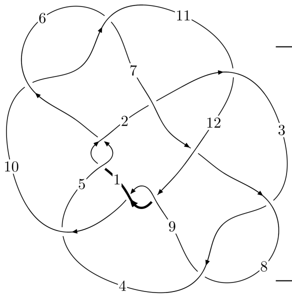
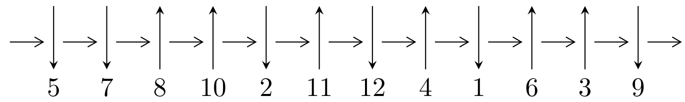
$12a_{1250}$ $(K12a_{1250})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b - u,\ 7.70010 \times 10^{31}u^{26} - 5.62456 \times 10^{31}u^{25} + \cdots + 2.15871 \times 10^{31}a + 1.22744 \times 10^{32},\ u^{27} - u^{26} + \cdots -$$

$$I_2^u = \langle 4.84865 \times 10^{726}u^{109} - 7.94449 \times 10^{726}u^{108} + \cdots + 4.71721 \times 10^{727}b + 2.09824 \times 10^{728},$$
$$1.16970 \times 10^{728}u^{109} - 2.33622 \times 10^{728}u^{108} + \cdots + 4.71721 \times 10^{727}a - 5.42261 \times 10^{729},$$
$$u^{110} - 2u^{109} + \cdots - 61u + 1\rangle$$

$$I_3^u = \langle b + u,\ u^8 + 56u^7 - 94u^6 + 123u^5 + 22u^4 - 254u^3 + 48u^2 + 137a + 269u - 286,$$
$$u^9 - u^8 + 2u^7 + u^6 - 2u^5 - u^4 + 4u^3 - u^2 - u - 1\rangle$$

$$I_4^u = \langle -1.58027 \times 10^{18}u^{19} - 6.87073 \times 10^{17}u^{18} + \cdots + 3.87707 \times 10^{18}b + 3.02858 \times 10^{18},$$
$$7.97216 \times 10^{18}u^{19} + 6.43988 \times 10^{18}u^{18} + \cdots + 3.87707 \times 10^{18}a - 3.92152 \times 10^{19},\ u^{20} + u^{19} + \cdots - 7u - 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 166 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. $I_1^u = \langle b - u,\ 7.70 \times 10^{31}u^{26} - 5.62 \times 10^{31}u^{25} + \cdots + 2.16 \times 10^{31}a + 1.23 \times 10^{32},\ u^{27} - u^{26} + \cdots - u - 1\rangle$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -3.56698u^{26} + 2.60552u^{25} + \cdots - 4.88748u - 5.68596 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -2.88044u^{26} + 2.25984u^{25} + \cdots + 0.640970u - 4.72449 \\ 0.177619u^{26} - 0.100159u^{25} + \cdots + 2.02741u + 0.340863 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.57118u^{26} - 0.212597u^{25} + \cdots + 20.1688u + 5.62807 \\ -0.688725u^{26} + 0.271933u^{25} + \cdots - 3.68073u - 1.38945 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.56698u^{26} + 2.60552u^{25} + \cdots - 3.88748u - 5.68596 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -3.80911u^{26} + 1.86959u^{25} + \cdots - 11.4495u - 13.7172 \\ 0.686544u^{26} - 0.345680u^{25} + \cdots + 5.52845u + 0.961469 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -4.77289u^{26} + 1.75400u^{25} + \cdots - 33.9661u - 4.39005 \\ 1.32981u^{26} - 0.626906u^{25} + \cdots + 6.61049u + 2.74803 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -2.08988u^{26} + 1.15394u^{25} + \cdots - 6.43107u - 1.87197 \\ 0.688725u^{26} - 0.271933u^{25} + \cdots + 3.68073u + 1.38945 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3.89150u^{26} + 2.46159u^{25} + \cdots - 7.29656u - 6.52772 \\ 1.20561u^{26} - 0.456383u^{25} + \cdots + 7.89661u + 2.30690 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.36591u^{26} - 0.755536u^{25} + \cdots + 1.30324u - 3.58531 \\ -1.35273u^{26} + 0.596087u^{25} + \cdots - 6.04003u - 2.77861 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.380648u^{26} - 0.165770u^{25} + \cdots + 7.21208u - 2.80163$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$u^{27} + u^{26} + \cdots + 7u - 1$
c_2, c_7	$u^{27} - u^{26} + \cdots - u - 1$
c_3, c_6, c_8 c_{10}	$u^{27} - u^{26} + \cdots + 2u + 1$
c_4	$u^{27} - 21u^{26} + \cdots - 776u + 8$
c_{11}	$u^{27} - 13u^{26} + \cdots - 444u + 72$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$y^{27} - 25y^{26} + \cdots + 45y - 1$
c_2, c_7	$y^{27} - 15y^{26} + \cdots + 5y - 1$
c_3, c_6, c_8 c_{10}	$y^{27} - 21y^{26} + \cdots + 6y - 1$
c_4	$y^{27} - 7y^{26} + \cdots + 456672y - 64$
c_{11}	$y^{27} - 7y^{26} + \cdots + 41040y - 5184$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.781819 + 0.631176I$ $a = 0.929861 + 0.399699I$ $b = 0.781819 + 0.631176I$	$-3.28970 - 2.28835I$	$-2.71013 + 3.35068I$
$u = 0.781819 - 0.631176I$ $a = 0.929861 - 0.399699I$ $b = 0.781819 - 0.631176I$	$-3.28970 + 2.28835I$	$-2.71013 - 3.35068I$
$u = -0.892407$ $a = 0.974906$ $b = -0.892407$	10.2498	43.3390
$u = 1.16370$ $a = -0.405849$ $b = 1.16370$	-0.711699	-7.17600
$u = -1.149710 + 0.219773I$ $a = -0.803273 - 0.736758I$ $b = -1.149710 + 0.219773I$	$-8.27330 - 1.09335I$	$-7.94541 - 0.68772I$
