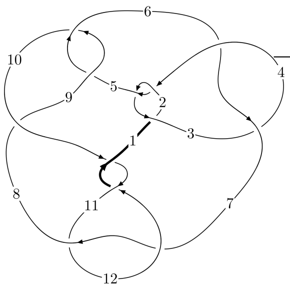
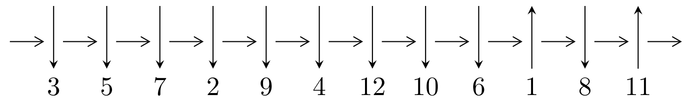
$12a_{0047}$ ($K12a_{0047}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & -3.18936 \times 10^{246} u^{110} - 2.13517 \times 10^{246} u^{109} + \cdots + 5.64432 \times 10^{247} b - 4.74907 \times 10^{248}, \\
& 4.40979 \times 10^{247} u^{110} + 9.13393 \times 10^{247} u^{109} + \cdots + 4.51546 \times 10^{248} a + 1.43309 \times 10^{250}, \\
& u^{111} + 2u^{110} + \cdots + 160u + 64 \rangle \\
I^u_2 = \langle & b + 1,\ -u^8 + 3u^6 + u^5 - 4u^4 - 2u^3 + u^2 + a + 2u + 1,\ u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1 \rangle
\end{aligned}$$

$$I^v_1 = \langle a,\ -18v^5 + 63v^4 - 193v^3 + 63v^2 + 55b + 27v - 12,\ v^6 - 2v^5 + 7v^4 + 8v^3 + 7v^2 + 3v + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 126 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. $\boldsymbol{I_1^u = \langle -3.19 \times 10^{246} u^{110} - 2.14 \times 10^{246} u^{109} + \cdots + 5.64 \times 10^{247} b - 4.75 \times 10^{248},\ 4.41 \times 10^{247} u^{110} + 9.13 \times 10^{247} u^{109} + \cdots + 4.52 \times 10^{248} a + 1.43 \times 10^{250},\ u^{111} + 2u^{110} + \cdots + 160u + 64 \rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0976599u^{110} - 0.202281u^{109} + \cdots - 0.854738u - 31.7375 \\ 0.0565056u^{110} + 0.0378286u^{109} + \cdots + 22.9253u + 8.41389 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -0.0411543u^{110} - 0.164453u^{109} + \cdots + 22.0706u - 23.3236 \\ 0.0565056u^{110} + 0.0378286u^{109} + \cdots + 22.9253u + 8.41389 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.120659u^{110} - 0.241271u^{109} + \cdots - 2.78514u - 16.8544 \\ 0.0541953u^{110} + 0.118379u^{109} + \cdots + 2.44293u - 1.61000 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.143665u^{110} - 0.240646u^{109} + \cdots - 1.44973u - 16.5967 \\ 0.0133269u^{110} + 0.0569514u^{109} + \cdots - 18.3902u - 8.25017 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0111189u^{110} - 0.0832837u^{109} + \cdots + 26.9485u - 9.66021 \\ 0.0701195u^{110} + 0.127567u^{109} + \cdots - 6.36809u + 0.618737 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0664640u^{110} - 0.122892u^{109} + \cdots - 0.342210u - 18.4644 \\ -0.0333772u^{110} - 0.0802479u^{109} + \cdots + 0.205002u + 0.967688 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.113592u^{110} - 0.203964u^{109} + \cdots + 0.640164u - 16.1869 \\ -0.0252501u^{110} + 0.0114473u^{109} + \cdots - 19.4565u - 11.8010 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.161186u^{110} - 0.677696u^{109} + \cdots + 69.5252u - 36.2776$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{111} + 50u^{110} + \cdots + 45u + 1$
