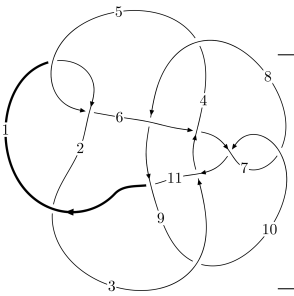
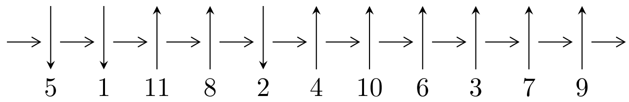
$11a_{155}$ ($K11a_{155}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 634617868812u^{44} + 5120393538096u^{43} + \cdots + 302904948530b - 88597448899,$$
$$19298245499249u^{44} + 173772806942140u^{43} + \cdots + 302904948530a - 151790191623698,$$
$$u^{45} + 10u^{44} + \cdots - 62u - 10\rangle$$
$$I_2^u = \langle 9u^{29} - 22u^{28} + \cdots + 2b + 15,\ -15u^{29}a + 21u^{29} + \cdots - 25a + 47,\ u^{30} - 3u^{29} + \cdots + 6u - 1\rangle$$
$$I_3^u = \langle -10u^{15} + 19u^{14} + \cdots + b + 11,\ -33u^{15} + 77u^{14} + \cdots + 2a + 60,$$
$$u^{16} - 3u^{15} + u^{14} + 8u^{13} - 11u^{12} - 3u^{11} + 16u^{10} - 5u^9 - 12u^8 + 4u^7 + 18u^6 - 18u^5 - u^4 + 9u^3 - u^2 - 4u +$$
$$I_4^u = \langle b + a + 1,\ a^2 + 2a + 2,\ u + 1\rangle$$
$$I_5^u = \langle b^2 + 1,\ a - 1,\ u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 125 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle 6.35\times10^{11}u^{44}+5.12\times10^{12}u^{43}+\cdots+3.03\times10^{10}b-8.86\times10^{10},\ 1.93\times10^{13}u^{44}+1.74\times10^{14}u^{43}+\cdots+3.03\times10^{11}a-1.52\times10^{14},\ u^{45}+10u^{44}+\cdots-62u-10\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -63.7106u^{44} - 573.688u^{43} + \cdots + 2769.67u + 501.115 \\ -20.9511u^{44} - 169.043u^{43} + \cdots + 154.125u + 2.92493 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -27.4817u^{44} - 253.810u^{43} + \cdots + 1512.06u + 294.306 \\ -21.4161u^{44} - 184.268u^{43} + \cdots + 590.907u + 90.3501 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -42.7595u^{44} - 404.645u^{43} + \cdots + 2615.55u + 498.190 \\ -20.9511u^{44} - 169.043u^{43} + \cdots + 154.125u + 2.92493 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.151903u^{44} + 14.1733u^{43} + \cdots - 560.112u - 114.459 \\ 21.5585u^{44} + 195.648u^{43} + \cdots - 991.029u - 171.620 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -31.1941u^{44} - 298.498u^{43} + \cdots + 2176.62u + 428.069 \\ -6.32145u^{44} - 47.9083u^{43} + \cdots - 67.2357u - 22.6589 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 32.4369u^{44} + 282.562u^{43} + \cdots - 863.523u - 114.918 \\ 4.19050u^{44} + 26.6301u^{43} + \cdots + 372.503u + 93.7023 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 32.4369u^{44} + 282.562u^{43} + \cdots - 863.523u - 114.918 \\ 4.19050u^{44} + 26.6301u^{43} + \cdots + 372.503u + 93.7023 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{3963758068051}{30290494853}u^{44} + \frac{32549076872033}{30290494853}u^{43} + \cdots - \frac{27811268065342}{30290494853}u + \frac{968878849396}{30290494853}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{45} + 10u^{44} + \cdots - 62u - 10$
c_2	$u^{45} + 18u^{44} + \cdots + 1884u + 100$
c_3, c_6	$u^{45} + 3u^{44} + \cdots + 6u - 1$
c_4, c_9	$u^{45} - u^{44} + \cdots + 8u - 1$
c_7, c_{10}	$u^{45} + 11u^{44} + \cdots - 398u - 26$
c_8, c_{11}	$u^{45} + 2u^{44} + \cdots - 3u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{45} - 18y^{44} + \cdots + 1884y - 100$
