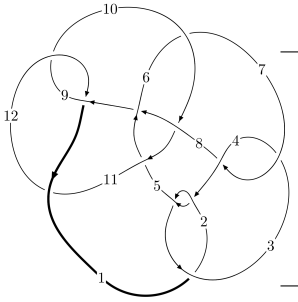
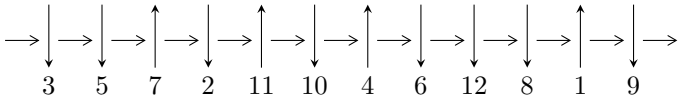
$12a_{0063}$ $(K12a_{0063})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 4.30388 \times 10^{564} u^{137} + 5.80260 \times 10^{564} u^{136} + \cdots + 2.13528 \times 10^{566} b - 8.99538 \times 10^{567},$$
$$1.61908 \times 10^{565} u^{137} + 2.38731 \times 10^{565} u^{136} + \cdots + 1.70823 \times 10^{566} a - 2.06670 \times 10^{568},$$
$$u^{138} + u^{137} + \cdots - 4096u + 512 \rangle$$

$$I_1^v = \langle a,\ -117084v^8 - 101146v^7 + \cdots + 178147b - 213819,$$
$$v^9 + v^8 + 12v^7 + 7v^6 + 37v^5 - v^4 + 10v^2 + 5v + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 147 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. $\boldsymbol{I_1^u = \langle 4.30 \times 10^{564} u^{137} + 5.80 \times 10^{564} u^{136} + \cdots + 2.14 \times 10^{566} b - 9.00 \times 10^{567},\ 1.62 \times 10^{565} u^{137} + 2.39 \times 10^{565} u^{136} + \cdots + 1.71 \times 10^{566} a - 2.07 \times 10^{568},\ u^{138} + u^{137} + \cdots - 4096u + 512 \rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -0.0947815u^{137} - 0.139754u^{136} + \cdots - 690.527u + 120.985 \\ -0.0201560u^{137} - 0.0271749u^{136} + \cdots - 205.406u + 42.1274 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.109900u^{137} - 0.159663u^{136} + \cdots - 771.989u + 134.827 \\ -0.0307500u^{137} - 0.0424307u^{136} + \cdots - 274.982u + 53.5163 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0831024u^{137} - 0.108477u^{136} + \cdots - 560.659u + 98.6070 \\ -0.00173320u^{137} + 0.00661599u^{136} + \cdots - 97.7944u + 16.3916 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0725287u^{137} + 0.102880u^{136} + \cdots + 471.818u - 81.4870 \\ 0.0438673u^{137} + 0.0591812u^{136} + \cdots + 293.028u - 50.0935 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0330916u^{137} - 0.0487965u^{136} + \cdots - 201.962u + 34.3636 \\ 0.0474245u^{137} + 0.0709201u^{136} + \cdots + 317.724u - 51.4355 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0330916u^{137} - 0.0487965u^{136} + \cdots - 201.962u + 34.3636 \\ -0.0405873u^{137} - 0.0610350u^{136} + \cdots - 270.340u + 43.3946 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0736789u^{137} - 0.109832u^{136} + \cdots - 472.302u + 77.7582 \\ -0.0405873u^{137} - 0.0610350u^{136} + \cdots - 270.340u + 43.3946 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0908434u^{137} - 0.134176u^{136} + \cdots - 634.531u + 110.010 \\ -0.0349893u^{137} - 0.0500330u^{136} + \cdots - 305.131u + 55.1204 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.544581u^{137} + 0.814468u^{136} + \cdots + 3277.04u - 506.995$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{138} + 70u^{137} + \cdots - 82u + 1$
c_2, c_4	$u^{138} - 10u^{137} + \cdots + 14u - 1$
