159 - 1.34575I$	$6.6428 + 16.5676I$	$-4.00000 - 8.49370I$

II. $\boldsymbol{I_2^u = \langle -101u^{19} + 163u^{18} + \cdots + 83b - 171,\ a + 1,\ u^{20} + u^{19} + \cdots - 2u + 1 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1 \\ 1.21687u^{19} - 1.96386u^{18} + \cdots - 10.1928u + 2.06024 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1.21687u^{19} - 1.96386u^{18} + \cdots - 10.1928u + 1.06024 \\ 1.21687u^{19} - 1.96386u^{18} + \cdots - 10.1928u + 2.06024 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ 3.18072u^{19} + 2.53012u^{18} + \cdots - 3.49398u + 1.21687 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 2.16867u^{19} - 2.63855u^{18} + \cdots - 15.9277u + 4.60241 \\ 2.15663u^{19} - 3.80723u^{18} + \cdots - 19.3614u + 8.98795 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1.34940u^{19} + 4.89157u^{18} + \cdots + 7.57831u - 11.1807 \\ 2.56627u^{19} + 2.92771u^{18} + \cdots - 2.61446u - 10.1205 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1.21687u^{19} - 1.96386u^{18} + \cdots - 10.1928u + 1.06024 \\ 1.86747u^{19} - 3.85542u^{18} + \cdots - 17.7711u + 5.24096 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.63855u^{19} + 1.93976u^{18} + \cdots - 4.01205u - 1.43373 \\ -0.626506u^{19} + 0.228916u^{18} + \cdots - 0.554217u - 2.95181 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.168675u^{19} + 5.63855u^{18} + \cdots + 15.9277u - 10.6024 \\ -0.156627u^{19} + 6.80723u^{18} + \cdots + 19.3614u - 15.9880 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.650602u^{19} - 1.89157u^{18} + \cdots - 7.57831u + 4.18072 \\ 0.650602u^{19} - 1.89157u^{18} + \cdots - 7.57831u + 4.18072 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{1728}{83}u^{19} - \frac{2529}{83}u^{18} + \cdots - \frac{290}{83}u - \frac{148}{83}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} - 8u^{19} + \cdots - 10u + 1$
c_2	$u^{20} + 4u^{19} + \cdots + 4u + 1$
c_3, c_8	$u^{20} + u^{19} + \cdots - 2u + 1$
c_4, c_9	$u^{20} - 3u^{18} + \cdots - 4u + 5$
c_5	$u^{20} - 4u^{19} + \cdots - 4u + 1$
c_6, c_{10}	$u^{20} - 2u^{19} + \cdots + 2u + 1$
c_7	$u^{20} - 6u^{19} + \cdots - 11u + 5$
c_{11}	$u^{20} + 13u^{19} + \cdots + 125u + 25$
c_{12}	$u^{20} + 6u^{19} + \cdots + 11u + 5$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20}+16y^{19}+\cdots+14y+1$
c_2, c_5	$y^{20}-8y^{19}+\cdots-10y+1$
c_3, c_8	$y^{20}-7y^{19}+\cdots-16y+1$
c_4, c_9	$y^{20}-6y^{19}+\cdots+314y+25$
c_6, c_{10}	$y^{20}+6y^{19}+\cdots-14y+1$
c_7, c_{12}	$y^{20}+12y^{19}+\cdots+329y+25$