c_2	$y^{45} + 18y^{44} + \cdots + 438256y - 10000$
c_3, c_6	$y^{45} + 33y^{44} + \cdots - 36y - 1$
c_4, c_9	$y^{45} - 7y^{44} + \cdots + 20y - 1$
c_7, c_{10}	$y^{45} + 23y^{44} + \cdots + 14052y - 676$
c_8, c_{11}	$y^{45} + 14y^{44} + \cdots - 123y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.901122+0.391026I$ $a=-2.22398-0.09634I$ $b=-0.507989-0.720972I$	$-4.13007+2.02494I$	$0.-5.73901I$
$u=-0.901122-0.391026I$ $a=-2.22398+0.09634I$ $b=-0.507989+0.720972I$	$-4.13007-2.02494I$	$0.+5.73901I$
$u=-0.576298+0.870424I$ $a=-0.93549+1.15916I$ $b=-1.09116+1.03701I$	$2.66346-6.40405I$	$5.00000+4.59149I$
$u=-0.576298-0.870424I$ $a=-0.93549-1.15916I$ $b=-1.09116-1.03701I$	$2.66346+6.40405I$	$5.00000-4.59149I$
$u=-0.848723+0.610214I$ $a=-2.00602+1.35310I$ $b=-1.58039-0.17618I$	$3.17854+2.40398I$	$17.2523-3.9170I$
$u=-0.848723-0.610214I$ $a=-2.00602-1.35310I$ $b=-1.58039+0.17618I$	$3.17854-2.40398I$	$17.2523+3.9170I$
$u=\quad 0.801098+0.511169I$ $a=-0.632677-0.499625I$ $b=\quad 0.08297+1.43190I$	$-2.91066-1.58558I$	$0.87322+3.50523I$
$u=\quad 0.801098-0.511169I$ $a=-0.632677+0.499625I$ $b=\quad 0.08297-1.43190I$	$-2.91066+1.58558I$	$0.87322-3.50523I$
$u=\quad 0.913441+0.533170I$ $a=\quad 0.586441+0.383102I$ $b=-0.28087-1.44457I$	$-3.30005-2.64955I$	0
$u=\quad 0.913441-0.533170I$ $a=\quad 0.586441-0.383102I$ $b=-0.28087+1.44457I$	$-3.30005+2.64955I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.523749+0.936187I$ $a=\ \ 0.920068-0.987167I$ $b=\ \ 1.07979-1.07052I$	$-0.63452-12.54830I$	$5.00000+6.69848I$
$u=-0.523749-0.936187I$ $a=\ \ 0.920068+0.987167I$ $b=\ \ 1.07979+1.07052I$	$-0.63452+12.54830I$	$5.00000-6.69848I$
$u=-0.238075+0.894367I$ $a=-0.175446-0.518756I$ $b=-0.415208-0.426850I$	$1.09089+2.34622I$	$6.24165-8.56728I$
$u=-0.238075-0.894367I$ $a=-0.175446+0.518756I$ $b=-0.415208+0.426850I$	$1.09089-2.34622I$	$6.24165+8.56728I$
$u=-0.960767+0.492160I$ $a=\ \ 1.083620-0.193384I$ $b=\ \ 0.391029+0.437334I$	$-1.62646+1.74137I$	0
$u=-0.960767-0.492160I$ $a=\ \ 1.083620+0.193384I$ $b=\ \ 0.391029-0.437334I$	$-1.62646-1.74137I$	0
$u=\ \ 1.086040+0.097856I$ $a=-0.337473-0.512143I$ $b=\ \ 0.602346+1.260120I$	$-8.25548+0.14518I$	$-5.86924+0.I$
$u=\ \ 1.086040-0.097856I$ $a=-0.337473+0.512143I$ $b=\ \ 0.602346-1.260120I$	$-8.25548-0.14518I$	$-5.86924+0.I$
$u=\ \ 0.675748+0.600812I$ $a=\ \ 0.487260+0.009850I$ $b=-0.361960-0.696002I$	$1.72135+0.10542I$	$9.89084-0.57623I$
$u=\ \ 0.675748-0.600812I$ $a=\ \ 0.487260-0.009850I$ $b=-0.361960+0.696002I$	$1.72135-0.10542I$	$9.89084+0.57623I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.960223 + 0.625182I$ $a = -0.287488 - 0.184192I$ $b = 0.092459 + 0.799602I$	$0.86875 - 4.99777I$	0
$u = 0.960223 - 0.625182I$ $a = -0.287488 + 0.184192I$ $b = 0.092459 - 0.799602I$	$0.86875 + 4.99777I$	0
$u = 1.155300 + 0.090732I$ $a = 0.136153 - 0.470997I$ $b = -0.479381 + 1.128020I$	$-3.98808 - 5.11963I$	0
$u = 1.155300 - 0.090732I$ $a = 0.136153 + 0.470997I$ $b = -0.479381 - 1.128020I$	$-3.98808 + 5.11963I$	0