c_2, c_4	$u^{111} - 12u^{110} + \cdots + u + 1$
c_3, c_6	$u^{111} - 3u^{110} + \cdots - 2560u + 512$
c_5, c_9	$u^{111} + 2u^{110} + \cdots + 160u + 64$
c_7, c_{11}	$u^{111} - 5u^{110} + \cdots + 6u + 1$
c_8	$u^{111} + 40u^{110} + \cdots + 107520u + 4096$
c_{10}, c_{12}	$u^{111} - 39u^{110} + \cdots - 34u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{111} + 34y^{110} + \cdots - 5587y - 1$
c_2, c_4	$y^{111} - 50y^{110} + \cdots + 45y - 1$
c_3, c_6	$y^{111} + 63y^{110} + \cdots - 3932160y - 262144$
c_5, c_9	$y^{111} - 40y^{110} + \cdots + 107520y - 4096$
c_7, c_{11}	$y^{111} + 39y^{110} + \cdots - 34y - 1$
c_8	$y^{111} + 52y^{110} + \cdots - 334495744y - 16777216$
c_{10}, c_{12}	$y^{111} + 71y^{110} + \cdots + 250y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.961261 + 0.305856I$ $a = 0.615473 - 0.767844I$ $b = 0.761803 - 0.469769I$	$1.51893 - 1.34502I$	0
$u = 0.961261 - 0.305856I$ $a = 0.615473 + 0.767844I$ $b = 0.761803 + 0.469769I$	$1.51893 + 1.34502I$	0
$u = -0.857490 + 0.495314I$ $a = -0.52751 - 2.40166I$ $b = -0.930489 + 0.464651I$	$-1.85472 + 3.13671I$	0
$u = -0.857490 - 0.495314I$ $a = -0.52751 + 2.40166I$ $b = -0.930489 - 0.464651I$	$-1.85472 - 3.13671I$	0
$u = 0.972722 + 0.028500I$ $a = 1.72566 + 0.16118I$ $b = 0.926889 + 0.540738I$	$0.91466 - 5.55388I$	0
$u = 0.972722 - 0.028500I$ $a = 1.72566 - 0.16118I$ $b = 0.926889 - 0.540738I$	$0.91466 + 5.55388I$	0
$u = 0.580825 + 0.879729I$ $a = 1.19720 - 1.21005I$ $b = -0.916016 + 0.511238I$	$-0.64800 + 5.40513I$	0
$u = 0.580825 - 0.879729I$ $a = 1.19720 + 1.21005I$ $b = -0.916016 - 0.511238I$	$-0.64800 - 5.40513I$	0
$u = -0.765501 + 0.553121I$ $a = -0.500470 - 1.110230I$ $b = 1.029320 + 0.785263I$	$3.64520 + 0.60285I$	0
$u = -0.765501 - 0.553121I$ $a = -0.500470 + 1.110230I$ $b = 1.029320 - 0.785263I$	$3.64520 - 0.60285I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.716525 + 0.613563I$ $a = -0.153728 - 1.308980I$ $b = 0.689023 + 0.854328I$	$3.48851 - 1.75426I$	0
$u = 0.716525 - 0.613563I$ $a = -0.153728 + 1.308980I$ $b = 0.689023 - 0.854328I$	$3.48851 + 1.75426I$	0
$u = 0.788393 + 0.725909I$ $a = 1.10459 - 1.09562I$ $b = -0.781000 + 0.575014I$	$3.15897 - 0.41518I$	0
$u = 0.788393 - 0.725909I$ $a = 1.10459 + 1.09562I$ $b = -0.781000 - 0.575014I$	$3.15897 + 0.41518I$	0
$u = -0.849847 + 0.655093I$ $a = -0.165620 + 1.385900I$ $b = 0.674325 - 0.922324I$	$4.71931 + 6.83549I$	0
$u = -0.849847 - 0.655093I$ $a = -0.165620 - 1.385900I$ $b = 0.674325 + 0.922324I$	$4.71931 - 6.83549I$	0