c_3, c_7	$u^{138} - u^{137} + \cdots + 4096u + 512$
c_5	$u^{138} + 6u^{137} + \cdots - 67104u - 2117$
c_6	$u^{138} + 2u^{137} + \cdots - 2626u - 97$
c_8	$u^{138} - 10u^{137} + \cdots + 2u - 1$
c_9, c_{12}	$u^{138} - 2u^{137} + \cdots + 14u + 1$
c_{10}	$u^{138} - 14u^{137} + \cdots - 2u + 1$
c_{11}	$u^{138} - 54u^{137} + \cdots + 14u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{138} + 6y^{137} + \cdots - 5018y + 1$
c_2, c_4	$y^{138} - 70y^{137} + \cdots + 82y + 1$
c_3, c_7	$y^{138} - 57y^{137} + \cdots - 8912896y + 262144$
c_5	$y^{138} - 118y^{137} + \cdots - 1356064422y + 4481689$
c_6	$y^{138} - 166y^{137} + \cdots + 9748742y + 9409$
c_8	$y^{138} - 14y^{137} + \cdots - 10y + 1$
c_9, c_{12}	$y^{138} + 54y^{137} + \cdots - 14y + 1$
c_{10}	$y^{138} - 10y^{137} + \cdots - 14y + 1$
c_{11}	$y^{138} + 62y^{137} + \cdots + 2378y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.891237 + 0.451061I$ $a = -0.373810 + 0.420098I$ $b = 0.10213 + 2.17730I$	$-1.21505 + 3.56819I$	0
$u = 0.891237 - 0.451061I$ $a = -0.373810 - 0.420098I$ $b = 0.10213 - 2.17730I$	$-1.21505 - 3.56819I$	0
$u = 1.002230 + 0.056995I$ $a = -0.978568 - 0.559753I$ $b = 1.40585 - 0.25622I$	$2.60318 - 4.38929I$	0
$u = 1.002230 - 0.056995I$ $a = -0.978568 + 0.559753I$ $b = 1.40585 + 0.25622I$	$2.60318 + 4.38929I$	0
$u = -0.535602 + 0.829305I$ $a = -0.579407 - 0.422359I$ $b = -0.03823 - 2.72025I$	$-2.92258 + 5.51420I$	0
$u = -0.535602 - 0.829305I$ $a = -0.579407 + 0.422359I$ $b = -0.03823 + 2.72025I$	$-2.92258 - 5.51420I$	0
$u = -0.607911 + 0.752609I$ $a = -0.586692 - 0.433371I$ $b = 1.38290 - 0.95935I$	$-4.92549 + 2.89963I$	0
$u = -0.607911 - 0.752609I$ $a = -0.586692 + 0.433371I$ $b = 1.38290 + 0.95935I$	$-4.92549 - 2.89963I$	0
$u = -0.856902 + 0.439878I$ $a = 0.776533 - 0.191475I$ $b = 0.248146 - 0.070340I$	$1.42734 - 1.67105I$	0
$u = -0.856902 - 0.439878I$ $a = 0.776533 + 0.191475I$ $b = 0.248146 + 0.070340I$	$1.42734 + 1.67105I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.399102+0.957238I$		
$a=$	$1.047610-0.663365I$	$-2.80156-2.93042I$	0
$b=$	$0.23151-1.43448I$		
$u=$	$0.399102-0.957238I$		
$a=$	$1.047610+0.663365I$	$-2.80156+2.93042I$	0
$b=$	$0.23151+1.43448I$		
$u=$	$-0.901914+0.317542I$		
$a=$	$2.35366+0.86813I$	$1.38659+0.85768I$	0
$b=$	$-0.25586+1.95557I$		
$u=$	$-0.901914-0.317542I$		
$a=$	$2.35366-0.86813I$	$1.38659-0.85768I$	0
$b=$	$-0.25586-1.95557I$		
$u=$	$-0.643323+0.685004I$		
$a=$	$0.437804+0.707830I$	$-5.01384-0.52036I$	0
$b=$	$-0.04627+2.82885I$		
$u=$	$-0.643323-0.685004I$		
$a=$	$0.437804-0.707830I$	$-5.01384+0.52036I$	0
$b=$	$-0.04627-2.82885I$		
$u=$	$-1.042910+0.202388I$		
$a=$	$-2.42701-0.42060I$	$2.43266+1.40735I$	0
$b=$	$0.837030-0.935034I$		
$u=$	$-1.042910-0.202388I$		
$a=$	$-2.42701+0.42060I$	$2.43266-1.40735I$	0
$b=$	$0.837030+0.935034I$		
$u=$	$-0.447071+0.969480I$		