$u = -0.503146 + 0.661088I$ $a = 1.36514 - 1.24377I$ $b = 0.943060 - 0.848825I$	$-3.52213 - 1.72391I$	$1.61111 + 1.48880I$
$u = -0.503146 - 0.661088I$ $a = 1.36514 + 1.24377I$ $b = 0.943060 + 0.848825I$	$-3.52213 + 1.72391I$	$1.61111 - 1.48880I$
$u = -0.464268 + 1.091500I$ $a = 0.334880 + 0.281474I$ $b = 0.504214 + 0.379227I$	$-1.04118 + 7.01442I$	0
$u = -0.464268 - 1.091500I$ $a = 0.334880 - 0.281474I$ $b = 0.504214 - 0.379227I$	$-1.04118 - 7.01442I$	0
$u = -0.887945 + 0.799772I$ $a = 0.877042 + 0.320791I$ $b = 0.449189 + 0.781343I$	$-1.90231 + 0.74732I$	0
$u = -0.887945 - 0.799772I$ $a = 0.877042 - 0.320791I$ $b = 0.449189 - 0.781343I$	$-1.90231 - 0.74732I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.036610 + 0.611989I$ $a = 2.03296 - 0.73494I$ $b = 1.16696 + 1.08790I$	$-5.03326 + 6.70507I$	0
$u = -1.036610 - 0.611989I$ $a = 2.03296 + 0.73494I$ $b = 1.16696 - 1.08790I$	$-5.03326 - 6.70507I$	0
$u = -1.077580 + 0.695430I$ $a = -1.83741 + 0.52861I$ $b = -1.15966 - 1.26459I$	$1.13119 + 12.21450I$	0
$u = -1.077580 - 0.695430I$ $a = -1.83741 - 0.52861I$ $b = -1.15966 + 1.26459I$	$1.13119 - 12.21450I$	0
$u = 1.283260 + 0.065802I$ $a = -0.167563 + 0.367408I$ $b = 0.576462 - 1.035600I$	$-7.63721 - 10.29470I$	0
$u = 1.283260 - 0.065802I$ $a = -0.167563 - 0.367408I$ $b = 0.576462 + 1.035600I$	$-7.63721 + 10.29470I$	0
$u = -1.121770 + 0.698957I$ $a = 1.70890 - 0.60391I$ $b = 1.12635 + 1.27279I$	$-2.4765 + 18.5384I$	0
$u = -1.121770 - 0.698957I$ $a = 1.70890 + 0.60391I$ $b = 1.12635 - 1.27279I$	$-2.4765 - 18.5384I$	0
$u = -1.046500 + 0.828865I$ $a = -0.567749 - 0.408140I$ $b = 0.007330 - 0.774890I$	$-2.28132 + 5.64431I$	0
$u = -1.046500 - 0.828865I$ $a = -0.567749 + 0.408140I$ $b = 0.007330 + 0.774890I$	$-2.28132 - 5.64431I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.317060+0.458673I$ $a=-0.374157+0.197877I$ $b=-0.070789-0.321439I$	$-4.37062-0.52471I$	0
$u=-1.317060-0.458673I$ $a=-0.374157-0.197877I$ $b=-0.070789+0.321439I$	$-4.37062+0.52471I$	0
$u=-0.554028+0.236204I$ $a=\ \ 1.09200+1.81024I$ $b=\ \ 0.284535+0.576144I$	$-3.33768+0.83512I$	$2.33619-3.83248I$
$u=-0.554028-0.236204I$ $a=\ \ 1.09200-1.81024I$ $b=\ \ 0.284535-0.576144I$	$-3.33768-0.83512I$	$2.33619+3.83248I$
$u=\ \ 0.365045$ $a=\ \ 1.44199$ $b=-0.718548$	1.11526	5.80750

II. $I_2^u = \langle 9u^{29} - 22u^{28} + \cdots + 2b + 15,\ -15u^{29}a + 21u^{29} + \cdots - 25a + 47,\ u^{30} - 3u^{29} + \cdots + 6u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ -\frac{9}{2}u^{29} + 11u^{28} + \cdots + \frac{65}{2}u - \frac{15}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^{29} + u^{28} + \cdots + a - \frac{1}{2} \\ -5u^{29} + 11u^{28} + \cdots + 31u - 7 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{9}{2}u^{29} - 11u^{28} + \cdots + a + \frac{15}{2} \\ -\frac{9}{2}u^{29} + 11u^{28} + \cdots + \frac{65}{2}u - \frac{15}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 3u^{29}a - \frac{1}{2}u^{29} + \cdots + 5a - \frac{13}{2} \\ -\frac{5}{2}u^{29}a + 6u^{28}a + \cdots - \frac{7}{2}a + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{29}a + \frac{11}{2}u^{29} + \cdots - \frac{67}{2}u + \frac{15}{2} \\ \frac{1}{2}u^{29}a - \frac{1}{2}u^{29} + \cdots + \frac{1}{2}a + \frac{1}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{9}{2}u^{29}a + 5u^{29} + \cdots - \frac{15}{2}a + 8 \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{9}{2}u^{29}a + 5u^{29} + \cdots - \frac{15}{2}a + 8 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $=$
