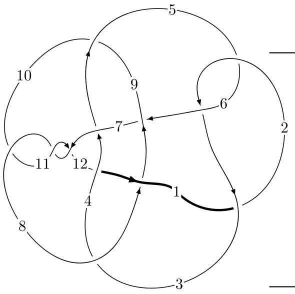
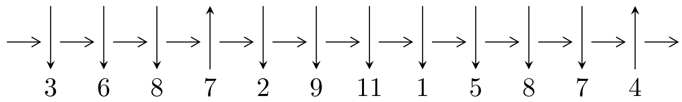
$12n_{0445}$ ($K12n_{0445}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 4.88127\times 10^{25}u^{40} - 6.12725\times 10^{26}u^{39} + \cdots + 1.13889\times 10^{27}b + 1.45283\times 10^{27},$$
$$-1.45283\times 10^{27}u^{40} - 1.60788\times 10^{28}u^{39} + \cdots + 2.27778\times 10^{27}a + 3.79150\times 10^{27},\ u^{41} + 11u^{40} + \cdots + u -$$
$$I_2^u = \langle -2u^{21} + 19u^{20} + \cdots + b - 1,\ -2u^{21}a - 3u^{21} + \cdots + 34a - 19,\ u^{22} - 9u^{21} + \cdots - u + 2\rangle$$
$$I_3^u = \langle u^{18} - 8u^{17} + \cdots + b + 5,\ 5u^{18} - 37u^{17} + \cdots + 3a + 11,\ u^{19} - 8u^{18} + \cdots + 22u - 3\rangle$$

$$I_1^v = \langle a,\ b + v,\ v^2 - v + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 106 representations.

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[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.

$$I_1^u = \langle 4.88\times10^{25}u^{40} - 6.13\times10^{26}u^{39} + \cdots + 1.14\times10^{27}b + 1.45\times10^{27},\ -1.45\times10^{27}u^{40} - 1.61\times10^{28}u^{39} + \cdots + 2.28\times10^{27}a + 3.79\times10^{27},\ u^{41} + 11u^{40} + \cdots + u - 2\rangle$$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.637828u^{40} + 7.05897u^{39} + \cdots + 1.58542u - 1.66456 \\ -0.0428599u^{40} + 0.538002u^{39} + \cdots + 2.30239u - 1.27566 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.680688u^{40} + 6.52097u^{39} + \cdots - 0.716970u - 0.388904 \\ -0.0428599u^{40} + 0.538002u^{39} + \cdots + 2.30239u - 1.27566 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.207988u^{40} + 0.989850u^{39} + \cdots - 7.34286u + 1.00547 \\ 0.819161u^{40} + 9.48963u^{39} + \cdots + 3.07598u - 2.05430 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.296693u^{40} + 2.56331u^{39} + \cdots - 0.742559u + 0.268642 \\ 0.281486u^{40} + 3.50776u^{39} + \cdots + 1.26811u - 0.743072 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.270868u^{40} - 2.54290u^{39} + \cdots - 2.46940u - 0.632851 \\ -0.436658u^{40} - 4.27983u^{39} + \cdots + 1.36198u + 0.541737 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0572819u^{40} + 0.783896u^{39} + \cdots + 2.88773u + 2.45935 \\ -0.0867526u^{40} - 1.16787u^{39} + \cdots - 2.34038u + 0.331579 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0310885u^{40} - 0.596983u^{39} + \cdots - 4.03552u - 1.81429 \\ 0.0740473u^{40} + 1.07368u^{39} + \cdots + 2.39076u - 0.0351562 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{3784787858690907283938229 16}{1138889945132180533501554689}u^{40} + \frac{1189614582699713607565744757 1}{1138889945132180533501554689}u^{39} + \cdots + \frac{198607471484978184232082813 17}{1138889945132180533501554689}u - \frac{231711700429842244471092219 88}{1138889945132180533501554689}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} + 18u^{40} + \cdots + 545u + 16$
