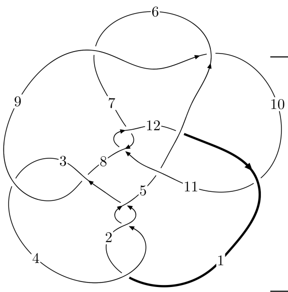
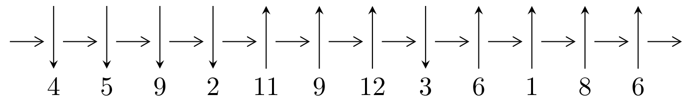
$12n_{0695}$ ($K12n_{0695}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -1.13964 \times 10^{33} u^{26} - 5.99682 \times 10^{33} u^{25} + \cdots + 3.81255 \times 10^{34} b - 2.47902 \times 10^{35}, \\
& -2.08631 \times 10^{34} u^{26} - 1.00367 \times 10^{35} u^{25} + \cdots + 7.62510 \times 10^{34} a - 4.15461 \times 10^{36}, \\
& u^{27} + 5u^{26} + \cdots + 400u + 64 \rangle \\
I_2^u = \langle & 176363u^{14} + 128033u^{13} + \cdots + 74749b - 928241,\ 61025u^{14} + 17351u^{13} + \cdots + 74749a - 408316, \\
& u^{15} - 3u^{13} + 4u^{11} - 2u^{10} + u^9 + 5u^8 - 5u^7 - 5u^6 - u^5 + 9u^4 + 9u^3 - 4u^2 - 3u + 1 \rangle \\
I_3^u = \langle & 4u^7 - 2u^6 - 6u^5 + u^2 ba + 6u^4 + 8u^3 + b^2 - 2ba - au - 5u^2 - 4u + 7, \\
& -u^7 a + u^6 a - 2u^7 + u^5 a + u^6 - 2u^4 a + 3u^5 - u^3 a - 3u^4 + 2u^2 a - 4u^3 + a^2 + 3u^2 - 2a + 2u - 4, \\
& u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ 4b - v + 4,\ v^2 - 6v + 4 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 76 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. $\boldsymbol{I_1^u = \langle -1.14 \times 10^{33}u^{26} - 6.00 \times 10^{33}u^{25} + \cdots + 3.81 \times 10^{34}b - 2.48 \times 10^{35},\ -2.09 \times 10^{34}u^{26} - 1.00 \times 10^{35}u^{25} + \cdots + 7.63 \times 10^{34}a - 4.15 \times 10^{36},\ u^{27} + 5u^{26} + \cdots + 400u + 64 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.273610u^{26} + 1.31627u^{25} + \cdots + 187.951u + 54.4860 \\ 0.0298919u^{26} + 0.157291u^{25} + \cdots + 24.8662u + 6.50226 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.603225u^{26} + 2.76296u^{25} + \cdots + 357.964u + 98.6342 \\ -0.0171631u^{26} - 0.0712776u^{25} + \cdots - 6.60142u - 2.12730 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.603225u^{26} + 2.76296u^{25} + \cdots + 357.964u + 98.6342 \\ 0.106750u^{26} + 0.472111u^{25} + \cdots + 56.0584u + 14.0753 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1.39047u^{26} - 6.44135u^{25} + \cdots - 854.422u - 239.806 \\ -0.0213532u^{26} - 0.118447u^{25} + \cdots - 20.2449u - 6.81187 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.11686u^{26} - 5.12508u^{25} + \cdots - 666.471u - 185.320 \\ 0.00853870u^{26} + 0.0388446u^{25} + \cdots + 3.62131u - 0.309612 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.266493u^{26} + 1.31042u^{25} + \cdots + 196.198u + 58.3012 \\ 0.0227747u^{26} + 0.151445u^{25} + \cdots + 33.1133u + 10.3175 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.34575u^{26} + 6.12897u^{25} + \cdots + 782.304u + 214.401 \\ 