$u = -1.149710 - 0.219773I$ $a = -0.803273 + 0.736758I$ $b = -1.149710 - 0.219773I$	$-8.27330 + 1.09335I$	$-7.94541 + 0.68772I$
$u = 1.091930 + 0.455489I$ $a = 0.278245 - 0.905101I$ $b = 1.091930 + 0.455489I$	$-9.40709 - 6.96260I$	$-7.55252 + 5.81824I$
$u = 1.091930 - 0.455489I$ $a = 0.278245 + 0.905101I$ $b = 1.091930 - 0.455489I$	$-9.40709 + 6.96260I$	$-7.55252 - 5.81824I$
$u = 0.710875 + 1.032870I$ $a = 0.012712 - 1.150810I$ $b = 0.710875 + 1.032870I$	$3.58219 - 4.38995I$	$4.84018 + 4.14000I$
$u = 0.710875 - 1.032870I$ $a = 0.012712 + 1.150810I$ $b = 0.710875 - 1.032870I$	$3.58219 + 4.38995I$	$4.84018 - 4.14000I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.644156+0.368503I$ $a=-1.11178+1.61261I$ $b=-0.644156+0.368503I$	$-3.67889+11.52960I$	$-3.14313-8.69788I$
$u=-0.644156-0.368503I$ $a=-1.11178-1.61261I$ $b=-0.644156-0.368503I$	$-3.67889-11.52960I$	$-3.14313+8.69788I$
$u=\ \ 0.603990$ $a=-2.03134$ $b=\ \ 0.603990$	3.10146	2.60470
$u=-0.285348+0.511101I$ $a=\ \ 0.308003-1.070990I$ $b=-0.285348+0.511101I$	$0.056105+1.042570I$	$1.04906-6.21655I$
$u=-0.285348-0.511101I$ $a=\ \ 0.308003+1.070990I$ $b=-0.285348-0.511101I$	$0.056105-1.042570I$	$1.04906+6.21655I$
$u=\ \ 0.515570+0.073824I$ $a=-1.12863+1.53832I$ $b=\ \ 0.515570+0.073824I$	$2.12465-0.60492I$	$3.40248-0.28266I$
$u=\ \ 0.515570-0.073824I$ $a=-1.12863-1.53832I$ $b=\ \ 0.515570-0.073824I$	$2.12465+0.60492I$	$3.40248+0.28266I$
$u=-1.13528+0.95643I$ $a=-0.461555-1.048120I$ $b=-1.13528+0.95643I$	$8.36830+7.25793I$	$6.59980-4.89800I$
$u=-1.13528-0.95643I$ $a=-0.461555+1.048120I$ $b=-1.13528-0.95643I$	$8.36830-7.25793I$	$6.59980+4.89800I$
$u=-0.167835+0.252267I$ $a=-2.61305+4.57834I$ $b=-0.167835+0.252267I$	$-0.84726-3.06637I$	$-5.24785-2.81435I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.167835-0.252267I$ $a=-2.61305-4.57834I$ $b=-0.167835-0.252267I$	$-0.84726+3.06637I$	$-5.24785+2.81435I$
$u=\ 1.30742+1.18234I$ $a=\ 0.274985-0.859641I$ $b=\ 1.30742+1.18234I$	$-0.0304-19.1903I$	$0.+9.60894I$
$u=\ 1.30742-1.18234I$ $a=\ 0.274985+0.859641I$ $b=\ 1.30742-1.18234I$	$-0.0304+19.1903I$	$0.-9.60894I$
$u=-1.11928+1.55419I$ $a=-0.061254-0.676810I$ $b=-1.11928+1.55419I$	$-1.31722+8.02915I$	$-2.07270-6.52162I$
$u=-1.11928-1.55419I$ $a=-0.061254+0.676810I$ $b=-1.11928-1.55419I$	$-1.31722-8.02915I$	$-2.07270+6.52162I$
$u=-1.95578$ $a=-0.414695$ $b=-1.95578$	-8.01906	-12.6810
$u=\ 2.26848$ $a=\ 0.628451$ $b=\ 2.26848$	-5.51420	0

II. $\boldsymbol{I_2^u = \langle 4.85 \times 10^{726} u^{109} - 7.94 \times 10^{726} u^{108} + \cdots + 4.72 \times 10^{727} b + 2.10 \times 10^{728},\ 1.17 \times 10^{728} u^{109} - 2.34 \times 10^{728} u^{108} + \cdots + 4.72 \times 10^{727} a - 5.42 \times 10^{729},\ u^{110} - 2u^{109} + \cdots - 61u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -2.47964u^{109} + 4.95256u^{108} + \cdots - 3207.39u + 114.954 \\ -0.102786u^{109} + 0.168415u^{108} + \cdots + 104.323u - 4.44806 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -2.57837u^{109} + 5.11495u^{108} + \cdots - 3105.13u + 110.499 \\ -0.109476u^{109} + 0.179933u^{108} + \cdots + 102.283u - 4.41300 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -9.61748u^{109} + 18.8705u^{108} + \cdots - 8470.02u + 238.697 \\ 1.30572u^{109} - 2.51884u^{108} + \cdots + 785.576u - 17.1918 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.58243u^{109} + 5.12097u^{108} + \cdots - 3103.06u + 110.506 \\ -0.102786u^{109} + 0.168415u^{108} + \cdots + 104.323u - 4.44806 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 6.11025u^{109} - 12.0451u^{108} + \cdots + 6254.55u - 195.782 \\ -0.430403u^{109} + 0.856393u^{108} + \cdots - 406.059u + 10.7574 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 13.7340u^{109} - 26.8864u^{108} + \cdots + 12163.2u - 371.524 \\ -0.153525u^{109} + 0.289259u^{108} + \cdots - 155.930u + 7.46005 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 21.7236u^{109} - 42.5002u^{108} + \cdots + 18797.6u - 552.054 \\ -1.19225u^{109} + 2.28448u^{108} + \cdots - 714.350u + 19.3249 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 10.1698u^{109} - 19.9510u^{108} + \cdots + 9792.89u - 324.122 \\ 0.780072u^{109} - 1.47552u^{108} + \cdots + 241.270u + 0.659459 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -18.6242u^{109} + 36.7385u^{108} + \cdots - 17618.2u + 537.624 \\ 1.04694u^{109} - 2.02223u^{108} + \cdots + 826.486u - 22.9158 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -1.39827u^{109} + 2.80537u^{108} + \cdots - 1473.20u + 34.2235$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$u^{110} - 37u^{108} + \cdots - 596u + 229$