c_2, c_5	$u^{41} + 10u^{40} + \cdots + 47u + 4$
c_3, c_9	$u^{41} - 5u^{39} + \cdots + 84u + 19$
c_4, c_{12}	$u^{41} + 2u^{40} + \cdots - 2u + 1$
c_6, c_8	$u^{41} + u^{40} + \cdots - 10u^2 + 1$
c_7, c_{10}, c_{11}	$u^{41} - 11u^{40} + \cdots + u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} + 18y^{40} + \cdots + 181953y - 256$
c_2, c_5	$y^{41} - 18y^{40} + \cdots + 545y - 16$
c_3, c_9	$y^{41} - 10y^{40} + \cdots + 4814y - 361$
c_4, c_{12}	$y^{41} + 54y^{40} + \cdots + 14y - 1$
c_6, c_8	$y^{41} - 13y^{40} + \cdots + 20y - 1$
c_7, c_{10}, c_{11}	$y^{41} + 15y^{40} + \cdots + 53y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.706689 + 0.696257I$ $a = -0.44253 + 1.82957I$ $b = 0.96112 + 1.60105I$	$-4.16406 - 0.45245I$	$-25.4999 + 8.2253I$
$u = -0.706689 - 0.696257I$ $a = -0.44253 - 1.82957I$ $b = 0.96112 - 1.60105I$	$-4.16406 + 0.45245I$	$-25.4999 - 8.2253I$
$u = 0.054180 + 1.030020I$ $a = -0.205903 - 0.584165I$ $b = -0.590549 + 0.243735I$	$2.74291 - 1.39069I$	$-3.13201 + 4.53829I$
$u = 0.054180 - 1.030020I$ $a = -0.205903 + 0.584165I$ $b = -0.590549 - 0.243735I$	$2.74291 + 1.39069I$	$-3.13201 - 4.53829I$
$u = -0.662735 + 0.842868I$ $a = -1.20996 + 0.98701I$ $b = 0.03003 + 1.67396I$	$-2.14687 - 1.05402I$	$-7.74942 + 6.28637I$
$u = -0.662735 - 0.842868I$ $a = -1.20996 - 0.98701I$ $b = 0.03003 - 1.67396I$	$-2.14687 + 1.05402I$	$-7.74942 - 6.28637I$
$u = 0.439686 + 1.004910I$ $a = -0.227962 + 0.447265I$ $b = 0.549691 + 0.032423I$	$0.53392 - 5.39252I$	$-5.32610 + 6.80273I$
$u = 0.439686 - 1.004910I$ $a = -0.227962 - 0.447265I$ $b = 0.549691 - 0.032423I$	$0.53392 + 5.39252I$	$-5.32610 - 6.80273I$
$u = -0.715109 + 0.936991I$ $a = 0.89217 - 1.39574I$ $b = -0.66980 - 1.83406I$	$-1.83014 + 6.43547I$	$-5.1590 - 14.1797I$
$u = -0.715109 - 0.936991I$ $a = 0.89217 + 1.39574I$ $b = -0.66980 + 1.83406I$	$-1.83014 - 6.43547I$	$-5.1590 + 14.1797I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.639753 + 1.021650I$ $a = 1.36343 - 0.56041I$ $b = 0.29972 - 1.75146I$	$-3.15249 + 5.67349I$	$-22.3042 - 5.1134I$
$u = -0.639753 - 1.021650I$ $a = 1.36343 + 0.56041I$ $b = 0.29972 + 1.75146I$	$-3.15249 - 5.67349I$	$-22.3042 + 5.1134I$
$u = 0.749226 + 0.080309I$ $a = 0.634776 - 0.408448I$ $b = -0.508392 + 0.255042I$	$-1.77251 - 3.09207I$	$-9.97234 + 6.78819I$
$u = 0.749226 - 0.080309I$ $a = 0.634776 + 0.408448I$ $b = -0.508392 - 0.255042I$	$-1.77251 + 3.09207I$	$-9.97234 - 6.78819I$
$u = -1.077050 + 0.731963I$ $a = -0.755315 + 0.956096I$ $b = -0.11369 + 1.58263I$	$-3.86757 - 4.67435I$	0
$u = -1.077050 - 0.731963I$ $a = -0.755315 - 0.956096I$ $b = -0.11369 - 1.58263I$	$-3.86757 + 4.67435I$	0
$u = -0.991014 + 0.898447I$ $a = 0.853887 - 0.830660I$ $b = 0.09991 - 1.59037I$	$-9.50663 - 2.07425I$	0
$u = -0.991014 - 0.898447I$ $a = 0.853887 + 0.830660I$ $b = 0.09991 + 1.59037I$	$-9.50663 + 2.07425I$	0
