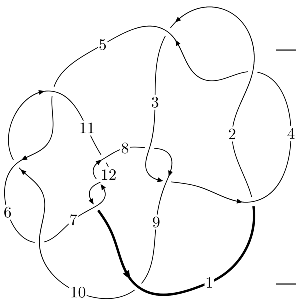
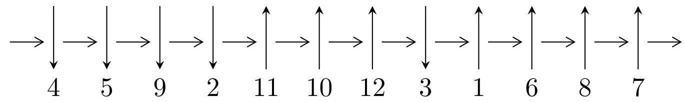
$12a_{0845}$ ($K12a_{0845}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 27u^{31} - 17u^{30} + \cdots + 128b + 71,\ 95u^{31} - 45u^{30} + \cdots + 256a - 341,\ u^{32} + 21u^{30} + \cdots - 4u - 1\rangle$$

$$I_2^u = \langle 2.51515 \times 10^{30}u^{39} - 4.97836 \times 10^{30}u^{38} + \cdots + 2.65897 \times 10^{31}b + 5.38153 \times 10^{30},$$
$$5.98427 \times 10^{30}u^{39} + 1.37483 \times 10^{32}u^{38} + \cdots + 4.52025 \times 10^{32}a + 1.58918 \times 10^{33},\ u^{40} - 2u^{39} + \cdots + 70u +$$

$$I_3^u = \langle b + 1,\ -u^2 + 2a + u - 1,\ u^3 + 2u + 1\rangle$$

$$I_4^u = \langle 1700a^4u + 1422a^3u + \cdots - 9124a + 3991,$$
$$a^5 + 2a^4u - 4a^3u - 3a^3 + 8a^2u + 2a^2 - 11au - 3a + 4u - 1,\ u^2 + 1\rangle$$

$$I_5^u = \langle b + 1,\ u^3 - u^2 + a + u - 1,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 89 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. $\boldsymbol{I_1^u = \langle 27u^{31} - 17u^{30} + \cdots + 128b + 71,\ 95u^{31} - 45u^{30} + \cdots + 256a - 341,\ u^{32} + 21u^{30} + \cdots - 4u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.371094u^{31} + 0.175781u^{30} + \cdots - 1.19922u + 1.33203 \\ -0.210938u^{31} + 0.132813u^{30} + \cdots + 1.32031u - 0.554688 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.175781u^{31} - 0.160156u^{30} + \cdots - 0.847656u + 2.62109 \\ -0.0234375u^{31} - 0.242188u^{30} + \cdots + 2.13281u + 0.132813 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 + 2u \\ -\frac{1}{32}u^{30} - \frac{5}{8}u^{28} + \cdots + \frac{9}{8}u + \frac{1}{32} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{32}u^{30} - \frac{5}{8}u^{28} + \cdots - \frac{7}{8}u + \frac{1}{32} \\ -0.0625000u^{31} - 0.0312500u^{30} + \cdots + 1.43750u + 0.0937500 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.160156u^{31} + 0.0429688u^{30} + \cdots - 2.51953u + 1.88672 \\ -0.210938u^{31} + 0.132813u^{30} + \cdots + 1.32031u - 0.554688 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -\frac{1}{32}u^{30} - \frac{5}{8}u^{28} + \cdots + \frac{9}{8}u + \frac{1}{32} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ \frac{1}{32}u^{31} + \frac{5}{8}u^{29} + \cdots - \frac{25}{8}u^2 - \frac{1}{32}u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1101}{512}u^{31} - \frac{87}{512}u^{30} + \cdots + \frac{3849}{512}u - \frac{4159}{512}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{32} - 4u^{31} + \cdots + 7u - 4$
c_3, c_8	$u^{32} + 3u^{31} + \cdots + 104u + 32$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{32} + 21u^{30} + \cdots - 4u - 1$
c_9	$u^{32} - 18u^{31} + \cdots - 14736u + 916$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{32} - 32y^{31} + \cdots + 319y + 16$
