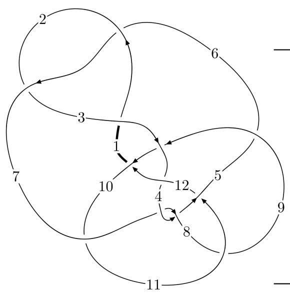
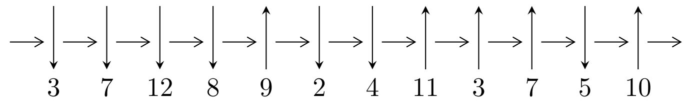
$12n_{0597}$ ($K12n_{0597}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 6.48488 \times 10^{68} u^{54} + 2.22735 \times 10^{69} u^{53} + \cdots + 3.01163 \times 10^{67} b - 4.54938 \times 10^{69},$$
$$7.79191 \times 10^{69} u^{54} + 2.67697 \times 10^{70} u^{53} + \cdots + 6.02326 \times 10^{67} a - 5.52191 \times 10^{70},\ u^{55} + 4u^{54} + \cdots - 32u -$$
$$I_2^u = \langle 1742938u^{19} + 1162593u^{18} + \cdots + 1826407b + 1460687,$$
$$147076u^{19} + 1158u^{18} + \cdots + 166037a - 623712,\ u^{20} + u^{19} + \cdots - 4u + 1\rangle$$
$$I_3^u = \langle -a^3 + b + 2a + 1,\ a^4 - a^3 - 4a^2 + 2a + 5,\ u - 1\rangle$$
$$I_4^u = \langle b - 1,\ a - 1,\ u - 1\rangle$$
$$I_5^u = \langle b - u + 1,\ u^2 + a - 2u + 1,\ u^3 - u^2 + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 83 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. $I_1^u =$
$\langle 6.48\times10^{68}u^{54}+2.23\times10^{69}u^{53}+\cdots+3.01\times10^{67}b-4.55\times10^{69},\ 7.79\times10^{69}u^{54}+2.68\times10^{70}u^{53}+\cdots+6.02\times10^{67}a-5.52\times10^{70},\ u^{55}+4u^{54}+\cdots-32u-4\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-129.364u^{54}-444.439u^{53}+\cdots+5697.58u+916.764\\-21.5328u^{54}-73.9584u^{53}+\cdots+941.610u+151.061\end{pmatrix}$$
$$a_3 = \begin{pmatrix}3.94666u^{54}+13.1180u^{53}+\cdots-136.672u-18.8314\\-20.4560u^{54}-70.0814u^{53}+\cdots+894.192u+143.944\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-4.54849u^{54}-15.8254u^{53}+\cdots+226.873u+38.8130\\-28.9511u^{54}-99.0248u^{53}+\cdots+1257.74u+201.588\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-172.432u^{54}-590.262u^{53}+\cdots+7505.58u+1199.19\\40.4434u^{54}+139.041u^{53}+\cdots-1788.25u-286.747\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-20.9960u^{54}-71.3826u^{53}+\cdots+880.148u+137.913\\66.7999u^{54}+229.120u^{53}+\cdots-2923.17u-468.173\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-109.774u^{54}-377.006u^{53}+\cdots+4820.14u+775.762\\-15.4249u^{54}-52.9241u^{53}+\cdots+670.322u+107.355\end{pmatrix}$$
$$a_9 = \begin{pmatrix}190.838u^{54}+654.783u^{53}+\cdots-8370.59u-1338.55\\-44.5724u^{54}-152.962u^{53}+\cdots+1958.63u+314.711\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-139.838u^{54}-480.350u^{53}+\cdots+6148.79u+989.017\\-45.4892u^{54}-156.268u^{53}+\cdots+1998.97u+320.610\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -41.4839u^{54}-141.696u^{53}+\cdots+1753.72u+276.705$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{55} + 84u^{54} + \cdots - 72u + 1$
c_2, c_6	$u^{55} - 2u^{54} + \cdots + 22u - 1$
c_3	$u^{55} - 8u^{54} + \cdots - 120u + 25$
c_4, c_7	$u^{55} - 4u^{54} + \cdots - 32u + 4$
c_5	$u^{55} - 3u^{54} + \cdots + 75901u - 173113$
c_8	$u^{55} + 10u^{54} + \cdots - 1715u - 229$
c_9	$u^{55} - u^{54} + \cdots - 216467u + 35417$
c_{10}	$u^{55} - 4u^{54} + \cdots - 936251u - 118509$
c_{11}	$u^{55} + 2u^{54} + \cdots + 4u - 24$
c_{12}	$u^{55} - u^{54} + \cdots + 3199358u - 321516$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{55} - 212y^{54} + \cdots + 10440y - 1$
c_2, c_6	$y^{55} - 84y^{54} + \cdots - 72y - 1$
c_3	$y^{55} + 20y^{54} + \cdots - 800y - 625$
c_4, c_7	$y^{55} - 36y^{54} + \cdots - 200y - 16$
c_5	$y^{55} + 35y^{54} + \cdots + 119306470953y - 29968110769$