$u = -0.472703 + 0.795398I$ $a = 1.28208 + 1.21302I$ $b = -0.908601 - 0.434969I$	$-1.65724 - 0.25812I$	0
$u = -0.472703 - 0.795398I$ $a = 1.28208 - 1.21302I$ $b = -0.908601 + 0.434969I$	$-1.65724 + 0.25812I$	0
$u = -0.847842 + 0.674035I$ $a = -0.296981 - 0.910876I$ $b = -1.294380 - 0.050287I$	$1.45768 + 2.60301I$	0
$u = -0.847842 - 0.674035I$ $a = -0.296981 + 0.910876I$ $b = -1.294380 + 0.050287I$	$1.45768 - 2.60301I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500463 + 0.766009I$ $a = 0.15270 - 1.69929I$ $b = -1.219930 + 0.077295I$	$-1.75055 - 3.19219I$	0
$u = -0.500463 - 0.766009I$ $a = 0.15270 + 1.69929I$ $b = -1.219930 - 0.077295I$	$-1.75055 + 3.19219I$	0
$u = -1.077640 + 0.129946I$ $a = 0.361937 - 0.584101I$ $b = -0.084940 + 0.655027I$	$-4.12746 - 0.17488I$	0
$u = -1.077640 - 0.129946I$ $a = 0.361937 + 0.584101I$ $b = -0.084940 - 0.655027I$	$-4.12746 + 0.17488I$	0
$u = -0.074865 + 1.083460I$ $a = -0.251254 + 0.791988I$ $b = 0.912226 - 0.474868I$	$-1.46708 + 4.63529I$	0
$u = -0.074865 - 1.083460I$ $a = -0.251254 - 0.791988I$ $b = 0.912226 + 0.474868I$	$-1.46708 - 4.63529I$	0
$u = -0.690756 + 0.843068I$ $a = -0.535950 - 1.011050I$ $b = 1.080660 + 0.712649I$	$6.97174 - 5.31220I$	0
$u = -0.690756 - 0.843068I$ $a = -0.535950 + 1.011050I$ $b = 1.080660 - 0.712649I$	$6.97174 + 5.31220I$	0
$u = -0.956831 + 0.525019I$ $a = 0.954350 + 0.985429I$ $b = -0.621966 - 0.625924I$	$-2.27963 + 0.82457I$	0
$u = -0.956831 - 0.525019I$ $a = 0.954350 - 0.985429I$ $b = -0.621966 + 0.625924I$	$-2.27963 - 0.82457I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.192505 + 1.075250I$ $a = -0.177114 - 0.778854I$ $b = 0.860535 + 0.445165I$	$-1.23200 + 0.90790I$	0
$u = 0.192505 - 1.075250I$ $a = -0.177114 + 0.778854I$ $b = 0.860535 - 0.445165I$	$-1.23200 - 0.90790I$	0
$u = -0.859755 + 0.675252I$ $a = -1.135270 - 0.160639I$ $b = 0.532972 + 0.838336I$	$4.68879 - 1.68552I$	0
$u = -0.859755 - 0.675252I$ $a = -1.135270 + 0.160639I$ $b = 0.532972 - 0.838336I$	$4.68879 + 1.68552I$	0
$u = -0.945558 + 0.570571I$ $a = 1.26787 + 2.01034I$ $b = 1.077520 - 0.661944I$	$3.04138 + 3.90587I$	0
$u = -0.945558 - 0.570571I$ $a = 1.26787 - 2.01034I$ $b = 1.077520 + 0.661944I$	$3.04138 - 3.90587I$	0
$u = 0.664358 + 0.599954I$ $a = -0.08780 + 2.94975I$ $b = -0.802872 - 0.455801I$	$-0.20502 + 1.39970I$	0
$u = 0.664358 - 0.599954I$ $a = -0.08780 - 2.94975I$ $b = -0.802872 + 0.455801I$	$-0.20502 - 1.39970I$	0
$u = 0.641635 + 0.909705I$ $a = 0.072845 - 1.364280I$ $b = 0.486017 + 0.821449I$	$2.97384 + 0.23222I$	0
