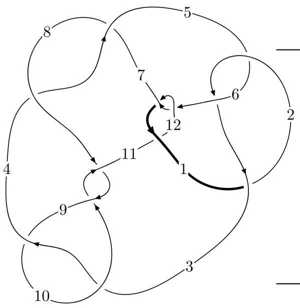
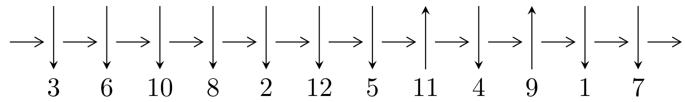
$12a_{0433}$ $(K12a_{0433})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle -u^{41} + u^{40} + \cdots + b + 1,\ u^{42} - u^{41} + \cdots + 2a - 2,\ u^{43} - 3u^{42} + \cdots + 2u - 2\rangle$$
$$I^u_2 = \langle -83u^{30}a + 64u^{30} + \cdots - 12a - 29,\ -2u^{30}a + u^{30} + \cdots - 2a + 2,\ u^{31} + u^{30} + \cdots - 2u^2 - 1\rangle$$
$$I^u_3 = \langle b + 1,\ u^3 - 2u^2 + 2a + u,\ u^4 + u^2 + 2\rangle$$
$$I^u_4 = \langle b - 1,\ a + u - 1,\ u^4 + 1\rangle$$
$$I^u_5 = \langle b + 1,\ a - u - 1,\ u^2 + 1\rangle$$

$$I^v_1 = \langle a,\ b - 1,\ v + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 116 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.

$$\boldsymbol{I^u_1 = \langle -u^{41}+u^{40}+\cdots+b+1,\ u^{42}-u^{41}+\cdots+2a-2,\ u^{43}-3u^{42}+\cdots+2u-2\rangle}$$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{42} + \frac{1}{2}u^{41} + \cdots + u + 1 \\ u^{41} - u^{40} + \cdots + 3u^2 - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{5}{2}u^{42} + \frac{9}{2}u^{41} + \cdots + u^2 + 4u \\ -u^{42} + 2u^{41} + \cdots + 2u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{7}{2}u^{42} + \frac{13}{2}u^{41} + \cdots + 6u - 1 \\ -u^{42} + 2u^{41} + \cdots + 2u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{10} + u^8 + 2u^6 + u^4 + u^2 + 1 \\ u^{12} + 2u^{10} + 4u^8 + 4u^6 + 3u^4 + 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{5}{2}u^{42} + \frac{9}{2}u^{41} + \cdots + 4u - 1 \\ -u^{42} + 2u^{41} + \cdots + 3u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^5 + u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{15} + 2u^{13} + 4u^{11} + 4u^9 + 4u^7 + 4u^5 + 2u^3 + 2u \\ u^{17} + 3u^{15} + 7u^{13} + 10u^{11} + 11u^9 + 10u^7 + 6u^5 + 4u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -16u^{42} + 34u^{41} + \cdots + 22u - 20$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{43} + 17u^{42} + \cdots + 16u + 1$
c_2, c_5, c_6 c_{12}	$u^{43} + u^{42} + \cdots - 8u^2 + 1$
c_3, c_9	$u^{43} + 3u^{42} + \cdots + 2u + 2$
c_4, c_7	$u^{43} - 15u^{42} + \cdots - 2154u + 158$
c_8, c_{10}	$u^{43} - 15u^{42} + \cdots + 12u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{43} + 31y^{42} + \cdots + 36y - 1$
c_2, c_5, c_6 c_{12}	$y^{43} - 17y^{42} + \cdots + 16y - 1$
c_3, c_9	$y^{43} + 15y^{42} + \cdots + 12y - 4$
c_4, c_7	$y^{43} + 27y^{42} + \cdots + 268172y - 24964$
c_8, c_{10}	$y^{43} + 27y^{42} + \cdots + 784y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.810305 + 0.610083I$ $a = -0.872253 - 1.072020I$ $b = -1.165720 + 0.639728I$	$-0.67916 + 11.73210I$	$-10.65839 - 6.76823I$
$u = 0.810305 - 0.610083I$ $a = -0.872253 + 1.072020I$ $b = -1.165720 - 0.639728I$	$-0.67916 - 11.73210I$	$-10.65839 + 6.76823I$
$u = -0.169320 + 0.970646I$ $a = 1.076800 + 0.490969I$ $b = -0.864916 - 0.541410I$	$1.81117 - 1.96121I$	$-3.54414 + 2.58212I$