$25u^{29} - 52u^{28} - 102u^{27} + 385u^{26} + 29u^{25} - 1217u^{24} + 842u^{23} + 2204u^{22} - 3082u^{21} - 2095u^{20} + 6222u^{19} - 293u^{18} - 8211u^{17} + 4523u^{16} + 7118u^{15} - 8008u^{14} - 3146u^{13} + 8424u^{12} - 1074u^{11} - 5710u^{10} + 3096u^{9} + 2146u^{8} - 2516u^{7} + 20u^{6} + 1054u^{5} - 509u^{4} - 102u^{3} + 231u^{2} - 129u + 29$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^{30} - 3u^{29} + \cdots + 6u - 1)^2$
c_2	$(u^{30} + 13u^{29} + \cdots + 8u + 1)^2$
c_3, c_6	$u^{60} + 7u^{59} + \cdots + 2u^2 + 2$
c_4, c_9	$u^{60} - u^{59} + \cdots + 64u + 94$
c_7, c_{10}	$(u^{30} - 9u^{29} + \cdots - 14u + 1)^2$
c_8, c_{11}	$u^{60} + 9u^{59} + \cdots + 16u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^{30} - 13y^{29} + \cdots - 8y + 1)^2$
c_2	$(y^{30} + 11y^{29} + \cdots - 52y + 1)^2$
c_3, c_6	$y^{60} - 7y^{59} + \cdots + 8y + 4$
c_4, c_9	$y^{60} + y^{59} + \cdots - 322944y + 8836$
c_7, c_{10}	$(y^{30} + 19y^{29} + \cdots - 76y + 1)^2$
c_8, c_{11}	$y^{60} - 21y^{59} + \cdots + 26y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.465809 + 0.917860I$ $a = -0.989163 - 0.559689I$ $b = -1.128460 - 0.357199I$	$2.56109 + 3.64354I$	$6.72804 - 6.05682I$
$u = 0.465809 + 0.917860I$ $a = 0.752661 + 0.348017I$ $b = 0.715413 + 0.742706I$	$2.56109 + 3.64354I$	$6.72804 - 6.05682I$
$u = 0.465809 - 0.917860I$ $a = -0.989163 + 0.559689I$ $b = -1.128460 + 0.357199I$	$2.56109 - 3.64354I$	$6.72804 + 6.05682I$
$u = 0.465809 - 0.917860I$ $a = 0.752661 - 0.348017I$ $b = 0.715413 - 0.742706I$	$2.56109 - 3.64354I$	$6.72804 + 6.05682I$
$u = 0.558834 + 0.876988I$ $a = 0.968989 + 0.487384I$ $b = 0.838815 + 0.150681I$	$3.22316 + 0.83801I$	$8.60335 + 3.08812I$
$u = 0.558834 + 0.876988I$ $a = -0.669745 - 0.519770I$ $b = -0.929490 - 0.703123I$	$3.22316 + 0.83801I$	$8.60335 + 3.08812I$
$u = 0.558834 - 0.876988I$ $a = 0.968989 - 0.487384I$ $b = 0.838815 - 0.150681I$	$3.22316 - 0.83801I$	$8.60335 - 3.08812I$
$u = 0.558834 - 0.876988I$ $a = -0.669745 + 0.519770I$ $b = -0.929490 + 0.703123I$	$3.22316 - 0.83801I$	$8.60335 - 3.08812I$
$u = -0.847173 + 0.604187I$ $a = -1.63142 + 1.20812I$ $b = -1.55381 + 0.24780I$	$3.14397 + 2.38497I$	$13.36478 - 4.30077I$
$u = -0.847173 + 0.604187I$ $a = -2.00619 + 1.33601I$ $b = -1.312340 - 0.515721I$	$3.14397 + 2.38497I$	$13.36478 - 4.30077I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.847173-0.604187I$ $a=-1.63142-1.20812I$ $b=-1.55381-0.24780I$	$3.14397-2.38497I$	$13.36478+4.30077I$
$u=-0.847173-0.604187I$ $a=-2.00619-1.33601I$ $b=-1.312340+0.515721I$	$3.14397-2.38497I$	$13.36478+4.30077I$
$u=-0.745543+0.602909I$ $a=\ 1.51667-0.00542I$ $b=\ 0.884770-0.652787I$	$-0.67785-3.97386I$	$7.94279+4.15081I$