c_{11}	$y^{20}+y^{19}+\cdots+1525y+625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.749177 + 0.792993I$ $a = -1.00000$ $b = -0.461335 - 0.696929I$	$7.15083 + 6.18840I$	$-3.23960 - 2.72855I$
$u = 0.749177 - 0.792993I$ $a = -1.00000$ $b = -0.461335 + 0.696929I$	$7.15083 - 6.18840I$	$-3.23960 + 2.72855I$
$u = -0.856996 + 0.013947I$ $a = -1.00000$ $b = 0.097835 + 0.598647I$	$-2.80631 - 0.60538I$	$-10.53109 - 0.51236I$
$u = -0.856996 - 0.013947I$ $a = -1.00000$ $b = 0.097835 - 0.598647I$	$-2.80631 + 0.60538I$	$-10.53109 + 0.51236I$
$u = -0.838006 + 0.822643I$ $a = -1.00000$ $b = -0.378604 + 0.720129I$	$7.53299 + 0.99079I$	$-2.61556 - 1.90284I$
$u = -0.838006 - 0.822643I$ $a = -1.00000$ $b = -0.378604 - 0.720129I$	$7.53299 - 0.99079I$	$-2.61556 + 1.90284I$
$u = -0.665108 + 0.324125I$ $a = -1.00000$ $b = 1.117190 - 0.608940I$	$-1.83782 + 3.01831I$	$-10.5178 - 9.5148I$
$u = -0.665108 - 0.324125I$ $a = -1.00000$ $b = 1.117190 + 0.608940I$	$-1.83782 - 3.01831I$	$-10.5178 + 9.5148I$
$u = -1.081860 + 0.842780I$ $a = -1.00000$ $b = 0.605583 + 0.877015I$	$-2.54111 + 5.42929I$	$-4.17139 - 2.92908I$
$u = -1.081860 - 0.842780I$ $a = -1.00000$ $b = 0.605583 - 0.877015I$	$-2.54111 - 5.42929I$	$-4.17139 + 2.92908I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.126260 + 0.824230I$ $a = -1.00000$ $b = -0.055343 - 1.135190I$	$-4.70013 - 0.25170I$	$-6.72415 + 4.83979I$
$u = 1.126260 - 0.824230I$ $a = -1.00000$ $b = -0.055343 + 1.135190I$	$-4.70013 + 0.25170I$	$-6.72415 - 4.83979I$
$u = 0.582150 + 0.090727I$ $a = -1.00000$ $b = 0.015486 - 1.370700I$	$-3.30705 + 3.54726I$	$-12.80442 - 5.42208I$
$u = 0.582150 - 0.090727I$ $a = -1.00000$ $b = 0.015486 + 1.370700I$	$-3.30705 - 3.54726I$	$-12.80442 + 5.42208I$
$u = -1.11790 + 0.86654I$ $a = -1.00000$ $b = 0.225749 + 0.939626I$	$-1.68131 + 5.33977I$	$-5.49082 - 5.51223I$
$u = -1.11790 - 0.86654I$ $a = -1.00000$ $b = 0.225749 - 0.939626I$	$-1.68131 - 5.33977I$	$-5.49082 + 5.51223I$
$u = 1.11605 + 0.91718I$ $a = -1.00000$ $b = 0.51806 - 1.34055I$	$-5.18149 - 8.81978I$	$-10.79868 + 6.59356I$
$u = 1.11605 - 0.91718I$ $a = -1.00000$ $b = 0.51806 + 1.34055I$	$-5.18149 + 8.81978I$	$-10.79868 - 6.59356I$
$u = 0.486237 + 0.221311I$ $a = -1.00000$ $b = 1.31538 + 1.29746I$	$-2.49821 + 1.18090I$	$-17.1065 + 7.0501I$
$u = 0.486237 - 0.221311I$ $a = -1.00000$ $b = 1.31538 - 1.29746I$	$-2.49821 - 1.18090I$	$-17.1065 - 7.0501I$