c_8	$y^{55} + 20y^{54} + \cdots - 2180589y - 52441$
c_9	$y^{55} + 91y^{54} + \cdots + 50901662647y - 1254363889$
c_{10}	$y^{55} + 58y^{54} + \cdots - 129372587591y - 14044383081$
c_{11}	$y^{55} - 6y^{54} + \cdots - 12656y - 576$
c_{12}	$y^{55} + 85y^{54} + \cdots + 3623181372652y - 103372538256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.228394 + 0.930097I$ $a = -0.355410 + 0.174211I$ $b = -0.216207 - 0.780987I$	$2.63763 - 2.19314I$	$0.766014 + 1.147808I$
$u = -0.228394 - 0.930097I$ $a = -0.355410 - 0.174211I$ $b = -0.216207 + 0.780987I$	$2.63763 + 2.19314I$	$0.766014 - 1.147808I$
$u = -0.061115 + 1.061790I$ $a = 0.121223 - 0.494313I$ $b = 0.396675 + 1.163810I$	$1.55867 - 3.48219I$	$0. + 3.47906I$
$u = -0.061115 - 1.061790I$ $a = 0.121223 + 0.494313I$ $b = 0.396675 - 1.163810I$	$1.55867 + 3.48219I$	$0. - 3.47906I$
$u = 1.013150 + 0.429080I$ $a = -2.09376 - 0.07084I$ $b = -1.30226 - 1.21278I$	$-8.91481 - 6.34317I$	0
$u = 1.013150 - 0.429080I$ $a = -2.09376 + 0.07084I$ $b = -1.30226 + 1.21278I$	$-8.91481 + 6.34317I$	0
$u = -1.079130 + 0.236177I$ $a = 1.53166 - 0.57910I$ $b = 0.77564 - 1.31217I$	$-1.46530 + 4.21934I$	0
$u = -1.079130 - 0.236177I$ $a = 1.53166 + 0.57910I$ $b = 0.77564 + 1.31217I$	$-1.46530 - 4.21934I$	0
$u = -1.113000 + 0.147678I$ $a = -1.55961 - 0.95086I$ $b = -0.546370 + 1.079590I$	$-12.12370 + 4.63839I$	0
$u = -1.113000 - 0.147678I$ $a = -1.55961 + 0.95086I$ $b = -0.546370 - 1.079590I$	$-12.12370 - 4.63839I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.398648 + 0.764365I$ $a = 0.490007 + 1.105910I$ $b = -0.751133 - 0.461027I$	$-10.69800 + 3.28061I$	$-4.43813 - 2.05243I$
$u = -0.398648 - 0.764365I$ $a = 0.490007 - 1.105910I$ $b = -0.751133 + 0.461027I$	$-10.69800 - 3.28061I$	$-4.43813 + 2.05243I$
$u = -0.818436 + 0.220706I$ $a = -0.462335 - 0.757558I$ $b = -0.258171 - 1.314110I$	$1.02370 + 2.96901I$	$6.22160 - 5.57360I$
$u = -0.818436 - 0.220706I$ $a = -0.462335 + 0.757558I$ $b = -0.258171 + 1.314110I$	$1.02370 - 2.96901I$	$6.22160 + 5.57360I$
$u = 0.823693$ $a = 2.96416$ $b = 1.33894$	-0.453310	-12.4430
$u = 0.629407 + 1.015120I$ $a = -0.124519 + 0.360519I$ $b = 0.354817 - 0.497624I$	$-0.865641 - 0.009239I$	0
$u = 0.629407 - 1.015120I$ $a = -0.124519 - 0.360519I$ $b = 0.354817 + 0.497624I$	$-0.865641 + 0.009239I$	0
$u = 0.056692 + 1.212890I$ $a = -0.103950 - 0.233463I$ $b = -0.682228 + 1.128040I$	$-8.74789 + 8.87696I$	0
$u = 0.056692 - 1.212890I$ $a = -0.103950 + 0.233463I$ $b = -0.682228 - 1.128040I$	$-8.74789 - 8.87696I$	0
$u = 0.354907 + 0.697158I$ $a = -0.098793 - 0.883310I$ $b = 0.155774 + 1.110550I$	$2.01009 - 2.16153I$	$2.20037 + 5.52786I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.354907 - 0.697158I$ $a = -0.098793 + 0.883310I$ $b = 0.155774 - 1.110550I$	$2.01009 + 2.16153I$	$2.20037 - 5.52786I$
$u = 0.388472 + 0.676966I$ $a = 0.392074 + 0.586948I$ $b = -0.77671 + 1.19630I$	$-7.10371 + 2.13418I$	$-1.61598 - 0.45444I$
$u = 0.388472 - 0.676966I$ $a = 0.392074 - 0.586948I$ $b = -0.77671 - 1.19630I$	$-7.10371 - 2.13418I$	$-1.61598 + 0.45444I$
$u = 1.169370 + 0.406827I$ $a = 0.160942 - 0.680261I$ $b = 0.558665 - 1.106950I$	$-2.81126 - 1.20544I$	0
$u = 1.169370 - 0.406827I$ $a = 0.160942 + 0.680261I$ $b = 0.558665 + 1.106950I$	$-2.81126 + 1.20544I$	0
$u = -1.256970 + 0.280156I$ $a = 1.366380 + 0.304132I$ $b = 1.164040 + 0.121414I$	$-6.24743 + 2.95707I$	0