c_3, c_8	$y^{32} - 21y^{31} + \cdots - 7488y + 1024$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{32} + 42y^{31} + \cdots - 14y + 1$
c_9	$y^{32} + 20y^{31} + \cdots - 30763848y + 839056$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.596205 + 0.498969I$ $a = 1.06549 - 1.64640I$ $b = 1.49564 + 0.24366I$	$-7.50818 - 6.89795I$	$-2.71124 + 7.50017I$
$u = -0.596205 - 0.498969I$ $a = 1.06549 + 1.64640I$ $b = 1.49564 - 0.24366I$	$-7.50818 + 6.89795I$	$-2.71124 - 7.50017I$
$u = 0.754755$ $a = -0.570917$ $b = 1.39668$	-3.40793	-0.829000
$u = -0.211830 + 0.599469I$ $a = 1.65626 - 0.21759I$ $b = 1.46116 - 0.21545I$	$-7.75015 + 3.68745I$	$-3.07982 + 0.49088I$
$u = -0.211830 - 0.599469I$ $a = 1.65626 + 0.21759I$ $b = 1.46116 + 0.21545I$	$-7.75015 - 3.68745I$	$-3.07982 - 0.49088I$
$u = -0.479084 + 0.400920I$ $a = -0.765594 + 0.958623I$ $b = -0.444406 - 0.698143I$	$-1.18593 - 3.45933I$	$0.36714 + 8.58181I$
$u = -0.479084 - 0.400920I$ $a = -0.765594 - 0.958623I$ $b = -0.444406 + 0.698143I$	$-1.18593 + 3.45933I$	$0.36714 - 8.58181I$
$u = -0.160222 + 1.392530I$ $a = 0.650299 - 0.572723I$ $b = 1.266450 + 0.201760I$	$-11.40110 - 6.30632I$	$-9.82325 + 7.00988I$
$u = -0.160222 - 1.392530I$ $a = 0.650299 + 0.572723I$ $b = 1.266450 - 0.201760I$	$-11.40110 + 6.30632I$	$-9.82325 - 7.00988I$
$u = 0.382126 + 0.419731I$ $a = -2.30352 - 1.43026I$ $b = -1.338740 + 0.035203I$	$-3.40611 + 1.30629I$	$-1.33758 - 5.13961I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.382126 - 0.419731I$ $a = -2.30352 + 1.43026I$ $b = -1.338740 - 0.035203I$	$-3.40611 - 1.30629I$	$-1.33758 + 5.13961I$
$u = -0.06475 + 1.47499I$ $a = 0.180600 + 0.329919I$ $b = 0.011515 - 0.768259I$	$-7.68442 - 2.87580I$	$-3.53748 + 2.84926I$
$u = -0.06475 - 1.47499I$ $a = 0.180600 - 0.329919I$ $b = 0.011515 + 0.768259I$	$-7.68442 + 2.87580I$	$-3.53748 - 2.84926I$
$u = -0.254205 + 0.420009I$ $a = 0.174493 + 0.167283I$ $b = -0.487143 + 0.568904I$	$-1.54825 + 0.79595I$	$-1.86394 + 0.64403I$
$u = -0.254205 - 0.420009I$ $a = 0.174493 - 0.167283I$ $b = -0.487143 - 0.568904I$	$-1.54825 - 0.79595I$	$-1.86394 - 0.64403I$
$u = 0.468066 + 0.127863I$ $a = 0.912830 + 0.528691I$ $b = 0.066081 - 0.253115I$	$0.944780 + 0.326097I$	$9.67071 - 2.04247I$
$u = 0.468066 - 0.127863I$ $a = 0.912830 - 0.528691I$ $b = 0.066081 + 0.253115I$	$0.944780 - 0.326097I$	$9.67071 + 2.04247I$
$u = -0.23451 + 1.51253I$ $a = 0.846875 - 0.269710I$ $b = 0.523812 + 0.289998I$	$-10.33180 - 5.71165I$	0
$u = -0.23451 - 1.51253I$ $a = 0.846875 + 0.269710I$ $b = 0.523812 - 0.289998I$	$-10.33180 + 5.71165I$	0
$u = 0.02829 + 1.53350I$ $a = -1.102420 - 0.698559I$ $b = -1.221070 + 0.439429I$	$-11.45660 + 1.47285I$	$-7.62357 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.02829 - 1.53350I$ $a = -1.102420 + 0.698559I$ $b = -1.221070 - 0.439429I$	$-11.45660 - 1.47285I$	$-7.62357 + 0.I$
