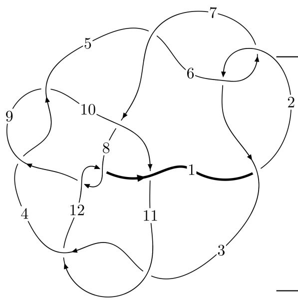
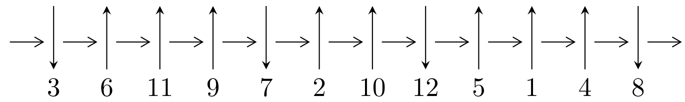
$12a_{0476}$ ($K12a_{0476}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -443u^{40} - 3423u^{39} + \cdots + 4b + 532,\ -955u^{40} - 7773u^{39} + \cdots + 8a + 3572,$$
$$u^{41} + 9u^{40} + \cdots - 12u - 8\rangle$$
$$I_2^u = \langle 1.43701 \times 10^{23}a^5u^{10} - 4.78586 \times 10^{23}a^4u^{10} + \cdots + 3.13902 \times 10^{22}a + 7.88174 \times 10^{22},$$
$$-u^{10}a^5 + 3u^{10}a^4 + \cdots + 13a + 49,\ u^{11} - u^{10} + 2u^9 - u^8 + 4u^7 - 2u^6 + 4u^5 - u^4 + 3u^3 + u^2 + 1\rangle$$
$$I_3^u = \langle u^{26} + 3u^{24} + \cdots + b + 3,\ -u^{26} + 4u^{25} + \cdots + a + 5,\ u^{27} - 2u^{26} + \cdots - 2u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 134 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. $\boldsymbol{I_1^u = \langle -443u^{40} - 3423u^{39} + \cdots + 4b + 532,\ -955u^{40} - 7773u^{39} + \cdots + 8a + 3572,\ u^{41} + 9u^{40} + \cdots - 12u - 8\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 119.375u^{40} + 971.625u^{39} + \cdots - 884.750u - 446.500 \\ \frac{443}{4}u^{40} + \frac{3423}{4}u^{39} + \cdots - 708u - 133 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{327}{8}u^{40} - \frac{2569}{8}u^{39} + \cdots + \frac{1063}{4}u + 107 \\ -\frac{121}{4}u^{40} - \frac{863}{4}u^{39} + \cdots + \frac{301}{2}u - 47 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 40.1250u^{40} + 295.375u^{39} + \cdots - 200.750u + 4.50000 \\ \frac{79}{4}u^{40} + \frac{479}{4}u^{39} + \cdots - 44u + 91 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -3.62500u^{40} - 21.3750u^{39} + \cdots - 28.7500u + 17.5000 \\ \frac{31}{4}u^{40} + \frac{403}{4}u^{39} + \cdots - 158u - 163 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{9}{8}u^{40} - \frac{57}{8}u^{39} + \cdots + \frac{119}{4}u + 92 \\ -\frac{75}{4}u^{40} - \frac{669}{4}u^{39} + \cdots + \frac{343}{2}u + 159 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{473}{8}u^{40} - \frac{3849}{8}u^{39} + \cdots + \frac{915}{2}u + 210 \\ -46u^{40} - \frac{689}{2}u^{39} + \cdots + \frac{575}{2}u - 33 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 83u^{40} + 505u^{39} + \cdots - 222u + 694$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{41} + 13u^{40} + \cdots - 432u - 64$
c_2, c_6	$u^{41} - 9u^{40} + \cdots - 12u + 8$
c_3, c_4, c_9 c_{11}	$u^{41} - u^{40} + \cdots + 3u - 1$
c_7, c_{10}	$u^{41} + 3u^{40} + \cdots + 19u - 1$
c_8, c_{12}	$u^{41} + 25u^{40} + \cdots + 33792u + 2048$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{41} + 33y^{40} + \cdots - 307968y - 4096$
c_2, c_6	$y^{41} + 13y^{40} + \cdots - 432y - 64$
c_3, c_4, c_9 c_{11}	$y^{41} - 41y^{40} + \cdots + 5y - 1$
c_7, c_{10}	$y^{41} - 25y^{40} + \cdots + 113y - 1$
c_8, c_{12}	$y^{41} + 21y^{40} + \cdots - 7340032y - 4194304$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.606113 + 0.756260I$ $a = -0.527663 - 0.015390I$ $b = 0.186140 + 0.888970I$	$0.717698 - 0.435826I$	$11.97986 + 0.51850I$
