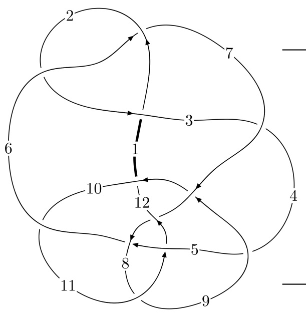
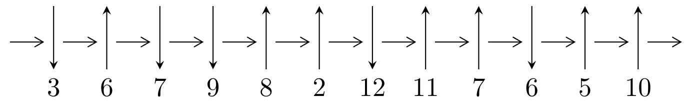
$12n_{0314}$ ($K12n_{0314}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 26419u^{19} + 221467u^{18} + \cdots + 81793b + 229898,$$
$$655714u^{19} + 5585712u^{18} + \cdots + 1717653a + 17248644,\ u^{20} + 9u^{19} + \cdots + 105u + 21\rangle$$
$$I_2^u = \langle u^{14} - 5u^{13} + \cdots + 13b - 16,\ 3u^{14} - 2u^{13} + \cdots + 13a + 56,\ u^{15} + 4u^{14} + \cdots - 4u - 1\rangle$$
$$I_3^u = \langle 179u^6a^3 + 84u^6a^2 + \cdots + 240a - 68,\ 2u^6a^3 + 5u^6a^2 + \cdots - a + 5,\ u^7 - 2u^6 + 2u^5 + u^2 - 2u + 1\rangle$$
$$I_4^u = \langle b + u,\ a^2 - au + 2a + 1,\ u^2 - u + 1\rangle$$
$$I_5^u = \langle b - u + 1,\ a^2 - au - a + u - 1,\ u^2 - u + 1\rangle$$

$$I_1^v = \langle a,\ b^2 + b + 1,\ v + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 73 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. $\boldsymbol{I_1^u = \langle 26419u^{19} + 221467u^{18} + \cdots + 81793b + 229898,\ 6.56 \times 10^5 u^{19} + 5.59 \times 10^6 u^{18} + \cdots + 1.72 \times 10^6 a + 1.72 \times 10^7,\ u^{20} + 9u^{19} + \cdots + 105u + 21\rangle}$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.381750u^{19} - 3.25194u^{18} + \cdots - 46.7992u - 10.0420 \\ -0.322998u^{19} - 2.70765u^{18} + \cdots - 17.1281u - 2.81073 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0499612u^{19} - 0.781440u^{18} + \cdots - 40.9540u - 11.0912 \\ 0.183805u^{19} + 1.66304u^{18} + \cdots + 30.0418u + 8.01675 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0587517u^{19} - 0.544292u^{18} + \cdots - 29.6712u - 7.23125 \\ -0.322998u^{19} - 2.70765u^{18} + \cdots - 17.1281u - 2.81073 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0265624u^{19} - 0.108474u^{18} + \cdots - 14.3377u - 5.90838 \\ 0.320040u^{19} + 2.54825u^{18} + \cdots + 6.84217u + 0.951341 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.737673u^{19} + 5.54575u^{18} + \cdots + 12.8313u + 2.55517 \\ -0.998753u^{19} - 6.14769u^{18} + \cdots + 5.47587u + 3.09776 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.274738u^{19} + 2.46057u^{18} + \cdots + 14.2381u + 2.03681 \\ -0.436358u^{19} - 2.67451u^{18} + \cdots + 2.33972u + 1.20475 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{34565}{81793}u^{19} + \frac{528526}{81793}u^{18} + \cdots + \frac{18069450}{81793}u + \frac{4396806}{81793}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} + 5u^{19} + \cdots + 2751u + 441$
c_2, c_6	$u^{20} - 9u^{19} + \cdots - 105u + 21$
c_3	$u^{20} + 9u^{19} + \cdots - 123711u + 33789$
c_4, c_{10}	$u^{20} + u^{19} + \cdots + 3u + 1$
c_5, c_{11}	$u^{20} + 2u^{19} + \cdots + u + 1$
c_7	$u^{20} + 16u^{19} + \cdots + 160u + 32$
c_8	$u^{20} + 22u^{19} + \cdots + 273u + 21$