$u=-0.745543+0.602909I$ $a=\ 2.27309-0.86759I$ $b=\ 1.47023+1.29190I$	$-0.67785-3.97386I$	$7.94279+4.15081I$
$u=-0.745543-0.602909I$ $a=\ 1.51667+0.00542I$ $b=\ 0.884770+0.652787I$	$-0.67785+3.97386I$	$7.94279-4.15081I$
$u=-0.745543-0.602909I$ $a=\ 2.27309+0.86759I$ $b=\ 1.47023-1.29190I$	$-0.67785+3.97386I$	$7.94279-4.15081I$
$u=\ 0.713795+0.638334I$ $a=\ 0.029316-1.007750I$ $b=-0.94994-1.09157I$	$1.88688+0.24232I$	$9.09491-2.16089I$
$u=\ 0.713795+0.638334I$ $a=\ 0.835125+0.889030I$ $b=\ 0.060739-0.151129I$	$1.88688+0.24232I$	$9.09491-2.16089I$
$u=\ 0.713795-0.638334I$ $a=\ 0.029316+1.007750I$ $b=-0.94994+1.09157I$	$1.88688-0.24232I$	$9.09491+2.16089I$
$u=\ 0.713795-0.638334I$ $a=\ 0.835125-0.889030I$ $b=\ 0.060739+0.151129I$	$1.88688-0.24232I$	$9.09491+2.16089I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.08167$ $a=\ \ 0.611909+0.400488I$ $b=-0.054055-0.901769I$	-3.22581	2.05120
$u=-1.08167$ $a=\ \ 0.611909-0.400488I$ $b=-0.054055+0.901769I$	-3.22581	2.05120
$u=-0.925201+0.599544I$ $a=\ \ 0.61119-1.65490I$ $b=\ \ 1.98046-1.05095I$	$-1.23358+8.73775I$	$5.61249-11.31082I$
$u=-0.925201+0.599544I$ $a=\ \ 1.59922-1.72063I$ $b=\ \ 0.688071+0.730989I$	$-1.23358+8.73775I$	$5.61249-11.31082I$
$u=-0.925201-0.599544I$ $a=\ \ 0.61119+1.65490I$ $b=\ \ 1.98046+1.05095I$	$-1.23358-8.73775I$	$5.61249+11.31082I$
$u=-0.925201-0.599544I$ $a=\ \ 1.59922+1.72063I$ $b=\ \ 0.688071-0.730989I$	$-1.23358-8.73775I$	$5.61249+11.31082I$
$u=\ \ 0.924590+0.653430I$ $a=\ \ 1.005020-0.317199I$ $b=\ \ 0.498803+0.002851I$	$1.26794-5.30680I$	$7.85803+7.71597I$
$u=\ \ 0.924590+0.653430I$ $a=-1.49774-0.11122I$ $b=-0.63001+1.49389I$	$1.26794-5.30680I$	$7.85803+7.71597I$
$u=\ \ 0.924590-0.653430I$ $a=\ \ 1.005020+0.317199I$ $b=\ \ 0.498803-0.002851I$	$1.26794+5.30680I$	$7.85803-7.71597I$
$u=\ \ 0.924590-0.653430I$ $a=-1.49774+0.11122I$ $b=-0.63001-1.49389I$	$1.26794+5.30680I$	$7.85803-7.71597I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.124040 + 0.295901I$ $a = -0.767708 - 0.518887I$ $b = 0.756590 - 1.163210I$	$-6.35917 - 1.51698I$	$-5.73393 + 4.15289I$
$u = -1.124040 + 0.295901I$ $a = -0.132232 - 1.158150I$ $b = -0.090567 + 0.917835I$	$-6.35917 - 1.51698I$	$-5.73393 + 4.15289I$
$u = -1.124040 - 0.295901I$ $a = -0.767708 + 0.518887I$ $b = 0.756590 + 1.163210I$	$-6.35917 + 1.51698I$	$-5.73393 - 4.15289I$
$u = -1.124040 - 0.295901I$ $a = -0.132232 + 1.158150I$ $b = -0.090567 - 0.917835I$	$-6.35917 + 1.51698I$	$-5.73393 - 4.15289I$
$u = 1.038780 + 0.527286I$ $a = -1.95032 - 0.50890I$ $b = -0.239703 + 0.469994I$	$-4.86450 - 8.50956I$	$-3.55516 + 9.18354I$
$u = 1.038780 + 0.527286I$ $a = 1.75849 + 1.10412I$ $b = 1.55854 - 1.25381I$	$-4.86450 - 8.50956I$	$-3.55516 + 9.18354I$
$u = 1.038780 - 0.527286I$ $a = -1.95032 + 0.50890I$ $b = -0.239703 - 0.469994I$	$-4.86450 + 8.50956I$	$-3.55516 - 9.18354I$
$u = 1.038780 - 0.527286I$ $a = 1.75849 - 1.10412I$ $b = 1.55854 + 1.25381I$	$-4.86450 + 8.50956I$	$-3.55516 - 9.18354I$