$u = 0.606113 - 0.756260I$ $a = -0.527663 + 0.015390I$ $b = 0.186140 - 0.888970I$	$0.717698 + 0.435826I$	$11.97986 - 0.51850I$
$u = 0.962360$ $a = 0.390155$ $b = -0.736806$	6.45252	14.5170
$u = 0.584526 + 0.924292I$ $a = 0.334306 - 0.254126I$ $b = -0.533512 - 0.651963I$	$0.13835 + 5.13576I$	$6.76047 - 9.10266I$
$u = 0.584526 - 0.924292I$ $a = 0.334306 + 0.254126I$ $b = -0.533512 + 0.651963I$	$0.13835 - 5.13576I$	$6.76047 + 9.10266I$
$u = 0.077637 + 0.881616I$ $a = -0.045402 + 0.792739I$ $b = 0.775920 + 0.596071I$	$-2.56291 - 0.61927I$	$-2.95076 + 3.56360I$
$u = 0.077637 - 0.881616I$ $a = -0.045402 - 0.792739I$ $b = 0.775920 - 0.596071I$	$-2.56291 + 0.61927I$	$-2.95076 - 3.56360I$
$u = 0.876297 + 0.081630I$ $a = -0.504344 + 0.274789I$ $b = 0.887621 - 0.336651I$	$11.79550 - 7.37660I$	$13.37512 + 4.29558I$
$u = 0.876297 - 0.081630I$ $a = -0.504344 - 0.274789I$ $b = 0.887621 + 0.336651I$	$11.79550 + 7.37660I$	$13.37512 - 4.29558I$
$u = -0.486503 + 1.048500I$ $a = 0.157122 + 0.344419I$ $b = 0.221731 + 0.460231I$	$-0.68738 - 3.21872I$	$3.38786 - 5.31152I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.486503 - 1.048500I$ $a = \ \ 0.157122 - 0.344419I$ $b = \ \ 0.221731 - 0.460231I$	$-0.68738 + 3.21872I$	$3.38786 + 5.31152I$
$u = -0.749895 + 0.884257I$ $a = -1.04074 + 1.36900I$ $b = -1.61398 + 0.86725I$	$1.90930 - 2.84587I$	$2.86961 + 2.56736I$
$u = -0.749895 - 0.884257I$ $a = -1.04074 - 1.36900I$ $b = -1.61398 - 0.86725I$	$1.90930 + 2.84587I$	$2.86961 - 2.56736I$
$u = -0.794876 + 0.853954I$ $a = \ \ 1.81971 - 1.24727I$ $b = \ \ 2.25186 - 0.19647I$	$5.04339 + 0.55023I$	$7.93602 + 0.I$
$u = -0.794876 - 0.853954I$ $a = \ \ 1.81971 + 1.24727I$ $b = \ \ 2.25186 + 0.19647I$	$5.04339 - 0.55023I$	$7.93602 + 0.I$
$u = \ \ 0.208095 + 0.797419I$ $a = \ \ 0.076078 - 1.156830I$ $b = -1.277150 - 0.530691I$	$-0.86671 + 3.40698I$	$-1.098484 + 0.234882I$
$u = \ \ 0.208095 - 0.797419I$ $a = \ \ 0.076078 + 1.156830I$ $b = -1.277150 + 0.530691I$	$-0.86671 - 3.40698I$	$-1.098484 - 0.234882I$
$u = \ \ 0.360854 + 1.123230I$ $a = \ \ 0.328858 + 0.508397I$ $b = \ \ 1.236590 - 0.244211I$	$8.2770 + 11.6296I$	$7.90682 - 8.06324I$
$u = \ \ 0.360854 - 1.123230I$ $a = \ \ 0.328858 - 0.508397I$ $b = \ \ 1.236590 + 0.244211I$	$8.2770 - 11.6296I$	$7.90682 + 8.06324I$
$u = -0.963483 + 0.716288I$ $a = -0.336502 + 1.249250I$ $b = -1.013960 + 0.461474I$	$15.6786 - 2.9261I$	$14.2037 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.963483 - 0.716288I$ $a = -0.336502 - 1.249250I$ $b = -1.013960 - 0.461474I$	$15.6786 + 2.9261I$	$14.2037 + 0.I$
$u = -0.923712 + 0.770216I$ $a = -1.41293 + 1.56615I$ $b = -1.95999 + 0.11724I$	$16.9602 + 10.9665I$	$12.30775 + 0.I$
$u = -0.923712 - 0.770216I$ $a = -1.41293 - 1.56615I$ $b = -1.95999 - 0.11724I$	$16.9602 - 10.9665I$	$12.30775 + 0.I$
$u = -0.780698 + 0.917269I$ $a = 0.98640 - 2.09195I$ $b = 2.07607 - 1.61034I$	$4.85004 - 6.47232I$	0
$u = -0.780698 - 0.917269I$ $a = 0.98640 + 2.09195I$ $b = 2.07607 + 1.61034I$	$4.85004 + 6.47232I$	0