c_2, c_7	$u^{110} - 2u^{109} + \cdots - 61u + 1$
c_3, c_6, c_8 c_{10}	$u^{110} + u^{109} + \cdots + 2947u + 199$
c_4	$(u^{55} + 10u^{54} + \cdots + 8u - 1)^2$
c_{11}	$(u^{55} + 6u^{54} + \cdots + 262u + 67)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$y^{110} - 74y^{109} + \cdots - 2941542y + 52441$
c_2, c_7	$y^{110} + 8y^{109} + \cdots - 995y + 1$
c_3, c_6, c_8 c_{10}	$y^{110} - 71y^{109} + \cdots - 1508869y + 39601$
c_4	$(y^{55} + 12y^{54} + \cdots + 236y - 1)^2$
c_{11}	$(y^{55} - 20y^{54} + \cdots + 72932y - 4489)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.998893$ $a=-0.886698$ $b=-1.97821$	-5.09057	0
$u=-0.612762+0.750100I$ $a=0.116640-1.014820I$ $b=0.310391+0.813099I$	$0.43264+4.10654I$	0
$u=-0.612762-0.750100I$ $a=0.116640+1.014820I$ $b=0.310391-0.813099I$	$0.43264-4.10654I$	0
$u=-0.919737+0.556530I$ $a=-0.418031-1.172860I$ $b=-1.31673+1.11908I$	$-4.79048+12.57190I$	0
$u=-0.919737-0.556530I$ $a=-0.418031+1.172860I$ $b=-1.31673-1.11908I$	$-4.79048-12.57190I$	0
$u=0.750183+0.770595I$ $a=-0.312632+0.823794I$ $b=-1.28027-1.36796I$	$-2.93335-2.67192I$	0
$u=0.750183-0.770595I$ $a=-0.312632-0.823794I$ $b=-1.28027+1.36796I$	$-2.93335+2.67192I$	0
$u=0.865133+0.669573I$ $a=0.33802-1.57490I$ $b=0.659251+0.966888I$	$2.74486-4.81034I$	0
$u=0.865133-0.669573I$ $a=0.33802+1.57490I$ $b=0.659251-0.966888I$	$2.74486+4.81034I$	0
$u=1.095580+0.042016I$ $a=0.726760+1.014680I$ $b=0.299331+0.204670I$	$-5.73179-5.61364I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.095580 - 0.042016I$ $a = 0.726760 - 1.014680I$ $b = 0.299331 - 0.204670I$	$-5.73179 + 5.61364I$	0
$u = 0.403309 + 0.807250I$ $a = -0.18776 - 1.50293I$ $b = 0.768789 + 0.929711I$	$3.55445 - 4.03607I$	0
$u = 0.403309 - 0.807250I$ $a = -0.18776 + 1.50293I$ $b = 0.768789 - 0.929711I$	$3.55445 + 4.03607I$	0
$u = 0.800426 + 0.358042I$ $a = -0.778741 + 1.108750I$ $b = 0.116547 - 0.222950I$	$2.22016 - 0.68767I$	0
$u = 0.800426 - 0.358042I$ $a = -0.778741 - 1.108750I$ $b = 0.116547 + 0.222950I$	$2.22016 + 0.68767I$	0
$u = 0.310391 + 0.813099I$ $a = 1.044060 - 0.449729I$ $b = -0.612762 + 0.750100I$	$0.43264 + 4.10654I$	0
$u = 0.310391 - 0.813099I$ $a = 1.044060 + 0.449729I$ $b = -0.612762 - 0.750100I$	$0.43264 - 4.10654I$	0
$u = 0.778176 + 0.373657I$ $a = -0.222898 + 0.908749I$ $b = -0.734460 - 0.894698I$	$-3.57918 - 3.06316I$	0
$u = 0.778176 - 0.373657I$ $a = -0.222898 - 0.908749I$ $b = -0.734460 + 0.894698I$	$-3.57918 + 3.06316I$	0
$u = 0.476407 + 1.045930I$ $a = 0.272044 - 0.568787I$ $b = -1.14858 + 1.39599I$	$5.29292 - 4.11535I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.476407 - 1.045930I$ $a = 0.272044 + 0.568787I$ $b = -1.14858 - 1.39599I$	$5.29292 + 4.11535I$	0
$u = 0.685571 + 0.923676I$ $a = -0.012161 + 1.122410I$ $b = -1.09417 - 1.14531I$	$0.28959 - 9.04527I$	0
$u = 0.685571 - 0.923676I$ $a = -0.012161 - 1.122410I$ $b = -1.09417 + 1.14531I$	$0.28959 + 9.04527I$	0
$u = -1.128550 + 0.253990I$ $a = 0.425568 + 0.390150I$ $b = 0.720258 - 0.243099I$	$-2.84990 + 0.29345I$	0
$u = -1.128550 - 0.253990I$ $a = 0.425568 - 0.390150I$ $b = 0.720258 + 0.243099I$	$-2.84990 - 0.29345I$	0
$u = -0.734460 + 0.894698I$ $a = -0.135378 + 0.684525I$ $b = 0.778176 - 0.373657I$	$-3.57918 + 3.06316I$	0
$u = -0.734460 - 0.894698I$ $a = -0.135378 - 0.684525I$ $b = 0.778176 + 0.373657I$	$-3.57918 - 3.06316I$	0
$u = 0.659251 + 0.966888I$ $a = -0.15376 - 1.49791I$ $b = 0.865133 + 0.669573I$	$2.74486 - 4.81034I$	0
$u = 0.659251 - 0.966888I$ $a = -0.15376 + 1.49791I$ $b = 0.865133 - 0.669573I$	$2.74486 + 4.81034I$	0
$u = -0.736806 + 0.367349I$ $a = 0.35529 + 1.54642I$ $b = 0.88136 - 1.24598I$	$0.51004 + 5.45734I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.736806-0.367349I$ $a=\ 0.35529-1.54642I$ $b=\ 0.88136+1.24598I$	$0.51004-5.45734I$	0