$u = 0.732793 + 0.306914I$ $a = 1.20279 + 1.71252I$ $b = 1.76689 + 0.33137I$	$-3.29232 + 4.72419I$	$-2.23057 - 5.99691I$
$u = 0.732793 + 0.306914I$ $a = -2.56826 - 1.14965I$ $b = 0.264277 + 0.040198I$	$-3.29232 + 4.72419I$	$-2.23057 - 5.99691I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.732793 - 0.306914I$ $a = 1.20279 - 1.71252I$ $b = 1.76689 - 0.33137I$	$-3.29232 - 4.72419I$	$-2.23057 + 5.99691I$
$u = 0.732793 - 0.306914I$ $a = -2.56826 + 1.14965I$ $b = 0.264277 - 0.040198I$	$-3.29232 - 4.72419I$	$-2.23057 + 5.99691I$
$u = 1.079960 + 0.689143I$ $a = 1.130380 + 0.499207I$ $b = 0.937068 - 0.464969I$	$1.63470 - 6.63134I$	$6.37041 + 2.21697I$
$u = 1.079960 + 0.689143I$ $a = -1.29810 - 0.61868I$ $b = -0.900147 + 1.041850I$	$1.63470 - 6.63134I$	$6.37041 + 2.21697I$
$u = 1.079960 - 0.689143I$ $a = 1.130380 - 0.499207I$ $b = 0.937068 + 0.464969I$	$1.63470 + 6.63134I$	$6.37041 - 2.21697I$
$u = 1.079960 - 0.689143I$ $a = -1.29810 + 0.61868I$ $b = -0.900147 - 1.041850I$	$1.63470 + 6.63134I$	$6.37041 - 2.21697I$
$u = -1.282760 + 0.075226I$ $a = 0.017934 + 0.588411I$ $b = 0.166675 - 0.656060I$	$-3.74409 - 0.89949I$	$6.49053 + 7.17366I$
$u = -1.282760 + 0.075226I$ $a = 0.226648 + 0.251346I$ $b = -0.352903 + 0.385022I$	$-3.74409 - 0.89949I$	$6.49053 + 7.17366I$
$u = -1.282760 - 0.075226I$ $a = 0.017934 - 0.588411I$ $b = 0.166675 + 0.656060I$	$-3.74409 + 0.89949I$	$6.49053 - 7.17366I$
$u = -1.282760 - 0.075226I$ $a = 0.226648 - 0.251346I$ $b = -0.352903 - 0.385022I$	$-3.74409 + 0.89949I$	$6.49053 - 7.17366I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.137130 + 0.675479I$ $a = -1.090570 - 0.732508I$ $b = -1.218040 + 0.657607I$	$0.51955 - 9.49431I$	$3.22449 + 10.41133I$
$u = 1.137130 + 0.675479I$ $a = 1.28316 + 0.67182I$ $b = 0.703634 - 0.963772I$	$0.51955 - 9.49431I$	$3.22449 + 10.41133I$
$u = 1.137130 - 0.675479I$ $a = -1.090570 + 0.732508I$ $b = -1.218040 - 0.657607I$	$0.51955 + 9.49431I$	$3.22449 - 10.41133I$
$u = 1.137130 - 0.675479I$ $a = 1.28316 - 0.67182I$ $b = 0.703634 + 0.963772I$	$0.51955 + 9.49431I$	$3.22449 - 10.41133I$
$u = 0.119467 + 0.501758I$ $a = -1.45451 + 0.75312I$ $b = 0.234328 - 0.691794I$	$-2.87297 + 4.49922I$	$1.43690 - 3.81618I$
$u = 0.119467 + 0.501758I$ $a = 1.75119 + 1.39246I$ $b = 1.134470 + 0.760585I$	$-2.87297 + 4.49922I$	$1.43690 - 3.81618I$
$u = 0.119467 - 0.501758I$ $a = -1.45451 - 0.75312I$ $b = 0.234328 + 0.691794I$	$-2.87297 - 4.49922I$	$1.43690 + 3.81618I$
$u = 0.119467 - 0.501758I$ $a = 1.75119 - 1.39246I$ $b = 1.134470 - 0.760585I$	$-2.87297 - 4.49922I$	$1.43690 + 3.81618I$
$u = 0.388799$ $a = 1.48217 + 0.72234I$ $b = -0.800318 + 0.171653I$	1.10095	3.53460
$u = 0.388799$ $a = 1.48217 - 0.72234I$ $b = -0.800318 - 0.171653I$	1.10095	3.53460