$u = -0.953490 + 0.768002I$ $a = 1.00353 - 1.19789I$ $b = 1.47081 - 0.06065I$	$11.51350 + 4.53379I$	0
$u = -0.953490 - 0.768002I$ $a = 1.00353 + 1.19789I$ $b = 1.47081 + 0.06065I$	$11.51350 - 4.53379I$	0
$u = 0.228894 + 1.203420I$ $a = 0.445857 - 0.052905I$ $b = 0.427477 - 0.843919I$	$7.31681 - 3.62360I$	$10.12001 + 0.I$
$u = 0.228894 - 1.203420I$ $a = 0.445857 + 0.052905I$ $b = 0.427477 + 0.843919I$	$7.31681 + 3.62360I$	$10.12001 + 0.I$
$u = 0.361149 + 1.229680I$ $a = -0.269691 - 0.198156I$ $b = -0.694901 + 0.368948I$	$2.26659 + 4.57991I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.361149 - 1.229680I$ $a = -0.269691 + 0.198156I$ $b = -0.694901 - 0.368948I$	$2.26659 - 4.57991I$	0
$u = -0.496085 + 0.512183I$ $a = -0.677720 - 0.317935I$ $b = -0.348482 - 0.160165I$	$0.953433 - 0.876985I$	$9.19532 + 5.58347I$
$u = -0.496085 - 0.512183I$ $a = -0.677720 + 0.317935I$ $b = -0.348482 + 0.160165I$	$0.953433 + 0.876985I$	$9.19532 - 5.58347I$
$u = -0.810078 + 1.026960I$ $a = -1.29862 + 1.73461I$ $b = -2.67410 + 1.26920I$	$16.1484 - 17.3579I$	0
$u = -0.810078 - 1.026960I$ $a = -1.29862 - 1.73461I$ $b = -2.67410 - 1.26920I$	$16.1484 + 17.3579I$	0
$u = -0.823771 + 1.041760I$ $a = 0.95542 - 1.31971I$ $b = 2.06585 - 0.97932I$	$10.6436 - 11.0550I$	0
$u = -0.823771 - 1.041760I$ $a = 0.95542 + 1.31971I$ $b = 2.06585 + 0.97932I$	$10.6436 + 11.0550I$	0
$u = -0.805127 + 1.075830I$ $a = -1.014220 + 0.638818I$ $b = -1.75240 + 0.17374I$	$14.5492 - 3.5634I$	0
$u = -0.805127 - 1.075830I$ $a = -1.014220 - 0.638818I$ $b = -1.75240 - 0.17374I$	$14.5492 + 3.5634I$	0
$u = 0.302974 + 0.280498I$ $a = -0.424526 - 1.104140I$ $b = -0.363190 + 0.540241I$	$0.434000 - 1.344580I$	$4.71332 + 6.21686I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.302974 - 0.280498I$ $a = -0.424526 + 1.104140I$ $b = -0.363190 - 0.540241I$	$0.434000 + 1.344580I$	$4.71332 - 6.21686I$

II. $I_2^u = \langle 1.44 \times 10^{23} a^5 u^{10} - 4.79 \times 10^{23} a^4 u^{10} + \cdots + 3.14 \times 10^{22} a + 7.88 \times 10^{22},\ -u^{10} a^5 + 3u^{10} a^4 + \cdots + 13a + 49,\ u^{11} - u^{10} + \cdots + u^2 + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -0.401186a^5u^{10} + 1.33612a^4u^{10} + \cdots - 0.0876356a - 0.220044 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0710547a^5u^{10} + 0.110918a^4u^{10} + \cdots - 0.483397a - 0.680125 \\ -0.248190a^5u^{10} - 0.454501a^4u^{10} + \cdots + 0.984937a - 1.42088 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0141422a^5u^{10} - 0.246441a^4u^{10} + \cdots + 0.395981a - 0.0603578 \\ 0.105676a^5u^{10} + 0.632640a^4u^{10} + \cdots + 0.257556a - 0.277155 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1.72153a^5u^{10} + 0.258802a^4u^{10} + \cdots + 1.44074a + 0.338467 \\ 0.105676a^5u^{10} + 0.632640a^4u^{10} + \cdots + 0.257556a - 0.277155 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.0116912a^5u^{10} + 0.202243a^4u^{10} + \cdots - 0.128390a + 0.338516 \\ -0.0619103a^5u^{10} - 0.143534a^4u^{10} + \cdots - 0.866368a - 2.40128 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.450643a^5u^{10} + 