III. $\boldsymbol{I_3^u = \langle -3.74\times 10^{51}u^{39} - 8.55\times 10^{51}u^{38} + \cdots + 4.04\times 10^{50}b + 1.36\times 10^{52},\ -3.50\times 10^{83}u^{39} - 8.75\times 10^{83}u^{38} + \cdots + 9.39\times 10^{81}a + 3.79\times 10^{83},\ u^{40} + 2u^{39} + \cdots - 13u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 37.2782u^{39} + 93.1401u^{38} + \cdots + 658.285u - 40.3827 \\ 9.24932u^{39} + 21.1413u^{38} + \cdots + 315.076u - 33.6527 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 46.5275u^{39} + 114.281u^{38} + \cdots + 973.362u - 74.0354 \\ 9.24932u^{39} + 21.1413u^{38} + \cdots + 315.076u - 33.6527 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 30.1491u^{39} + 59.6821u^{38} + \cdots + 1673.11u - 208.172 \\ 31.8912u^{39} + 73.1587u^{38} + \cdots + 1019.79u - 101.577 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 15.0952u^{39} + 42.4578u^{38} + \cdots - 102.381u + 42.5474 \\ -14.6995u^{39} - 33.0619u^{38} + \cdots - 518.350u + 54.3768 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 110.826u^{39} + 256.187u^{38} + \cdots + 3415.02u - 335.365 \\ 9.24932u^{39} + 21.1413u^{38} + \cdots + 315.076u - 34.6527 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 38.9331u^{39} + 96.3096u^{38} + \cdots + 769.052u - 55.4517 \\ 9.11106u^{39} + 20.8265u^{38} + \cdots + 311.597u - 33.5123 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 96.4146u^{39} + 213.222u^{38} + \cdots + 3675.88u - 401.553 \\ 35.0020u^{39} + 80.3933u^{38} + \cdots + 1115.52u - 111.581 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 85.2631u^{39} + 194.465u^{38} + \cdots + 2845.50u - 291.046 \\ 14.2530u^{39} + 33.9549u^{38} + \cdots + 366.582u - 31.9756 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -17.9587u^{39} - 38.4998u^{38} + \cdots - 749.953u + 80.2253 \\ 16.5567u^{39} + 36.5186u^{38} + \cdots + 649.966u - 72.1059 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 32.1094u^{39} + 63.6905u^{38} + \cdots + 1775.28u - 226.798$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{10}+2u^9+9u^8+15u^7+28u^6+36u^5+35u^4+22u^3+15u^2+6u+1)^4$
c_2, c_5	$(u^{10}-2u^9+u^8+3u^7-2u^6-2u^5+3u^4+2u^3-u^2-2u+1)^4$
c_3, c_8	$u^{40}+2u^{39}+\cdots-13u+1$
c_4, c_9	$u^{40}+2u^{39}+\cdots+556819u+78541$
c_6, c_{10}	$u^{40}-3u^{39}+\cdots+59250u+16729$
c_7, c_{12}	$(u^2+u+1)^{20}$
c_{11}	$(u^{10}+3u^9+6u^8+7u^7+9u^6+9u^5+10u^4+6u^3+5u^2+3u+2)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10}+14y^9+\cdots-6y+1)^4$
c_2, c_5	$(y^{10}-2y^9+9y^8-15y^7+28y^6-36y^5+35y^4-22y^3+15y^2-6y+1)^4$
c_3, c_8	$y^{40}-6y^{39}+\cdots-41y+1$
c_4, c_9	$y^{40}-18y^{39}+\cdots+798086907y+6168688681$
c_6, c_{10}	$y^{40}+41y^{39}+\cdots+1832579726y+279859441$
c_7, c_{12}	$(y^2+y+1)^{20}$
c_{11}	$(y^{10}+3y^9+\cdots+11y+4)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.180275 + 0.992664I$ $a = 0.000968 - 0.299992I$ $b = 0.500000 + 0.866025I$	$-2.22682 + 1.42904I$	$-7.31849 - 0.06369I$