$u = 0.31678 + 1.58141I$ $a = -0.893014 - 0.277667I$ $b = -0.473160 + 0.942126I$	$-14.4681 + 10.1956I$	0
$u = 0.31678 - 1.58141I$ $a = -0.893014 + 0.277667I$ $b = -0.473160 - 0.942126I$	$-14.4681 - 10.1956I$	0
$u = 0.37112 + 1.57673I$ $a = 1.69318 + 1.26301I$ $b = 1.54683 - 0.35117I$	$18.4767 + 14.9244I$	0
$u = 0.37112 - 1.57673I$ $a = 1.69318 - 1.26301I$ $b = 1.54683 + 0.35117I$	$18.4767 - 14.9244I$	0
$u = 0.26017 + 1.60825I$ $a = -0.360654 - 0.247692I$ $b = -0.783401 - 0.817291I$	$-15.3979 + 4.2870I$	0
$u = 0.26017 - 1.60825I$ $a = -0.360654 + 0.247692I$ $b = -0.783401 + 0.817291I$	$-15.3979 - 4.2870I$	0
$u = -0.29422 + 1.60301I$ $a = -2.19215 + 0.90406I$ $b = -1.52077 - 0.11946I$	$-17.1436 - 7.3763I$	0
$u = -0.29422 - 1.60301I$ $a = -2.19215 - 0.90406I$ $b = -1.52077 + 0.11946I$	$-17.1436 + 7.3763I$	0
$u = 0.20651 + 1.69012I$ $a = 1.84144 + 0.18045I$ $b = 1.64925 + 0.18271I$	$15.7187 + 0.6038I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.20651 - 1.69012I$ $a = 1.84144 - 0.18045I$ $b = 1.64925 - 0.18271I$	$15.7187 - 0.6038I$	0
$u = -0.230813$ $a = 2.26267$ $b = -0.900755$	-1.28704	-11.6950

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 2.52\times10^{30}u^{39}-4.98\times10^{30}u^{38}+\cdots+2.66\times10^{31}b+5.38\times10^{30},\ 5.98\times10^{30}u^{39}+1.37\times10^{32}u^{38}+\cdots+4.52\times10^{32}a+1.59\times10^{33},\ u^{40}-2u^{39}+\cdots+70u+17\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0132388u^{39} - 0.304149u^{38} + \cdots - 19.0490u - 3.51569 \\ -0.0945910u^{39} + 0.187229u^{38} + \cdots - 1.05104u - 0.202391 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.0200117u^{39} - 0.351489u^{38} + \cdots - 16.4010u - 2.88540 \\ -0.111153u^{39} + 0.190940u^{38} + \cdots - 1.07291u + 0.135035 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0353564u^{39} - 0.163030u^{38} + \cdots + 6.81251u + 3.38142 \\ 0.0225725u^{39} - 0.0296256u^{38} + \cdots + 0.156751u - 0.0137151 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.107258u^{39} - 0.235738u^{38} + \cdots + 10.0225u + 5.03405 \\ -0.0000152608u^{39} + 0.0654597u^{38} + \cdots + 1.49458u - 0.374494 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0813522u^{39} - 0.491378u^{38} + \cdots - 17.9980u - 3.31330 \\ -0.0945910u^{39} + 0.187229u^{38} + \cdots - 1.05104u - 0.202391 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0115865u^{39} - 0.0664804u^{38} + \cdots + 9.46368u + 3.29819 \\ 0.0237699u^{39} - 0.0965499u^{38} + \cdots - 0.651167u + 0.0832334 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.0482035u^{39} + 0.143644u^{38} + \cdots + 3.33815u - 2.19086 \\ -0.0433074u^{39} + 0.110082u^{38} + \cdots + 2.48713u + 1.80303 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.224463u^{39} + 0.00102049u^{38} + \cdots - 18.8412u - 3.74724$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$(u^{20} - 3u^{19} + \cdots + u - 1)^2$