0.304819a^4u^{10} + \cdots + 2.01360a + 0.991347 \\ -1.27156a^5u^{10} - 0.954263a^4u^{10} + \cdots + 0.757959a - 0.138853 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{13292007085685678479789 68}{3581897921389194487076 65} u^{10} a^5 - \frac{33249014109095791011768 8}{7163795842778388974153 3} u^{10} a^4 + \cdots - \frac{35259769041152257798896}{3581897921389194487076 65} a + \frac{14559741368974329477159 06}{3581897921389194487076 65}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^{11} + 3u^{10} + \cdots - 2u - 1)^6$
c_2, c_6	$(u^{11} + u^{10} + 2u^9 + u^8 + 4u^7 + 2u^6 + 4u^5 + u^4 + 3u^3 - u^2 - 1)^6$
c_3, c_4, c_9 c_{11}	$u^{66} - u^{65} + \cdots - 19674u - 2411$
c_7, c_{10}	$u^{66} + 13u^{65} + \cdots - 4806258u - 401201$
c_8, c_{12}	$(u^3 - u^2 + 2u - 1)^{22}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^{11} + 11y^{10} + \cdots + 6y - 1)^6$
c_2, c_6	$(y^{11} + 3y^{10} + \cdots - 2y - 1)^6$
c_3, c_4, c_9 c_{11}	$y^{66} - 65y^{65} + \cdots - 282043116y + 5812921$
c_7, c_{10}	$y^{66} - 29y^{65} + \cdots - 4863460315404y + 160962242401$
c_8, c_{12}	$(y^3 + 3y^2 + 2y - 1)^{22}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.274458 + 0.988557I$ $a = -0.895560 - 0.460248I$ $b = -0.83945 - 1.25577I$	$2.77731 - 0.11860I$	$5.71039 + 1.13842I$
$u = -0.274458 + 0.988557I$ $a = -0.146248 + 0.764571I$ $b = -0.599739 + 0.470580I$	$-1.36027 - 2.94672I$	$-0.81888 + 4.11787I$
$u = -0.274458 + 0.988557I$ $a = 0.678240 - 1.161140I$ $b = 1.64509 - 0.59363I$	$2.77731 - 5.77484I$	$5.71039 + 7.09731I$
$u = -0.274458 + 0.988557I$ $a = 0.259736 - 0.356850I$ $b = -0.272876 + 0.578085I$	$2.77731 - 0.11860I$	$5.71039 + 1.13842I$
$u = -0.274458 + 0.988557I$ $a = 0.024785 + 0.401085I$ $b = -1.156990 - 0.613966I$	$2.77731 - 5.77484I$	$5.71039 + 7.09731I$
$u = -0.274458 + 0.988557I$ $a = 0.117340 - 0.086144I$ $b = 0.868259 + 0.340394I$	$-1.36027 - 2.94672I$	$-0.81888 + 4.11787I$
$u = -0.274458 - 0.988557I$ $a = -0.895560 + 0.460248I$ $b = -0.83945 + 1.25577I$	$2.77731 + 0.11860I$	$5.71039 - 1.13842I$
$u = -0.274458 - 0.988557I$ $a = -0.146248 - 0.764571I$ $b = -0.599739 - 0.470580I$	$-1.36027 + 2.94672I$	$-0.81888 - 4.11787I$
$u = -0.274458 - 0.988557I$ $a = 0.678240 + 1.161140I$ $b = 1.64509 + 0.59363I$	$2.77731 + 5.77484I$	$5.71039 - 7.09731I$
$u = -0.274458 - 0.988557I$ $a = 0.259736 + 0.356850I$ $b = -0.272876 - 0.578085I$	$2.77731 + 0.11860I$	$5.71039 - 1.13842I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.274458-0.988557I$ $a=0.024785-0.401085I$ $b=-1.156990+0.613966I$	$2.77731+5.77484I$	$5.71039-7.09731I$
$u=-0.274458-0.988557I$ $a=0.117340+0.086144I$ $b=0.868259-0.340394I$	$-1.36027+2.94672I$	$-0.81888-4.11787I$
$u=0.838197+0.796762I$ $a=1.00980+1.31331I$ $b=1.56438+0.76313I$	$5.79840-1.41699I$	$5.77180+0.63373I$
$u=0.838197+0.796762I$ $a=0.34070+1.68447I$ $b=0.787356+0.848265I$	$9.93598+1.41114I$	$12.30106-2.34572I$
$u=0.838197+0.796762I$ $a=0.05773-1.74594I$ $b=-1.27939-1.64219I$	$9.93598+1.41114I$	$12.30106-2.34572I$