$u=-1.19982$ $a=\ 0.983271$ $b=\ 0.755437$	-2.52587	0
$u=\ 1.031690+0.617279I$ $a=-1.00449+1.18519I$ $b=-1.185780-0.516929I$	$2.64974-1.27843I$	0
$u=\ 1.031690-0.617279I$ $a=-1.00449-1.18519I$ $b=-1.185780+0.516929I$	$2.64974+1.27843I$	0
$u=\ 0.768789+0.929711I$ $a=\ 0.116846-1.126900I$ $b=\ 0.403309+0.807250I$	$3.55445-4.03607I$	0
$u=\ 0.768789-0.929711I$ $a=\ 0.116846+1.126900I$ $b=\ 0.403309-0.807250I$	$3.55445+4.03607I$	0
$u=-0.235929+0.757530I$ $a=\ 0.242037-1.144280I$ $b=-0.71885+1.37533I$	$1.135820-0.205465I$	0
$u=-0.235929-0.757530I$ $a=\ 0.242037+1.144280I$ $b=-0.71885-1.37533I$	$1.135820+0.205465I$	0
$u=-0.399940+1.157640I$ $a=-0.189094-0.717679I$ $b=\ 0.91748+1.35195I$	$6.13336+4.50289I$	0
$u=-0.399940-1.157640I$ $a=-0.189094+0.717679I$ $b=\ 0.91748-1.35195I$	$6.13336-4.50289I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.598936 + 0.485246I$ $a = -1.10106 + 0.89206I$ $b = 0.598936 - 0.485246I$	3.02407	0
$u = 0.598936 - 0.485246I$ $a = -1.10106 - 0.89206I$ $b = 0.598936 + 0.485246I$	3.02407	0
$u = 0.720258 + 0.243099I$ $a = -0.582371 + 0.657801I$ $b = -1.128550 - 0.253990I$	$-2.84990 - 0.29345I$	0
$u = 0.720258 - 0.243099I$ $a = -0.582371 - 0.657801I$ $b = -1.128550 + 0.253990I$	$-2.84990 + 0.29345I$	0
$u = 0.755437$ $a = -1.56167$ $b = -1.19982$	-2.52587	-18.3860
$u = 0.958529 + 0.798223I$ $a = 0.367727 - 0.784409I$ $b = 1.72624 + 1.25070I$	$-3.70148 - 2.64555I$	0
$u = 0.958529 - 0.798223I$ $a = 0.367727 + 0.784409I$ $b = 1.72624 - 1.25070I$	$-3.70148 + 2.64555I$	0
$u = -0.777794 + 1.015010I$ $a = 0.395951 + 0.516708I$ $b = -0.777794 - 1.015010I$	9.31937	0
$u = -0.777794 - 1.015010I$ $a = 0.395951 - 0.516708I$ $b = -0.777794 + 1.015010I$	9.31937	0
$u = -0.651259 + 0.284105I$ $a = 0.56779 - 2.19424I$ $b = 0.311295 - 0.145457I$	$0.80420 + 4.80655I$	$0. - 9.09767I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.651259 - 0.284105I$ $a = 0.56779 + 2.19424I$ $b = 0.311295 + 0.145457I$	$0.80420 - 4.80655I$	$0. + 9.09767I$
$u = -1.185780 + 0.516929I$ $a = 1.06665 + 0.97326I$ $b = 1.031690 - 0.617279I$	$2.64974 + 1.27843I$	0
$u = -1.185780 - 0.516929I$ $a = 1.06665 - 0.97326I$ $b = 1.031690 + 0.617279I$	$2.64974 - 1.27843I$	0
$u = -0.186211 + 0.650498I$ $a = 1.139500 + 0.549929I$ $b = 0.050931 - 1.383410I$	$-1.67519 + 3.37319I$	$0. - 1.85055I$
$u = -0.186211 - 0.650498I$ $a = 1.139500 - 0.549929I$ $b = 0.050931 + 1.383410I$	$-1.67519 - 3.37319I$	$0. + 1.85055I$
$u = -0.334305 + 0.582293I$ $a = -0.068999 + 1.362830I$ $b = 1.34936 - 1.20783I$	$1.22183 + 3.59271I$	$4.52275 - 8.70901I$
$u = -0.334305 - 0.582293I$ $a = -0.068999 - 1.362830I$ $b = 1.34936 + 1.20783I$	$1.22183 - 3.59271I$	$4.52275 + 8.70901I$
$u = -1.35619$ $a = -1.03010$ $b = 0.0351718$	3.28865	0
$u = -0.621797 + 0.148820I$ $a = 1.26656 - 1.44413I$ $b = 0.233671 - 0.407335I$	$-1.08485 + 2.66555I$	$-6.08010 - 4.56372I$
$u = -0.621797 - 0.148820I$ $a = 1.26656 + 1.44413I$ $b = 0.233671 + 0.407335I$	$-1.08485 - 2.66555I$	$-6.08010 + 4.56372I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.050931 + 1.383410I$ $a = -0.476306 + 0.394428I$ $b = -0.186211 - 0.650498I$	$-1.67519 - 3.37319I$	0
$u = 0.050931 - 1.383410I$ $a = -0.476306 - 0.394428I$ $b = -0.186211 + 0.650498I$	$-1.67519 + 3.37319I$	0
$u = -1.369060 + 0.309100I$ $a = -0.079909 - 0.455040I$ $b = -0.457160 - 0.144522I$	$-5.63317 + 1.03399I$	0
$u = -1.369060 - 0.309100I$ $a = -0.079909 + 0.455040I$ $b = -0.457160 + 0.144522I$	$-5.63317 - 1.03399I$	0
$u = -0.457160 + 0.144522I$ $a = -0.873399 + 1.032580I$ $b = -1.369060 - 0.309100I$	$-5.63317 - 1.03399I$	$-11.65387 + 4.39006I$
$u = -0.457160 - 0.144522I$ $a = -0.873399 - 1.032580I$ $b = -1.369060 + 0.309100I$	$-5.63317 + 1.03399I$	$-11.65387 - 4.39006I$
$u = 0.88136 + 1.24598I$ $a = 0.225679 + 0.825663I$ $b = -0.736806 - 0.367349I$	$0.51004 - 5.45734I$	0
$u = 0.88136 - 1.24598I$ $a = 0.225679 - 0.825663I$ $b = -0.736806 + 0.367349I$	$0.51004 + 5.45734I$	0
$u = 0.233671 + 0.407335I$ $a = -2.61356 - 0.09350I$ $b = -0.621797 - 0.148820I$	$-1.08485 - 2.66555I$	$-6.08010 + 4.56372I$