$u = 0.641635 - 0.909705I$ $a = 0.072845 + 1.364280I$ $b = 0.486017 - 0.821449I$	$2.97384 - 0.23222I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.112920 + 0.132238I$ $a = 1.000340 + 0.261885I$ $b = 0.897392 + 0.447328I$	$-2.09929 - 1.79300I$	0
$u = -1.112920 - 0.132238I$ $a = 1.000340 - 0.261885I$ $b = 0.897392 - 0.447328I$	$-2.09929 + 1.79300I$	0
$u = 1.100350 + 0.229120I$ $a = 0.212933 + 0.553604I$ $b = 0.005517 - 0.693265I$	$-3.81029 - 5.38817I$	0
$u = 1.100350 - 0.229120I$ $a = 0.212933 - 0.553604I$ $b = 0.005517 + 0.693265I$	$-3.81029 + 5.38817I$	0
$u = -0.773381 + 0.830007I$ $a = -0.048570 + 1.407420I$ $b = 0.568998 - 0.900673I$	$8.52723 + 0.62332I$	0
$u = -0.773381 - 0.830007I$ $a = -0.048570 - 1.407420I$ $b = 0.568998 + 0.900673I$	$8.52723 - 0.62332I$	0
$u = 0.938382 + 0.649116I$ $a = -0.861937 + 0.269194I$ $b = 0.464394 - 0.835909I$	$2.81501 - 3.26360I$	0
$u = 0.938382 - 0.649116I$ $a = -0.861937 - 0.269194I$ $b = 0.464394 + 0.835909I$	$2.81501 + 3.26360I$	0
$u = 0.913223 + 0.693999I$ $a = -0.06671 + 2.28822I$ $b = -0.901738 - 0.574717I$	$2.77609 - 5.00482I$	0
$u = 0.913223 - 0.693999I$ $a = -0.06671 - 2.28822I$ $b = -0.901738 + 0.574717I$	$2.77609 + 5.00482I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.778898+0.343012I$ $a=-1.41652+0.71580I$ $b=-1.176390+0.127517I$	$-2.73805-1.01723I$	$-10.94783+6.27439I$
$u=\ \ 0.778898-0.343012I$ $a=-1.41652-0.71580I$ $b=-1.176390-0.127517I$	$-2.73805+1.01723I$	$-10.94783-6.27439I$
$u=\ \ 1.153030+0.000762I$ $a=-0.760894+0.885736I$ $b=-1.195590-0.353101I$	$-7.47764+1.50835I$	0
$u=\ \ 1.153030-0.000762I$ $a=-0.760894-0.885736I$ $b=-1.195590+0.353101I$	$-7.47764-1.50835I$	0
$u=-1.157080+0.095057I$ $a=-0.720181-1.109600I$ $b=-1.170490+0.388339I$	$-7.39457+4.16403I$	0
$u=-1.157080-0.095057I$ $a=-0.720181+1.109600I$ $b=-1.170490-0.388339I$	$-7.39457-4.16403I$	0
$u=\ \ 0.993165+0.613622I$ $a=\ \ 0.95705-1.05542I$ $b=-0.669117+0.666637I$	$-1.23032-6.24800I$	0
$u=\ \ 0.993165-0.613622I$ $a=\ \ 0.95705+1.05542I$ $b=-0.669117-0.666637I$	$-1.23032+6.24800I$	0
$u=\ \ 0.571056+1.026180I$ $a=-0.532528+0.924418I$ $b=\ \ 1.096700-0.642791I$	$1.13791+5.71377I$	0
$u=\ \ 0.571056-1.026180I$ $a=-0.532528-0.924418I$ $b=\ \ 1.096700+0.642791I$	$1.13791-5.71377I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.688824 + 0.955138I$ $a = 0.07067 + 1.42628I$ $b = 0.464226 - 0.871917I$	$4.21683 - 5.60824I$	0
$u = -0.688824 - 0.955138I$ $a = 0.07067 - 1.42628I$ $b = 0.464226 + 0.871917I$	$4.21683 + 5.60824I$	0
$u = 0.686909 + 0.436600I$ $a = 0.496822 - 0.215720I$ $b = 0.236693 - 0.173944I$	$1.43635 - 1.82704I$	$-0.84954 + 4.84948I$