$u = -0.909466 + 1.012270I$ $a = -0.610859 + 1.219880I$ $b = 0.67929 + 1.72779I$	$-9.11357 + 9.02534I$	0
$u = -0.909466 - 1.012270I$ $a = -0.610859 - 1.219880I$ $b = 0.67929 - 1.72779I$	$-9.11357 - 9.02534I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.317085 + 1.324460I$ $a = 0.167071 - 0.176954I$ $b = -0.287344 - 0.165168I$	$1.91772 - 2.11217I$	0
$u = 0.317085 - 1.324460I$ $a = 0.167071 + 0.176954I$ $b = -0.287344 + 0.165168I$	$1.91772 + 2.11217I$	0
$u = 0.551588 + 0.303342I$ $a = -0.685929 + 0.484409I$ $b = 0.525291 - 0.059123I$	$-1.096810 + 0.369586I$	$-7.78047 + 1.64670I$
$u = 0.551588 - 0.303342I$ $a = -0.685929 - 0.484409I$ $b = 0.525291 + 0.059123I$	$-1.096810 - 0.369586I$	$-7.78047 - 1.64670I$
$u = 0.598810 + 0.171732I$ $a = 0.774821 + 0.711251I$ $b = -0.341827 - 0.558966I$	$-1.91659 - 1.91366I$	$-9.00153 + 2.78248I$
$u = 0.598810 - 0.171732I$ $a = 0.774821 - 0.711251I$ $b = -0.341827 + 0.558966I$	$-1.91659 + 1.91366I$	$-9.00153 - 2.78248I$
$u = -1.165560 + 0.768008I$ $a = 0.698856 - 0.909733I$ $b = 0.11588 - 1.59708I$	$-5.97721 - 10.12420I$	0
$u = -1.165560 - 0.768008I$ $a = 0.698856 + 0.909733I$ $b = 0.11588 + 1.59708I$	$-5.97721 + 10.12420I$	0
$u = -0.86763 + 1.13055I$ $a = 0.672250 - 1.107310I$ $b = -0.66860 - 1.72074I$	$-2.60013 + 11.71520I$	0
$u = -0.86763 - 1.13055I$ $a = 0.672250 + 1.107310I$ $b = -0.66860 + 1.72074I$	$-2.60013 - 11.71520I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.08068 + 1.45257I$ $a = -0.349159 - 0.015316I$ $b = 0.005923 + 0.508414I$	$5.17956 - 2.13402I$	0
$u = 0.08068 - 1.45257I$ $a = -0.349159 + 0.015316I$ $b = 0.005923 - 0.508414I$	$5.17956 + 2.13402I$	0
$u = 0.530027$ $a = -0.611909$ $b = 0.324328$	-0.845057	-11.6180
$u = -0.90994 + 1.16307I$ $a = -0.635453 + 1.076980I$ $b = 0.67438 + 1.71907I$	$-4.6756 + 17.5700I$	0
$u = -0.90994 - 1.16307I$ $a = -0.635453 - 1.076980I$ $b = 0.67438 - 1.71907I$	$-4.6756 - 17.5700I$	0
$u = 0.16583 + 1.51682I$ $a = 0.330656 - 0.061308I$ $b = -0.147825 - 0.491380I$	$4.13932 - 6.99541I$	0
$u = 0.16583 - 1.51682I$ $a = 0.330656 + 0.061308I$ $b = -0.147825 + 0.491380I$	$4.13932 + 6.99541I$	0
$u = -0.379598 + 0.214574I$ $a = -1.36798 + 2.33209I$ $b = -0.018879 + 1.178790I$	$-1.67453 - 1.71586I$	$-7.00815 + 4.04385I$
$u = -0.379598 - 0.214574I$ $a = -1.36798 - 2.33209I$ $b = -0.018879 - 1.178790I$	$-1.67453 + 1.71586I$	$-7.00815 - 4.04385I$
$u = 0.302462 + 0.289728I$ $a = -1.84091 - 1.08136I$ $b = 0.243505 + 0.860433I$	$-1.71950 + 1.88942I$	$-7.73833 - 4.11458I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.302462 - 0.289728I$		
$a = -1.84091 + 1.08136I$	$-1.71950 - 1.88942I$	$-7.73833 + 4.11458I$
$b = 0.243505 - 0.860433I$		