c_9, c_{12}	$u^{20} - u^{19} + \cdots - 21u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} + 53y^{19} + \cdots + 2156931y + 194481$
c_2, c_6	$y^{20} + 5y^{19} + \cdots + 2751y + 441$
c_3	$y^{20} + 107y^{19} + \cdots + 4904181177y + 1141696521$
c_4, c_{10}	$y^{20} + 31y^{19} + \cdots - 9y + 1$
c_5, c_{11}	$y^{20} - 6y^{19} + \cdots + y + 1$
c_7	$y^{20} + 42y^{18} + \cdots + 15872y + 1024$
c_8	$y^{20} - 16y^{19} + \cdots - 3423y + 441$
c_9, c_{12}	$y^{20} - 49y^{19} + \cdots - 81y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.211126 + 0.952456I$ $a = 0.747076 - 0.491514I$ $b = 0.116391 + 0.783403I$	$-3.11229 - 1.03633I$	$-6.44153 + 1.75193I$
$u = 0.211126 - 0.952456I$ $a = 0.747076 + 0.491514I$ $b = 0.116391 - 0.783403I$	$-3.11229 + 1.03633I$	$-6.44153 - 1.75193I$
$u = 0.519530 + 0.750364I$ $a = 0.898033 + 0.618882I$ $b = -0.484563 + 1.044830I$	$0.63548 - 1.96108I$	$4.25150 + 5.47708I$
$u = 0.519530 - 0.750364I$ $a = 0.898033 - 0.618882I$ $b = -0.484563 - 1.044830I$	$0.63548 + 1.96108I$	$4.25150 - 5.47708I$
$u = -0.523090 + 0.979837I$ $a = 0.414457 - 0.445713I$ $b = -0.1256290 - 0.0436326I$	$0.13882 - 2.55024I$	$1.45356 - 0.37856I$
$u = -0.523090 - 0.979837I$ $a = 0.414457 + 0.445713I$ $b = -0.1256290 + 0.0436326I$	$0.13882 + 2.55024I$	$1.45356 + 0.37856I$
$u = -0.577826 + 0.618275I$ $a = 0.017905 + 0.660573I$ $b = -0.253132 + 0.138016I$	$1.22469 - 1.87328I$	$5.09006 + 3.79292I$
$u = -0.577826 - 0.618275I$ $a = 0.017905 - 0.660573I$ $b = -0.253132 - 0.138016I$	$1.22469 + 1.87328I$	$5.09006 - 3.79292I$
$u = 0.713575 + 1.077000I$ $a = -0.756489 - 0.141468I$ $b = 0.306890 - 1.351890I$	$-0.16430 + 7.31617I$	$2.67024 - 6.35722I$
$u = 0.713575 - 1.077000I$ $a = -0.756489 + 0.141468I$ $b = 0.306890 + 1.351890I$	$-0.16430 - 7.31617I$	$2.67024 + 6.35722I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.351235+0.606197I$ $a=\ \ 0.973122-0.073477I$ $b=-0.040017+0.338792I$	$0.08352-1.47554I$	$0.46232+5.22837I$
$u=-0.351235-0.606197I$ $a=\ \ 0.973122+0.073477I$ $b=-0.040017-0.338792I$	$0.08352+1.47554I$	$0.46232-5.22837I$
$u=-1.06324+1.11292I$ $a=\ \ 1.23198+0.99332I$ $b=\ \ 2.62262-0.87571I$	$15.6693-14.8627I$	$4.85498+6.94268I$
$u=-1.06324-1.11292I$ $a=\ \ 1.23198-0.99332I$ $b=\ \ 2.62262+0.87571I$	$15.6693+14.8627I$	$4.85498-6.94268I$
$u=-1.14401+1.05029I$ $a=\ \ 0.913221+1.067070I$ $b=\ \ 2.78508+0.08218I$	$15.9439+6.7947I$	$5.34960-3.11489I$
$u=-1.14401-1.05029I$ $a=\ \ 0.913221-1.067070I$ $b=\ \ 2.78508-0.08218I$	$15.9439-6.7947I$	$5.34960+3.11489I$
$u=-1.22782+0.99971I$ $a=-0.933207-0.875787I$ $b=-2.92684-0.10703I$	$14.3487-2.4918I$	$8.82559-1.44733I$
$u=-1.22782-0.99971I$ $a=-0.933207+0.875787I$ $b=-2.92684+0.10703I$	$14.3487+2.4918I$	$8.82559+1.44733I$
$u=-1.05700+1.19896I$ $a=-1.00610-1.04385I$ $b=-2.50080+0.96199I$	$13.6274-5.8207I$	$6.48369+6.53505I$