III. $I_3^u = \langle -10u^{15} + 19u^{14} + \cdots + b + 11,\ -33u^{15} + 77u^{14} + \cdots + 2a + 60,\ u^{16} - 3u^{15} + \cdots - 4u + 2\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{33}{2}u^{15} - \frac{77}{2}u^{14} + \cdots + \frac{91}{2}u - 30 \\ 10u^{15} - 19u^{14} + \cdots + 25u - 11 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{19}{2}u^{15} - \frac{47}{2}u^{14} + \cdots + \frac{55}{2}u - 20 \\ 6u^{15} - 12u^{14} + \cdots + 16u - 7 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{13}{2}u^{15} - \frac{39}{2}u^{14} + \cdots + \frac{41}{2}u - 19 \\ 10u^{15} - 19u^{14} + \cdots + 25u - 11 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{11}{2}u^{15} - \frac{23}{2}u^{14} + \cdots + \frac{29}{2}u - 10 \\ u^{15} - 2u^{14} + \cdots + 3u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{13}{2}u^{15} + \frac{35}{2}u^{14} + \cdots - \frac{33}{2}u + 22 \\ -4u^{15} + 9u^{14} + \cdots - 10u + 9 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{3}{2}u^{15} - \frac{9}{2}u^{14} + \cdots + \frac{5}{2}u - 5 \\ 2u^{15} - 4u^{14} + \cdots + 5u - 3 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{3}{2}u^{15} - \frac{9}{2}u^{14} + \cdots + \frac{5}{2}u - 5 \\ 2u^{15} - 4u^{14} + \cdots + 5u - 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 19u^{15} - 35u^{14} - 36u^{13} + 134u^{12} - 27u^{11} - 175u^{10} + 112u^9 + 138u^8 - 122u^7 - 150u^6 + 223u^5 + 17u^4 - 127u^3 + 17u^2 + 48u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} + 3u^{15} + \cdots + 4u + 2$
c_2	$u^{16} + 7u^{15} + \cdots + 20u + 4$
c_3, c_6	$u^{16} + u^{15} + \cdots - u + 1$
c_4, c_9	$u^{16} - u^{15} + \cdots + u + 1$
c_5	$u^{16} - 3u^{15} + \cdots - 4u + 2$
c_7	$u^{16} + 8u^{15} + \cdots + 8u + 2$
c_8, c_{11}	$u^{16} - 2u^{15} + \cdots + u + 1$
c_{10}	$u^{16} - 8u^{15} + \cdots - 8u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{16} - 7y^{15} + \cdots - 20y + 4$
c_2	$y^{16} + 5y^{15} + \cdots + 152y + 16$
c_3, c_6	$y^{16} - 3y^{15} + \cdots + 7y + 1$
c_4, c_9	$y^{16} + 5y^{15} + \cdots + 3y + 1$
c_7, c_{10}	$y^{16} + 6y^{15} + \cdots + 60y + 4$
c_8, c_{11}	$y^{16} - 14y^{15} + \cdots - 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.689293 + 0.763114I$ $a = -0.200102 - 0.255774I$ $b = 0.580738 - 0.214333I$	$-1.38765 + 6.29654I$	$2.79421 - 6.76591I$
$u = -0.689293 - 0.763114I$ $a = -0.200102 + 0.255774I$ $b = 0.580738 + 0.214333I$	$-1.38765 - 6.29654I$	$2.79421 + 6.76591I$
$u = 0.473849 + 0.927712I$ $a = -0.723983 - 0.407509I$ $b = -0.783823 - 0.487449I$	$3.03599 + 2.03669I$	$8.11091 - 4.27164I$
$u = 0.473849 - 0.927712I$ $a = -0.723983 + 0.407509I$ $b = -0.783823 + 0.487449I$	$3.03599 - 2.03669I$	$8.11091 + 4.27164I$
$u = 0.852260 + 0.603148I$ $a = -2.18456 - 1.53912I$ $b = -1.72380 + 0.17458I$	$2.86661 - 2.38019I$	$-8.79056 + 1.99021I$
$u = 0.852260 - 0.603148I$ $a = -2.18456 + 1.53912I$ $b = -1.72380 - 0.17458I$	$2.86661 + 2.38019I$	$-8.79056 - 1.99021I$
$u = 1.005380 + 0.533825I$ $a = 1.61565 + 1.42534I$ $b = 1.220740 - 0.473289I$	$-3.32457 - 8.40901I$	$2.63588 + 9.00013I$
$u = 1.005380 - 0.533825I$ $a = 1.61565 - 1.42534I$ $b = 1.220740 + 0.473289I$	$-3.32457 + 8.40901I$	$2.63588 - 9.00013I$
$u = 0.715961 + 0.473787I$ $a = 2.39912 + 1.28920I$ $b = 1.290250 + 0.060612I$	$-2.29078 + 4.25970I$	$4.83496 - 2.62787I$