0.228884u^{26} + 1.00389u^{25} + \cdots + 115.833u + 29.0810 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.34575u^{26} - 6.12897u^{25} + \cdots - 782.304u - 214.401 \\ -0.0973818u^{26} - 0.399745u^{25} + \cdots - 37.9426u - 9.30362 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -1.27815u^{26} - 5.86437u^{25} + \cdots - 764.039u - 222.235$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{27} - 3u^{26} + \cdots - 36u + 16$
c_3, c_8	$u^{27} + 5u^{26} + \cdots + 400u + 64$
c_5, c_7, c_{11}	$u^{27} + u^{26} + \cdots - 5u - 1$
c_6, c_9, c_{12}	$u^{27} - 25u^{25} + \cdots + 6u + 1$
c_{10}	$u^{27} + 19u^{26} + \cdots - 768u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{27} - 23y^{26} + \cdots - 2192y - 256$
c_3, c_8	$y^{27} - 9y^{26} + \cdots + 49920y - 4096$
c_5, c_7, c_{11}	$y^{27} + 5y^{26} + \cdots + 15y - 1$
c_6, c_9, c_{12}	$y^{27} - 50y^{26} + \cdots + 68y - 1$
c_{10}	$y^{27} - 19y^{26} + \cdots + 5636096y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.03853$ $a=-1.40893$ $b=-0.426622$	-2.58509	-5.21480
$u=-1.162780+0.105322I$ $a=\ \ 0.256922+0.751420I$ $b=-0.008028+1.317420I$	$-2.12887+0.87840I$	$-1.69411+0.10409I$
$u=-1.162780-0.105322I$ $a=\ \ 0.256922-0.751420I$ $b=-0.008028-1.317420I$	$-2.12887-0.87840I$	$-1.69411-0.10409I$
$u=-0.152365+1.192150I$ $a=-0.893744+0.183757I$ $b=-0.260772+0.484211I$	$-3.95830-1.70076I$	$-0.66920+3.77891I$
$u=-0.152365-1.192150I$ $a=-0.893744-0.183757I$ $b=-0.260772-0.484211I$	$-3.95830+1.70076I$	$-0.66920-3.77891I$
$u=\ \ 1.153410+0.362069I$ $a=-0.124158-0.993672I$ $b=\ \ 0.18813-1.67407I$	$-1.52168-4.11639I$	$1.28531+7.66399I$
$u=\ \ 1.153410-0.362069I$ $a=-0.124158+0.993672I$ $b=\ \ 0.18813+1.67407I$	$-1.52168+4.11639I$	$1.28531-7.66399I$
$u=\ \ 0.550134+1.176880I$ $a=-0.727410+0.882315I$ $b=\ \ 0.082313+0.573084I$	$6.85248+3.47221I$	$4.05373-4.83355I$
$u=\ \ 0.550134-1.176880I$ $a=-0.727410-0.882315I$ $b=\ \ 0.082313-0.573084I$	$6.85248-3.47221I$	$4.05373+4.83355I$
$u=-0.450239+1.331950I$ $a=\ \ 0.460049+0.710367I$ $b=\ \ 0.027730+0.522672I$	$5.01150+2.13942I$	$-3.15739+7.15620I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.450239-1.331950I$ $a=\ \ 0.460049-0.710367I$ $b=\ \ 0.027730-0.522672I$	$5.01150-2.13942I$	$-3.15739-7.15620I$
$u=\ \ 0.290484+0.513132I$ $a=\ \ 1.005030-0.448330I$ $b=\ \ 0.178104+0.233390I$	$1.086740+0.522072I$	$7.59034-2.64068I$
$u=\ \ 0.290484-0.513132I$ $a=\ \ 1.005030+0.448330I$ $b=\ \ 0.178104-0.233390I$	$1.086740-0.522072I$	$7.59034+2.64068I$
$u=-1.26259+0.65120I$ $a=\ \ 0.779025+0.806632I$ $b=\ \ 0.89947+1.69470I$	$1.93276+4.57399I$	$-0.80312-3.71996I$