$u=-1.05700-1.19896I$ $a=-1.00610+1.04385I$ $b=-2.50080-0.96199I$	$13.6274+5.8207I$	$6.48369-6.53505I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle u^{14}-5u^{13}+\cdots+13b-16,\ 3u^{14}-2u^{13}+\cdots+13a+56,\ u^{15}+4u^{14}+\cdots-4u-1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.230769u^{14} + 0.153846u^{13} + \cdots - 10.3077u - 4.30769 \\ -0.0769231u^{14} + 0.384615u^{13} + \cdots + 0.230769u + 1.23077 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.153846u^{14} + 0.230769u^{13} + \cdots - 6.46154u - 4.46154 \\ 1.07692u^{14} + 4.61538u^{13} + \cdots - 5.23077u - 0.230769 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.153846u^{14} - 0.230769u^{13} + \cdots - 10.5385u - 5.53846 \\ -0.0769231u^{14} + 0.384615u^{13} + \cdots + 0.230769u + 1.23077 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.23077u^{14} + 7.84615u^{13} + \cdots - 8.69231u + 0.307692 \\ -0.384615u^{14} - 2.07692u^{13} + \cdots + 6.15385u + 1.15385 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -3.15385u^{14} - 11.2308u^{13} + \cdots + 13.4615u + 3.46154 \\ -0.0769231u^{14} + 0.384615u^{13} + \cdots - 1.76923u - 0.769231 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.769231u^{14} + 2.15385u^{13} + \cdots + 0.692308u + 1.69231 \\ -0.0769231u^{14} - 0.615385u^{13} + \cdots + 3.23077u + 0.230769 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{4}{13}u^{14} + \frac{20}{13}u^{13} + \frac{49}{13}u^{12} + \frac{207}{13}u^{11} + \frac{331}{13}u^{10} + \frac{590}{13}u^9 + \frac{503}{13}u^8 + \frac{567}{13}u^7 + \frac{150}{13}u^6 + \frac{2}{13}u^5 - 24u^4 - \frac{489}{13}u^3 - \frac{307}{13}u^2 - \frac{274}{13}u - \frac{1}{13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{15} - 6u^{14} + \cdots - 6u + 1$
c_2	$u^{15} - 4u^{14} + \cdots - 4u + 1$
c_3	$u^{15} + 4u^{14} + \cdots - 6u + 1$
c_4, c_{10}	$u^{15} + 8u^{13} + \cdots + 4u - 1$
c_5, c_{11}	$u^{15} + u^{14} + \cdots + 2u + 1$
c_6	$u^{15} + 4u^{14} + \cdots - 4u - 1$
c_7	$u^{15} + 6u^{14} + \cdots + 5u + 1$
c_8	$u^{15} + 11u^{14} + \cdots + 1118u + 169$
c_9, c_{12}	$u^{15} - 8u^{14} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{15} + 6y^{14} + \cdots + 2y - 1$
c_2, c_6	$y^{15} + 6y^{14} + \cdots - 6y - 1$
c_3	$y^{15} + 12y^{14} + \cdots - 224y^2 - 1$
c_4, c_{10}	$y^{15} + 16y^{14} + \cdots - 6y - 1$
c_5, c_{11}	$y^{15} - 5y^{14} + \cdots + 8y - 1$
c_7	$y^{15} - 2y^{13} + \cdots + 7y - 1$
c_8	$y^{15} - 11y^{14} + \cdots + 118300y - 28561$
c_9, c_{12}	$y^{15} - 16y^{14} + \cdots - 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.119628 + 0.929628I$ $a = 1.085450 + 0.734281I$ $b = -0.896569 + 0.439913I$	$1.32926 - 1.15840I$	$10.02147 + 1.35486I$