$u = -1.256970 - 0.280156I$ $a = 1.366380 - 0.304132I$ $b = 1.164040 - 0.121414I$	$-6.24743 - 2.95707I$	0
$u = 1.247720 + 0.445260I$ $a = -1.217490 - 0.284802I$ $b = -0.241125 - 0.911262I$	$-1.00747 - 2.30946I$	0
$u = 1.247720 - 0.445260I$ $a = -1.217490 + 0.284802I$ $b = -0.241125 + 0.911262I$	$-1.00747 + 2.30946I$	0
$u = 1.283620 + 0.343428I$ $a = -1.33294 + 0.59936I$ $b = -1.55960 + 0.59836I$	$-15.4853 - 6.9210I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.283620 - 0.343428I$ $a = -1.33294 - 0.59936I$ $b = -1.55960 - 0.59836I$	$-15.4853 + 6.9210I$	0
$u = 1.318640 + 0.262440I$ $a = 1.39643 + 0.81108I$ $b = 0.598048 + 0.736018I$	$-3.05878 - 4.93696I$	0
$u = 1.318640 - 0.262440I$ $a = 1.39643 - 0.81108I$ $b = 0.598048 - 0.736018I$	$-3.05878 + 4.93696I$	0
$u = -1.254450 + 0.537906I$ $a = -1.361600 + 0.016121I$ $b = -0.644516 + 0.771416I$	$-0.61529 + 7.55097I$	0
$u = -1.254450 - 0.537906I$ $a = -1.361600 - 0.016121I$ $b = -0.644516 - 0.771416I$	$-0.61529 - 7.55097I$	0
$u = 0.543362 + 0.279828I$ $a = -0.184351 + 0.678862I$ $b = 0.386325 + 0.158096I$	$-1.238630 - 0.333157I$	$-8.21440 + 1.77959I$
$u = 0.543362 - 0.279828I$ $a = -0.184351 - 0.678862I$ $b = 0.386325 - 0.158096I$	$-1.238630 + 0.333157I$	$-8.21440 - 1.77959I$
$u = -0.532879 + 0.265595I$ $a = -1.87909 - 0.15769I$ $b = -0.496585 + 0.280323I$	$1.53458 - 0.08260I$	$8.02360 - 0.70539I$
$u = -0.532879 - 0.265595I$ $a = -1.87909 + 0.15769I$ $b = -0.496585 - 0.280323I$	$1.53458 + 0.08260I$	$8.02360 + 0.70539I$
$u = -1.211180 + 0.728080I$ $a = -0.875893 - 0.683728I$ $b = -0.631732 + 1.072700I$	$-12.79060 + 2.58251I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.211180 - 0.728080I$ $a = -0.875893 + 0.683728I$ $b = -0.631732 - 1.072700I$	$-12.79060 - 2.58251I$	0
$u = 1.25664 + 0.67520I$ $a = 1.073550 - 0.367845I$ $b = 0.700106 + 0.896451I$	$-3.21944 - 6.43186I$	0
$u = 1.25664 - 0.67520I$ $a = 1.073550 + 0.367845I$ $b = 0.700106 - 0.896451I$	$-3.21944 + 6.43186I$	0
$u = -0.568585 + 0.002353I$ $a = 2.93796 + 2.07601I$ $b = -0.463493 + 0.346007I$	$-10.21720 + 3.48231I$	$-4.98199 + 0.62812I$
$u = -0.568585 - 0.002353I$ $a = 2.93796 - 2.07601I$ $b = -0.463493 - 0.346007I$	$-10.21720 - 3.48231I$	$-4.98199 - 0.62812I$
$u = -1.34385 + 0.51761I$ $a = 1.43449 - 0.18164I$ $b = 0.60052 - 1.30971I$	$-2.54819 + 9.08466I$	0
$u = -1.34385 - 0.51761I$ $a = 1.43449 + 0.18164I$ $b = 0.60052 + 1.30971I$	$-2.54819 - 9.08466I$	0
$u = 1.37774 + 0.58999I$ $a = -1.49234 - 0.04356I$ $b = -0.87943 - 1.33400I$	$-12.9172 - 15.1751I$	0
$u = 1.37774 - 0.58999I$ $a = -1.49234 + 0.04356I$ $b = -0.87943 + 1.33400I$	$-12.9172 + 15.1751I$	0
$u = -1.50431 + 0.07352I$ $a = -0.364764 - 1.062760I$ $b = -0.507231 - 0.684175I$	$-13.50180 + 0.32367I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.50431 - 0.07352I$ $a = -0.364764 + 1.062760I$ $b = -0.507231 + 0.684175I$	$-13.50180 - 0.32367I$	0
$u = -1.60007 + 0.48099I$ $a = -0.249894 - 0.427368I$ $b = -0.631921 - 0.689866I$	$-14.0455 - 2.4232I$	0
$u = -1.60007 - 0.48099I$ $a = -0.249894 + 0.427368I$ $b = -0.631921 + 0.689866I$	$-14.0455 + 2.4232I$	0
$u = -0.080542 + 0.193890I$ $a = 2.61995 - 1.69033I$ $b = 0.228619 - 1.091470I$	$1.26586 + 2.57084I$	$-0.85088 - 2.32793I$
$u = -0.080542 - 0.193890I$ $a = 2.61995 + 1.69033I$ $b = 0.228619 + 1.091470I$	$1.26586 - 2.57084I$	$-0.85088 + 2.32793I$