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle -2u^{21}+19u^{20}+\cdots+b-1,\ -2u^{21}a-3u^{21}+\cdots+34a-19,\ u^{22}-9u^{21}+\cdots-u+2\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ 2u^{21} - 19u^{20} + \cdots + 8u + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2u^{21} + 19u^{20} + \cdots + a - 1 \\ 2u^{21} - 19u^{20} + \cdots + 8u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2u^{21}a + \frac{1}{2}u^{21} + \cdots - a - \frac{1}{2} \\ -1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{20} - 9u^{19} + \cdots + a + 2 \\ 2u^{21} - 18u^{20} + \cdots + 4u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2u^{21}a + \frac{1}{2}u^{21} + \cdots - 3a - \frac{1}{2} \\ -u^{20}a + 9u^{19}a + \cdots - 2a + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{21} - \frac{9}{2}u^{20} + \cdots - a - \frac{1}{2} \\ -u^{18}a + 7u^{17}a + \cdots - 2a - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{21}a + \frac{1}{2}u^{21} + \cdots + \frac{7}{2}u - \frac{1}{2} \\ u^{21} - 9u^{20} + \cdots + au + 6u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3u^{21} + 29u^{20} - 144u^{19} + 471u^{18} - 1127u^{17} + 2093u^{16} - 3160u^{15} + 4048u^{14} - 4576u^{13} + 4688u^{12} - 4396u^{11} + 3795u^{10} - 3049u^9 + 2299u^8 - 1600u^7 + 1028u^6 - 621u^5 + 359u^4 - 176u^3 + 83u^2 - 39u + 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{22} + 10u^{21} + \cdots + 6u^2 + 1)^2$
c_2, c_5	$(u^{22} - 2u^{21} + \cdots - 5u^3 + 1)^2$
c_3, c_9	$u^{44} + 2u^{43} + \cdots - 5637u + 2363$
c_4, c_{12}	$u^{44} + 4u^{43} + \cdots + 42835u + 8921$
c_6, c_8	$u^{44} - 3u^{43} + \cdots - 64u + 23$
c_7, c_{10}, c_{11}	$(u^{22} + 9u^{21} + \cdots + u + 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{22} + 6y^{21} + \cdots + 12y + 1)^2$
c_2, c_5	$(y^{22} - 10y^{21} + \cdots + 6y^2 + 1)^2$
c_3, c_9	$y^{44} - 20y^{43} + \cdots - 96091903y + 5583769$
c_4, c_{12}	$y^{44} + 28y^{43} + \cdots + 190747193y + 79584241$
c_6, c_8	$y^{44} + 13y^{43} + \cdots - 10582y + 529$
c_7, c_{10}, c_{11}	$(y^{22} + 3y^{21} + \cdots + 43y + 4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.082505 + 0.876862I$ $a = -0.994227 + 0.559616I$ $b = 1.168570 - 0.479238I$	$2.57347 - 6.33920I$	$-4.37211 + 3.75640I$
$u = -0.082505 + 0.876862I$ $a = 0.66603 + 1.27001I$ $b = 0.408677 + 0.917971I$	$2.57347 - 6.33920I$	$-4.37211 + 3.75640I$
$u = -0.082505 - 0.876862I$ $a = -0.994227 - 0.559616I$ $b = 1.168570 + 0.479238I$	$2.57347 + 6.33920I$	$-4.37211 - 3.75640I$
$u = -0.082505 - 0.876862I$ $a = 0.66603 - 1.27001I$ $b = 0.408677 - 0.917971I$	$2.57347 + 6.33920I$	$-4.37211 - 3.75640I$
$u = 1.051620 + 0.552954I$ $a = -0.254635 - 0.923856I$ $b = 0.08978 - 1.86403I$	$-5.78853 + 0.61650I$	$-17.5868 - 1.7638I$
$u = 1.051620 + 0.552954I$ $a = 0.66327 + 1.42377I$ $b = -0.243071 + 1.112350I$	$-5.78853 + 0.61650I$	$-17.5868 - 1.7638I$
$u = 1.051620 - 0.552954I$ $a = -0.254635 + 0.923856I$ $b = 0.08978 + 1.86403I$	$-5.78853 - 0.61650I$	$-17.5868 + 1.7638I$
$u = 1.051620 - 0.552954I$ $a = 0.66327 - 1.42377I$ $b = -0.243071 - 1.112350I$	$-5.78853 - 0.61650I$	$-17.5868 + 1.7638I$