$u=-1.26259-0.65120I$ $a=\ \ 0.779025-0.806632I$ $b=\ \ 0.89947-1.69470I$	$1.93276-4.57399I$	$-0.80312+3.71996I$
$u=\ \ 1.21341+0.77536I$ $a=-0.786921+0.889637I$ $b=-0.87894+1.94262I$	$4.69053-10.38600I$	$1.88291+6.53281I$
$u=\ \ 1.21341-0.77536I$ $a=-0.786921-0.889637I$ $b=-0.87894-1.94262I$	$4.69053+10.38600I$	$1.88291-6.53281I$
$u=-0.72141+1.25819I$ $a=\ \ 0.852837+0.774968I$ $b=-0.116207+0.690641I$	$1.18821-7.91289I$	$-0.57657+4.83516I$
$u=-0.72141-1.25819I$ $a=\ \ 0.852837-0.774968I$ $b=-0.116207-0.690641I$	$1.18821+7.91289I$	$-0.57657-4.83516I$
$u=-1.36519+0.61368I$ $a=\ \ 0.190407-1.118590I$ $b=-0.07359-1.82092I$	$-7.80864+8.10776I$	$-0.12578-8.54506I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.36519-0.61368I$ $a=\ \ 0.190407+1.118590I$ $b=-0.07359+1.82092I$	$-7.80864-8.10776I$	$-0.12578+8.54506I$
$u=-1.22422+0.88045I$ $a=\ \ 0.754688+0.924811I$ $b=\ \ 0.75841+2.06080I$	$-0.5454+15.5229I$	$-1.18119-7.76656I$
$u=-1.22422-0.88045I$ $a=\ \ 0.754688-0.924811I$ $b=\ \ 0.75841-2.06080I$	$-0.5454-15.5229I$	$-1.18119+7.76656I$
$u=-0.435512$ $a=-0.249742$ $b=-0.798841$	-1.27409	-10.1920
$u=\ \ 1.55472+0.34572I$ $a=-0.514140+0.857873I$ $b=-0.33875+1.54021I$	$-9.70709-4.18623I$	$-3.33842+3.07970I$
$u=\ \ 1.55472-0.34572I$ $a=-0.514140-0.857873I$ $b=-0.33875-1.54021I$	$-9.70709+4.18623I$	$-3.33842-3.07970I$
$u=-0.372671$ $a=\ \ 4.40350$ $b=-0.190276$	7.09486	-26.8760

II. $I_2^u = \langle 1.76 \times 10^5 u^{14} + 1.28 \times 10^5 u^{13} + \cdots + 7.47 \times 10^4 b - 9.28 \times 10^5,\ 61025u^{14} + 17351u^{13} + \cdots + 74749a - 408316,\ u^{15} - 3u^{13} + \cdots - 3u + 1\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.816399u^{14} - 0.232124u^{13} + \cdots + 2.19719u + 5.46249 \\ -2.35940u^{14} - 1.71284u^{13} + \cdots - 2.65182u + 12.4181 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -4.03019u^{14} - 1.09145u^{13} + \cdots + 0.200738u + 9.47793 \\ -3.84659u^{14} - 1.32358u^{13} + \cdots - 1.60207u + 11.9404 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -4.03019u^{14} - 1.09145u^{13} + \cdots + 0.200738u + 9.47793 \\ -4.62779u^{14} - 1.33257u^{13} + \cdots - 0.846232u + 13.0319 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1.59760u^{14} - 0.241114u^{13} + \cdots + 2.95303u + 6.55395 \\ -3.18414u^{14} - 1.54132u^{13} + \cdots - 0.0217260u + 13.7507 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.781201u^{14} + 0.00899009u^{13} + \cdots - 0.755836u - 1.09145 \\ 0.824733u^{14} - 0.171521u^{13} + \cdots - 1.63010u - 1.33257 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.964307u^{14} + 0.388567u^{13} + \cdots + 5.09634u + 3.98178 \\ -2.50731u^{14} - 1.09215u^{13} + \cdots + 0.247321u + 10.9374 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.150290u^{14} + 0.121125u^{13} + \cdots + 0.120028u + 0.232124 \\ -0.630911u^{14} + 0.112135u^{13} + \cdots + 0.875865u + 1.32358 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.150290u^{14} + 0.121125u^{13} + \cdots + 0.120028u + 0.232124 \\ 0.599460u^{14} + 0.0788238u^{13} + \cdots - 0.662778u - 1.44470 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{2294032}{74749}u^{14} + \frac{1099194}{74749}u^{13} + \cdots + \frac{2094016}{74749}u - \frac{7660470}{74749}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$u^{15} + 4u^{14} + \cdots - 5u + 1$
c_3	$u^{15} - 3u^{13} + \cdots - 3u + 1$
c_4	$u^{15} - 4u^{14} + \cdots - 5u - 1$
c_5, c_{11}	$u^{15} + 5u^{13} + \cdots - 3u + 1$
c_6, c_{12}	$u^{15} + 3u^{14} + \cdots - 5u^2 - 1$
c_7	$u^{15} + 5u^{13} + \cdots - 3u - 1$
c_8	$u^{15} - 3u^{13} + \cdots - 3u - 1$
c_9	$u^{15} - 3u^{14} + \cdots + 5u^2 + 1$
c_{10}	$u^{15} + 5u^{14} + \cdots + 3u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{15} - 14y^{14} + \cdots + 21y - 1$
c_3, c_8	$y^{15} - 6y^{14} + \cdots + 17y - 1$
c_5, c_7, c_{11}	$y^{15} + 10y^{14} + \cdots + 5y - 1$
c_6, c_9, c_{12}	$y^{15} - 5y^{14} + \cdots - 10y - 1$
c_{10}	$y^{15} - 13y^{14} + \cdots - 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.395101 + 0.883245I$ $a = -0.283707 + 0.375012I$ $b = 0.846671 + 0.071188I$	$-6.05368 - 0.92102I$	$-7.55931 - 0.86682I$
$u = -0.395101 - 0.883245I$ $a = -0.283707 - 0.375012I$ $b = 0.846671 - 0.071188I$	$-6.05368 + 0.92102I$	$-7.55931 + 0.86682I$
$u = -1.16272$ $a = -1.84176$ $b = -0.922893$	-1.62169	4.25160
$u = -0.790290 + 0.123203I$ $a = 0.852557 + 0.556939I$ $b = 0.44109 + 2.17069I$	$-4.81976 + 0.84883I$	$-3.58248 - 7.41027I$
$u = -0.790290 - 0.123203I$ $a = 0.852557 - 0.556939I$ $b = 0.44109 - 2.17069I$	$-4.81976 - 0.84883I$	$-3.58248 + 7.41027I$
$u = 0.286985 + 1.190230I$ $a = 0.329297 - 0.950489I$ $b = 0.138941 - 0.584308I$	$5.13698 - 2.55464I$	$3.03982 + 10.26539I$
$u = 0.286985 - 1.190230I$ $a = 0.329297 + 0.950489I$ $b = 0.138941 + 0.584308I$	$5.13698 + 2.55464I$	$3.03982 - 10.26539I$
$u = 1.049150 + 0.637502I$ $a = -0.057199 - 0.441891I$ $b = -0.258968 - 1.198930I$	$-3.04339 - 2.80173I$	$-4.84923 + 4.43441I$
$u = 1.049150 - 0.637502I$ $a = -0.057199 + 0.441891I$ $b = -0.258968 + 1.198930I$	$-3.04339 + 2.80173I$	$-4.84923 - 4.43441I$
$u = 1.326480 + 0.349849I$ $a = -0.688768 + 0.786265I$ $b = -0.22129 + 1.79626I$	$-11.19200 - 3.11061I$	$-6.06432 + 1.93594I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.326480 - 0.349849I$ $a = -0.688768 - 0.786265I$ $b = -0.22129 - 1.79626I$	$-11.19200 + 3.11061I$	$-6.06432 - 1.93594I$