$a=$	$1.042050+0.194188I$	$1.61097+5.54766I$	0
$b=$	$0.357165+0.646159I$		
$u=$	$-0.447071-0.969480I$		
$a=$	$1.042050-0.194188I$	$1.61097-5.54766I$	0
$b=$	$0.357165-0.646159I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.983568+0.420621I$ $a=\ \ 1.125930-0.299292I$ $b=-0.980929+0.486896I$	$1.52583+0.05279I$	0
$u=-0.983568-0.420621I$ $a=\ \ 1.125930+0.299292I$ $b=-0.980929-0.486896I$	$1.52583-0.05279I$	0
$u=-1.007240+0.365828I$ $a=-2.94257-0.96802I$ $b=\ \ 0.78500-2.45396I$	$1.86133-3.37943I$	0
$u=-1.007240-0.365828I$ $a=-2.94257+0.96802I$ $b=\ \ 0.78500+2.45396I$	$1.86133+3.37943I$	0
$u=\ \ 0.562307+0.712073I$ $a=-0.467713-0.587197I$ $b=-0.682448-0.564071I$	$-2.24121-1.11087I$	0
$u=\ \ 0.562307-0.712073I$ $a=-0.467713+0.587197I$ $b=-0.682448+0.564071I$	$-2.24121+1.11087I$	0
$u=\ \ 0.049286+0.900920I$ $a=-0.852074+0.482128I$ $b=-0.437779+0.125177I$	$2.85912-1.44732I$	0
$u=\ \ 0.049286-0.900920I$ $a=-0.852074-0.482128I$ $b=-0.437779-0.125177I$	$2.85912+1.44732I$	0
$u=\ \ 1.013460+0.467152I$ $a=-0.566480+0.532942I$ $b=\ \ 1.96084+1.00994I$	$1.14019+6.08874I$	0
$u=\ \ 1.013460-0.467152I$ $a=-0.566480-0.532942I$ $b=\ \ 1.96084-1.00994I$	$1.14019-6.08874I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.821216+0.326395I$ $a=-0.333026-1.123350I$ $b=-0.26649-1.98988I$	$0.77318-3.15109I$	0
$u=-0.821216-0.326395I$ $a=-0.333026+1.123350I$ $b=-0.26649+1.98988I$	$0.77318+3.15109I$	0
$u=-0.974643+0.546694I$ $a=\ \ 0.543194+1.122300I$ $b=-0.58768+2.16848I$	$-5.66343-4.80751I$	0
$u=-0.974643-0.546694I$ $a=\ \ 0.543194-1.122300I$ $b=-0.58768-2.16848I$	$-5.66343+4.80751I$	0
$u=-0.973914+0.548572I$ $a=-0.246797-0.250807I$ $b=\ \ 0.45663-2.06237I$	$-2.29363-1.26582I$	0
$u=-0.973914-0.548572I$ $a=-0.246797+0.250807I$ $b=\ \ 0.45663+2.06237I$	$-2.29363+1.26582I$	0
$u=\ \ 0.775567+0.394484I$ $a=\ \ 0.947364-0.353639I$ $b=-1.45919-0.64014I$	$-1.60499+0.17048I$	0
$u=\ \ 0.775567-0.394484I$ $a=\ \ 0.947364+0.353639I$ $b=-1.45919+0.64014I$	$-1.60499-0.17048I$	0
$u=\ \ 0.356173+1.076340I$ $a=-1.099720+0.625012I$ $b=-0.75303+1.56834I$	$-1.18583-8.42374I$	0
$u=\ \ 0.356173-1.076340I$ $a=-1.099720-0.625012I$ $b=-0.75303-1.56834I$	$-1.18583+8.42374I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.475349 + 0.722868I$ $a = -2.17869 + 3.34103I$ $b = -0.32690 + 6.15634I$	$-2.03184 - 3.14136I$	0
$u = 0.475349 - 0.722868I$ $a = -2.17869 - 3.34103I$ $b = -0.32690 - 6.15634I$	$-2.03184 + 3.14136I$	0
$u = -0.660289 + 0.557121I$ $a = 0.250347 + 0.609511I$ $b = -1.90816 + 1.14402I$	$-3.27436 - 3.20135I$	0
$u = -0.660289 - 0.557121I$ $a = 0.250347 - 0.609511I$ $b = -1.90816 - 1.14402I$	$-3.27436 + 3.20135I$	0
$u = -0.669186 + 0.519624I$ $a = -1.62569 - 0.41067I$ $b = 0.650552 - 1.124740I$	$-6.65019 + 0.44704I$	0
$u = -0.669186 - 0.519624I$ $a = -1.62569 + 0.41067I$ $b = 0.650552 + 1.124740I$	$-6.65019 - 0.44704I$	0