$u = 0.119628 - 0.929628I$ $a = 1.085450 - 0.734281I$ $b = -0.896569 - 0.439913I$	$1.32926 + 1.15840I$	$10.02147 - 1.35486I$
$u = 0.927045$ $a = -1.23357$ $b = -1.65358$	4.01270	10.3920
$u = 0.396806 + 1.009340I$ $a = -0.100376 + 0.697396I$ $b = -0.762363 - 0.345807I$	$0.57283 + 3.31790I$	$5.20563 - 6.98486I$
$u = 0.396806 - 1.009340I$ $a = -0.100376 - 0.697396I$ $b = -0.762363 + 0.345807I$	$0.57283 - 3.31790I$	$5.20563 + 6.98486I$
$u = -0.838508 + 0.071078I$ $a = 0.057971 - 0.286484I$ $b = 0.417658 + 1.125080I$	$2.88845 - 5.01567I$	$6.54273 + 3.81231I$
$u = -0.838508 - 0.071078I$ $a = 0.057971 + 0.286484I$ $b = 0.417658 - 1.125080I$	$2.88845 + 5.01567I$	$6.54273 - 3.81231I$
$u = -0.323439 + 1.178010I$ $a = 0.640201 + 0.826390I$ $b = -0.313721 - 0.616088I$	$-1.15408 + 0.99595I$	$2.36087 - 3.16141I$
$u = -0.323439 - 1.178010I$ $a = 0.640201 - 0.826390I$ $b = -0.313721 + 0.616088I$	$-1.15408 - 0.99595I$	$2.36087 + 3.16141I$
$u = -0.493362 + 1.123440I$ $a = -0.974071 - 0.249094I$ $b = 0.251285 + 0.447031I$	$-0.15694 - 9.16119I$	$0.57307 + 9.40240I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.493362-1.123440I$ $a=-0.974071+0.249094I$ $b=\ \ 0.251285-0.447031I$	$-0.15694+9.16119I$	$0.57307-9.40240I$
$u=-0.228765+0.477425I$ $a=-1.52624-1.56710I$ $b=\ \ 0.739527-0.375189I$	$2.35397+5.43215I$	$3.98759-5.23601I$
$u=-0.228765-0.477425I$ $a=-1.52624+1.56710I$ $b=\ \ 0.739527+0.375189I$	$2.35397-5.43215I$	$3.98759+5.23601I$
$u=-1.09588+1.06775I$ $a=-1.06614-0.98430I$ $b=-2.60903+0.37822I$	$13.54430-3.99769I$	$5.11287+2.07343I$
$u=-1.09588-1.06775I$ $a=-1.06614+0.98430I$ $b=-2.60903-0.37822I$	$13.54430+3.99769I$	$5.11287-2.07343I$

III. $\boldsymbol{I_3^u = \langle 179u^6a^3 + 84u^6a^2 + \cdots + 240a - 68,\ 2u^6a^3 + 5u^6a^2 + \cdots - a + 5,\ u^7 - 2u^6 + 2u^5 + u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ -0.650909a^3u^6 - 0.305455a^2u^6 + \cdots - 0.872727a + 0.247273 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.650909a^3u^6 + 0.305455a^2u^6 + \cdots + 1.87273a - 0.247273 \\ -0.738182a^3u^6 - 0.229091a^2u^6 + \cdots - 0.654545a + 0.185455 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.650909a^3u^6 + 0.305455a^2u^6 + \cdots + 1.87273a - 0.247273 \\ -0.650909a^3u^6 - 0.305455a^2u^6 + \cdots - 0.872727a + 0.247273 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^5 - u^4 - a^2u + u^2 + u + 1 \\ 0.0581818a^3u^6 - 1.05091a^2u^6 + \cdots + 1.85455a - 0.625455 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0581818a^3u^6 + 0.949091a^2u^6 + \cdots - 0.145455a + 1.37455 \\ 0.0436364a^3u^6 - 0.538182a^2u^6 + \cdots + 1.89091a - 0.469091 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0145455a^3u^6 - 0.512727a^2u^6 + \cdots - 0.0363636a - 1.15636 \\ -0.0436364a^3u^6 + 0.538182a^2u^6 + \cdots - 1.89091a - 0.530909 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{48}{275}u^6a^3 - \frac{592}{275}u^6a^2 + \cdots + \frac{416}{55}a + \frac{4709}{275}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^7 + 4u^5 - 4u^3 - u^2 + 2u - 1)^4$