c_3, c_8	$(u^{20} - u^{19} + \cdots + 8u - 4)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$u^{40} - 2u^{39} + \cdots + 70u + 17$
c_9	$(u^{20} + 6u^{19} + \cdots - 2u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^{20} - 21y^{19} + \cdots - 13y + 1)^2$
c_3, c_8	$(y^{20} - 15y^{19} + \cdots - 24y + 16)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^{40} + 34y^{39} + \cdots + 1832y + 289$
c_9	$(y^{20} + 18y^{19} + \cdots - 86y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.165946 + 1.040490I$ $a = 0.81855 + 1.38502I$ $b = -0.490452$	-4.14943	$-7.86459 + 0.I$
$u = -0.165946 - 1.040490I$ $a = 0.81855 - 1.38502I$ $b = -0.490452$	-4.14943	$-7.86459 + 0.I$
$u = 0.907483 + 0.556580I$ $a = -0.439591 - 0.994091I$ $b = -0.528240 + 0.848460I$	$-7.47319 + 5.67427I$	$-4.59597 - 5.66395I$
$u = 0.907483 - 0.556580I$ $a = -0.439591 + 0.994091I$ $b = -0.528240 - 0.848460I$	$-7.47319 - 5.67427I$	$-4.59597 + 5.66395I$
$u = 0.849096 + 0.668982I$ $a = 0.274937 + 0.407232I$ $b = -0.637670 - 0.786578I$	$-7.82964 + 0.19167I$	$-5.73570 + 0.22109I$
$u = 0.849096 - 0.668982I$ $a = 0.274937 - 0.407232I$ $b = -0.637670 + 0.786578I$	$-7.82964 - 0.19167I$	$-5.73570 - 0.22109I$
$u = -0.893068 + 0.616859I$ $a = -1.19973 + 0.80164I$ $b = -1.47518 - 0.04286I$	$-9.82414 - 2.97363I$	$-5.92336 + 2.68538I$
$u = -0.893068 - 0.616859I$ $a = -1.19973 - 0.80164I$ $b = -1.47518 + 0.04286I$	$-9.82414 + 2.97363I$	$-5.92336 - 2.68538I$
$u = 1.002000 + 0.504102I$ $a = 0.578230 + 1.285260I$ $b = 1.55303 - 0.29778I$	$-14.2713 + 9.8846I$	$-6.38252 - 5.77638I$
$u = 1.002000 - 0.504102I$ $a = 0.578230 - 1.285260I$ $b = 1.55303 + 0.29778I$	$-14.2713 - 9.8846I$	$-6.38252 + 5.77638I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.085676 + 1.124200I$ $a = 0.250275 - 0.440703I$ $b = -0.155247 + 0.510694I$	$-1.84814 + 1.82256I$	$3.12541 - 5.12436I$
$u = 0.085676 - 1.124200I$ $a = 0.250275 + 0.440703I$ $b = -0.155247 - 0.510694I$	$-1.84814 - 1.82256I$	$3.12541 + 5.12436I$
$u = -0.696648 + 0.501396I$ $a = 0.450944 - 0.346330I$ $b = 0.345319 + 0.136644I$	$-3.75614 - 2.30782I$	$2.11267 + 3.58910I$
$u = -0.696648 - 0.501396I$ $a = 0.450944 + 0.346330I$ $b = 0.345319 - 0.136644I$	$-3.75614 + 2.30782I$	$2.11267 - 3.58910I$
$u = 0.309526 + 1.128320I$ $a = 0.941074 + 0.963953I$ $b = 1.407720 - 0.116456I$	$-6.86225 + 3.88098I$	$-4.06498 - 4.02252I$
$u = 0.309526 - 1.128320I$ $a = 0.941074 - 0.963953I$ $b = 1.407720 + 0.116456I$	$-6.86225 - 3.88098I$	$-4.06498 + 4.02252I$
$u = -0.013501 + 1.171490I$ $a = -1.93036 + 1.33290I$ $b = -1.090200 - 0.185729I$	$-4.50859 - 0.86143I$	$-1.55325 - 0.99952I$