$u = -0.995065 + 0.606465I$ $a = -0.768661 - 0.241952I$ $b = 1.72710 - 0.93380I$	$-3.92952 - 4.48424I$	0
$u = -0.995065 - 0.606465I$ $a = -0.768661 + 0.241952I$ $b = 1.72710 + 0.93380I$	$-3.92952 + 4.48424I$	0
$u = -1.052960 + 0.511029I$ $a = -0.545641 - 1.202060I$ $b = 0.75942 - 1.88503I$	$-3.97612 - 10.54010I$	0
$u = -1.052960 - 0.511029I$ $a = -0.545641 + 1.202060I$ $b = 0.75942 + 1.88503I$	$-3.97612 + 10.54010I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.028400 + 0.569460I$ $a = -1.98039 + 1.42157I$ $b = 1.49925 + 3.09584I$	$-0.64257 + 3.65096I$	0
$u = 1.028400 - 0.569460I$ $a = -1.98039 - 1.42157I$ $b = 1.49925 - 3.09584I$	$-0.64257 - 3.65096I$	0
$u = 0.807402 + 0.162485I$ $a = 0.0245056 + 0.0303575I$ $b = -0.18345 - 1.83374I$	$-0.41806 - 2.81299I$	0
$u = 0.807402 - 0.162485I$ $a = 0.0245056 - 0.0303575I$ $b = -0.18345 + 1.83374I$	$-0.41806 + 2.81299I$	0
$u = 0.513302 + 0.642122I$ $a = 2.04970 - 3.19938I$ $b = -0.02901 - 5.33581I$	$-2.14770 + 1.10222I$	0
$u = 0.513302 - 0.642122I$ $a = 2.04970 + 3.19938I$ $b = -0.02901 + 5.33581I$	$-2.14770 - 1.10222I$	0
$u = 0.142187 + 0.803358I$ $a = 0.605123 - 0.786228I$ $b = 0.251832 - 1.062410I$	$-1.18089 - 1.44155I$	0
$u = 0.142187 - 0.803358I$ $a = 0.605123 + 0.786228I$ $b = 0.251832 + 1.062410I$	$-1.18089 + 1.44155I$	0
$u = 1.084210 + 0.480895I$ $a = 1.90886 - 0.45684I$ $b = -0.97873 - 1.92428I$	$0.93099 + 3.37995I$	0
$u = 1.084210 - 0.480895I$ $a = 1.90886 + 0.45684I$ $b = -0.97873 + 1.92428I$	$0.93099 - 3.37995I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.024840 + 0.606612I$ $a = -0.889765 - 0.556474I$ $b = -0.617516 + 0.472971I$	$-0.87217 + 6.18814I$	0
$u = 1.024840 - 0.606612I$ $a = -0.889765 + 0.556474I$ $b = -0.617516 - 0.472971I$	$-0.87217 - 6.18814I$	0
$u = -0.037414 + 1.194540I$ $a = 0.374263 - 0.556403I$ $b = 0.670339 - 0.895196I$	$-1.56126 - 1.16042I$	0
$u = -0.037414 - 1.194540I$ $a = 0.374263 + 0.556403I$ $b = 0.670339 + 0.895196I$	$-1.56126 + 1.16042I$	0
$u = -1.030340 + 0.632780I$ $a = 0.269726 + 0.515058I$ $b = -0.48587 + 2.22483I$	$-3.62101 - 8.17819I$	0
$u = -1.030340 - 0.632780I$ $a = 0.269726 - 0.515058I$ $b = -0.48587 - 2.22483I$	$-3.62101 + 8.17819I$	0
$u = -0.607381 + 1.045900I$ $a = -1.099300 - 0.476232I$ $b = -0.10491 - 1.87040I$	$-5.02344 + 7.63080I$	0
$u = -0.607381 - 1.045900I$ $a = -1.099300 + 0.476232I$ $b = -0.10491 + 1.87040I$	$-5.02344 - 7.63080I$	0
$u = -1.223500 + 0.025026I$ $a = 0.450072 - 0.653824I$ $b = 0.002928 - 0.389535I$	$3.62495 + 0.18798I$	0
$u = -1.223500 - 0.025026I$ $a = 0.450072 + 0.653824I$ $b = 0.002928 + 0.389535I$	$3.62495 - 0.18798I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.577195 + 0.506526I$ $a = -0.81310 + 1.21650I$ $b = 0.849600 + 0.335553I$	$-5.67444 + 7.70604I$	0