c_2, c_6	$(u^7 + 2u^6 + 2u^5 - u^2 - 2u - 1)^4$
c_3	$(u^7 - 2u^6 + 10u^5 + 8u^4 - 18u^3 - 39u^2 - 22u - 5)^4$
c_4, c_{10}	$u^{28} + 23u^{26} + \cdots + 1459u + 4993$
c_5, c_{11}	$u^{28} - 3u^{26} + \cdots - 21u + 13$
c_7	$(u^2 - u + 1)^{14}$
c_8	$(u^7 - 3u^6 + 2u^5 + 5u^4 - 9u^3 + u^2 + 6u - 4)^4$
c_9, c_{12}	$u^{28} - 5u^{27} + \cdots + 21416u + 10543$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^7+8y^6+8y^5-28y^4+32y^3-17y^2+2y-1)^4$
c_2, c_6	$(y^7+4y^5-4y^3-y^2+2y-1)^4$
c_3	$(y^7+16y^6+96y^5-624y^4+488y^3-649y^2+94y-25)^4$
c_4, c_{10}	$y^{28}+46y^{27}+\cdots+280734755y+24930049$
c_5, c_{11}	$y^{28}-6y^{27}+\cdots-3561y+169$
c_7	$(y^2+y+1)^{14}$
c_8	$(y^7-5y^6+16y^5-43y^4+71y^3-69y^2+44y-16)^4$
c_9, c_{12}	$y^{28}-53y^{27}+\cdots+543656868y+111154849$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.234558+0.938347I$ $a=\ \ 0.557581+0.629769I$ $b=-0.005594+0.375241I$	$0.141984-1.068600I$	$1.62838+2.98348I$
$u=-0.234558+0.938347I$ $a=\ \ 1.48963+0.01254I$ $b=-0.834015-0.189579I$	$0.141984-1.068600I$	$1.62838+2.98348I$
$u=-0.234558+0.938347I$ $a=\ \ 0.289555+0.078561I$ $b=\ \ 1.047710-0.498808I$	$0.14198-5.12837I$	$1.62838+9.91169I$
$u=-0.234558+0.938347I$ $a=-0.75691-2.17265I$ $b=-0.467113+1.133100I$	$0.14198-5.12837I$	$1.62838+9.91169I$
$u=-0.234558-0.938347I$ $a=\ \ 0.557581-0.629769I$ $b=-0.005594-0.375241I$	$0.141984+1.068600I$	$1.62838-2.98348I$
$u=-0.234558-0.938347I$ $a=\ \ 1.48963-0.01254I$ $b=-0.834015+0.189579I$	$0.141984+1.068600I$	$1.62838-2.98348I$
$u=-0.234558-0.938347I$ $a=\ \ 0.289555-0.078561I$ $b=\ \ 1.047710+0.498808I$	$0.14198+5.12837I$	$1.62838-9.91169I$
$u=-0.234558-0.938347I$ $a=-0.75691+2.17265I$ $b=-0.467113-1.133100I$	$0.14198+5.12837I$	$1.62838-9.91169I$
$u=-0.954563$ $a=-0.978481+0.427663I$ $b=-1.94430+1.59422I$	$4.10408-2.02988I$	$10.25058+3.46410I$
$u=-0.954563$ $a=-0.978481-0.427663I$ $b=-1.94430-1.59422I$	$4.10408+2.02988I$	$10.25058-3.46410I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.954563$ $a = 1.031960 + 0.520296I$ $b = 0.869450 - 0.267482I$	$4.10408 + 2.02988I$	$10.25058 - 3.46410I$
$u = -0.954563$ $a = 1.031960 - 0.520296I$ $b = 0.869450 + 0.267482I$	$4.10408 - 2.02988I$	$10.25058 + 3.46410I$
$u = 0.656474 + 0.273636I$ $a = -0.931267 + 0.317916I$ $b = -0.97436 - 1.34239I$	$3.33504 + 2.23752I$	$9.53857 - 3.70520I$
$u = 0.656474 + 0.273636I$ $a = 1.244040 - 0.363481I$ $b = 1.83972 - 1.54468I$	$3.33504 + 6.29728I$	$9.5386 - 10.6334I$
$u = 0.656474 + 0.273636I$ $a = -1.95049 - 0.33453I$ $b = -1.232480 + 0.014553I$	$3.33504 + 2.23752I$	$9.53857 - 3.70520I$