$u=0.838197+0.796762I$ $a=-1.23511-1.45168I$ $b=-1.65534-0.15732I$	$5.79840-1.41699I$	$5.77180+0.63373I$
$u=0.838197+0.796762I$ $a=-1.73932-1.61488I$ $b=-2.01014-0.72785I$	$9.93598-4.24511I$	$12.30106+3.61318I$
$u=0.838197+0.796762I$ $a=1.86467+1.99803I$ $b=2.71365+0.11345I$	$9.93598-4.24511I$	$12.30106+3.61318I$
$u=0.838197-0.796762I$ $a=1.00980-1.31331I$ $b=1.56438-0.76313I$	$5.79840+1.41699I$	$5.77180-0.63373I$
$u=0.838197-0.796762I$ $a=0.34070-1.68447I$ $b=0.787356-0.848265I$	$9.93598-1.41114I$	$12.30106+2.34572I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.838197 - 0.796762I$ $a = 0.05773 + 1.74594I$ $b = -1.27939 + 1.64219I$	$9.93598 - 1.41114I$	$12.30106 + 2.34572I$
$u = 0.838197 - 0.796762I$ $a = -1.23511 + 1.45168I$ $b = -1.65534 + 0.15732I$	$5.79840 + 1.41699I$	$5.77180 - 0.63373I$
$u = 0.838197 - 0.796762I$ $a = -1.73932 + 1.61488I$ $b = -2.01014 + 0.72785I$	$9.93598 + 4.24511I$	$12.30106 - 3.61318I$
$u = 0.838197 - 0.796762I$ $a = 1.86467 - 1.99803I$ $b = 2.71365 - 0.11345I$	$9.93598 + 4.24511I$	$12.30106 - 3.61318I$
$u = -0.813506 + 0.895281I$ $a = 0.651657 - 1.181340I$ $b = 1.93659 - 1.29451I$	$9.46395 - 3.04152I$	$9.04170 + 2.82242I$
$u = -0.813506 + 0.895281I$ $a = 1.34111 - 1.07926I$ $b = 1.231990 + 0.258257I$	$9.46395 - 3.04152I$	$9.04170 + 2.82242I$
$u = -0.813506 + 0.895281I$ $a = -1.86040 + 0.27694I$ $b = -2.50476 + 0.04665I$	$13.6015 - 5.8696I$	$15.5710 + 5.8019I$
$u = -0.813506 + 0.895281I$ $a = -0.41937 + 2.12452I$ $b = -0.67097 + 1.39619I$	$13.60150 - 0.21340I$	$15.5710 - 0.1570I$
$u = -0.813506 + 0.895281I$ $a = 0.33366 + 2.46944I$ $b = -1.98956 + 2.93484I$	$13.60150 - 0.21340I$	$15.5710 - 0.1570I$
$u = -0.813506 + 0.895281I$ $a = -2.68652 + 0.38435I$ $b = -2.20077 - 1.96869I$	$13.6015 - 5.8696I$	$15.5710 + 5.8019I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.813506-0.895281I$ $a=0.651657+1.181340I$ $b=1.93659+1.29451I$	$9.46395+3.04152I$	$9.04170-2.82242I$
$u=-0.813506-0.895281I$ $a=1.34111+1.07926I$ $b=1.231990-0.258257I$	$9.46395+3.04152I$	$9.04170-2.82242I$
$u=-0.813506-0.895281I$ $a=-1.86040-0.27694I$ $b=-2.50476-0.04665I$	$13.6015+5.8696I$	$15.5710-5.8019I$
$u=-0.813506-0.895281I$ $a=-0.41937-2.12452I$ $b=-0.67097-1.39619I$	$13.60150+0.21340I$	$15.5710+0.1570I$
$u=-0.813506-0.895281I$ $a=0.33366-2.46944I$ $b=-1.98956-2.93484I$	$13.60150+0.21340I$	$15.5710+0.1570I$
$u=-0.813506-0.895281I$ $a=-2.68652-0.38435I$ $b=-2.20077+1.96869I$	$13.6015+5.8696I$	$15.5710-5.8019I$
$u=0.783273+0.973706I$ $a=1.326350+0.471754I$ $b=2.04475+0.11364I$	$9.39071+4.64712I$	$11.28067-2.57516I$
$u=0.783273+0.973706I$ $a=-1.67600-0.44303I$ $b=-1.81609+0.74728I$	$9.39071+4.64712I$	$11.28067-2.57516I$
$u=0.783273+0.973706I$ $a=1.18679+1.33645I$ $b=1.77804+0.80841I$	$5.25313+7.47524I$	$4.75140-5.55460I$
$u=0.783273+0.973706I$ $a=-1.02416-1.49922I$ $b=-2.25779-1.14181I$	$5.25313+7.47524I$	$4.75140-5.55460I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.783273 + 0.973706I$ $a = -1.45989 - 1.93026I$ $b = -2.33404 - 1.59863I$	$9.39071 + 10.30340I$	$11.2807 - 8.5341I$