$u = 0.577195 - 0.506526I$ $a = -0.81310 - 1.21650I$ $b = 0.849600 - 0.335553I$	$-5.67444 - 7.70604I$	0
$u = 1.077150 + 0.598666I$ $a = 2.44174 - 1.26239I$ $b = -1.57702 - 3.62597I$	$-0.24222 + 8.22199I$	0
$u = 1.077150 - 0.598666I$ $a = 2.44174 + 1.26239I$ $b = -1.57702 + 3.62597I$	$-0.24222 - 8.22199I$	0
$u = 1.161370 + 0.485891I$ $a = 0.137744 - 0.952818I$ $b = -0.572229 - 1.280570I$	$6.18648 + 6.09287I$	0
$u = 1.161370 - 0.485891I$ $a = 0.137744 + 0.952818I$ $b = -0.572229 + 1.280570I$	$6.18648 - 6.09287I$	0
$u = -0.595154 + 1.111130I$ $a = 1.199830 + 0.475752I$ $b = 0.51573 + 2.11134I$	$-3.21354 + 13.45620I$	0
$u = -0.595154 - 1.111130I$ $a = 1.199830 - 0.475752I$ $b = 0.51573 - 2.11134I$	$-3.21354 - 13.45620I$	0
$u = -1.083240 + 0.646473I$ $a = 0.527041 + 0.430977I$ $b = -2.05730 + 1.17894I$	$-1.23497 - 11.03660I$	0
$u = -1.083240 - 0.646473I$ $a = 0.527041 - 0.430977I$ $b = -2.05730 - 1.17894I$	$-1.23497 + 11.03660I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.008480+0.760858I$ $a=-0.029650-0.162775I$ $b=\ \ 0.147420-0.664583I$	$1.12610-1.66732I$	0
$u=-1.008480-0.760858I$ $a=-0.029650+0.162775I$ $b=\ \ 0.147420+0.664583I$	$1.12610+1.66732I$	0
$u=-0.580352+0.452643I$ $a=\ \ 1.93255+0.42636I$ $b=-0.452440+1.034950I$	$-5.55713+6.45135I$	0
$u=-0.580352-0.452643I$ $a=\ \ 1.93255-0.42636I$ $b=-0.452440-1.034950I$	$-5.55713-6.45135I$	0
$u=-0.332883+1.227780I$ $a=-0.326056+0.491187I$ $b=-0.992922+0.434685I$	$-0.88815-5.59474I$	0
$u=-0.332883-1.227780I$ $a=-0.326056-0.491187I$ $b=-0.992922-0.434685I$	$-0.88815+5.59474I$	0
$u=\ \ 0.261401+0.675701I$ $a=-1.73076+2.21373I$ $b=-1.50116+4.28247I$	$-1.47744+0.92019I$	$-13.1865-12.0789I$
$u=\ \ 0.261401-0.675701I$ $a=-1.73076-2.21373I$ $b=-1.50116-4.28247I$	$-1.47744-0.92019I$	$-13.1865+12.0789I$
$u=\ \ 1.276750+0.042565I$ $a=\ \ 0.219940+0.720567I$ $b=\ \ 0.470091+0.482821I$	$8.11672-2.73587I$	0
$u=\ \ 1.276750-0.042565I$ $a=\ \ 0.219940-0.720567I$ $b=\ \ 0.470091-0.482821I$	$8.11672+2.73587I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.273680 + 0.189034I$ $a = -0.471650 + 0.790103I$ $b = 0.390567 + 0.632829I$	$3.28436 + 5.64107I$	0
$u = 1.273680 - 0.189034I$ $a = -0.471650 - 0.790103I$ $b = 0.390567 - 0.632829I$	$3.28436 - 5.64107I$	0
$u = 1.243040 + 0.380663I$ $a = -0.503377 + 0.008937I$ $b = -0.183318 + 0.558386I$	$-3.90120 + 1.41992I$	0
$u = 1.243040 - 0.380663I$ $a = -0.503377 - 0.008937I$ $b = -0.183318 - 0.558386I$	$-3.90120 - 1.41992I$	0
$u = -1.288680 + 0.281651I$ $a = -0.181190 + 0.598182I$ $b = -0.798486 + 0.333450I$	$7.47653 - 2.85325I$	0
$u = -1.288680 - 0.281651I$ $a = -0.181190 - 0.598182I$ $b = -0.798486 - 0.333450I$	$7.47653 + 2.85325I$	0
$u = 1.155250 + 0.638410I$ $a = -0.424700 + 1.053580I$ $b = 1.23511 + 1.85442I$	$-0.45961 + 8.68715I$	0