II. $I_2^u = \langle 1.74 \times 10^6 u^{19} + 1.16 \times 10^6 u^{18} + \cdots + 1.83 \times 10^6 b + 1.46 \times 10^6,\ 147076u^{19} + 1158u^{18} + \cdots + 166037a - 623712,\ u^{20} + u^{19} + \cdots - 4u + 1 \rangle$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.885803u^{19} - 0.00697435u^{18} + \cdots - 0.332149u + 3.75646 \\ -0.954299u^{19} - 0.636547u^{18} + \cdots + 2.12930u - 0.799760 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.167149u^{19} - 0.371082u^{18} + \cdots - 4.30841u + 3.40433 \\ -0.378146u^{19} - 0.145836u^{18} + \cdots - 2.54026u + 0.496680 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.946799u^{19} - 0.655425u^{18} + \cdots - 2.35244u + 2.96809 \\ -1.15780u^{19} - 0.430180u^{18} + \cdots - 0.584292u + 0.0604367 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.36020u^{19} - 0.734061u^{18} + \cdots + 6.88680u - 0.210030 \\ -1.50970u^{19} - 0.927327u^{18} + \cdots + 5.68923u - 1.07153 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0662196u^{19} - 0.397076u^{18} + \cdots + 1.44845u + 1.51392 \\ 0.193160u^{19} + 0.171997u^{18} + \cdots + 1.73103u - 0.520690 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.22425u^{19} - 0.993563u^{18} + \cdots - 2.60396u + 3.83553 \\ -1.23184u^{19} - 1.39082u^{18} + \cdots - 0.124812u - 0.151619 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.119859u^{19} + 0.185423u^{18} + \cdots - 1.51911u + 2.97387 \\ 0.588138u^{19} + 0.846974u^{18} + \cdots - 1.40998u - 0.239062 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.807363u^{19} - 0.0873266u^{18} + \cdots - 1.05289u + 3.44587 \\ -0.814955u^{19} - 0.484584u^{18} + \cdots + 1.42626u - 0.541284 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{3759113}{1826407}u^{19} + \frac{9918792}{1826407}u^{18} + \cdots + \frac{33892975}{1826407}u - \frac{13352398}{1826407}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} - 22u^{19} + \cdots - 3u + 1$
c_2	$u^{20} + 2u^{19} + \cdots - u + 1$
c_3	$u^{20} + 5u^{19} + \cdots + 5u + 1$
c_4	$u^{20} + u^{19} + \cdots - 4u + 1$
c_5	$u^{20} - u^{19} + \cdots + 5u + 1$
c_6	$u^{20} - 2u^{19} + \cdots + u + 1$
c_7	$u^{20} - u^{19} + \cdots + 4u + 1$
c_8	$u^{20} + 6u^{19} + \cdots + u + 1$
c_9	$u^{20} - u^{19} + \cdots + 9u + 1$
c_{10}	$u^{20} + 6u^{19} + \cdots + 62u + 25$
c_{11}	$u^{20} + u^{19} + \cdots - 24u + 23$
c_{12}	$u^{20} - u^{19} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} - 38y^{19} + \cdots + 97y + 1$
c_2, c_6	$y^{20} - 22y^{19} + \cdots - 3y + 1$
c_3	$y^{20} + 13y^{19} + \cdots + 3y + 1$
c_4, c_7	$y^{20} - 15y^{19} + \cdots - 14y + 1$
c_5	$y^{20} + 3y^{19} + \cdots - 17y + 1$
c_8	$y^{20} + 8y^{19} + \cdots + y + 1$
c_9	$y^{20} + 15y^{19} + \cdots - 15y + 1$