$u = -0.013501 - 1.171490I$ $a = -1.93036 - 1.33290I$ $b = -1.090200 + 0.185729I$	$-4.50859 + 0.86143I$	$-1.55325 + 0.99952I$
$u = 0.891957 + 0.807557I$ $a = 0.655723 + 0.126089I$ $b = 1.57757 + 0.24291I$	$-15.1619 - 3.5694I$	$-7.71587 + 1.00735I$
$u = 0.891957 - 0.807557I$ $a = 0.655723 - 0.126089I$ $b = 1.57757 - 0.24291I$	$-15.1619 + 3.5694I$	$-7.71587 - 1.00735I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.420232 + 1.236850I$ $a = 1.24867 - 1.29040I$ $b = 1.49625$	-10.6935	$-8.66827 + 0.I$
$u = -0.420232 - 1.236850I$ $a = 1.24867 + 1.29040I$ $b = 1.49625$	-10.6935	$-8.66827 + 0.I$
$u = 0.112225 + 1.360290I$ $a = 1.031720 + 0.131109I$ $b = 0.345319 - 0.136644I$	$-3.75614 + 2.30782I$	$2.00000 - 3.58910I$
$u = 0.112225 - 1.360290I$ $a = 1.031720 - 0.131109I$ $b = 0.345319 + 0.136644I$	$-3.75614 - 2.30782I$	$2.00000 + 3.58910I$
$u = -0.612885 + 0.007595I$ $a = -0.720052 - 0.811944I$ $b = 1.407720 - 0.116456I$	$-6.86225 + 3.88098I$	$-4.06498 - 4.02252I$
$u = -0.612885 - 0.007595I$ $a = -0.720052 + 0.811944I$ $b = 1.407720 + 0.116456I$	$-6.86225 - 3.88098I$	$-4.06498 + 4.02252I$
$u = 0.189437 + 0.520813I$ $a = 2.29770 - 2.15386I$ $b = -1.090200 + 0.185729I$	$-4.50859 + 0.86143I$	$-1.55325 + 0.99952I$
$u = 0.189437 - 0.520813I$ $a = 2.29770 + 2.15386I$ $b = -1.090200 - 0.185729I$	$-4.50859 - 0.86143I$	$-1.55325 - 0.99952I$
$u = -0.05659 + 1.49228I$ $a = -0.735047 + 0.389310I$ $b = -0.637670 + 0.786578I$	$-7.82964 - 0.19167I$	$-5.73570 + 0.I$
$u = -0.05659 - 1.49228I$ $a = -0.735047 - 0.389310I$ $b = -0.637670 - 0.786578I$	$-7.82964 + 0.19167I$	$-5.73570 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.14258+1.49572I$ $a=-1.026510-0.040293I$ $b=-0.528240-0.848460I$	$-7.47319-5.67427I$	0
$u=-0.14258-1.49572I$ $a=-1.026510+0.040293I$ $b=-0.528240+0.848460I$	$-7.47319+5.67427I$	0
$u=0.10126+1.50509I$ $a=-2.95162-0.51566I$ $b=-1.47518+0.04286I$	$-9.82414+2.97363I$	$-5.92336+0.I$
$u=0.10126-1.50509I$ $a=-2.95162+0.51566I$ $b=-1.47518-0.04286I$	$-9.82414-2.97363I$	$-5.92336+0.I$
$u=-0.20603+1.53635I$ $a=2.21586-1.04966I$ $b=1.55303+0.29778I$	$-14.2713-9.8846I$	0
$u=-0.20603-1.53635I$ $a=2.21586+1.04966I$ $b=1.55303-0.29778I$	$-14.2713+9.8846I$	0
$u=0.02291+1.55592I$ $a=2.40886+0.34865I$ $b=1.57757-0.24291I$	$-15.1619+3.5694I$	$-7.71587+0.I$
$u=0.02291-1.55592I$ $a=2.40886-0.34865I$ $b=1.57757+0.24291I$	$-15.1619-3.5694I$	$-7.71587+0.I$
$u=-0.264100+0.235618I$ $a=1.68330+1.93764I$ $b=-0.155247-0.510694I$	$-1.84814-1.82256I$	$3.12541+5.12436I$
$u=-0.264100-0.235618I$ $a=1.68330-1.93764I$ $b=-0.155247+0.510694I$	$-1.84814+1.82256I$	$3.12541-5.12436I$

III. $\boldsymbol{I_3^u = \langle b+1,\ -u^2+2a+u-1,\ u^3+2u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{25}{4}u^2 - \frac{11}{4}u + \frac{23}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^3$