$u = 0.233671 - 0.407335I$ $a = -2.61356 + 0.09350I$ $b = -0.621797 + 0.148820I$	$-1.08485 + 2.66555I$	$-6.08010 - 4.56372I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.71885 + 1.37533I$ $a = 0.017188 - 0.597731I$ $b = -0.235929 + 0.757530I$	$1.135820 - 0.205465I$	0
$u = -0.71885 - 1.37533I$ $a = 0.017188 + 0.597731I$ $b = -0.235929 - 0.757530I$	$1.135820 + 0.205465I$	0
$u = 0.40372 + 1.51303I$ $a = -0.118661 + 0.535099I$ $b = 0.89017 - 1.87925I$	$1.42772 - 9.18102I$	0
$u = 0.40372 - 1.51303I$ $a = -0.118661 - 0.535099I$ $b = 0.89017 + 1.87925I$	$1.42772 + 9.18102I$	0
$u = 1.19083 + 1.04289I$ $a = -0.325712 + 0.983158I$ $b = -1.11259 - 1.13543I$	$5.13513 - 12.91180I$	0
$u = 1.19083 - 1.04289I$ $a = -0.325712 - 0.983158I$ $b = -1.11259 + 1.13543I$	$5.13513 + 12.91180I$	0
$u = -1.09417 + 1.14531I$ $a = 0.109630 + 0.807747I$ $b = 0.685571 - 0.923676I$	$0.28959 + 9.04527I$	0
$u = -1.09417 - 1.14531I$ $a = 0.109630 - 0.807747I$ $b = 0.685571 + 0.923676I$	$0.28959 - 9.04527I$	0
$u = -1.11259 + 1.13543I$ $a = 0.248773 + 1.000870I$ $b = 1.19083 - 1.04289I$	$5.13513 + 12.91180I$	0
$u = -1.11259 - 1.13543I$ $a = 0.248773 - 1.000870I$ $b = 1.19083 + 1.04289I$	$5.13513 - 12.91180I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.91748 + 1.35195I$ $a = 0.346032 - 0.435642I$ $b = -0.399940 + 1.157640I$	$6.13336 + 4.50289I$	0
$u = 0.91748 - 1.35195I$ $a = 0.346032 + 0.435642I$ $b = -0.399940 - 1.157640I$	$6.13336 - 4.50289I$	0
$u = 0.299331 + 0.204670I$ $a = 3.49343 + 1.42719I$ $b = 1.095580 + 0.042016I$	$-5.73179 - 5.61364I$	$-4.53556 + 5.12202I$
$u = 0.299331 - 0.204670I$ $a = 3.49343 - 1.42719I$ $b = 1.095580 - 0.042016I$	$-5.73179 + 5.61364I$	$-4.53556 - 5.12202I$
$u = -0.85657 + 1.41626I$ $a = 0.013688 + 0.755530I$ $b = 0.57663 - 1.59776I$	$-0.05548 + 8.46629I$	0
$u = -0.85657 - 1.41626I$ $a = 0.013688 - 0.755530I$ $b = 0.57663 + 1.59776I$	$-0.05548 - 8.46629I$	0
$u = 0.311295 + 0.145457I$ $a = -1.29063 - 4.50569I$ $b = -0.651259 - 0.284105I$	$0.80420 - 4.80655I$	$-1.31755 + 9.09767I$
$u = 0.311295 - 0.145457I$ $a = -1.29063 + 4.50569I$ $b = -0.651259 + 0.284105I$	$0.80420 + 4.80655I$	$-1.31755 - 9.09767I$
$u = 0.57663 + 1.59776I$ $a = 0.131446 + 0.724481I$ $b = -0.85657 - 1.41626I$	$-0.05548 - 8.46629I$	0
$u = 0.57663 - 1.59776I$ $a = 0.131446 - 0.724481I$ $b = -0.85657 + 1.41626I$	$-0.05548 + 8.46629I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.31673 + 1.11908I$ $a = -0.140282 - 0.761785I$ $b = -0.919737 + 0.556530I$	$-4.79048 + 12.57190I$	0
$u = -1.31673 - 1.11908I$ $a = -0.140282 + 0.761785I$ $b = -0.919737 - 0.556530I$	$-4.79048 - 12.57190I$	0
$u = 0.116547 + 0.222950I$ $a = -4.02294 + 2.47338I$ $b = 0.800426 - 0.358042I$	$2.22016 + 0.68767I$	$3.24172 + 1.08060I$
$u = 0.116547 - 0.222950I$ $a = -4.02294 - 2.47338I$ $b = 0.800426 + 0.358042I$	$2.22016 - 0.68767I$	$3.24172 - 1.08060I$
$u = -1.14858 + 1.39599I$ $a = -0.248844 - 0.314256I$ $b = 0.476407 + 1.045930I$	$5.29292 - 4.11535I$	0
$u = -1.14858 - 1.39599I$ $a = -0.248844 + 0.314256I$ $b = 0.476407 - 1.045930I$	$5.29292 + 4.11535I$	0
$u = 1.34936 + 1.20783I$ $a = -0.134425 + 0.487742I$ $b = -0.334305 - 0.582293I$	$1.22183 - 3.59271I$	0
$u = 1.34936 - 1.20783I$ $a = -0.134425 - 0.487742I$ $b = -0.334305 + 0.582293I$	$1.22183 + 3.59271I$	0
$u = -1.28027 + 1.36796I$ $a = 0.170112 + 0.476297I$ $b = 0.750183 - 0.770595I$	$-2.93335 + 2.67192I$	0
$u = -1.28027 - 1.36796I$ $a = 0.170112 - 0.476297I$ $b = 0.750183 + 0.770595I$	$-2.93335 - 2.67192I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.0767307 + 0.0358246I$ $a = 1.43169 - 8.47092I$ $b = 1.32363 + 1.40196I$	$-1.41309 - 4.17051I$	$-10.11255 + 0.98560I$
$u = 0.0767307 - 0.0358246I$ $a = 1.43169 + 8.47092I$ $b = 1.32363 - 1.40196I$	$-1.41309 + 4.17051I$	$-10.11255 - 0.98560I$
$u = 1.32363 + 1.40196I$ $a = -0.078616 - 0.369041I$ $b = 0.0767307 + 0.0358246I$	$-1.41309 - 4.17051I$	0
$u = 1.32363 - 1.40196I$ $a = -0.078616 + 0.369041I$ $b = 0.0767307 - 0.0358246I$	$-1.41309 + 4.17051I$	0
$u = 0.0351718$ $a = 39.7196$ $b = -1.35619$	3.28865	1.98690
$u = -1.97821$ $a = -0.447737$ $b = -0.998893$	-5.09057	0
$u = 0.89017 + 1.87925I$ $a = -0.192398 + 0.365177I$ $b = 0.40372 - 1.51303I$	$1.42772 + 9.18102I$	0