$u = -0.182575 + 0.789359I$ $a = 0.771291 - 0.798362I$ $b = -1.230910 + 0.284989I$	$4.00164 - 0.70655I$	$-2.19340 - 2.74214I$
$u = -0.182575 + 0.789359I$ $a = -0.68507 - 1.40092I$ $b = -0.489376 - 0.754586I$	$4.00164 - 0.70655I$	$-2.19340 - 2.74214I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.182575 - 0.789359I$ $a = 0.771291 + 0.798362I$ $b = -1.230910 - 0.284989I$	$4.00164 + 0.70655I$	$-2.19340 + 2.74214I$
$u = -0.182575 - 0.789359I$ $a = -0.68507 + 1.40092I$ $b = -0.489376 + 0.754586I$	$4.00164 + 0.70655I$	$-2.19340 + 2.74214I$
$u = 0.888328 + 0.821810I$ $a = 0.401655 + 0.956499I$ $b = -0.10086 + 1.63729I$	$-3.58480 - 2.91734I$	$-9.58143 + 2.23849I$
$u = 0.888328 + 0.821810I$ $a = -0.857594 - 1.049740I$ $b = 0.429259 - 1.179770I$	$-3.58480 - 2.91734I$	$-9.58143 + 2.23849I$
$u = 0.888328 - 0.821810I$ $a = 0.401655 - 0.956499I$ $b = -0.10086 - 1.63729I$	$-3.58480 + 2.91734I$	$-9.58143 - 2.23849I$
$u = 0.888328 - 0.821810I$ $a = -0.857594 + 1.049740I$ $b = 0.429259 + 1.179770I$	$-3.58480 + 2.91734I$	$-9.58143 - 2.23849I$
$u = -0.502606 + 0.558420I$ $a = -0.049171 + 0.545384I$ $b = 1.81734 + 0.03703I$	$1.09964 + 8.87036I$	$-9.8963 - 11.1459I$
$u = -0.502606 + 0.558420I$ $a = 1.58159 + 1.83091I$ $b = 0.279840 + 0.301571I$	$1.09964 + 8.87036I$	$-9.8963 - 11.1459I$
$u = -0.502606 - 0.558420I$ $a = -0.049171 - 0.545384I$ $b = 1.81734 - 0.03703I$	$1.09964 - 8.87036I$	$-9.8963 + 11.1459I$
$u = -0.502606 - 0.558420I$ $a = 1.58159 - 1.83091I$ $b = 0.279840 - 0.301571I$	$1.09964 - 8.87036I$	$-9.8963 + 11.1459I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.422081+0.604834I$ $a=\ \ 0.114470-0.665679I$ $b=-1.67854-0.04798I$	$3.16775+3.23482I$	$-5.63518-6.95069I$
$u=-0.422081+0.604834I$ $a=-1.24905-1.90355I$ $b=-0.354310-0.350206I$	$3.16775+3.23482I$	$-5.63518-6.95069I$
$u=-0.422081-0.604834I$ $a=\ \ 0.114470+0.665679I$ $b=-1.67854+0.04798I$	$3.16775-3.23482I$	$-5.63518+6.95069I$
$u=-0.422081-0.604834I$ $a=-1.24905+1.90355I$ $b=-0.354310+0.350206I$	$3.16775-3.23482I$	$-5.63518+6.95069I$
$u=\ \ 0.802265+1.111960I$ $a=-0.783193-0.659087I$ $b=\ \ 0.69440-1.33953I$	$-2.65613-3.32247I$	$-7.06262+4.78079I$
$u=\ \ 0.802265+1.111960I$ $a=\ \ 0.495942+0.982294I$ $b=-0.104553+1.399650I$	$-2.65613-3.32247I$	$-7.06262+4.78079I$
$u=\ \ 0.802265-1.111960I$ $a=-0.783193+0.659087I$ $b=\ \ 0.69440+1.33953I$	$-2.65613+3.32247I$	$-7.06262-4.78079I$
$u=\ \ 0.802265-1.111960I$ $a=\ \ 0.495942-0.982294I$ $b=-0.104553-1.399650I$	$-2.65613+3.32247I$	$-7.06262-4.78079I$
$u=-0.233653+0.464879I$ $a=\ \ 0.284498+0.968652I$ $b=\ \ 1.59386+0.60943I$	$-2.74656+0.64646I$	$-4.58105-11.49115I$
$u=-0.233653+0.464879I$ $a=\ \ 0.32914+3.26313I$ $b=\ \ 0.516780+0.094072I$	$-2.74656+0.64646I$	$-4.58105-11.49115I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.233653 - 0.464879I$ $a = 0.284498 - 0.968652I$ $b = 1.59386 - 0.60943I$	$-2.74656 - 0.64646I$	$-4.58105 + 11.49115I$