$u = -1.29612 + 0.71007I$ $a = 0.051371 - 0.786186I$ $b = 0.00761 - 1.51725I$	$-8.56116 + 7.21256I$	$-5.69398 - 4.24135I$
$u = -1.29612 - 0.71007I$ $a = 0.051371 + 0.786186I$ $b = 0.00761 + 1.51725I$	$-8.56116 - 7.21256I$	$-5.69398 + 4.24135I$
$u = 0.474863$ $a = 3.57874$ $b = 1.81758$	3.63405	14.5470
$u = 0.325638$ $a = 4.85593$ $b = 7.19722$	2.41576	−45.3800

III. $\boldsymbol{I^u_3 = \langle 4u^7 - 2u^6 + \cdots - 2ba + 7,\ -u^7a - 2u^7 + \cdots - 2a - 4,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 + 8u^5 - 4u^4 - 8u^3 + 4u^2 + 4u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$(u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1)^4$
c_3, c_8	$(u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1)^4$
c_5, c_7, c_{11}	$u^{32} - 3u^{31} + \cdots - 168u - 191$
c_6, c_9, c_{12}	$u^{32} + 3u^{31} + \cdots + 202u + 71$
c_{10}	$(u^2 - u - 1)^{16}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^4$
c_3, c_8	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)^4$
c_5, c_7, c_{11}	$y^{32} + 11y^{31} + \cdots - 90108y + 36481$
c_6, c_9, c_{12}	$y^{32} - 21y^{31} + \cdots - 309468y + 5041$
c_{10}	$(y^2 - 3y + 1)^{16}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.570868 + 0.730671I$ $a = -0.410360 + 0.525233I$ $b = -1.206890 + 0.200385I$	$-4.98850 + 1.13123I$	$0.584775 - 0.510791I$
$u = 0.570868 + 0.730671I$ $a = -0.410360 + 0.525233I$ $b = 0.73898 + 1.30166I$	$-4.98850 + 1.13123I$	$0.584775 - 0.510791I$
$u = 0.570868 + 0.730671I$ $a = 1.07434 - 1.37508I$ $b = -0.054189 - 1.226940I$	$2.90719 + 1.13123I$	$0.584775 - 0.510791I$
$u = 0.570868 + 0.730671I$ $a = 1.07434 - 1.37508I$ $b = 1.27918 - 2.70546I$	$2.90719 + 1.13123I$	$0.584775 - 0.510791I$
$u = 0.570868 - 0.730671I$ $a = -0.410360 - 0.525233I$ $b = -1.206890 - 0.200385I$	$-4.98850 - 1.13123I$	$0.584775 + 0.510791I$
$u = 0.570868 - 0.730671I$ $a = -0.410360 - 0.525233I$ $b = 0.73898 - 1.30166I$	$-4.98850 - 1.13123I$	$0.584775 + 0.510791I$
$u = 0.570868 - 0.730671I$ $a = 1.07434 + 1.37508I$ $b = -0.054189 + 1.226940I$	$2.90719 - 1.13123I$	$0.584775 + 0.510791I$
$u = 0.570868 - 0.730671I$ $a = 1.07434 + 1.37508I$ $b = 1.27918 + 2.70546I$	$2.90719 - 1.13123I$	$0.584775 + 0.510791I$
$u = -0.855237 + 0.665892I$ $a = 0.449903 + 0.350297I$ $b = -0.005773 + 1.352800I$	$-1.78843 + 2.57849I$	$3.72292 - 3.56796I$
$u = -0.855237 + 0.665892I$ $a = 0.449903 + 0.350297I$ $b = 0.377013 - 0.240663I$	$-1.78843 + 2.57849I$	$3.72292 - 3.56796I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.855237 + 0.665892I$ $a = -1.17786 - 0.91709I$ $b = 0.197214 - 0.794544I$	$6.10726 + 2.57849I$	$3.72292 - 3.56796I$