$u = 0.89017 - 1.87925I$ $a = -0.192398 - 0.365177I$ $b = 0.40372 + 1.51303I$	$1.42772 - 9.18102I$	0
$u = 1.72624 + 1.25070I$ $a = 0.245604 - 0.443464I$ $b = 0.958529 + 0.798223I$	$-3.70148 - 2.64555I$	0
$u = 1.72624 - 1.25070I$ $a = 0.245604 + 0.443464I$ $b = 0.958529 - 0.798223I$	$-3.70148 + 2.64555I$	0

III. $\boldsymbol{I_3^u = \langle b + u,\ u^8 + 56u^7 + \cdots + 137a - 286,\ u^9 - u^8 + \cdots - u - 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -0.00729927u^8 - 0.408759u^7 + \cdots - 1.96350u + 2.08759 \\ -u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.291971u^8 - 0.350365u^7 + \cdots - 2.54015u + 2.50365 \\ 0.102190u^8 - 0.277372u^7 + \cdots - 1.51095u - 0.226277 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.547445u^8 - 0.343066u^7 + \cdots + 0.262774u - 1.56934 \\ -0.372263u^8 + 0.153285u^7 + \cdots - 0.138686u - 0.532847 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00729927u^8 - 0.408759u^7 + \cdots - 2.96350u + 2.08759 \\ -u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.82482u^8 - 2.81022u^7 + \cdots - 6.12409u - 0.897810 \\ 0.284672u^8 - 0.0583942u^7 + \cdots + 0.576642u - 0.416058 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.09489u^8 + 1.68613u^7 + \cdots + 4.47445u + 0.138686 \\ 0.0218978u^8 + 0.226277u^7 + \cdots + 0.890511u + 0.737226 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.160584u^8 + 0.00729927u^7 + \cdots - 0.197080u + 0.927007 \\ 0.372263u^8 - 0.153285u^7 + \cdots + 0.138686u + 0.532847 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00729927u^8 - 0.408759u^7 + \cdots - 1.96350u + 1.08759 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.927007u^8 - 1.08759u^7 + \cdots - 2.63504u - 1.12409 \\ -0.372263u^8 + 0.153285u^7 + \cdots - 0.138686u - 0.532847 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{25}{137}u^8 - \frac{929}{137}u^7 + \frac{664}{137}u^6 - \frac{1720}{137}u^5 - \frac{1642}{137}u^4 + \frac{774}{137}u^3 + \frac{926}{137}u^2 - \frac{3961}{137}u - \frac{848}{137}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^9 + u^8 - 3u^7 - 3u^6 + 5u^5 + 4u^4 - 5u^3 - 3u^2 + 3u + 1$
c_2, c_7	$u^9 - u^8 + 2u^7 + u^6 - 2u^5 - u^4 + 4u^3 - u^2 - u - 1$
c_3, c_6	$u^9 - u^8 - 3u^7 + 2u^6 + 4u^5 - 3u^4 - 2u^3 + 2u^2 - 1$
c_4	$u^9 - 6u^8 + 21u^7 - 47u^6 + 74u^5 - 92u^4 + 84u^3 - 58u^2 + 29u - 7$
c_5, c_{12}	$u^9 - u^8 - 3u^7 + 3u^6 + 5u^5 - 4u^4 - 5u^3 + 3u^2 + 3u - 1$
c_8, c_{10}	$u^9 + u^8 - 3u^7 - 2u^6 + 4u^5 + 3u^4 - 2u^3 - 2u^2 + 1$
c_{11}	$u^9 - 6u^8 + 17u^7 - 28u^6 + 26u^5 - 5u^4 - 16u^3 + 18u^2 - 7u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$y^9 - 7y^8 + 25y^7 - 57y^6 + 91y^5 - 104y^4 + 85y^3 - 47y^2 + 15y - 1$
c_2, c_7	$y^9 + 3y^8 + 2y^7 - 3y^6 + 18y^5 - 21y^4 + 20y^3 - 11y^2 - y - 1$
c_3, c_6, c_8 c_{10}	$y^9 - 7y^8 + 21y^7 - 38y^6 + 44y^5 - 35y^4 + 20y^3 - 10y^2 + 4y - 1$
c_4	$y^9 + 6y^8 + 25y^7 - 37y^6 - 282y^5 - 350y^4 + 18y^3 + 220y^2 + 29y - 49$
c_{11}	$y^9 - 2y^8 + 5y^7 + 8y^6 + 54y^5 - 75y^4 + 128y^3 - 90y^2 + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.804486 + 0.714091I$ $a = -0.134158 + 0.291745I$ $b = -0.804486 - 0.714091I$	$-4.03408 - 1.66978I$	$-7.37601 + 0.94856I$
$u = 0.804486 - 0.714091I$ $a = -0.134158 - 0.291745I$ $b = -0.804486 + 0.714091I$	$-4.03408 + 1.66978I$	$-7.37601 - 0.94856I$
$u = -0.938517 + 0.532432I$ $a = 0.96482 + 1.38130I$ $b = 0.938517 - 0.532432I$	$1.67468 + 2.31760I$	$-1.14876 - 5.35011I$
$u = -0.938517 - 0.532432I$ $a = 0.96482 - 1.38130I$ $b = 0.938517 + 0.532432I$	$1.67468 - 2.31760I$	$-1.14876 + 5.35011I$
$u = 0.920540$ $a = 0.905452$ $b = -0.920540$	10.1540	-40.3310
$u = -0.292828 + 0.428229I$ $a = 2.97786 - 0.66488I$ $b = 0.292828 - 0.428229I$	$-0.67048 + 3.43986I$	$3.2362 - 14.0106I$
$u = -0.292828 - 0.428229I$ $a = 2.97786 + 0.66488I$ $b = 0.292828 + 0.428229I$	$-0.67048 - 3.43986I$	$3.2362 + 14.0106I$
$u = 0.46659 + 1.66685I$ $a = 0.238757 + 0.590137I$ $b = -0.46659 - 1.66685I$	$-0.40218 - 10.64190I$	$-1.04621 + 10.68872I$
$u = 0.46659 - 1.66685I$ $a = 0.238757 - 0.590137I$ $b = -0.46659 + 1.66685I$	$-0.40218 + 10.64190I$	$-1.04621 - 10.68872I$

IV.