$u = 0.656474 + 0.273636I$ $a = 0.21122 - 2.12389I$ $b = 0.413640 + 0.297426I$	$3.33504 + 6.29728I$	$9.5386 - 10.6334I$
$u = 0.656474 - 0.273636I$ $a = -0.931267 - 0.317916I$ $b = -0.97436 + 1.34239I$	$3.33504 - 2.23752I$	$9.53857 + 3.70520I$
$u = 0.656474 - 0.273636I$ $a = 1.244040 + 0.363481I$ $b = 1.83972 + 1.54468I$	$3.33504 - 6.29728I$	$9.5386 + 10.6334I$
$u = 0.656474 - 0.273636I$ $a = -1.95049 + 0.33453I$ $b = -1.232480 - 0.014553I$	$3.33504 - 2.23752I$	$9.53857 + 3.70520I$
$u = 0.656474 - 0.273636I$ $a = 0.21122 + 2.12389I$ $b = 0.413640 - 0.297426I$	$3.33504 - 6.29728I$	$9.5386 + 10.6334I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.05537 + 1.04881I$ $a = 0.973714 - 0.891961I$ $b = 2.24383 - 0.01181I$	$14.2101 + 5.9023I$	$7.20776 - 5.84206I$
$u = 1.05537 + 1.04881I$ $a = 1.13442 - 0.89114I$ $b = 2.03850 + 0.56037I$	$14.2101 + 1.8425I$	$7.20776 + 1.08615I$
$u = 1.05537 + 1.04881I$ $a = -0.84886 + 1.29485I$ $b = -2.83247 + 0.38149I$	$14.2101 + 1.8425I$	$7.20776 + 1.08615I$
$u = 1.05537 + 1.04881I$ $a = -1.46612 + 0.93741I$ $b = -2.66251 - 1.14672I$	$14.2101 + 5.9023I$	$7.20776 - 5.84206I$
$u = 1.05537 - 1.04881I$ $a = 0.973714 + 0.891961I$ $b = 2.24383 + 0.01181I$	$14.2101 - 5.9023I$	$7.20776 + 5.84206I$
$u = 1.05537 - 1.04881I$ $a = 1.13442 + 0.89114I$ $b = 2.03850 - 0.56037I$	$14.2101 - 1.8425I$	$7.20776 - 1.08615I$
$u = 1.05537 - 1.04881I$ $a = -0.84886 - 1.29485I$ $b = -2.83247 - 0.38149I$	$14.2101 - 1.8425I$	$7.20776 - 1.08615I$
$u = 1.05537 - 1.04881I$ $a = -1.46612 - 0.93741I$ $b = -2.66251 + 1.14672I$	$14.2101 - 5.9023I$	$7.20776 + 5.84206I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.500000 + 0.866025I$ $a = -0.378256 - 0.440597I$ $b = -0.500000 - 0.866025I$	$4.05977I$	$2.50000 - 4.33013I$
$u = \ \ 0.500000 + 0.866025I$ $a = -1.12174 + 1.30662I$ $b = -0.500000 - 0.866025I$	$4.05977I$	$2.50000 - 4.33013I$
$u = \ \ 0.500000 - 0.866025I$ $a = -0.378256 + 0.440597I$ $b = -0.500000 + 0.866025I$	$-4.05977I$	$2.50000 + 4.33013I$
$u = \ \ 0.500000 - 0.866025I$ $a = -1.12174 - 1.30662I$ $b = -0.500000 + 0.866025I$	$-4.05977I$	$2.50000 + 4.33013I$

V. $I_5^u = \langle b - u + 1,\ a^2 - au - a + u - 1,\ u^2 - u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u + 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.500000 + 0.866025I$ $a = -0.192440 + 0.547877I$ $b = -0.500000 + 0.866025I$	0	$2.50000 + 2.59808I$
$u = \ \ 0.500000 + 0.866025I$ $a = \ \ 1.69244 + 0.31815I$ $b = -0.500000 + 0.866025I$	0	$2.50000 + 2.59808I$
$u = \ \ 0.500000 - 0.866025I$ $a = -0.192440 - 0.547877I$ $b = -0.500000 - 0.866025I$	0	$2.50000 - 2.59808I$
$u = \ \ 0.500000 - 0.866025I$ $a = \ \ 1.69244 - 0.31815I$ $b = -0.500000 - 0.866025I$	0	$2.50000 - 2.59808I$