$u = 1.155250 - 0.638410I$ $a = -0.424700 - 1.053580I$ $b = 1.23511 - 1.85442I$	$-0.45961 - 8.68715I$	0
$u = 0.565089 + 0.368280I$ $a = 1.28485 - 1.27911I$ $b = -0.841611 - 0.331242I$	$-6.08890 + 1.96052I$	$-7.64143 - 8.71242I$
$u = 0.565089 - 0.368280I$ $a = 1.28485 + 1.27911I$ $b = -0.841611 + 0.331242I$	$-6.08890 - 1.96052I$	$-7.64143 + 8.71242I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.164010+0.662985I$ $a=-0.069682-0.970476I$ $b=\ 1.02056-1.46687I$	$3.85974-11.48810I$	0
$u=-1.164010-0.662985I$ $a=-0.069682+0.970476I$ $b=\ 1.02056+1.46687I$	$3.85974+11.48810I$	0
$u=\ 1.193220+0.620973I$ $a=\ 0.380214+0.025299I$ $b=\ 0.390431-0.692818I$	$-3.80516-3.12708I$	0
$u=\ 1.193220-0.620973I$ $a=\ 0.380214-0.025299I$ $b=\ 0.390431+0.692818I$	$-3.80516+3.12708I$	0
$u=\ 1.226050+0.580758I$ $a=-0.343290+0.987150I$ $b=\ 1.31512+0.92232I$	$2.14280+6.67345I$	0
$u=\ 1.226050-0.580758I$ $a=-0.343290-0.987150I$ $b=\ 1.31512-0.92232I$	$2.14280-6.67345I$	0
$u=-0.614984+0.187284I$ $a=\ 1.36581+0.68642I$ $b=\ 0.059042-0.133323I$	$1.56307-1.66544I$	$2.89954+4.03891I$
$u=-0.614984-0.187284I$ $a=\ 1.36581-0.68642I$ $b=\ 0.059042+0.133323I$	$1.56307+1.66544I$	$2.89954-4.03891I$
$u=\ 1.106790+0.792448I$ $a=\ 0.108065-0.388800I$ $b=-0.414665-0.969826I$	$-2.00335+6.93606I$	0
$u=\ 1.106790-0.792448I$ $a=\ 0.108065+0.388800I$ $b=-0.414665+0.969826I$	$-2.00335-6.93606I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.315550+0.359668I$ $a=\ \ 0.292144+0.773241I$ $b=-0.761965+0.326538I$	$3.97771-0.99477I$	0
$u=-1.315550-0.359668I$ $a=\ \ 0.292144-0.773241I$ $b=-0.761965-0.326538I$	$3.97771+0.99477I$	0
$u=\ \ 0.791951+1.123120I$ $a=-0.104546+0.242020I$ $b=\ \ 0.575981+0.363399I$	$-3.20951-0.12052I$	0
$u=\ \ 0.791951-1.123120I$ $a=-0.104546-0.242020I$ $b=\ \ 0.575981-0.363399I$	$-3.20951+0.12052I$	0
$u=-1.152770+0.759561I$ $a=\ \ 0.372065+1.084360I$ $b=-1.56331+2.11237I$	$-3.2577-14.1817I$	0
$u=-1.152770-0.759561I$ $a=\ \ 0.372065-1.084360I$ $b=-1.56331-2.11237I$	$-3.2577+14.1817I$	0
$u=\ \ 1.215480+0.657197I$ $a=\ \ 0.417569-1.169900I$ $b=-1.58752-1.68899I$	$1.5306+14.5699I$	0
$u=\ \ 1.215480-0.657197I$ $a=\ \ 0.417569+1.169900I$ $b=-1.58752+1.68899I$	$1.5306-14.5699I$	0
$u=\ \ 0.621808+1.262870I$ $a=\ \ 0.219946-0.373470I$ $b=-0.401665-0.922248I$	$-2.87405-4.60153I$	0
$u=\ \ 0.621808-1.262870I$ $a=\ \ 0.219946+0.373470I$ $b=-0.401665+0.922248I$	$-2.87405+4.60153I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.012925 + 0.583466I$ $a = 1.60330 - 1.20767I$ $b = 1.62413 - 2.79398I$	$-0.84910 - 2.82406I$	$-8.14201 + 2.02804I$
$u = 0.012925 - 0.583466I$ $a = 1.60330 + 1.20767I$ $b = 1.62413 + 2.79398I$	$-0.84910 + 2.82406I$	$-8.14201 - 2.02804I$
$u = -1.18737 + 0.77838I$ $a = -0.374933 - 1.205190I$ $b = 1.90542 - 2.04885I$	$-1.2856 - 20.2575I$	0
$u = -1.18737 - 0.77838I$ $a = -0.374933 + 1.205190I$ $b = 1.90542 + 2.04885I$	$-1.2856 + 20.2575I$	0