$u = -0.169320 - 0.970646I$ $a = 1.076800 - 0.490969I$ $b = -0.864916 + 0.541410I$	$1.81117 + 1.96121I$	$-3.54414 - 2.58212I$
$u = -0.404499 + 0.937684I$ $a = -0.09752 - 2.06018I$ $b = -1.003290 + 0.619413I$	$0.64091 + 7.57935I$	$-5.71587 - 9.06778I$
$u = -0.404499 - 0.937684I$ $a = -0.09752 + 2.06018I$ $b = -1.003290 - 0.619413I$	$0.64091 - 7.57935I$	$-5.71587 + 9.06778I$
$u = -0.740546 + 0.734320I$ $a = 0.953869 + 0.031628I$ $b = 0.638692 + 0.127245I$	$-3.38498 - 0.54186I$	$-9.64597 + 2.59436I$
$u = -0.740546 - 0.734320I$ $a = 0.953869 - 0.031628I$ $b = 0.638692 - 0.127245I$	$-3.38498 + 0.54186I$	$-9.64597 - 2.59436I$
$u = 0.767460 + 0.565351I$ $a = 0.203752 + 0.596820I$ $b = -0.551586 - 0.826342I$	$3.23658 + 0.48012I$	$-5.52727 + 1.98665I$
$u = 0.767460 - 0.565351I$ $a = 0.203752 - 0.596820I$ $b = -0.551586 + 0.826342I$	$3.23658 - 0.48012I$	$-5.52727 - 1.98665I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.781599 + 0.706193I$ $a = 1.015530 + 0.059356I$ $b = 0.943303 + 0.436662I$	$-4.27279 - 2.51600I$	$-12.07773 + 5.71847I$
$u = 0.781599 - 0.706193I$ $a = 1.015530 - 0.059356I$ $b = 0.943303 - 0.436662I$	$-4.27279 + 2.51600I$	$-12.07773 - 5.71847I$
$u = 0.634409 + 0.863030I$ $a = 0.482681 - 0.289079I$ $b = -0.073637 + 0.560874I$	$-0.87271 - 2.47607I$	$-4.48573 + 2.92592I$
$u = 0.634409 - 0.863030I$ $a = 0.482681 + 0.289079I$ $b = -0.073637 - 0.560874I$	$-0.87271 + 2.47607I$	$-4.48573 - 2.92592I$
$u = -0.730178 + 0.509618I$ $a = 0.210279 + 0.671513I$ $b = -0.659249 - 0.796369I$	$3.58914 - 2.18174I$	$-5.59185 + 2.68261I$
$u = -0.730178 - 0.509618I$ $a = 0.210279 - 0.671513I$ $b = -0.659249 + 0.796369I$	$3.58914 + 2.18174I$	$-5.59185 - 2.68261I$
$u = 0.064317 + 0.887781I$ $a = 0.245081 + 0.904782I$ $b = -0.514108 - 0.340137I$	$1.82719 - 1.38027I$	$-1.41434 + 5.67019I$
$u = 0.064317 - 0.887781I$ $a = 0.245081 - 0.904782I$ $b = -0.514108 + 0.340137I$	$1.82719 + 1.38027I$	$-1.41434 - 5.67019I$
$u = -0.019617 + 1.114870I$ $a = -1.21478 - 1.96630I$ $b = 0.614989 + 0.851882I$	$8.98390 - 0.70392I$	$0.62643 + 2.07043I$
$u = -0.019617 - 1.114870I$ $a = -1.21478 + 1.96630I$ $b = 0.614989 - 0.851882I$	$8.98390 + 0.70392I$	$0.62643 - 2.07043I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.070568 + 1.113790I$ $a = -0.93313 + 2.40704I$ $b = 1.150350 - 0.663782I$	$5.52719 + 10.86160I$	$-3.74256 - 7.47837I$
$u = -0.070568 - 1.113790I$ $a = -0.93313 - 2.40704I$ $b = 1.150350 + 0.663782I$	$5.52719 - 10.86160I$	$-3.74256 + 7.47837I$
$u = 0.769424 + 0.820046I$ $a = 1.203010 - 0.319741I$ $b = 1.082070 - 0.520953I$	$-6.01940 + 4.69142I$	$-13.7584 - 4.2985I$
$u = 0.769424 - 0.820046I$ $a = 1.203010 + 0.319741I$ $b = 1.082070 + 0.520953I$	$-6.01940 - 4.69142I$	$-13.7584 + 4.2985I$
$u = 0.747584 + 0.908886I$ $a = -1.77260 + 1.30694I$ $b = -1.099080 - 0.534938I$	$-5.74879 - 10.41320I$	$-13.1188 + 9.7708I$
$u = 0.747584 - 0.908886I$ $a = -1.77260 - 1.30694I$ $b = -1.099080 + 0.534938I$	$-5.74879 + 10.41320I$	$-13.1188 - 9.7708I$
$u = -0.587598 + 1.034130I$ $a = -0.976042 - 0.394281I$ $b = 1.109900 + 0.674647I$	$2.34669 - 4.11995I$	$-6.41118 + 2.08920I$