$u = -0.180275 - 0.992664I$ $a = 0.000968 + 0.299992I$ $b = 0.500000 - 0.866025I$	$-2.22682 - 1.42904I$	$-7.31849 + 0.06369I$
$u = -0.825169 + 0.581665I$ $a = -0.269230 - 0.089195I$ $b = 0.500000 - 0.866025I$	$-0.55514 + 2.55647I$	$-1.79322 - 3.96020I$
$u = -0.825169 - 0.581665I$ $a = -0.269230 + 0.089195I$ $b = 0.500000 + 0.866025I$	$-0.55514 - 2.55647I$	$-1.79322 + 3.96020I$
$u = -0.927681 + 0.025135I$ $a = -0.677736 - 0.206020I$ $b = 0.500000 + 0.866025I$	$-3.21269 - 1.90262I$	$-14.2791 + 3.2498I$
$u = -0.927681 - 0.025135I$ $a = -0.677736 + 0.206020I$ $b = 0.500000 - 0.866025I$	$-3.21269 + 1.90262I$	$-14.2791 - 3.2498I$
$u = 0.150588 + 1.186930I$ $a = -0.279685 - 1.340970I$ $b = 0.500000 + 0.866025I$	$7.82170 + 3.78328I$	$0. - 2.61377I$
$u = 0.150588 - 1.186930I$ $a = -0.279685 + 1.340970I$ $b = 0.500000 - 0.866025I$	$7.82170 - 3.78328I$	$0. + 2.61377I$
$u = 0.510475 + 0.619539I$ $a = -2.17116 + 0.59425I$ $b = 0.500000 - 0.866025I$	$-2.22682 - 2.63073I$	$-7.31849 + 6.86451I$
$u = 0.510475 - 0.619539I$ $a = -2.17116 - 0.59425I$ $b = 0.500000 + 0.866025I$	$-2.22682 + 2.63073I$	$-7.31849 - 6.86451I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.332577 + 1.177620I$ $a = -0.010519 + 1.274250I$ $b = 0.500000 - 0.866025I$	$7.22009 + 3.33409I$	$-4.00000 - 3.04149I$
$u = -0.332577 - 1.177620I$ $a = -0.010519 - 1.274250I$ $b = 0.500000 + 0.866025I$	$7.22009 - 3.33409I$	$-4.00000 + 3.04149I$
$u = -0.693076 + 1.011640I$ $a = -1.172690 - 0.580972I$ $b = 0.500000 + 0.866025I$	$-0.55514 + 6.61623I$	$0. - 10.88840I$
$u = -0.693076 - 1.011640I$ $a = -1.172690 + 0.580972I$ $b = 0.500000 - 0.866025I$	$-0.55514 - 6.61623I$	$0. + 10.88840I$
$u = 1.110860 + 0.660478I$ $a = -1.157050 - 0.225323I$ $b = 0.500000 - 0.866025I$	$-3.21269 - 5.96239I$	$-14.2791 + 10.1780I$
$u = 1.110860 - 0.660478I$ $a = -1.157050 + 0.225323I$ $b = 0.500000 + 0.866025I$	$-3.21269 + 5.96239I$	$-14.2791 - 10.1780I$
$u = 0.633901 + 0.174086I$ $a = -1.350690 + 0.410587I$ $b = 0.500000 + 0.866025I$	$-3.21269 - 1.90262I$	$-14.2791 + 3.2498I$
$u = 0.633901 - 0.174086I$ $a = -1.350690 - 0.410587I$ $b = 0.500000 - 0.866025I$	$-3.21269 + 1.90262I$	$-14.2791 - 3.2498I$
$u = 0.353320 + 0.370137I$ $a = -0.61494 - 3.83881I$ $b = 0.500000 - 0.866025I$	$7.22009 - 7.39385I$	$-2.50388 + 9.96969I$
$u = 0.353320 - 0.370137I$ $a = -0.61494 + 3.83881I$ $b = 0.500000 + 0.866025I$	$7.22009 + 7.39385I$	$-2.50388 - 9.96969I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.13650 + 1.01451I$ $a = -0.832688 - 0.162157I$ $b = 0.500000 + 0.866025I$	$-3.21269 + 5.96239I$	0
$u = -1.13650 - 1.01451I$ $a = -0.832688 + 0.162157I$ $b = 0.500000 - 0.866025I$	$-3.21269 - 5.96239I$	0