$u = -0.855237 + 0.665892I$ $a = -1.17786 - 0.91709I$ $b = -1.16913 - 2.11707I$	$6.10726 + 2.57849I$	$3.72292 - 3.56796I$
$u = -0.855237 - 0.665892I$ $a = 0.449903 - 0.350297I$ $b = -0.005773 - 1.352800I$	$-1.78843 - 2.57849I$	$3.72292 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = 0.449903 - 0.350297I$ $b = 0.377013 + 0.240663I$	$-1.78843 - 2.57849I$	$3.72292 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = -1.17786 + 0.91709I$ $b = 0.197214 + 0.794544I$	$6.10726 - 2.57849I$	$3.72292 + 3.56796I$
$u = -0.855237 - 0.665892I$ $a = -1.17786 + 0.91709I$ $b = -1.16913 + 2.11707I$	$6.10726 - 2.57849I$	$3.72292 + 3.56796I$
$u = -1.09818$ $a = 0.562781$ $b = 0.22342 + 1.55964I$	-10.4506	-5.86400
$u = -1.09818$ $a = 0.562781$ $b = 0.22342 - 1.55964I$	-10.4506	-5.86400
$u = -1.09818$ $a = -1.47338$ $b = -0.894458$	-2.55489	-5.86400
$u = -1.09818$ $a = -1.47338$ $b = -0.275409$	-2.55489	-5.86400

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.031810 + 0.655470I$ $a = 1.117270 - 0.709761I$ $b = -0.349632 - 0.574285I$	$1.56816 - 6.44354I$	$-1.42845 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = 1.117270 - 0.709761I$ $b = 0.91467 - 1.90581I$	$1.56816 - 6.44354I$	$-1.42845 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = -0.426759 + 0.271105I$ $b = 0.010873 - 0.550359I$	$-6.32752 - 6.44354I$	$-1.42845 + 5.29417I$
$u = 1.031810 + 0.655470I$ $a = -0.426759 + 0.271105I$ $b = -0.22670 + 1.49767I$	$-6.32752 - 6.44354I$	$-1.42845 + 5.29417I$
$u = 1.031810 - 0.655470I$ $a = 1.117270 + 0.709761I$ $b = -0.349632 + 0.574285I$	$1.56816 + 6.44354I$	$-1.42845 - 5.29417I$
$u = 1.031810 - 0.655470I$ $a = 1.117270 + 0.709761I$ $b = 0.91467 + 1.90581I$	$1.56816 + 6.44354I$	$-1.42845 - 5.29417I$
$u = 1.031810 - 0.655470I$ $a = -0.426759 - 0.271105I$ $b = 0.010873 + 0.550359I$	$-6.32752 + 6.44354I$	$-1.42845 - 5.29417I$
$u = 1.031810 - 0.655470I$ $a = -0.426759 - 0.271105I$ $b = -0.22670 - 1.49767I$	$-6.32752 + 6.44354I$	$-1.42845 - 5.29417I$
$u = 0.603304$ $a = -1.02442$ $b = -0.83799 + 2.18510I$	-4.79288	-3.89450
$u = 0.603304$ $a = -1.02442$ $b = -0.83799 - 2.18510I$	-4.79288	-3.89450

Solutions to I_3^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	0.603304		
$a =$	2.68196	3.10281	-3.89450
$b =$	0.939976		
$u =$	0.603304		
$a =$	2.68196	3.10281	-3.89450
$b =$	3.44777		