$u = 0.783273 + 0.973706I$ $a = 1.43147 + 2.27994I$ $b = 3.22065 + 1.51278I$	$9.39071 + 10.30340I$	$11.2807 - 8.5341I$
$u = 0.783273 - 0.973706I$ $a = 1.326350 - 0.471754I$ $b = 2.04475 - 0.11364I$	$9.39071 - 4.64712I$	$11.28067 + 2.57516I$
$u = 0.783273 - 0.973706I$ $a = -1.67600 + 0.44303I$ $b = -1.81609 - 0.74728I$	$9.39071 - 4.64712I$	$11.28067 + 2.57516I$
$u = 0.783273 - 0.973706I$ $a = 1.18679 - 1.33645I$ $b = 1.77804 - 0.80841I$	$5.25313 - 7.47524I$	$4.75140 + 5.55460I$
$u = 0.783273 - 0.973706I$ $a = -1.02416 + 1.49922I$ $b = -2.25779 + 1.14181I$	$5.25313 - 7.47524I$	$4.75140 + 5.55460I$
$u = 0.783273 - 0.973706I$ $a = -1.45989 + 1.93026I$ $b = -2.33404 + 1.59863I$	$9.39071 - 10.30340I$	$11.2807 + 8.5341I$
$u = 0.783273 - 0.973706I$ $a = 1.43147 - 2.27994I$ $b = 3.22065 - 1.51278I$	$9.39071 - 10.30340I$	$11.2807 + 8.5341I$
$u = 0.267638 + 0.666716I$ $a = -0.623262 + 0.912471I$ $b = -1.52756 + 1.18198I$	$3.51662 + 1.13130I$	$4.96829 - 6.05785I$
$u = 0.267638 + 0.666716I$ $a = -0.668528 - 0.888572I$ $b = 1.61019 - 0.86088I$	$7.65420 - 1.69682I$	$11.49756 - 3.07840I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.267638 + 0.666716I$ $a = 0.04045 - 2.41478I$ $b = -0.071526 - 0.743532I$	$3.51662 + 1.13130I$	$4.96829 - 6.05785I$
$u = 0.267638 + 0.666716I$ $a = 2.08007 - 1.28478I$ $b = 1.93317 - 1.93185I$	$7.65420 + 3.95942I$	$11.4976 - 9.0373I$
$u = 0.267638 + 0.666716I$ $a = 0.07973 + 2.45592I$ $b = -0.507096 - 0.155654I$	$7.65420 + 3.95942I$	$11.4976 - 9.0373I$
$u = 0.267638 + 0.666716I$ $a = -0.13641 + 3.20987I$ $b = 0.68116 + 1.92911I$	$7.65420 - 1.69682I$	$11.49756 - 3.07840I$
$u = 0.267638 - 0.666716I$ $a = -0.623262 - 0.912471I$ $b = -1.52756 - 1.18198I$	$3.51662 - 1.13130I$	$4.96829 + 6.05785I$
$u = 0.267638 - 0.666716I$ $a = -0.668528 + 0.888572I$ $b = 1.61019 + 0.86088I$	$7.65420 + 1.69682I$	$11.49756 + 3.07840I$
$u = 0.267638 - 0.666716I$ $a = 0.04045 + 2.41478I$ $b = -0.071526 + 0.743532I$	$3.51662 - 1.13130I$	$4.96829 + 6.05785I$
$u = 0.267638 - 0.666716I$ $a = 2.08007 + 1.28478I$ $b = 1.93317 + 1.93185I$	$7.65420 - 3.95942I$	$11.4976 + 9.0373I$
$u = 0.267638 - 0.666716I$ $a = 0.07973 - 2.45592I$ $b = -0.507096 + 0.155654I$	$7.65420 - 3.95942I$	$11.4976 + 9.0373I$
$u = 0.267638 - 0.666716I$ $a = -0.13641 - 3.20987I$ $b = 0.68116 - 1.92911I$	$7.65420 + 1.69682I$	$11.49756 + 3.07840I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.602288$ $a = -0.203632 + 1.035930I$ $b = 0.985506 - 0.329928I$	$5.76356 - 2.82812I$	$11.88601 + 2.97945I$
$u = -0.602288$ $a = -0.203632 - 1.035930I$ $b = 0.985506 + 0.329928I$	$5.76356 + 2.82812I$	$11.88601 - 2.97945I$
$u = -0.602288$ $a = -1.09575$ $b = 0.378653$	1.62597	5.35670
$u = -0.602288$ $a = 1.51363 + 0.07613I$ $b = -0.671714 + 0.596308I$	$5.76356 - 2.82812I$	$11.88601 + 2.97945I$
$u = -0.602288$ $a = 1.51363 - 0.07613I$ $b = -0.671714 - 0.596308I$	$5.76356 + 2.82812I$	$11.88601 - 2.97945I$
$u = -0.602288$ $a = -0.0312656$ $b = -0.648614$	1.62597	5.35670

III.