$u = 1.42457 + 0.18628I$ $a = 0.418549 - 0.903274I$ $b = -0.559011 - 0.080432I$	$5.52769 + 10.52010I$	0
$u = 1.42457 - 0.18628I$ $a = 0.418549 + 0.903274I$ $b = -0.559011 + 0.080432I$	$5.52769 - 10.52010I$	0
$u = 1.20482 + 0.82034I$ $a = -0.323181 + 0.487383I$ $b = 0.69993 + 1.36228I$	$-0.93423 + 11.87520I$	0
$u = 1.20482 - 0.82034I$ $a = -0.323181 - 0.487383I$ $b = 0.69993 - 1.36228I$	$-0.93423 - 11.87520I$	0
$u = -1.45789 + 0.02040I$ $a = -0.347702 + 0.766327I$ $b = 0.052133 - 0.281976I$	$5.82999 + 4.34658I$	0
$u = -1.45789 - 0.02040I$ $a = -0.347702 - 0.766327I$ $b = 0.052133 + 0.281976I$	$5.82999 - 4.34658I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.535544$ $a = -1.29494$ $b = -1.79576$	-2.39938	2.13270
$u = -1.26077 + 0.75154I$ $a = \ 0.258980 + 0.372530I$ $b = -0.606270 + 0.959787I$	$2.07530 - 6.01010I$	0
$u = -1.26077 - 0.75154I$ $a = \ 0.258980 - 0.372530I$ $b = -0.606270 - 0.959787I$	$2.07530 + 6.01010I$	0
$u = \ 0.484619$ $a = \ 1.77599$ $b = -0.902756$	-1.42472	-7.17280
$u = \ 0.371240 + 0.165548I$ $a = \ 0.05628 - 3.22965I$ $b = -0.83219 - 3.92999I$	$-2.14622 - 2.23521I$	$21.1047 - 13.0442I$
$u = \ 0.371240 - 0.165548I$ $a = \ 0.05628 + 3.22965I$ $b = -0.83219 + 3.92999I$	$-2.14622 + 2.23521I$	$21.1047 + 13.0442I$
$u = \ 0.219549 + 0.280103I$ $a = \ 1.65192 + 0.93172I$ $b = \ 0.61488 - 1.35760I$	$-0.60788 - 2.56876I$	$-3.16211 + 2.09222I$
$u = \ 0.219549 - 0.280103I$ $a = \ 1.65192 - 0.93172I$ $b = \ 0.61488 + 1.35760I$	$-0.60788 + 2.56876I$	$-3.16211 - 2.09222I$

II. $I_1^v = \langle a,\ -1.17 \times 10^5 v^8 - 1.01 \times 10^5 v^7 + \cdots + 1.78 \times 10^5 b - 2.14 \times 10^5,\ v^9 + v^8 + \cdots + 5v + 1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_{10} = \begin{pmatrix} 0 \\ 0.657233v^8 + 0.567767v^7 + \cdots + 9.16478v + 1.20024 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0241374v^8 - 0.0627123v^7 + \cdots + 0.209905v - 0.0894654 \\ 0.657233v^8 + 0.567767v^7 + \cdots + 9.16478v + 1.20024 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} v \\ 0.275340v^8 - 0.0465346v^7 + \cdots + 1.55676v - 0.961481 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.177685v^8 + 0.143932v^7 + \cdots + 2.33403v + 0.321875 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.177685v^8 + 0.143932v^7 + \cdots + 2.33403v + 0.321875 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.177685v^8 - 0.143932v^7 + \cdots - 2.33403v + 0.678125 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.177685v^8 - 0.143932v^7 + \cdots - 2.33403v - 0.321875 \\ -1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0347129v^8 - 0.0223692v^7 + \cdots - 0.0767568v + 0.422617 \\ 0.355369v^8 + 0.287863v^7 + \cdots + 4.66807v - 0.356251 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{1357499}{178147}v^8 - \frac{1060272}{178147}v^7 - \frac{16069905}{178147}v^6 - \frac{6006453}{178147}v^5 - \frac{49016470}{178147}v^4 + \frac{11956914}{178147}v^3 - \frac{2891346}{178147}v^2 - \frac{13052302}{178147}v - \frac{5029411}{178147}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.508863 + 0.531649I$ $a = 0$ $b = -0.225230 + 1.238240I$	$0.13850 + 2.09337I$	$-3.38047 - 2.85927I$