c_3, c_8	u^3
c_4	$(u+1)^3$
c_5, c_6, c_7	u^3+2u+1
c_9	u^3+3u^2+5u+2
c_{10}, c_{11}, c_{12}	u^3+2u-1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_8	y^3
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^3 + 4y^2 + 4y - 1$
c_9	$y^3 + y^2 + 13y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.22670 + 1.46771I$ $a = -0.664742 - 0.401127I$ $b = -1.00000$	$-11.08570 + 5.13794I$	$-8.01583 + 0.12290I$
$u = \quad 0.22670 - 1.46771I$ $a = -0.664742 + 0.401127I$ $b = -1.00000$	$-11.08570 - 5.13794I$	$-8.01583 - 0.12290I$
$u = -0.453398$ $a = \quad 0.829484$ $b = -1.00000$	-0.857735	8.28170

IV.

$\boldsymbol{I^u_4 = \langle 1700a^4u+1422a^3u+\cdots-9124a+3991,\ 2a^4u-4a^3u+\cdots-3a-1,\ u^2+1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ -0.165225a^4u - 0.138206a^3u + \cdots + 0.886772a - 0.387890 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.194382a^4u - 0.0726990a^3u + \cdots - 1.51385a + 1.63281 \\ 0.140441a^4u - 0.182525a^3u + \cdots - 1.15376a + 0.179706 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ 0.0432501a^4u - 0.146176a^3u + \cdots - 0.396832a - 0.636699 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0432501a^4u - 0.146176a^3u + \cdots - 0.396832a - 0.636699 \\ -0.217514a^4u - 0.226650a^3u + \cdots + 1.39800a - 1.02712 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.165225a^4u + 0.138206a^3u + \cdots + 0.113228a + 0.387890 \\ -0.165225a^4u - 0.138206a^3u + \cdots + 0.886772a - 0.387890 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ 0.0432501a^4u - 0.146176a^3u + \cdots - 0.396832a - 0.636699 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1 \\ -0.157353a^4u - 0.0951502a^3u + \cdots + 1.07746a - 0.921761 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{5020}{10289}a^4u + \frac{5320}{10289}a^4 + \frac{11704}{10289}a^3u - \frac{11044}{10289}a^3 - \frac{46780}{10289}a^2u - \frac{6452}{10289}a^2 + \frac{26616}{10289}au - \frac{20164}{10289}a - \frac{44688}{10289}u - \frac{40144}{10289}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$
c_3, c_8	$u^{10} - 3u^8 + 4u^6 - u^4 - u^2 + 1$
c_4	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$(u^2 + 1)^5$
c_9	$u^{10} + u^8 + 8u^6 + 3u^4 + 3u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$
c_3, c_8	$(y^5 - 3y^4 + 4y^3 - y^2 - y + 1)^2$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$(y + 1)^{10}$
c_9	$(y^5 + y^4 + 8y^3 + 3y^2 + 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.098266 + 1.257020I$ $b = -0.309916 - 0.549911I$	$-3.61897 - 1.53058I$	$-4.51511 + 4.43065I$
$u = 1.000000I$ $a = 0.670357 - 1.241280I$ $b = 1.41878 + 0.21917I$	$-9.16243 - 4.40083I$	$-8.74431 + 3.49859I$