$\boldsymbol{I_4^u = \langle -1.58\times 10^{18}u^{19} - 6.87\times 10^{17}u^{18} + \cdots + 3.88\times 10^{18}b + 3.03\times 10^{18},\ 7.97\times 10^{18}u^{19} + 6.44\times 10^{18}u^{18} + \cdots + 3.88\times 10^{18}a - 3.92\times 10^{19},\ u^{20} + u^{19} + \cdots - 7u - 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} -2.05623u^{19} - 1.66102u^{18} + \cdots + 9.06074u + 10.1146 \\ 0.407594u^{19} + 0.177214u^{18} + \cdots - 0.551302u - 0.781151 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -1.65360u^{19} - 1.44190u^{18} + \cdots + 7.79917u + 8.93827 \\ 0.377174u^{19} + 0.175049u^{18} + \cdots - 1.43325u - 0.964661 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.89421u^{19} - 1.62742u^{18} + \cdots + 10.7070u + 12.6641 \\ -0.0457459u^{19} + 0.0376836u^{18} + \cdots - 0.903660u - 1.41322 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.64864u^{19} - 1.48380u^{18} + \cdots + 8.50944u + 9.33348 \\ 0.407594u^{19} + 0.177214u^{18} + \cdots - 0.551302u - 0.781151 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2.48748u^{19} - 1.99401u^{18} + \cdots + 10.3112u + 16.3692 \\ 0.0346744u^{19} - 0.105627u^{18} + \cdots + 1.97106u - 1.41223 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 4.63932u^{19} + 3.85064u^{18} + \cdots - 19.7840u - 28.6943 \\ -0.407088u^{19} - 0.272829u^{18} + \cdots - 0.574169u + 2.92888 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 3.52776u^{19} + 2.76103u^{18} + \cdots - 15.5004u - 22.6925 \\ -0.00672773u^{19} - 0.122553u^{18} + \cdots - 0.928767u + 2.47211 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3.93536u^{19} - 3.26600u^{18} + \cdots + 19.2514u + 24.5167 \\ 0.0941728u^{19} + 0.0232509u^{18} + \cdots + 1.09079u - 2.39861 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 6.10289u^{19} + 5.02301u^{18} + \cdots - 29.0368u - 35.9042 \\ -0.650911u^{19} - 0.413990u^{18} + \cdots - 0.423205u + 3.53449 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{4560398378613783059}{3877073948979152066}u^{19} - \frac{2098263933845814177}{1938536974489576033}u^{18} + \cdots + \frac{2416630201042593621 6}{1938536974489576033}u + \frac{2513213940657494853 7}{1938536974489576033}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^{20} - u^{19} + \cdots - 24u - 1$
c_2, c_7	$u^{20} + u^{19} + \cdots - 7u - 1$
c_3, c_6	$u^{20} + 2u^{19} + \cdots - u - 1$
c_4	$(u^{10} + 3u^9 + 2u^8 - 7u^6 - 11u^5 - 9u^4 - 3u^3 + 2u^2 + 2u + 1)^2$
c_5, c_{12}	$u^{20} + u^{19} + \cdots + 24u - 1$
c_8, c_{10}	$u^{20} - 2u^{19} + \cdots + u - 1$
c_{11}	$(u^{10} + u^9 - 2u^8 - 6u^7 - u^6 + 7u^5 + 3u^4 - 3u^3 - 2u^2 + 2u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$y^{20} - 17y^{19} + \cdots - 590y + 1$
c_2, c_7	$y^{20} - 11y^{19} + \cdots - 31y + 1$
c_3, c_6, c_8 c_{10}	$y^{20} - 14y^{19} + \cdots - 53y + 1$
c_4	$(y^{10} - 5y^9 - 10y^8 + 20y^7 + 35y^6 + 3y^5 - 9y^4 - 15y^3 - 2y^2 + 1)^2$
c_{11}	$(y^{10} - 5y^9 + \cdots - 8y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00838$ $a = -1.61933$ $b = 0.162125$	4.36614	12.3040
$u = -0.945066$ $a = -0.462685$ $b = -1.68952$	-5.69952	-11.0360
$u = 0.597713 + 0.695835I$ $a = -0.25137 - 1.68780I$ $b = 0.461351 + 1.030660I$	$2.11373 - 5.21014I$	$1.03646 + 10.01521I$
$u = 0.597713 - 0.695835I$ $a = -0.25137 + 1.68780I$ $b = 0.461351 - 1.030660I$	$2.11373 + 5.21014I$	$1.03646 - 10.01521I$
$u = -0.461351 + 1.030660I$ $a = 0.586237 - 1.256140I$ $b = -0.597713 + 0.695835I$	$2.11373 + 5.21014I$	$1.03646 - 10.01521I$
$u = -0.461351 - 1.030660I$ $a = 0.586237 + 1.256140I$ $b = -0.597713 - 0.695835I$	$2.11373 - 5.21014I$	$1.03646 + 10.01521I$
$u = 0.761215$ $a = -1.41887$ $b = -1.36085$	-2.28337	15.8270
$u = -0.333546 + 0.601831I$ $a = -0.172205 + 1.095460I$ $b = 1.36684 - 1.67888I$	$-1.02854 + 4.47861I$	$3.16235 - 10.16462I$