$v = 0.508863 - 0.531649I$ $a = 0$ $b = -0.225230 - 1.238240I$	$0.13850 - 2.09337I$	$-3.38047 + 2.85927I$
$v = -0.465349$ $a = 0$ $b = -1.77487$	-2.84338	-17.4870
$v = -0.234017 + 0.220643I$ $a = 0$ $b = -1.25758 + 1.97504I$	$-2.26187 + 2.45442I$	$-6.9022 - 12.4598I$
$v = -0.234017 - 0.220643I$ $a = 0$ $b = -1.25758 - 1.97504I$	$-2.26187 - 2.45442I$	$-6.9022 + 12.4598I$
$v = -0.65490 + 2.25183I$ $a = 0$ $b = -0.300113 - 0.434032I$	$-6.01628 + 1.33617I$	$-6.48878 + 2.15019I$
$v = -0.65490 - 2.25183I$ $a = 0$ $b = -0.300113 + 0.434032I$	$-6.01628 - 1.33617I$	$-6.48878 - 2.15019I$
$v = 0.11273 + 2.63847I$ $a = 0$ $b = 0.170352 + 0.451655I$	$-5.24306 + 7.08493I$	$-2.48514 - 6.49599I$
$v = 0.11273 - 2.63847I$ $a = 0$ $b = 0.170352 - 0.451655I$	$-5.24306 - 7.08493I$	$-2.48514 + 6.49599I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{138}+70u^{137}+\cdots-82u+1)$
c_2	$((u-1)^9)(u^{138}-10u^{137}+\cdots+14u-1)$
c_3, c_7	$u^9(u^{138}-u^{137}+\cdots+4096u+512)$
c_4	$((u+1)^9)(u^{138}-10u^{137}+\cdots+14u-1)$
c_5	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{138}+6u^{137}+\cdots-67104u-2117)$
c_6	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{138}+2u^{137}+\cdots-2626u-97)$
c_8	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{138}-10u^{137}+\cdots+2u-1)$
c_9	$(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{138}-2u^{137}+\cdots+14u+1)$
c_{10}	$(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{138}-14u^{137}+\cdots-2u+1)$
c_{11}	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{138}-54u^{137}+\cdots+14u+1)$
c_{12}	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{138}-2u^{137}+\cdots+14u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{138}+6y^{137}+\cdots-5018y+1)$
c_2, c_4	$((y-1)^9)(y^{138}-70y^{137}+\cdots+82y+1)$
c_3, c_7	$y^9(y^{138}-57y^{137}+\cdots-8912896y+262144)$
c_5	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{138}-118y^{137}+\cdots-1356064422y+4481689)$
c_6	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{138}-166y^{137}+\cdots+9748742y+9409)$
c_8	$(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{138}-14y^{137}+\cdots-10y+1)$
c_9, c_{12}	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{138}+54y^{137}+\cdots-14y+1)$
c_{10}	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{138}-10y^{137}+\cdots-14y+1)$
c_{11}	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{138}+62y^{137}+\cdots+2378y+1)$