$u = 0.686909 - 0.436600I$ $a = 0.496822 + 0.215720I$ $b = 0.236693 + 0.173944I$	$1.43635 + 1.82704I$	$-0.84954 - 4.84948I$
$u = 1.044800 + 0.576162I$ $a = -0.348684 + 0.417955I$ $b = -1.324720 + 0.135388I$	$-4.45792 - 2.96094I$	0
$u = 1.044800 - 0.576162I$ $a = -0.348684 - 0.417955I$ $b = -1.324720 - 0.135388I$	$-4.45792 + 2.96094I$	0
$u = 1.052210 + 0.597069I$ $a = 0.98408 - 1.77129I$ $b = 1.109350 + 0.642860I$	$0.87796 - 8.78070I$	0
$u = 1.052210 - 0.597069I$ $a = 0.98408 + 1.77129I$ $b = 1.109350 - 0.642860I$	$0.87796 + 8.78070I$	0
$u = 0.362203 + 0.687116I$ $a = -0.405923 + 1.008540I$ $b = 0.977149 - 0.680548I$	$2.67743 + 3.92833I$	$-5.69908 - 2.39283I$
$u = 0.362203 - 0.687116I$ $a = -0.405923 - 1.008540I$ $b = 0.977149 + 0.680548I$	$2.67743 - 3.92833I$	$-5.69908 + 2.39283I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.969355+0.753597I$ $a=-0.991867-0.557856I$ $b=\ \ 0.475097+0.920853I$	$7.90957+5.29556I$	0
$u=-0.969355-0.753597I$ $a=-0.991867+0.557856I$ $b=\ \ 0.475097-0.920853I$	$7.90957-5.29556I$	0
$u=-0.645356+1.047180I$ $a=-0.563660-0.932862I$ $b=\ \ 1.119580+0.656047I$	$2.23809-11.26390I$	0
$u=-0.645356-1.047180I$ $a=-0.563660+0.932862I$ $b=\ \ 1.119580-0.656047I$	$2.23809+11.26390I$	0
$u=-1.059270+0.647902I$ $a=-0.207983-0.464083I$ $b=-1.349170-0.118043I$	$-3.35615+8.53993I$	0
$u=-1.059270-0.647902I$ $a=-0.207983+0.464083I$ $b=-1.349170+0.118043I$	$-3.35615-8.53993I$	0
$u=-1.066380+0.641788I$ $a=-0.12862-2.02884I$ $b=-0.986679+0.588452I$	$-3.37073+5.61350I$	0
$u=-1.066380-0.641788I$ $a=-0.12862+2.02884I$ $b=-0.986679-0.588452I$	$-3.37073-5.61350I$	0
$u=\ \ 0.267839+0.699470I$ $a=\ \ 0.68721+2.21087I$ $b=-1.129410-0.124638I$	$-2.49151-1.68594I$	$-7.47036-1.42690I$
$u=\ \ 0.267839-0.699470I$ $a=\ \ 0.68721-2.21087I$ $b=-1.129410+0.124638I$	$-2.49151+1.68594I$	$-7.47036+1.42690I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.030160+0.720587I$ $a=\ \ 0.71254+2.00743I$ $b=\ \ 1.132590-0.678871I$	$5.90690+11.16420I$	0
$u=-1.030160-0.720587I$ $a=\ \ 0.71254-2.00743I$ $b=\ \ 1.132590+0.678871I$	$5.90690-11.16420I$	0
$u=\ \ 1.077120+0.699464I$ $a=-0.04264+2.03440I$ $b=-0.977779-0.617324I$	$-2.17058-11.24930I$	0
$u=\ \ 1.077120-0.699464I$ $a=-0.04264-2.03440I$ $b=-0.977779+0.617324I$	$-2.17058+11.24930I$	0
$u=\ \ 1.066800+0.727963I$ $a=-0.777069+0.660416I$ $b=\ \ 0.404198-0.940500I$	$1.63590-6.26824I$	0
$u=\ \ 1.066800-0.727963I$ $a=-0.777069-0.660416I$ $b=\ \ 0.404198+0.940500I$	$1.63590+6.26824I$	0
$u=\ \ 0.611834+0.346825I$ $a=-0.424809+1.132140I$ $b=\ \ 0.961999-0.784969I$	$2.73478+4.20900I$	$-10.00721+0.57642I$