$u = -0.264091 + 0.371106I$ $a = -1.24764 + 3.99076I$ $b = 0.500000 + 0.866025I$	$7.82170 + 0.27648I$	$-0.60526 - 4.31443I$
$u = -0.264091 - 0.371106I$ $a = -1.24764 - 3.99076I$ $b = 0.500000 - 0.866025I$	$7.82170 - 0.27648I$	$-0.60526 + 4.31443I$
$u = -1.49707 + 0.43617I$ $a = -0.006478 + 0.784725I$ $b = 0.500000 + 0.866025I$	$7.22009 - 3.33409I$	0
$u = -1.49707 - 0.43617I$ $a = -0.006478 - 0.784725I$ $b = 0.500000 - 0.866025I$	$7.22009 + 3.33409I$	0
$u = 1.40050 + 0.78368I$ $a = -0.684691 - 0.339208I$ $b = 0.500000 - 0.866025I$	$-0.55514 - 6.61623I$	0
$u = 1.40050 - 0.78368I$ $a = -0.684691 + 0.339208I$ $b = 0.500000 + 0.866025I$	$-0.55514 + 6.61623I$	0
$u = 1.54952 + 0.53390I$ $a = -0.149052 - 0.714642I$ $b = 0.500000 - 0.866025I$	$7.82170 - 3.78328I$	0
$u = 1.54952 - 0.53390I$ $a = -0.149052 + 0.714642I$ $b = 0.500000 + 0.866025I$	$7.82170 + 3.78328I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.297617 + 0.055042I$ $a = 0.01076 + 3.33339I$ $b = 0.500000 + 0.866025I$	$-2.22682 + 1.42904I$	$-7.31849 - 0.06369I$
$u = 0.297617 - 0.055042I$ $a = 0.01076 - 3.33339I$ $b = 0.500000 - 0.866025I$	$-2.22682 - 1.42904I$	$-7.31849 + 0.06369I$
$u = 0.274042 + 0.083001I$ $a = -3.34695 - 1.10883I$ $b = 0.500000 + 0.866025I$	$-0.55514 - 2.55647I$	$-1.79322 + 3.96020I$
$u = 0.274042 - 0.083001I$ $a = -3.34695 + 1.10883I$ $b = 0.500000 - 0.866025I$	$-0.55514 + 2.55647I$	$-1.79322 - 3.96020I$
$u = -1.47649 + 1.04177I$ $a = -0.428484 + 0.117277I$ $b = 0.500000 + 0.866025I$	$-2.22682 + 2.63073I$	0
$u = -1.47649 - 1.04177I$ $a = -0.428484 - 0.117277I$ $b = 0.500000 - 0.866025I$	$-2.22682 - 2.63073I$	0
$u = -1.15150 + 1.51693I$ $a = -0.071364 + 0.228268I$ $b = 0.500000 - 0.866025I$	$7.82170 - 0.27648I$	0
$u = -1.15150 - 1.51693I$ $a = -0.071364 - 0.228268I$ $b = 0.500000 + 0.866025I$	$7.82170 + 0.27648I$	0
$u = 1.20361 + 1.58394I$ $a = -0.040685 - 0.253980I$ $b = 0.500000 + 0.866025I$	$7.22009 + 7.39385I$	0
$u = 1.20361 - 1.58394I$ $a = -0.040685 + 0.253980I$ $b = 0.500000 - 0.866025I$	$7.22009 - 7.39385I$	0

IV. $\boldsymbol{I_4^u = \langle -u^3 - 2u^2 + 2b - 2u + 1,\ u^3 + 2a - 5,\ u^4 + u^3 + 2u^2 - u + 1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.309017 + 0.535233I$ $a = 2.61803$ $b = -0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-1.00000 + 3.46410I$
$u = 0.309017 - 0.535233I$ $a = 2.61803$ $b = -0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-1.00000 - 3.46410I$
$u = -0.80902 + 1.40126I$ $a = 0.381966$ $b = -0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-1.00000 - 3.46410I$