$u = -0.233653 - 0.464879I$ $a = 0.32914 - 3.26313I$ $b = 0.516780 - 0.094072I$	$-2.74656 - 0.64646I$	$-4.58105 + 11.49115I$
$u = 1.19187 + 0.88971I$ $a = -0.372278 - 0.787230I$ $b = 0.33790 - 1.79489I$	$-5.90168 - 5.56778I$	$-18.6777 + 6.1462I$
$u = 1.19187 + 0.88971I$ $a = 0.539838 + 1.102960I$ $b = -0.256700 + 1.269500I$	$-5.90168 - 5.56778I$	$-18.6777 + 6.1462I$
$u = 1.19187 - 0.88971I$ $a = -0.372278 + 0.787230I$ $b = 0.33790 + 1.79489I$	$-5.90168 + 5.56778I$	$-18.6777 - 6.1462I$
$u = 1.19187 - 0.88971I$ $a = 0.539838 - 1.102960I$ $b = -0.256700 - 1.269500I$	$-5.90168 + 5.56778I$	$-18.6777 - 6.1462I$
$u = 0.89170 + 1.22557I$ $a = -0.503664 - 0.972041I$ $b = 0.150661 - 1.350040I$	$-3.78159 - 7.76222I$	$-11.1837 + 10.9706I$
$u = 0.89170 + 1.22557I$ $a = 0.661786 + 0.604432I$ $b = -0.74219 + 1.48405I$	$-3.78159 - 7.76222I$	$-11.1837 + 10.9706I$
$u = 0.89170 - 1.22557I$ $a = -0.503664 + 0.972041I$ $b = 0.150661 + 1.350040I$	$-3.78159 + 7.76222I$	$-11.1837 - 10.9706I$
$u = 0.89170 - 1.22557I$ $a = 0.661786 - 0.604432I$ $b = -0.74219 - 1.48405I$	$-3.78159 + 7.76222I$	$-11.1837 - 10.9706I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.09763 + 1.08982I$ $a = 0.503463 + 0.723010I$ $b = -0.52189 + 1.65424I$	$-5.29996 - 2.56491I$	$-17.7298 + 4.0042I$
$u = 1.09763 + 1.08982I$ $a = -0.514092 - 0.996661I$ $b = 0.235329 - 1.342280I$	$-5.29996 - 2.56491I$	$-17.7298 + 4.0042I$
$u = 1.09763 - 1.08982I$ $a = 0.503463 - 0.723010I$ $b = -0.52189 - 1.65424I$	$-5.29996 + 2.56491I$	$-17.7298 - 4.0042I$
$u = 1.09763 - 1.08982I$ $a = -0.514092 + 0.996661I$ $b = 0.235329 + 1.342280I$	$-5.29996 + 2.56491I$	$-17.7298 - 4.0042I$

III. $\boldsymbol{I_3^u =}$
$\boldsymbol{\langle u^{18} - 8u^{17} + \cdots + b + 5,\ 5u^{18} - 37u^{17} + \cdots + 3a + 11,\ u^{19} - 8u^{18} + \cdots + 22u - 3\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{5}{3}u^{18} + \frac{37}{3}u^{17} + \cdots + 13u - \frac{11}{3} \\ -u^{18} + 8u^{17} + \cdots + 33u - 5 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{2}{3}u^{18} + \frac{13}{3}u^{17} + \cdots - 20u + \frac{4}{3} \\ -u^{18} + 8u^{17} + \cdots + 33u - 5 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{2}{3}u^{18} + \frac{16}{3}u^{17} + \cdots - 6u + \frac{7}{3} \\ u^{18} - 7u^{17} + \cdots - 3u + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{5}{3}u^{18} + \frac{37}{3}u^{17} + \cdots - 7u - \frac{2}{3} \\ u^{17} - 8u^{16} + \cdots + 30u - 5 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{3}u^{18} - \frac{8}{3}u^{17} + \cdots - 25u + \frac{16}{3} \\ u^2 - u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{3}u^{18} + \frac{8}{3}u^{17} + \cdots + 22u - \frac{10}{3} \\ -u^4 + 2u^3 - 3u^2 + 2u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{3}u^{18} + \frac{8}{3}u^{17} + \cdots + 25u - \frac{16}{3} \\ u^9 - 3u^8 + 7u^7 - 10u^6 + 13u^5 - 11u^4 + 10u^3 - 6u^2 + 4u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -5u^{18} + 44u^{17} - 217u^{16} + 750u^{15} - 2012u^{14} + 4389u^{13} - 8018u^{12} + 12471u^{11} - 16700u^{10} + 19364u^9 - 19501u^8 + 17059u^7 - 12932u^6 + 8454u^5 - 4715u^4 + 2208u^3 - 830u^2 + 234u - 45$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} - 9u^{18} + \cdots + 169u - 25$