$u = 1.000000I$ $a = 0.335534 + 0.278295I$ $b = -0.309916 + 0.549911I$	$-3.61897 + 1.53058I$	$-4.51511 - 4.43065I$
$u = 1.000000I$ $a = 1.61419 - 0.22314I$ $b = 1.41878 - 0.21917I$	$-9.16243 + 4.40083I$	$-8.74431 - 3.49859I$
$u = 1.000000I$ $a = -2.52181 - 2.07090I$ $b = -1.21774$	-5.69095	$-5.48114 + 0.I$
$u = -1.000000I$ $a = -0.098266 - 1.257020I$ $b = -0.309916 + 0.549911I$	$-3.61897 + 1.53058I$	$-4.51511 - 4.43065I$
$u = -1.000000I$ $a = 0.670357 + 1.241280I$ $b = 1.41878 - 0.21917I$	$-9.16243 + 4.40083I$	$-8.74431 - 3.49859I$
$u = -1.000000I$ $a = 0.335534 - 0.278295I$ $b = -0.309916 - 0.549911I$	$-3.61897 - 1.53058I$	$-4.51511 + 4.43065I$
$u = -1.000000I$ $a = 1.61419 + 0.22314I$ $b = 1.41878 + 0.21917I$	$-9.16243 - 4.40083I$	$-8.74431 + 3.49859I$
$u = -1.000000I$ $a = -2.52181 + 2.07090I$ $b = -1.21774$	-5.69095	$-5.48114 + 0.I$

V. $\boldsymbol{I_5^u = \langle b+1,\ u^3-u^2+a+u-1,\ u^4-u^3+2u^2-2u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 0.692440 - 0.318148I$ $b = -1.00000$	$-4.93480 + 2.02988I$	$-5.00000 - 3.46410I$
$u = 0.621744 - 0.440597I$ $a = 0.692440 + 0.318148I$ $b = -1.00000$	$-4.93480 - 2.02988I$	$-5.00000 + 3.46410I$
$u = -0.121744 + 1.306620I$ $a = -1.192440 + 0.547877I$ $b = -1.00000$	$-4.93480 - 2.02988I$	$-5.00000 + 3.46410I$
$u = -0.121744 - 1.306620I$ $a = -1.192440 - 0.547877I$ $b = -1.00000$	$-4.93480 + 2.02988I$	$-5.00000 - 3.46410I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^7)(u^5+u^4+\cdots+u-1)^2(u^{20}-3u^{19}+\cdots+u-1)^2$ $\cdot(u^{32}-4u^{31}+\cdots+7u-4)$
c_3, c_8	$u^7(u^{10}-3u^8+\cdots-u^2+1)(u^{20}-u^{19}+\cdots+8u-4)^2$ $\cdot(u^{32}+3u^{31}+\cdots+104u+32)$
c_4	$((u+1)^7)(u^5-u^4+\cdots+u+1)^2(u^{20}-3u^{19}+\cdots+u-1)^2$ $\cdot(u^{32}-4u^{31}+\cdots+7u-4)$
c_5, c_6, c_7	$(u^2+1)^5(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(u^{32}+21u^{30}+\cdots-4u-1)(u^{40}-2u^{39}+\cdots+70u+17)$
c_9	$(u^2-u+1)^2(u^3+3u^2+5u+2)(u^{10}+u^8+8u^6+3u^4+3u^2+1)$ $\cdot((u^{20}+6u^{19}+\cdots-2u+1)^2)(u^{32}-18u^{31}+\cdots-14736u+916)$
c_{10}, c_{11}, c_{12}	$(u^2+1)^5(u^3+2u-1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{32}+21u^{30}+\cdots-4u-1)(u^{40}-2u^{39}+\cdots+70u+17)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^7(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot((y^{20}-21y^{19}+\cdots-13y+1)^2)(y^{32}-32y^{31}+\cdots+319y+16)$
c_3, c_8	$y^7(y^5-3y^4+\cdots-y+1)^2(y^{20}-15y^{19}+\cdots-24y+16)^2$ $\cdot(y^{32}-21y^{31}+\cdots-7488y+1024)$
c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$(y+1)^{10}(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{32}+42y^{31}+\cdots-14y+1)(y^{40}+34y^{39}+\cdots+1832y+289)$
c_9	$(y^2+y+1)^2(y^3+y^2+13y-4)(y^5+y^4+8y^3+3y^2+3y+1)^2$ $\cdot(y^{20}+18y^{19}+\cdots-86y+1)^2$ $\cdot(y^{32}+20y^{31}+\cdots-30763848y+839056)$