$u=\ \ 0.611834-0.346825I$ $a=-0.424809-1.132140I$ $b=\ \ 0.961999+0.784969I$	$2.73478-4.20900I$	$-10.00721-0.57642I$
$u=\ \ 0.424597+0.530789I$ $a=-0.188404-1.154690I$ $b=\ \ 0.764069+0.739282I$	$3.38545-1.57723I$	$-2.69554+5.44980I$
$u=\ \ 0.424597-0.530789I$ $a=-0.188404+1.154690I$ $b=\ \ 0.764069-0.739282I$	$3.38545+1.57723I$	$-2.69554-5.44980I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.075540 + 0.768246I$ $a = -0.821553 - 0.734422I$ $b = 0.415395 + 0.967932I$	$2.97459 + 11.93470I$	0
$u = -1.075540 - 0.768246I$ $a = -0.821553 + 0.734422I$ $b = 0.415395 - 0.967932I$	$2.97459 - 11.93470I$	0
$u = -1.265160 + 0.437949I$ $a = 0.471571 + 0.242610I$ $b = 0.848355 + 0.276852I$	$-5.56887 + 0.59401I$	0
$u = -1.265160 - 0.437949I$ $a = 0.471571 - 0.242610I$ $b = 0.848355 - 0.276852I$	$-5.56887 - 0.59401I$	0
$u = -1.333270 + 0.173414I$ $a = 0.837831 + 0.522328I$ $b = 1.063820 - 0.455497I$	$-6.98403 + 3.40230I$	0
$u = -1.333270 - 0.173414I$ $a = 0.837831 - 0.522328I$ $b = 1.063820 + 0.455497I$	$-6.98403 - 3.40230I$	0
$u = 1.325960 + 0.257152I$ $a = 0.835359 - 0.688269I$ $b = 1.087480 + 0.480695I$	$-6.62780 - 9.38031I$	0
$u = 1.325960 - 0.257152I$ $a = 0.835359 + 0.688269I$ $b = 1.087480 - 0.480695I$	$-6.62780 + 9.38031I$	0
$u = 1.246820 + 0.525991I$ $a = 0.407713 - 0.268068I$ $b = 0.821780 - 0.240489I$	$-4.75429 - 6.49311I$	0
$u = 1.246820 - 0.525991I$ $a = 0.407713 + 0.268068I$ $b = 0.821780 + 0.240489I$	$-4.75429 + 6.49311I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.142380 + 0.741212I$ $a = 0.54160 - 1.78118I$ $b = 1.166410 + 0.658674I$	$-0.68346 - 12.10710I$	0
$u = 1.142380 - 0.741212I$ $a = 0.54160 + 1.78118I$ $b = 1.166410 - 0.658674I$	$-0.68346 + 12.10710I$	0
$u = -1.135360 + 0.783517I$ $a = 0.46510 + 1.83815I$ $b = 1.174150 - 0.671550I$	$0.6511 + 17.8984I$	0
$u = -1.135360 - 0.783517I$ $a = 0.46510 - 1.83815I$ $b = 1.174150 + 0.671550I$	$0.6511 - 17.8984I$	0
$u = -0.597936$ $a = 0.991036$ $b = -0.266692$	-0.855489	-11.6530
$u = 0.078117 + 0.575284I$ $a = 1.54993 - 0.43215I$ $b = -0.0983081 + 0.0963811I$	$-0.46663 + 2.30779I$	$-1.91194 - 3.67862I$
$u = 0.078117 - 0.575284I$ $a = 1.54993 + 0.43215I$ $b = -0.0983081 - 0.0963811I$	$-0.46663 - 2.30779I$	$-1.91194 + 3.67862I$
$u = -0.379391 + 0.286023I$ $a = 1.65758 + 0.59289I$ $b = -0.700392 - 0.183066I$	$-0.947135 - 0.090988I$	$-9.16846 - 0.70332I$
$u = -0.379391 - 0.286023I$ $a = 1.65758 - 0.59289I$ $b = -0.700392 + 0.183066I$	$-0.947135 + 0.090988I$	$-9.16846 + 0.70332I$