c_2	$u^{19} + 3u^{18} + \cdots - 13u - 5$
c_3, c_9	$u^{19} - 6u^{17} + \cdots - 2u - 1$
c_4, c_{12}	$u^{19} - 2u^{18} + \cdots + 4u - 1$
c_5	$u^{19} - 3u^{18} + \cdots - 13u + 5$
c_6, c_8	$u^{19} + u^{18} + \cdots + 2u - 1$
c_7	$u^{19} - 8u^{18} + \cdots + 22u - 3$
c_{10}, c_{11}	$u^{19} + 8u^{18} + \cdots + 22u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} + 11y^{18} + \cdots - 1139y - 625$
c_2, c_5	$y^{19} - 9y^{18} + \cdots + 169y - 25$
c_3, c_9	$y^{19} - 12y^{18} + \cdots + 10y - 1$
c_4, c_{12}	$y^{19} + 8y^{18} + \cdots - 2y - 1$
c_6, c_8	$y^{19} + 9y^{18} + \cdots - 4y - 1$
c_7, c_{10}, c_{11}	$y^{19} + 12y^{18} + \cdots - 2y - 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.773741 + 0.615757I$ $a = 0.24873 + 1.43202I$ $b = -0.68932 + 1.26117I$	$-3.86357 + 0.16314I$	$-9.77303 + 4.53952I$
$u = 0.773741 - 0.615757I$ $a = 0.24873 - 1.43202I$ $b = -0.68932 - 1.26117I$	$-3.86357 - 0.16314I$	$-9.77303 - 4.53952I$
$u = 0.039910 + 1.250850I$ $a = -0.068408 - 0.556985I$ $b = 0.693972 - 0.107797I$	$6.19767 - 2.13666I$	$1.33946 + 1.38403I$
$u = 0.039910 - 1.250850I$ $a = -0.068408 + 0.556985I$ $b = 0.693972 + 0.107797I$	$6.19767 + 2.13666I$	$1.33946 - 1.38403I$
$u = 0.721180 + 1.040720I$ $a = -0.991865 - 0.825716I$ $b = 0.14402 - 1.62774I$	$-2.62148 - 5.85923I$	$-7.22644 + 7.45241I$
$u = 0.721180 - 1.040720I$ $a = -0.991865 + 0.825716I$ $b = 0.14402 + 1.62774I$	$-2.62148 + 5.85923I$	$-7.22644 - 7.45241I$
$u = -0.011190 + 0.730118I$ $a = -0.15129 - 1.57639I$ $b = 1.152650 - 0.092823I$	$4.06604 + 2.04452I$	$0.28047 - 4.71022I$
$u = -0.011190 - 0.730118I$ $a = -0.15129 + 1.57639I$ $b = 1.152650 + 0.092823I$	$4.06604 - 2.04452I$	$0.28047 + 4.71022I$
$u = -0.150676 + 0.642563I$ $a = 0.56785 + 1.62118I$ $b = -1.127270 + 0.120608I$	$1.98975 + 7.97545I$	$-3.92964 - 7.09376I$
$u = -0.150676 - 0.642563I$ $a = 0.56785 - 1.62118I$ $b = -1.127270 - 0.120608I$	$1.98975 - 7.97545I$	$-3.92964 + 7.09376I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.035331 + 1.343980I$ $a = 0.170224 + 0.479774I$ $b = -0.638791 + 0.245728I$	$5.03084 - 7.46362I$	$-1.18346 + 7.65699I$
$u = 0.035331 - 1.343980I$ $a = 0.170224 - 0.479774I$ $b = -0.638791 - 0.245728I$	$5.03084 + 7.46362I$	$-1.18346 - 7.65699I$
$u = 0.231018 + 1.346920I$ $a = 0.221009 + 0.141498I$ $b = -0.139530 + 0.330370I$	$1.74668 - 2.43305I$	$-12.4850 + 10.8155I$
$u = 0.231018 - 1.346920I$ $a = 0.221009 - 0.141498I$ $b = -0.139530 - 0.330370I$	$1.74668 + 2.43305I$	$-12.4850 - 10.8155I$