$u = -0.80902 - 1.40126I$ $a = 0.381966$ $b = -0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-1.00000 + 3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u-2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=\ \ 1.00000$ $b=-0.500000-0.866025I$	$2.02988I$	$0.-3.46410I$
$u=-0.500000-0.866025I$ $a=\ \ 1.00000$ $b=-0.500000+0.866025I$	$-2.02988I$	$0.+3.46410I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u-1)^4$ $\cdot(u^{10}+2u^9+9u^8+15u^7+28u^6+36u^5+35u^4+22u^3+15u^2+6u+1)^4$ $\cdot(u^{20}-8u^{19}+\cdots-10u+1)(u^{29}+9u^{28}+\cdots-861u+441)$
c_2	$u^2(u-1)^4$ $\cdot(u^{10}-2u^9+u^8+3u^7-2u^6-2u^5+3u^4+2u^3-u^2-2u+1)^4$ $\cdot(u^{20}+4u^{19}+\cdots+4u+1)(u^{29}+9u^{28}+\cdots+105u+21)$
c_3, c_8	$(u^2+u+1)(u^4+u^3+2u^2-u+1)(u^{20}+u^{19}+\cdots-2u+1)$ $\cdot(u^{29}-2u^{28}+\cdots-3u+1)(u^{40}+2u^{39}+\cdots-13u+1)$
c_4, c_9	$(u^2+u+1)(u^4+u^3+2u^2-u+1)(u^{20}-3u^{18}+\cdots-4u+5)$ $\cdot(u^{29}-u^{28}+\cdots+19u+17)(u^{40}+2u^{39}+\cdots+556819u+78541)$
c_5	$u^2(u+1)^4$ $\cdot(u^{10}-2u^9+u^8+3u^7-2u^6-2u^5+3u^4+2u^3-u^2-2u+1)^4$ $\cdot(u^{20}-4u^{19}+\cdots-4u+1)(u^{29}+9u^{28}+\cdots+105u+21)$
c_6, c_{10}	$((u^2-u+1)^2)(u^2+u+1)(u^{20}-2u^{19}+\cdots+2u+1)$ $\cdot(u^{29}+3u^{28}+\cdots+29u+1)(u^{40}-3u^{39}+\cdots+59250u+16729)$
c_7	$(u^2-u+1)(u^2+u+1)^{22}(u^{20}-6u^{19}+\cdots-11u+5)$ $\cdot(u^{29}-18u^{28}+\cdots-2560u+512)$
c_{11}	$u^6(u^{10}+3u^9+6u^8+7u^7+9u^6+9u^5+10u^4+6u^3+5u^2+3u+2)^4$ $\cdot(u^{20}+13u^{19}+\cdots+125u+25)(u^{29}-18u^{28}+\cdots+294u-21)$
c_{12}	$((u^2-u+1)^3)(u^2+u+1)^{20}(u^{20}+6u^{19}+\cdots+11u+5)$ $\cdot(u^{29}-18u^{28}+\cdots-2560u+512)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y-1)^4(y^{10}+14y^9+\cdots-6y+1)^4(y^{20}+16y^{19}+\cdots+14y+1)$ $\cdot(y^{29}+31y^{28}+\cdots+2190447y-194481)$
c_2, c_5	$y^2(y-1)^4$ $\cdot(y^{10}-2y^9+9y^8-15y^7+28y^6-36y^5+35y^4-22y^3+15y^2-6y+1)^4$ $\cdot(y^{20}-8y^{19}+\cdots-10y+1)(y^{29}-9y^{28}+\cdots-861y-441)$
c_3, c_8	$(y^2+y+1)(y^4+3y^3+\cdots+3y+1)(y^{20}-7y^{19}+\cdots-16y+1)$ $\cdot(y^{29}+28y^{27}+\cdots-11y-1)(y^{40}-6y^{39}+\cdots-41y+1)$
c_4, c_9	$(y^2+y+1)(y^4+3y^3+\cdots+3y+1)(y^{20}-6y^{19}+\cdots+314y+25)$ $\cdot(y^{29}-15y^{28}+\cdots+3183y-289)$ $\cdot(y^{40}-18y^{39}+\cdots+798086907y+6168688681)$
c_6, c_{10}	$((y^2+y+1)^3)(y^{20}+6y^{19}+\cdots-14y+1)$ $\cdot(y^{29}+45y^{28}+\cdots+331y-1)$ $\cdot(y^{40}+41y^{39}+\cdots+1832579726y+279859441)$
c_7, c_{12}	$((y^2+y+1)^{23})(y^{20}+12y^{19}+\cdots+329y+25)$ $\cdot(y^{29}+12y^{28}+\cdots+7864320y-262144)$
c_{11}	$y^6(y^{10}+3y^9+\cdots+11y+4)^4(y^{20}+y^{19}+\cdots+1525y+625)$ $\cdot(y^{29}+4y^{28}+\cdots+1344y-441)$