$u = -0.464260 + 0.090617I$ $a = -5.72829 - 3.35406I$ $b = -0.913336 + 0.139185I$	$-1.26665 + 2.32355I$	$-25.1036 - 5.2591I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.464260 - 0.090617I$ $a = -5.72829 + 3.35406I$ $b = -0.913336 - 0.139185I$	$-1.26665 - 2.32355I$	$-25.1036 + 5.2591I$

II. $\boldsymbol{I_2^u = \langle b+1,\ -u^8+3u^6+u^5-4u^4-2u^3+u^2+a+2u+1,\ u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^8-3u^6-u^5+4u^4+2u^3-u^2-2u-1 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^8-3u^6-u^5+4u^4+2u^3-u^2-2u-2 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^3 \\ -u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^8-3u^6-u^5+4u^4+2u^3-u^2-2u-1 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3 \\ u^5-u^3+u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^6+u^4-1 \\ -u^6+2u^4-u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^8-2u^7-2u^6+3u^5+6u^4-3u^3-3u^2-4u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_6	u^9
c_4	$(u+1)^9$
c_5	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_7	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_8	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$
c_9	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_{10}	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_{11}	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_{12}	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_6	y^9
c_5, c_9	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_7, c_{11}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_8	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_{10}, c_{12}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.772920 + 0.510351I$ $a = -0.457852 - 1.072010I$ $b = -1.00000$	$0.13850 + 2.09337I$	$-8.93344 - 3.71284I$
$u = -0.772920 - 0.510351I$ $a = -0.457852 + 1.072010I$ $b = -1.00000$	$0.13850 - 2.09337I$	$-8.93344 + 3.71284I$
$u = 0.825933$ $a = -1.46592$ $b = -1.00000$	-2.84338	-14.0380
$u = 1.173910 + 0.391555I$ $a = -0.522253 + 0.392004I$ $b = -1.00000$	$-6.01628 - 1.33617I$	$-14.5101 + 2.5441I$
$u = 1.173910 - 0.391555I$ $a = -0.522253 - 0.392004I$ $b = -1.00000$	$-6.01628 + 1.33617I$	$-14.5101 - 2.5441I$
$u = -0.141484 + 0.739668I$ $a = 1.63880 - 0.65075I$ $b = -1.00000$	$-2.26187 - 2.45442I$	$-7.83172 + 1.00072I$
$u = -0.141484 - 0.739668I$ $a = 1.63880 + 0.65075I$ $b = -1.00000$	$-2.26187 + 2.45442I$	$-7.83172 - 1.00072I$
$u = -1.172470 + 0.500383I$ $a = -0.425734 - 0.444312I$ $b = -1.00000$	$-5.24306 + 7.08493I$	$-13.7057 - 8.1735I$
$u = -1.172470 - 0.500383I$ $a = -0.425734 + 0.444312I$ $b = -1.00000$	$-5.24306 - 7.08493I$	$-13.7057 + 8.1735I$

III.