c_{10}	$y^{20} + 20y^{19} + \cdots - 794y + 625$
c_{11}	$y^{20} + y^{19} + \cdots - 1220y + 529$
c_{12}	$y^{20} + 13y^{19} + \cdots - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.533776 + 0.839429I$ $a = 0.082187 + 0.976957I$ $b = -0.161143 - 1.107230I$	$1.33087 - 1.27262I$	$-3.32667 - 0.25948I$
$u = 0.533776 - 0.839429I$ $a = 0.082187 - 0.976957I$ $b = -0.161143 + 1.107230I$	$1.33087 + 1.27262I$	$-3.32667 + 0.25948I$
$u = -1.000530 + 0.259540I$ $a = -1.06090 - 1.21552I$ $b = -1.23287 - 1.38392I$	$-1.40774 + 1.89082I$	$-2.02415 - 6.71944I$
$u = -1.000530 - 0.259540I$ $a = -1.06090 + 1.21552I$ $b = -1.23287 + 1.38392I$	$-1.40774 - 1.89082I$	$-2.02415 + 6.71944I$
$u = -0.191181 + 0.929591I$ $a = -0.108015 + 0.312018I$ $b = -0.397250 - 1.097980I$	$2.87685 - 3.71581I$	$2.69381 + 5.50994I$
$u = -0.191181 - 0.929591I$ $a = -0.108015 - 0.312018I$ $b = -0.397250 + 1.097980I$	$2.87685 + 3.71581I$	$2.69381 - 5.50994I$
$u = 0.873633 + 0.175179I$ $a = -0.0423713 - 0.1227380I$ $b = -0.053990 - 1.361470I$	$0.38476 - 3.13050I$	$-6.71544 + 6.46581I$
$u = 0.873633 - 0.175179I$ $a = -0.0423713 + 0.1227380I$ $b = -0.053990 + 1.361470I$	$0.38476 + 3.13050I$	$-6.71544 - 6.46581I$
$u = -0.795716 + 0.349204I$ $a = 1.94782 + 1.71456I$ $b = 0.680999 - 0.825877I$	$-10.29940 + 4.53068I$	$-4.78345 - 5.80170I$
$u = -0.795716 - 0.349204I$ $a = 1.94782 - 1.71456I$ $b = 0.680999 + 0.825877I$	$-10.29940 - 4.53068I$	$-4.78345 + 5.80170I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.250290 + 0.249862I$ $a = -1.43958 - 0.31269I$ $b = -0.718556 - 0.811927I$	$-2.91355 - 2.89211I$	$-7.67752 + 2.98084I$
$u = 1.250290 - 0.249862I$ $a = -1.43958 + 0.31269I$ $b = -0.718556 + 0.811927I$	$-2.91355 + 2.89211I$	$-7.67752 - 2.98084I$
$u = -1.284370 + 0.538335I$ $a = -1.45575 + 0.12107I$ $b = -0.703474 + 1.149430I$	$-0.60784 + 9.10431I$	$-1.89591 - 7.92757I$
$u = -1.284370 - 0.538335I$ $a = -1.45575 - 0.12107I$ $b = -0.703474 - 1.149430I$	$-0.60784 - 9.10431I$	$-1.89591 + 7.92757I$
$u = 1.306690 + 0.489189I$ $a = 1.147690 + 0.402592I$ $b = 0.078049 + 0.861799I$	$-1.49698 - 3.77692I$	$-3.66921 + 4.30140I$
$u = 1.306690 - 0.489189I$ $a = 1.147690 - 0.402592I$ $b = 0.078049 - 0.861799I$	$-1.49698 + 3.77692I$	$-3.66921 - 4.30140I$
$u = -1.49584 + 0.23640I$ $a = -0.348081 + 0.618798I$ $b = 0.327314 + 0.504059I$	$-13.12220 - 1.74178I$	$-3.87046 + 2.15304I$
$u = -1.49584 - 0.23640I$ $a = -0.348081 - 0.618798I$ $b = 0.327314 - 0.504059I$	$-13.12220 + 1.74178I$	$-3.87046 - 2.15304I$
$u = 0.303243 + 0.180235I$ $a = 2.77701 - 1.28061I$ $b = -0.319083 + 0.192447I$	$0.581123 + 0.014308I$	$-1.73100 + 0.68149I$
$u = 0.303243 - 0.180235I$ $a = 2.77701 + 1.28061I$ $b = -0.319083 - 0.192447I$	$0.581123 - 0.014308I$	$-1.73100 - 0.68149I$