$u = -0.333546 - 0.601831I$ $a = -0.172205 - 1.095460I$ $b = 1.36684 + 1.67888I$	$-1.02854 - 4.47861I$	$3.16235 + 10.16462I$
$u = -0.957947 + 0.934322I$ $a = -0.017956 - 0.660759I$ $b = 0.096993 + 0.450900I$	$0.90404 + 2.83774I$	$0.093420 + 0.262622I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.957947 - 0.934322I$ $a = -0.017956 + 0.660759I$ $b = \ \ 0.096993 - 0.450900I$	$0.90404 - 2.83774I$	$0.093420 - 0.262622I$
$u = \ \ 1.36085$ $a = -0.793670$ $b = -0.761215$	-2.28337	15.8270
$u = -0.096993 + 0.450900I$ $a = -1.59549 - 1.06412I$ $b = \ \ 0.957947 + 0.934322I$	$0.90404 - 2.83774I$	$0.093420 - 0.262622I$
$u = -0.096993 - 0.450900I$ $a = -1.59549 + 1.06412I$ $b = \ \ 0.957947 - 0.934322I$	$0.90404 + 2.83774I$	$0.093420 + 0.262622I$
$u = \ \ 1.68952$ $a = \ \ 0.258812$ $b = \ \ 0.945066$	-5.69952	-11.0360
$u = -1.77382$ $a = -0.655021$ $b = -2.29896$	-6.94143	-3.68030
$u = -0.162125$ $a = \ \ 10.0719$ $b = -1.00838$	4.36614	12.3040
$u = -1.36684 + 1.67888I$ $a = \ \ 0.007507 + 0.352366I$ $b = \ \ 0.333546 - 0.601831I$	$-1.02854 + 4.47861I$	$3.16235 - 10.16462I$
$u = -1.36684 - 1.67888I$ $a = \ \ 0.007507 - 0.352366I$ $b = \ \ 0.333546 + 0.601831I$	$-1.02854 - 4.47861I$	$3.16235 + 10.16462I$
$u = \ \ 2.29896$ $a = \ \ 0.505398$ $b = \ \ 1.77382$	-6.94143	-3.68030

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9	$(u^9+u^8-3u^7-3u^6+5u^5+4u^4-5u^3-3u^2+3u+1)$ $\cdot(u^{20}-u^{19}+\cdots-24u-1)(u^{27}+u^{26}+\cdots+7u-1)$ $\cdot(u^{110}-37u^{108}+\cdots-596u+229)$
c_2, c_7	$(u^9-u^8+2u^7+u^6-2u^5-u^4+4u^3-u^2-u-1)$ $\cdot(u^{20}+u^{19}+\cdots-7u-1)(u^{27}-u^{26}+\cdots-u-1)$ $\cdot(u^{110}-2u^{109}+\cdots-61u+1)$
c_3, c_6	$(u^9-u^8-3u^7+2u^6+4u^5-3u^4-2u^3+2u^2-1)$ $\cdot(u^{20}+2u^{19}+\cdots-u-1)(u^{27}-u^{26}+\cdots+2u+1)$ $\cdot(u^{110}+u^{109}+\cdots+2947u+199)$
c_4	$(u^9-6u^8+21u^7-47u^6+74u^5-92u^4+84u^3-58u^2+29u-7)$ $\cdot(u^{10}+3u^9+2u^8-7u^6-11u^5-9u^4-3u^3+2u^2+2u+1)^2$ $\cdot(u^{27}-21u^{26}+\cdots-776u+8)(u^{55}+10u^{54}+\cdots+8u-1)^2$
c_5, c_{12}	$(u^9-u^8-3u^7+3u^6+5u^5-4u^4-5u^3+3u^2+3u-1)$ $\cdot(u^{20}+u^{19}+\cdots+24u-1)(u^{27}+u^{26}+\cdots+7u-1)$ $\cdot(u^{110}-37u^{108}+\cdots-596u+229)$
c_8, c_{10}	$(u^9+u^8-3u^7-2u^6+4u^5+3u^4-2u^3-2u^2+1)$ $\cdot(u^{20}-2u^{19}+\cdots+u-1)(u^{27}-u^{26}+\cdots+2u+1)$ $\cdot(u^{110}+u^{109}+\cdots+2947u+199)$
c_{11}	$(u^9-6u^8+17u^7-28u^6+26u^5-5u^4-16u^3+18u^2-7u+1)$ $\cdot(u^{10}+u^9-2u^8-6u^7-u^6+7u^5+3u^4-3u^3-2u^2+2u+1)^2$ $\cdot(u^{27}-13u^{26}+\cdots-444u+72)(u^{55}+6u^{54}+\cdots+262u+67)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9 c_{12}	$(y^9 - 7y^8 + 25y^7 - 57y^6 + 91y^5 - 104y^4 + 85y^3 - 47y^2 + 15y - 1)$ $\cdot (y^{20} - 17y^{19} + \cdots - 590y + 1)(y^{27} - 25y^{26} + \cdots + 45y - 1)$ $\cdot (y^{110} - 74y^{109} + \cdots - 2941542y + 52441)$
c_2, c_7	$(y^9 + 3y^8 + 2y^7 - 3y^6 + 18y^5 - 21y^4 + 20y^3 - 11y^2 - y - 1)$ $\cdot (y^{20} - 11y^{19} + \cdots - 31y + 1)(y^{27} - 15y^{26} + \cdots + 5y - 1)$ $\cdot (y^{110} + 8y^{109} + \cdots - 995y + 1)$
c_3, c_6, c_8 c_{10}	$(y^9 - 7y^8 + 21y^7 - 38y^6 + 44y^5 - 35y^4 + 20y^3 - 10y^2 + 4y - 1)$ $\cdot (y^{20} - 14y^{19} + \cdots - 53y + 1)(y^{27} - 21y^{26} + \cdots + 6y - 1)$ $\cdot (y^{110} - 71y^{109} + \cdots - 1508869y + 39601)$
c_4	$(y^9 + 6y^8 + 25y^7 - 37y^6 - 282y^5 - 350y^4 + 18y^3 + 220y^2 + 29y - 49)$ $\cdot (y^{10} - 5y^9 - 10y^8 + 20y^7 + 35y^6 + 3y^5 - 9y^4 - 15y^3 - 2y^2 + 1)^2$ $\cdot (y^{27} - 7y^{26} + \cdots + 456672y - 64)(y^{55} + 12y^{54} + \cdots + 236y - 1)^2$
c_{11}	$(y^9 - 2y^8 + 5y^7 + 8y^6 + 54y^5 - 75y^4 + 128y^3 - 90y^2 + 13y - 1)$ $\cdot ((y^{10} - 5y^9 + \cdots - 8y + 1)^2)(y^{27} - 7y^{26} + \cdots + 41040y - 5184)$ $\cdot (y^{55} - 20y^{54} + \cdots + 72932y - 4489)^2$