$u = 0.715961 - 0.473787I$ $a = 2.39912 - 1.28920I$ $b = 1.290250 - 0.060612I$	$-2.29078 - 4.25970I$	$4.83496 + 2.62787I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.626207 + 0.332321I$ $a = 0.808873 + 0.220135I$ $b = -0.899157 + 0.405601I$	$1.184990 + 0.634317I$	$3.24186 - 9.95937I$
$u = -0.626207 - 0.332321I$ $a = 0.808873 - 0.220135I$ $b = -0.899157 - 0.405601I$	$1.184990 - 0.634317I$	$3.24186 + 9.95937I$
$u = 1.127500 + 0.689959I$ $a = -1.129520 - 0.528510I$ $b = -0.832964 + 0.802424I$	$1.07036 - 7.95714I$	$3.97297 + 7.06689I$
$u = 1.127500 - 0.689959I$ $a = -1.129520 + 0.528510I$ $b = -0.832964 - 0.802424I$	$1.07036 + 7.95714I$	$3.97297 - 7.06689I$
$u = -1.359450 + 0.241171I$ $a = -0.085477 + 0.135112I$ $b = 0.148019 - 0.502182I$	$-4.44482 - 0.90663I$	$-9.80023 + 8.74691I$
$u = -1.359450 - 0.241171I$ $a = -0.085477 - 0.135112I$ $b = 0.148019 + 0.502182I$	$-4.44482 + 0.90663I$	$-9.80023 - 8.74691I$

IV. $I_4^u = \langle b + a + 1,\ a^2 + 2a + 2,\ u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000 + 1.00000I$ $b = \quad - 1.000000I$	-4.93480	-4.00000
$u = -1.00000$ $a = -1.00000 - 1.00000I$ $b = \quad 1.000000I$	-4.93480	-4.00000

V. $I^u_5 = \langle b^2+1,\ a-1,\ u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \ \ 1.00000$ $b = \qquad\qquad 1.000000I$	-4.93480	-4.00000
$u = -1.00000$ $a = \ \ 1.00000$ $b = \qquad\qquad - 1.000000I$	-4.93480	-4.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{16}+3u^{15}+\cdots+4u+2)(u^{30}-3u^{29}+\cdots+6u-1)^2$ $\cdot(u^{45}+10u^{44}+\cdots-62u-10)$
c_2	$((u+1)^4)(u^{16}+7u^{15}+\cdots+20u+4)(u^{30}+13u^{29}+\cdots+8u+1)^2$ $\cdot(u^{45}+18u^{44}+\cdots+1884u+100)$
c_3, c_6	$(u^2+1)(u^2+2u+2)(u^{16}+u^{15}+\cdots-u+1)(u^{45}+3u^{44}+\cdots+6u-1)$ $\cdot(u^{60}+7u^{59}+\cdots+2u^2+2)$
c_4, c_9	$((u-1)^2)(u^2+2u+2)(u^{16}-u^{15}+\cdots+u+1)(u^{45}-u^{44}+\cdots+8u-1)$ $\cdot(u^{60}-u^{59}+\cdots+64u+94)$
c_5	$((u+1)^4)(u^{16}-3u^{15}+\cdots-4u+2)(u^{30}-3u^{29}+\cdots+6u-1)^2$ $\cdot(u^{45}+10u^{44}+\cdots-62u-10)$
c_7	$((u^2+1)^2)(u^{16}+8u^{15}+\cdots+8u+2)(u^{30}-9u^{29}+\cdots-14u+1)^2$ $\cdot(u^{45}+11u^{44}+\cdots-398u-26)$
c_8, c_{11}	$((u^2+1)^2)(u^{16}-2u^{15}+\cdots+u+1)(u^{45}+2u^{44}+\cdots-3u-2)$ $\cdot(u^{60}+9u^{59}+\cdots+16u+1)$
c_{10}	$((u^2+1)^2)(u^{16}-8u^{15}+\cdots-8u+2)(u^{30}-9u^{29}+\cdots-14u+1)^2$ $\cdot(u^{45}+11u^{44}+\cdots-398u-26)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y-1)^4)(y^{16}-7y^{15}+\cdots-20y+4)(y^{30}-13y^{29}+\cdots-8y+1)^2$ $\cdot(y^{45}-18y^{44}+\cdots+1884y-100)$
c_2	$((y-1)^4)(y^{16}+5y^{15}+\cdots+152y+16)$ $\cdot(y^{30}+11y^{29}+\cdots-52y+1)^2$ $\cdot(y^{45}+18y^{44}+\cdots+438256y-10000)$
c_3, c_6	$((y+1)^2)(y^2+4)(y^{16}-3y^{15}+\cdots+7y+1)(y^{45}+33y^{44}+\cdots-36y-1)$ $\cdot(y^{60}-7y^{59}+\cdots+8y+4)$
c_4, c_9	$((y-1)^2)(y^2+4)(y^{16}+5y^{15}+\cdots+3y+1)(y^{45}-7y^{44}+\cdots+20y-1)$ $\cdot(y^{60}+y^{59}+\cdots-322944y+8836)$
c_7, c_{10}	$((y+1)^4)(y^{16}+6y^{15}+\cdots+60y+4)(y^{30}+19y^{29}+\cdots-76y+1)^2$ $\cdot(y^{45}+23y^{44}+\cdots+14052y-676)$
c_8, c_{11}	$((y+1)^4)(y^{16}-14y^{15}+\cdots-3y+1)(y^{45}+14y^{44}+\cdots-123y-4)$ $\cdot(y^{60}-21y^{59}+\cdots+26y+1)$