III. $I_3^u = \langle -a^3 + b + 2a + 1,\ a^4 - a^3 - 4a^2 + 2a + 5,\ u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.246050 + 0.267489I$ $b = -0.175098 + 0.691825I$	-1.64493	-6.00000
$u = 1.00000$ $a = -1.246050 - 0.267489I$ $b = -0.175098 - 0.691825I$	-1.64493	-6.00000
$u = 1.00000$ $a = 1.74605 + 0.17255I$ $b = 0.675098 + 1.227920I$	-1.64493	-6.00000
$u = 1.00000$ $a = 1.74605 - 0.17255I$ $b = 0.675098 - 1.227920I$	-1.64493	-6.00000

IV. $I_4^u = \langle b-1,\ a-1,\ u-1\rangle$

(i) Arc colorings

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

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

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

$a_{12} = \begin{pmatrix}1\\1\end{pmatrix}$

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

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

$a_2 = \begin{pmatrix}-1\\-2\end{pmatrix}$

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

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

$a_{11} = \begin{pmatrix}1\\1\end{pmatrix}$

$a_9 = \begin{pmatrix}1\\2\end{pmatrix}$

$a_{10} = \begin{pmatrix}1\\1\end{pmatrix}$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	1.00000	-1.64493	-6.00000
$b =$	1.00000		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^2 - 4u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = 0.539798 + 0.182582I$ $b = -0.122561 + 0.744862I$	0	$0.70532 - 1.67231I$
$u = 0.877439 - 0.744862I$ $a = 0.539798 - 0.182582I$ $b = -0.122561 - 0.744862I$	0	$0.70532 + 1.67231I$
$u = -0.754878$ $a = -3.07960$ $b = -1.75488$	0	7.58940