$\boldsymbol{I_3^u = \langle u^{26}+3u^{24}+\cdots+b+3,\ -u^{26}+4u^{25}+\cdots+a+5,\ u^{27}-2u^{26}+\cdots-2u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^{26}-4u^{25}+\cdots+9u-5\\-u^{26}-3u^{24}+\cdots+2u-3\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-4u^{26}+7u^{25}+\cdots-15u+2\\-2u^{24}+2u^{23}+\cdots-7u+3\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\-u^4\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^{26}-4u^{25}+\cdots+9u-6\\-u^{26}+u^{25}+\cdots-3u^2-2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^3\\u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^{26}-5u^{25}+\cdots+11u-6\\-u^{26}-4u^{24}+\cdots-5u^2-2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-3u^{25}+6u^{24}+\cdots+15u-7\\-2u^{26}+3u^{25}+\cdots-u-2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}3u^{26}-2u^{25}+\cdots-4u+7\\3u^{26}-5u^{25}+\cdots-9u^2+7u\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^{26}+8u^{25}-28u^{24}+32u^{23}-92u^{22}+96u^{21}-220u^{20}+195u^{19}-398u^{18}+309u^{17}-567u^{16}+364u^{15}-635u^{14}+328u^{13}-556u^{12}+191u^{11}-353u^{10}+38u^{9}-151u^{8}-44u^{7}-22u^{6}-61u^{5}+18u^{4}-33u^{3}+16u^{2}-8u+11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{27} - 10u^{26} + \cdots - 10u + 1$
c_2	$u^{27} - 2u^{26} + \cdots - 2u + 1$
c_3, c_9	$u^{27} + u^{26} + \cdots - u - 1$
c_4, c_{11}	$u^{27} - u^{26} + \cdots - u + 1$
c_6	$u^{27} + 2u^{26} + \cdots - 2u - 1$
c_7, c_{10}	$u^{27} + 3u^{26} + \cdots + 9u + 1$
c_8	$u^{27} + 2u^{26} + \cdots + 3u - 1$
c_{12}	$u^{27} - 2u^{26} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{27} + 22y^{26} + \cdots - 6y - 1$
c_2, c_6	$y^{27} + 10y^{26} + \cdots - 10y - 1$
c_3, c_4, c_9 c_{11}	$y^{27} - 31y^{26} + \cdots + 25y - 1$
c_7, c_{10}	$y^{27} - 7y^{26} + \cdots + 17y - 1$
c_8, c_{12}	$y^{27} + 18y^{26} + \cdots - 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.098658 + 0.960080I$ $a = -0.689493 - 0.782416I$ $b = -0.093893 - 1.322120I$	$5.98500 - 2.27195I$	$5.47294 + 0.60584I$
$u = 0.098658 - 0.960080I$ $a = -0.689493 + 0.782416I$ $b = -0.093893 + 1.322120I$	$5.98500 + 2.27195I$	$5.47294 - 0.60584I$
$u = -0.371203 + 0.863799I$ $a = -0.127827 - 0.637731I$ $b = 0.929528 - 0.343631I$	$-0.32438 - 3.87037I$	$7.47138 + 7.61937I$
$u = -0.371203 - 0.863799I$ $a = -0.127827 + 0.637731I$ $b = 0.929528 + 0.343631I$	$-0.32438 + 3.87037I$	$7.47138 - 7.61937I$
$u = -0.475550 + 0.784868I$ $a = 0.543284 - 0.014973I$ $b = -0.023620 + 0.833245I$	$0.050415 + 0.292894I$	$-0.32440 + 1.69769I$
$u = -0.475550 - 0.784868I$ $a = 0.543284 + 0.014973I$ $b = -0.023620 - 0.833245I$	$0.050415 - 0.292894I$	$-0.32440 - 1.69769I$
$u = 0.763587 + 0.792484I$ $a = 0.20698 + 2.50246I$ $b = 1.21282 + 1.93690I$	$10.62880 - 1.45762I$	$13.10536 + 0.22687I$
$u = 0.763587 - 0.792484I$ $a = 0.20698 - 2.50246I$ $b = 1.21282 - 1.93690I$	$10.62880 + 1.45762I$	$13.10536 - 0.22687I$
$u = -0.403542 + 1.071660I$ $a = 0.152011 - 0.259503I$ $b = 0.591028 + 0.143334I$	$-0.51003 - 3.65390I$	$10.0399 + 10.0497I$
$u = -0.403542 - 1.071660I$ $a = 0.152011 + 0.259503I$ $b = 0.591028 - 0.143334I$	$-0.51003 + 3.65390I$	$10.0399 - 10.0497I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.853885 + 0.812726I$ $a = -1.34378 - 1.57792I$ $b = -1.96292 - 0.46615I$	$7.38217 - 1.67242I$	$12.78278 + 1.33399I$
$u = 0.853885 - 0.812726I$ $a = -1.34378 + 1.57792I$ $b = -1.96292 + 0.46615I$	$7.38217 + 1.67242I$	$12.78278 - 1.33399I$