VI. $I_1^v = \langle a,\ b^2+b+1,\ v+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4b + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-1.00000$ $a=\quad 0$ $b=-0.500000+0.866025I$	$-2.02988I$	$0.+3.46410I$
$v=-1.00000$ $a=\quad 0$ $b=-0.500000-0.866025I$	$2.02988I$	$0.-3.46410I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u^2-u+1)^4(u^7+4u^5-4u^3-u^2+2u-1)^4$ $\cdot(u^{15}-6u^{14}+\cdots-6u+1)(u^{20}+5u^{19}+\cdots+2751u+441)$
c_2	$u^2(u^2+u+1)^4(u^7+2u^6+2u^5-u^2-2u-1)^4$ $\cdot(u^{15}-4u^{14}+\cdots-4u+1)(u^{20}-9u^{19}+\cdots-105u+21)$
c_3	$u^2(u^2-u+1)^4(u^7-2u^6+10u^5+8u^4-18u^3-39u^2-22u-5)^4$ $\cdot(u^{15}+4u^{14}+\cdots-6u+1)(u^{20}+9u^{19}+\cdots-123711u+33789)$
c_4, c_{10}	$(u^2-u+1)(u^4-2u^3+2u^2-u+1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{15}+8u^{13}+\cdots+4u-1)(u^{20}+u^{19}+\cdots+3u+1)$ $\cdot(u^{28}+23u^{26}+\cdots+1459u+4993)$
c_5, c_{11}	$(u^2-u+1)(u^4-2u^3+2u^2-u+1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{15}+u^{14}+\cdots+2u+1)(u^{20}+2u^{19}+\cdots+u+1)$ $\cdot(u^{28}-3u^{26}+\cdots-21u+13)$
c_6	$u^2(u^2-u+1)^4(u^7+2u^6+2u^5-u^2-2u-1)^4$ $\cdot(u^{15}+4u^{14}+\cdots-4u-1)(u^{20}-9u^{19}+\cdots-105u+21)$
c_7	$((u^2-u+1)^{18})(u^2+u+1)(u^{15}+6u^{14}+\cdots+5u+1)$ $\cdot(u^{20}+16u^{19}+\cdots+160u+32)$
c_8	$u^{10}(u^7-3u^6+2u^5+5u^4-9u^3+u^2+6u-4)^4$ $\cdot(u^{15}+11u^{14}+\cdots+1118u+169)(u^{20}+22u^{19}+\cdots+273u+21)$
c_9, c_{12}	$((u^2-u+1)^5)(u^{15}-8u^{14}+\cdots+2u-1)(u^{20}-u^{19}+\cdots-21u+1)$ $\cdot(u^{28}-5u^{27}+\cdots+21416u+10543)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y^2+y+1)^4(y^7+8y^6+8y^5-28y^4+32y^3-17y^2+2y-1)^4$ $\cdot(y^{15}+6y^{14}+\cdots+2y-1)(y^{20}+53y^{19}+\cdots+2156931y+194481)$
c_2, c_6	$y^2(y^2+y+1)^4(y^7+4y^5-4y^3-y^2+2y-1)^4$ $\cdot(y^{15}+6y^{14}+\cdots-6y-1)(y^{20}+5y^{19}+\cdots+2751y+441)$
c_3	$y^2(y^2+y+1)^4$ $\cdot(y^7+16y^6+96y^5-624y^4+488y^3-649y^2+94y-25)^4$ $\cdot(y^{15}+12y^{14}+\cdots-224y^2-1)$ $\cdot(y^{20}+107y^{19}+\cdots+4904181177y+1141696521)$
c_4, c_{10}	$(y^2+y+1)(y^4+2y^2+3y+1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{15}+16y^{14}+\cdots-6y-1)(y^{20}+31y^{19}+\cdots-9y+1)$ $\cdot(y^{28}+46y^{27}+\cdots+280734755y+24930049)$
c_5, c_{11}	$(y^2+y+1)(y^4+2y^2+3y+1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{15}-5y^{14}+\cdots+8y-1)(y^{20}-6y^{19}+\cdots+y+1)$ $\cdot(y^{28}-6y^{27}+\cdots-3561y+169)$
c_7	$((y^2+y+1)^{19})(y^{15}-2y^{13}+\cdots+7y-1)$ $\cdot(y^{20}+42y^{18}+\cdots+15872y+1024)$
c_8	$y^{10}(y^7-5y^6+16y^5-43y^4+71y^3-69y^2+44y-16)^4$ $\cdot(y^{15}-11y^{14}+\cdots+118300y-28561)$ $\cdot(y^{20}-16y^{19}+\cdots-3423y+441)$
c_9, c_{12}	$((y^2+y+1)^5)(y^{15}-16y^{14}+\cdots-2y-1)(y^{20}-49y^{19}+\cdots-81y+1)$ $\cdot(y^{28}-53y^{27}+\cdots+543656868y+111154849)$