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u+1)(u^4+u^3+2u^2+1)(u^{20}-22u^{19}+\cdots-3u+1)$ $\cdot(u^{55}+84u^{54}+\cdots-72u+1)$
c_2	$((u-1)^3)(u+1)(u^4-u^3+1)(u^{20}+2u^{19}+\cdots-u+1)$ $\cdot(u^{55}-2u^{54}+\cdots+22u-1)$
c_3	$(u+1)(u^3+2u^2+u+1)(u^4+u^3+2u^2+1)(u^{20}+5u^{19}+\cdots+5u+1)$ $\cdot(u^{55}-8u^{54}+\cdots-120u+25)$
c_4	$((u+1)^5)(u^3-u^2+1)(u^{20}+u^{19}+\cdots-4u+1)$ $\cdot(u^{55}-4u^{54}+\cdots-32u+4)$
c_5	$(u+1)(u^3-u^2+1)(u^4-u^3+1)(u^{20}-u^{19}+\cdots+5u+1)$ $\cdot(u^{55}-3u^{54}+\cdots+75901u-173113)$
c_6	$((u+1)^4)(u^4-u^3+1)(u^{20}-2u^{19}+\cdots+u+1)$ $\cdot(u^{55}-2u^{54}+\cdots+22u-1)$
c_7	$((u+1)^5)(u^3+u^2-1)(u^{20}-u^{19}+\cdots+4u+1)$ $\cdot(u^{55}-4u^{54}+\cdots-32u+4)$
c_8	$(u-1)(u^3+3u^2+2u+1)(u^4-u^3+2u^2+1)(u^{20}+6u^{19}+\cdots+u+1)$ $\cdot(u^{55}+10u^{54}+\cdots-1715u-229)$
c_9	$(u+1)(u^3+u^2-1)(u^4+u^3+2u^2+1)(u^{20}-u^{19}+\cdots+9u+1)$ $\cdot(u^{55}-u^{54}+\cdots-216467u+35417)$
c_{10}	$u(u-1)^3(u^4-u^2+2u+3)(u^{20}+6u^{19}+\cdots+62u+25)$ $\cdot(u^{55}-4u^{54}+\cdots-936251u-118509)$
c_{11}	$u^4(u^4-u^2+2u+3)(u^{20}+u^{19}+\cdots-24u+23)$ $\cdot(u^{55}+2u^{54}+\cdots+4u-24)$
c_{12}	$u^5(u-1)^3(u^{20}-u^{19}+\cdots+3u+1)$ $\cdot(u^{55}-u^{54}+\cdots+3199358u-321516)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^4)(y^4+3y^3+\cdots+4y+1)(y^{20}-38y^{19}+\cdots+97y+1)$ $\cdot(y^{55}-212y^{54}+\cdots+10440y-1)$
c_2, c_6	$((y-1)^4)(y^4-y^3+2y^2+1)(y^{20}-22y^{19}+\cdots-3y+1)$ $\cdot(y^{55}-84y^{54}+\cdots-72y-1)$
c_3	$(y-1)(y^3-2y^2-3y-1)(y^4+3y^3+6y^2+4y+1)$ $\cdot(y^{20}+13y^{19}+\cdots+3y+1)(y^{55}+20y^{54}+\cdots-800y-625)$
c_4, c_7	$((y-1)^5)(y^3-y^2+2y-1)(y^{20}-15y^{19}+\cdots-14y+1)$ $\cdot(y^{55}-36y^{54}+\cdots-200y-16)$
c_5	$(y-1)(y^3-y^2+2y-1)(y^4-y^3+2y^2+1)(y^{20}+3y^{19}+\cdots-17y+1)$ $\cdot(y^{55}+35y^{54}+\cdots+119306470953y-29968110769)$
c_8	$(y-1)(y^3-5y^2-2y-1)(y^4+3y^3+6y^2+4y+1)$ $\cdot(y^{20}+8y^{19}+\cdots+y+1)(y^{55}+20y^{54}+\cdots-2180589y-52441)$
c_9	$(y-1)(y^3-y^2+2y-1)(y^4+3y^3+6y^2+4y+1)$ $\cdot(y^{20}+15y^{19}+\cdots-15y+1)$ $\cdot(y^{55}+91y^{54}+\cdots+50901662647y-1254363889)$
c_{10}	$y(y-1)^3(y^4-2y^3+\cdots-10y+9)(y^{20}+20y^{19}+\cdots-794y+625)$ $\cdot(y^{55}+58y^{54}+\cdots-129372587591y-14044383081)$
c_{11}	$y^4(y^4-2y^3+\cdots-10y+9)(y^{20}+y^{19}+\cdots-1220y+529)$ $\cdot(y^{55}-6y^{54}+\cdots-12656y-576)$
c_{12}	$y^5(y-1)^3(y^{20}+13y^{19}+\cdots-5y+1)$ $\cdot(y^{55}+85y^{54}+\cdots+3623181372652y-103372538256)$