$\boldsymbol{I_1^v = \langle a,\ -18v^5 + 63v^4 + \cdots + 55b - 12,\ v^6 - 2v^5 + 7v^4 + 8v^3 + 7v^2 + 3v + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ 0.327273v^5 - 1.14545v^4 + \cdots - 0.490909v + 0.218182 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0.327273v^5 - 1.14545v^4 + \cdots - 0.490909v + 0.218182 \\ 0.327273v^5 - 1.14545v^4 + \cdots - 0.490909v + 0.218182 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.327273v^5 - 1.14545v^4 + \cdots - 0.490909v + 0.218182 \\ -0.254545v^5 + 0.890909v^4 + \cdots + 0.381818v + 2.16364 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.490909v^5 - 1.21818v^4 + \cdots + 0.763636v + 0.327273 \\ -1.25455v^5 + 2.89091v^4 + \cdots - 6.61818v - 0.836364 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.581818v^5 + 2.03636v^4 + \cdots + 0.872727v + 1.94545 \\ -0.581818v^5 + 2.03636v^4 + \cdots + 0.872727v + 0.945455 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.327273v^5 + 1.14545v^4 + \cdots + 0.490909v - 0.218182 \\ 0.254545v^5 - 0.890909v^4 + \cdots - 0.381818v - 2.16364 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0.563636v^5 - 1.47273v^4 + \cdots + 0.654545v + 0.709091 \\ -1.25455v^5 + 2.89091v^4 + \cdots - 6.61818v - 0.836364 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{321}{55}v^5 - \frac{821}{55}v^4 + \frac{2681}{55}v^3 + \frac{1214}{55}v^2 + \frac{1251}{55}v - \frac{116}{55}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.428020 + 0.376187I$ $a = 0$ $b = 0.877439 + 0.744862I$	$3.02413 - 4.85801I$	$-4.05323 + 9.17563I$
$v = -0.428020 - 0.376187I$ $a = 0$ $b = 0.877439 - 0.744862I$	$3.02413 + 4.85801I$	$-4.05323 - 9.17563I$
$v = -0.111778 + 0.558770I$ $a = 0$ $b = 0.877439 - 0.744862I$	$3.02413 + 0.79824I$	$-7.63258 + 1.54443I$
$v = -0.111778 - 0.558770I$ $a = 0$ $b = 0.877439 + 0.744862I$	$3.02413 - 0.79824I$	$-7.63258 - 1.54443I$
$v = 1.53980 + 2.66701I$ $a = 0$ $b = -0.754878$	$-1.11345 + 2.02988I$	$-15.8142 + 4.6579I$
$v = 1.53980 - 2.66701I$ $a = 0$ $b = -0.754878$	$-1.11345 - 2.02988I$	$-15.8142 - 4.6579I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^3-u^2+2u-1)^2(u^{111}+50u^{110}+\cdots+45u+1)$
c_2	$((u-1)^9)(u^3+u^2-1)^2(u^{111}-12u^{110}+\cdots+u+1)$
c_3	$u^9(u^3-u^2+2u-1)^2(u^{111}-3u^{110}+\cdots-2560u+512)$
c_4	$((u+1)^9)(u^3-u^2+1)^2(u^{111}-12u^{110}+\cdots+u+1)$
c_5	$u^6(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{111}+2u^{110}+\cdots+160u+64)$
c_6	$u^9(u^3+u^2+2u+1)^2(u^{111}-3u^{110}+\cdots-2560u+512)$
c_7	$(u^2-u+1)^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{111}-5u^{110}+\cdots+6u+1)$
c_8	$u^6(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{111}+40u^{110}+\cdots+107520u+4096)$
c_9	$u^6(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{111}+2u^{110}+\cdots+160u+64)$
c_{10}	$(u^2+u+1)^3$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{111}-39u^{110}+\cdots-34u+1)$
c_{11}	$(u^2+u+1)^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{111}-5u^{110}+\cdots+6u+1)$
c_{12}	$(u^2-u+1)^3$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{111}-39u^{110}+\cdots-34u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^3+3y^2+2y-1)^2(y^{111}+34y^{110}+\cdots-5587y-1)$
c_2, c_4	$((y-1)^9)(y^3-y^2+2y-1)^2(y^{111}-50y^{110}+\cdots+45y-1)$
c_3, c_6	$y^9(y^3+3y^2+2y-1)^2(y^{111}+63y^{110}+\cdots-3932160y-262144)$
c_5, c_9	$y^6(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{111}-40y^{110}+\cdots+107520y-4096)$
c_7, c_{11}	$(y^2+y+1)^3$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{111}+39y^{110}+\cdots-34y-1)$
c_8	$y^6(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{111}+52y^{110}+\cdots-334495744y-16777216)$
c_{10}, c_{12}	$((y^2+y+1)^3)(y^9+7y^8+\cdots+13y-1)$ $\cdot(y^{111}+71y^{110}+\cdots+250y-1)$