$u = 1.13685 + 0.95705I$ $a = 0.438459 + 0.886064I$ $b = -0.34954 + 1.42695I$	$-4.88243 - 5.70418I$	$-8.20039 + 6.89287I$
$u = 1.13685 - 0.95705I$ $a = 0.438459 - 0.886064I$ $b = -0.34954 - 1.42695I$	$-4.88243 + 5.70418I$	$-8.20039 - 6.89287I$
$u = 1.07213 + 1.08467I$ $a = -0.513113 - 0.815633I$ $b = 0.33456 - 1.43102I$	$-4.49067 - 2.22049I$	$-6.78328 - 1.40884I$
$u = 1.07213 - 1.08467I$ $a = -0.513113 + 0.815633I$ $b = 0.33456 + 1.43102I$	$-4.49067 + 2.22049I$	$-6.78328 + 1.40884I$
$u = 0.303402$ $a = -2.50986$ $b = -0.761496$	-3.05579	-14.0770

IV. $I_1^v = \langle a,\ b+v,\ v^2-v+1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0 \\ -v \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} v \\ -v \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 0 \\ -v \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -v+1 \\ -1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -15$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$	-3.28987	-15.0000
$v = 0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$	-3.28987	-15.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{19}-9u^{18}+\cdots+169u-25)(u^{22}+10u^{21}+\cdots+6u^2+1)^2$ $\cdot(u^{41}+18u^{40}+\cdots+545u+16)$
c_2	$((u-1)^2)(u^{19}+3u^{18}+\cdots-13u-5)(u^{22}-2u^{21}+\cdots-5u^3+1)^2$ $\cdot(u^{41}+10u^{40}+\cdots+47u+4)$
c_3, c_9	$(u^2-u+1)(u^{19}-6u^{17}+\cdots-2u-1)(u^{41}-5u^{39}+\cdots+84u+19)$ $\cdot(u^{44}+2u^{43}+\cdots-5637u+2363)$
c_4, c_{12}	$(u^2-u+1)(u^{19}-2u^{18}+\cdots+4u-1)(u^{41}+2u^{40}+\cdots-2u+1)$ $\cdot(u^{44}+4u^{43}+\cdots+42835u+8921)$
c_5	$((u+1)^2)(u^{19}-3u^{18}+\cdots-13u+5)(u^{22}-2u^{21}+\cdots-5u^3+1)^2$ $\cdot(u^{41}+10u^{40}+\cdots+47u+4)$
c_6, c_8	$((u-1)^2)(u^{19}+u^{18}+\cdots+2u-1)(u^{41}+u^{40}+\cdots-10u^2+1)$ $\cdot(u^{44}-3u^{43}+\cdots-64u+23)$
c_7	$u^2(u^{19}-8u^{18}+\cdots+22u-3)(u^{22}+9u^{21}+\cdots+u+2)^2$ $\cdot(u^{41}-11u^{40}+\cdots+u+2)$
c_{10}, c_{11}	$u^2(u^{19}+8u^{18}+\cdots+22u+3)(u^{22}+9u^{21}+\cdots+u+2)^2$ $\cdot(u^{41}-11u^{40}+\cdots+u+2)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^2)(y^{19}+11y^{18}+\cdots-1139y-625)$ $\cdot\,((y^{22}+6y^{21}+\cdots+12y+1)^2)(y^{41}+18y^{40}+\cdots+181953y-256)$
c_2, c_5	$((y-1)^2)(y^{19}-9y^{18}+\cdots+169y-25)(y^{22}-10y^{21}+\cdots+6y^2+1)^2$ $\cdot\,(y^{41}-18y^{40}+\cdots+545y-16)$
c_3, c_9	$(y^2+y+1)(y^{19}-12y^{18}+\cdots+10y-1)$ $\cdot\,(y^{41}-10y^{40}+\cdots+4814y-361)$ $\cdot\,(y^{44}-20y^{43}+\cdots-96091903y+5583769)$
c_4, c_{12}	$(y^2+y+1)(y^{19}+8y^{18}+\cdots-2y-1)(y^{41}+54y^{40}+\cdots+14y-1)$ $\cdot\,(y^{44}+28y^{43}+\cdots+190747193y+79584241)$
c_6, c_8	$((y-1)^2)(y^{19}+9y^{18}+\cdots-4y-1)(y^{41}-13y^{40}+\cdots+20y-1)$ $\cdot\,(y^{44}+13y^{43}+\cdots-10582y+529)$
c_7, c_{10}, c_{11}	$y^2(y^{19}+12y^{18}+\cdots-2y-9)(y^{22}+3y^{21}+\cdots+43y+4)^2$ $\cdot\,(y^{41}+15y^{40}+\cdots+53y-4)$