$u = -0.819337 + 0.863109I$ $a = -0.404025 + 0.055275I$ $b = 0.175393 - 0.961371I$	$12.22380 - 4.46615I$	$12.08548 + 2.98099I$
$u = -0.819337 - 0.863109I$ $a = -0.404025 - 0.055275I$ $b = 0.175393 + 0.961371I$	$12.22380 + 4.46615I$	$12.08548 - 2.98099I$
$u = 0.726432 + 0.962159I$ $a = 2.02402 + 0.40291I$ $b = 2.45152 - 0.42886I$	$10.09890 + 7.12276I$	$12.00767 - 6.24158I$
$u = 0.726432 - 0.962159I$ $a = 2.02402 - 0.40291I$ $b = 2.45152 + 0.42886I$	$10.09890 - 7.12276I$	$12.00767 + 6.24158I$
$u = 0.464339 + 1.114370I$ $a = -0.386128 + 0.482768I$ $b = -0.613914 + 0.688900I$	$1.74483 + 3.73772I$	$7.15988 - 1.11337I$
$u = 0.464339 - 1.114370I$ $a = -0.386128 - 0.482768I$ $b = -0.613914 - 0.688900I$	$1.74483 - 3.73772I$	$7.15988 + 1.11337I$
$u = -0.806430 + 0.927777I$ $a = 0.329921 + 0.150131I$ $b = -0.560569 + 0.710302I$	$12.02800 - 1.61473I$	$11.77298 + 2.04900I$
$u = -0.806430 - 0.927777I$ $a = 0.329921 - 0.150131I$ $b = -0.560569 - 0.710302I$	$12.02800 + 1.61473I$	$11.77298 - 2.04900I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.798911 + 0.970282I$ $a = -1.28547 - 1.66984I$ $b = -2.38532 - 1.09469I$	$6.89307 + 7.82661I$	$11.65316 - 6.43233I$
$u = 0.798911 - 0.970282I$ $a = -1.28547 + 1.66984I$ $b = -2.38532 + 1.09469I$	$6.89307 - 7.82661I$	$11.65316 + 6.43233I$
$u = -0.681051$ $a = -0.614200$ $b = 0.703185$	2.62920	15.1510
$u = 0.078844 + 0.620759I$ $a = -0.42826 + 2.76821I$ $b = -1.64355 + 1.04383I$	$7.36770 + 3.04788I$	$7.32878 - 0.50531I$
$u = 0.078844 - 0.620759I$ $a = -0.42826 - 2.76821I$ $b = -1.64355 - 1.04383I$	$7.36770 - 3.04788I$	$7.32878 + 0.50531I$
$u = 0.431933 + 0.394463I$ $a = 1.21588 - 1.57109I$ $b = 0.571897 - 0.564666I$	$4.07392 + 0.22515I$	$11.36875 + 0.96100I$
$u = 0.431933 - 0.394463I$ $a = 1.21588 + 1.57109I$ $b = 0.571897 + 0.564666I$	$4.07392 - 0.22515I$	$11.36875 - 0.96100I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$((u^{11}+3u^{10}+\cdots-2u-1)^6)(u^{27}-10u^{26}+\cdots-10u+1)$ $\cdot\,(u^{41}+13u^{40}+\cdots-432u-64)$
c_2	$(u^{11}+u^{10}+2u^9+u^8+4u^7+2u^6+4u^5+u^4+3u^3-u^2-1)^6$ $\cdot\,(u^{27}-2u^{26}+\cdots-2u+1)(u^{41}-9u^{40}+\cdots-12u+8)$
c_3, c_9	$(u^{27}+u^{26}+\cdots-u-1)(u^{41}-u^{40}+\cdots+3u-1)$ $\cdot\,(u^{66}-u^{65}+\cdots-19674u-2411)$
c_4, c_{11}	$(u^{27}-u^{26}+\cdots-u+1)(u^{41}-u^{40}+\cdots+3u-1)$ $\cdot\,(u^{66}-u^{65}+\cdots-19674u-2411)$
c_6	$(u^{11}+u^{10}+2u^9+u^8+4u^7+2u^6+4u^5+u^4+3u^3-u^2-1)^6$ $\cdot\,(u^{27}+2u^{26}+\cdots-2u-1)(u^{41}-9u^{40}+\cdots-12u+8)$
c_7, c_{10}	$(u^{27}+3u^{26}+\cdots+9u+1)(u^{41}+3u^{40}+\cdots+19u-1)$ $\cdot\,(u^{66}+13u^{65}+\cdots-4806258u-401201)$
c_8	$((u^3-u^2+2u-1)^{22})(u^{27}+2u^{26}+\cdots+3u-1)$ $\cdot\,(u^{41}+25u^{40}+\cdots+33792u+2048)$
c_{12}	$((u^3-u^2+2u-1)^{22})(u^{27}-2u^{26}+\cdots+3u+1)$ $\cdot\,(u^{41}+25u^{40}+\cdots+33792u+2048)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y^{11}+11y^{10}+\cdots+6y-1)^6)(y^{27}+22y^{26}+\cdots-6y-1)$ $\cdot(y^{41}+33y^{40}+\cdots-307968y-4096)$
c_2, c_6	$((y^{11}+3y^{10}+\cdots-2y-1)^6)(y^{27}+10y^{26}+\cdots-10y-1)$ $\cdot(y^{41}+13y^{40}+\cdots-432y-64)$
c_3, c_4, c_9 c_{11}	$(y^{27}-31y^{26}+\cdots+25y-1)(y^{41}-41y^{40}+\cdots+5y-1)$ $\cdot(y^{66}-65y^{65}+\cdots-282043116y+5812921)$
c_7, c_{10}	$(y^{27}-7y^{26}+\cdots+17y-1)(y^{41}-25y^{40}+\cdots+113y-1)$ $\cdot(y^{66}-29y^{65}+\cdots-4863460315404y+160962242401)$
c_8, c_{12}	$((y^3+3y^2+2y-1)^{22})(y^{27}+18y^{26}+\cdots-3y-1)$ $\cdot(y^{41}+21y^{40}+\cdots-7340032y-4194304)$