IV. $I_1^v = \langle a,\ 4b - v + 4,\ v^2 - 6v + 4 \rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0 \\ \frac{1}{4}v - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} v \\ 0.5 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2v + 2 \\ 0.5 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 6v - 4 \\ -\frac{1}{4}v \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 5v - 4 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2v + 2 \\ \frac{1}{4}v - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -5v + 4 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 5v - 3 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{45}{8}v$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.763932$ $a = 0$ $b = -0.809017$	-0.657974	4.29710
$v = 5.23607$ $a = 0$ $b = 0.309017$	7.23771	29.4530

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^4$ $\cdot(u^{15}+4u^{14}+\cdots-5u+1)(u^{27}-3u^{26}+\cdots-36u+16)$
c_3	$u^2(u^8-u^7+\cdots+2u-1)^4(u^{15}-3u^{13}+\cdots-3u+1)$ $\cdot(u^{27}+5u^{26}+\cdots+400u+64)$
c_4	$(u+1)^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^4$ $\cdot(u^{15}-4u^{14}+\cdots-5u-1)(u^{27}-3u^{26}+\cdots-36u+16)$
c_5	$(u^2-u-1)(u^{15}+5u^{13}+\cdots-3u+1)(u^{27}+u^{26}+\cdots-5u-1)$ $\cdot(u^{32}-3u^{31}+\cdots-168u-191)$
c_6	$(u^2+3u+1)(u^{15}+3u^{14}+\cdots-5u^2-1)(u^{27}-25u^{25}+\cdots+6u+1)$ $\cdot(u^{32}+3u^{31}+\cdots+202u+71)$
c_7	$(u^2-u-1)(u^{15}+5u^{13}+\cdots-3u-1)(u^{27}+u^{26}+\cdots-5u-1)$ $\cdot(u^{32}-3u^{31}+\cdots-168u-191)$
c_8	$u^2(u^8-u^7+\cdots+2u-1)^4(u^{15}-3u^{13}+\cdots-3u-1)$ $\cdot(u^{27}+5u^{26}+\cdots+400u+64)$
c_9	$(u^2-3u+1)(u^{15}-3u^{14}+\cdots+5u^2+1)(u^{27}-25u^{25}+\cdots+6u+1)$ $\cdot(u^{32}+3u^{31}+\cdots+202u+71)$
c_{10}	$((u^2-u-1)^{17})(u^{15}+5u^{14}+\cdots+3u^2+1)$ $\cdot(u^{27}+19u^{26}+\cdots-768u+256)$
c_{11}	$(u^2+u-1)(u^{15}+5u^{13}+\cdots-3u+1)(u^{27}+u^{26}+\cdots-5u-1)$ $\cdot(u^{32}-3u^{31}+\cdots-168u-191)$
c_{12}	$(u^2-3u+1)(u^{15}+3u^{14}+\cdots-5u^2-1)(u^{27}-25u^{25}+\cdots+6u+1)$ $\cdot(u^{32}+3u^{31}+\cdots+202u+71)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^2(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)^4$ $\cdot(y^{15}-14y^{14}+\cdots+21y-1)(y^{27}-23y^{26}+\cdots-2192y-256)$
c_3, c_8	$y^2(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^4$ $\cdot(y^{15}-6y^{14}+\cdots+17y-1)(y^{27}-9y^{26}+\cdots+49920y-4096)$
c_5, c_7, c_{11}	$(y^2-3y+1)(y^{15}+10y^{14}+\cdots+5y-1)(y^{27}+5y^{26}+\cdots+15y-1)$ $\cdot(y^{32}+11y^{31}+\cdots-90108y+36481)$
c_6, c_9, c_{12}	$(y^2-7y+1)(y^{15}-5y^{14}+\cdots-10y-1)(y^{27}-50y^{26}+\cdots+68y-1)$ $\cdot(y^{32}-21y^{31}+\cdots-309468y+5041)$
c_{10}	$((y^2-3y+1)^{17})(y^{15}-13y^{14}+\cdots-6y-1)$ $\cdot(y^{27}-19y^{26}+\cdots+5636096y-65536)$