$u = -0.587598 - 1.034130I$ $a = -0.976042 + 0.394281I$ $b = 1.109900 - 0.674647I$	$2.34669 + 4.11995I$	$-6.41118 - 2.08920I$
$u = -0.697004 + 0.966572I$ $a = -0.886537 - 0.919821I$ $b = -0.663489 + 0.163610I$	$-2.67878 + 6.02819I$	$-8.00000 - 8.68993I$
$u = -0.697004 - 0.966572I$ $a = -0.886537 + 0.919821I$ $b = -0.663489 - 0.163610I$	$-2.67878 - 6.02819I$	$-8.00000 + 8.68993I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.693381+0.387489I$ $a=-0.79741-1.27275I$ $b=-1.120710+0.646264I$	$0.58526+8.92556I$	$-9.86563-7.36810I$
$u=-0.693381-0.387489I$ $a=-0.79741+1.27275I$ $b=-1.120710-0.646264I$	$0.58526-8.92556I$	$-9.86563+7.36810I$
$u=0.710991+0.990924I$ $a=-0.093051+1.044480I$ $b=-0.922866+0.415678I$	$-3.40970-3.12696I$	$-10.17371+0.I$
$u=0.710991-0.990924I$ $a=-0.093051-1.044480I$ $b=-0.922866-0.415678I$	$-3.40970+3.12696I$	$-10.17371+0.I$
$u=-0.635885+1.042150I$ $a=0.39218+2.01011I$ $b=0.683334-0.830391I$	$5.11017+7.38861I$	$-3.39621-7.50854I$
$u=-0.635885-1.042150I$ $a=0.39218-2.01011I$ $b=0.683334+0.830391I$	$5.11017-7.38861I$	$-3.39621+7.50854I$
$u=0.663748+1.042840I$ $a=-1.50776+0.41692I$ $b=0.546956-0.859893I$	$4.63845-5.90595I$	$-3.49620+2.84362I$
$u=0.663748-1.042840I$ $a=-1.50776-0.41692I$ $b=0.546956+0.859893I$	$4.63845+5.90595I$	$-3.49620-2.84362I$
$u=0.692059+1.043830I$ $a=1.02365-2.73608I$ $b=1.174490+0.646634I$	$0.6235-17.3797I$	$-8.00000+11.25544I$
$u=0.692059-1.043830I$ $a=1.02365+2.73608I$ $b=1.174490-0.646634I$	$0.6235+17.3797I$	$-8.00000-11.25544I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.580815 + 0.131701I$ $a = 0.893430 + 0.128520I$ $b = 0.976159 + 0.538801I$	$-1.61575 - 4.22948I$	$-11.92293 + 4.59304I$
$u = -0.580815 - 0.131701I$ $a = 0.893430 - 0.128520I$ $b = 0.976159 - 0.538801I$	$-1.61575 + 4.22948I$	$-11.92293 - 4.59304I$
$u = 0.375038$ $a = 0.901679$ $b = 0.436822$	-0.737041	-13.3130

II. $\boldsymbol{I^u_2 = \langle -83u^{30}a + 64u^{30} + \cdots - 12a - 29,\ -2u^{30}a + u^{30} + \cdots - 2a + 2,\ u^{31} + u^{30} + \cdots - 2u^2 - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a \\ 1.66000au^{30} - 1.28000u^{30} + \cdots + 0.240000a + 0.580000 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.28000au^{30} + 1.74000u^{30} + \cdots + 0.580000a - 0.140000 \\ -1.52000au^{30} + 1.66000u^{30} + \cdots - 0.780000a - 0.760000 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -2.80000au^{30} + 3.40000u^{30} + \cdots - 0.200000a - 0.900000 \\ -1.52000au^{30} + 1.66000u^{30} + \cdots - 0.780000a - 0.760000 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{10} + u^8 + 2u^6 + u^4 + u^2 + 1 \\ u^{12} + 2u^{10} + 4u^8 + 4u^6 + 3u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1.28000au^{30} - 1.74000u^{30} + \cdots - 0.580000a + 1.14000 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^5 + u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{15} + 2u^{13} + 4u^{11} + 4u^9 + 4u^7 + 4u^5 + 2u^3 + 2u \\ u^{17} + 3u^{15} + 7u^{13} + 10u^{11} + 11u^9 + 10u^7 + 6u^5 + 4u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{30} + 20u^{28} - 4u^{27} + 68u^{26} - 20u^{25} + 160u^{24} - 64u^{23} + 300u^{22} - 144u^{21} + 460u^{20} - 252u^{19} + 592u^{18} - 364u^{17} + 660u^{16} - 436u^{15} + 628u^{14} - 452u^{13} + 528u^{12} - 396u^{11} + 380u^{10} - 296u^9 + 236u^8 - 188u^7 + 128u^6 - 92u^5 + 52u^4 - 40u^3 + 20u^2 - 12u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{62} + 33u^{61} + \cdots + 2505u + 256$
c_2, c_5, c_6 c_{12}	$u^{62} + u^{61} + \cdots + 19u + 16$
c_3, c_9	$(u^{31} - u^{30} + \cdots + 2u^2 + 1)^2$
c_4, c_7	$(u^{31} + 5u^{30} + \cdots + 40u + 7)^2$
c_8, c_{10}	$(u^{31} - 11u^{30} + \cdots - 4u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{62} - 9y^{61} + \cdots + 636463y + 65536$
c_2, c_5, c_6 c_{12}	$y^{62} - 33y^{61} + \cdots - 2505y + 256$
c_3, c_9	$(y^{31} + 11y^{30} + \cdots - 4y - 1)^2$
c_4, c_7	$(y^{31} + 23y^{30} + \cdots - 640y - 49)^2$
c_8, c_{10}	$(y^{31} + 19y^{30} + \cdots - 8y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.794006 + 0.593785I$ $a = -0.575606 + 1.111050I$ $b = -1.060010 - 0.663363I$	$1.70250 - 6.04082I$	$-7.64635 + 3.16093I$
$u = -0.794006 + 0.593785I$ $a = 0.268388 - 0.355056I$ $b = -0.378076 + 0.912441I$	$1.70250 - 6.04082I$	$-7.64635 + 3.16093I$
$u = -0.794006 - 0.593785I$ $a = -0.575606 - 1.111050I$ $b = -1.060010 + 0.663363I$	$1.70250 + 6.04082I$	$-7.64635 - 3.16093I$
$u = -0.794006 - 0.593785I$ $a = 0.268388 + 0.355056I$ $b = -0.378076 - 0.912441I$	$1.70250 + 6.04082I$	$-7.64635 - 3.16093I$
$u = 0.752643 + 0.616875I$ $a = 1.049010 - 0.024204I$ $b = 1.292420 + 0.176912I$	$-4.01963 + 2.73446I$	$-11.76690 - 3.38925I$
$u = 0.752643 + 0.616875I$ $a = -0.19620 - 1.79030I$ $b = -0.948917 + 0.478047I$	$-4.01963 + 2.73446I$	$-11.76690 - 3.38925I$
$u = 0.752643 - 0.616875I$ $a = 1.049010 + 0.024204I$ $b = 1.292420 - 0.176912I$	$-4.01963 - 2.73446I$	$-11.76690 + 3.38925I$
$u = 0.752643 - 0.616875I$ $a = -0.19620 + 1.79030I$ $b = -0.948917 - 0.478047I$	$-4.01963 - 2.73446I$	$-11.76690 + 3.38925I$
$u = 0.307711 + 0.890519I$ $a = 0.991470 - 0.636002I$ $b = -0.548491 + 0.670065I$	$1.93424 - 2.56488I$	$-2.83547 + 4.43258I$
$u = 0.307711 + 0.890519I$ $a = 0.06449 + 1.90945I$ $b = -0.810066 - 0.589243I$	$1.93424 - 2.56488I$	$-2.83547 + 4.43258I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.307711 - 0.890519I$ $a = 0.991470 + 0.636002I$ $b = -0.548491 - 0.670065I$	$1.93424 + 2.56488I$	$-2.83547 - 4.43258I$
$u = 0.307711 - 0.890519I$ $a = 0.06449 - 1.90945I$ $b = -0.810066 + 0.589243I$	$1.93424 + 2.56488I$	$-2.83547 - 4.43258I$
$u = -0.028596 + 1.074730I$ $a = 1.254810 + 0.086042I$ $b = -1.300190 - 0.121437I$	$1.60703 + 1.99617I$	$-4.10076 - 3.62729I$
$u = -0.028596 + 1.074730I$ $a = -1.60467 + 2.59295I$ $b = 0.865196 - 0.489813I$	$1.60703 + 1.99617I$	$-4.10076 - 3.62729I$
$u = -0.028596 - 1.074730I$ $a = 1.254810 - 0.086042I$ $b = -1.300190 + 0.121437I$	$1.60703 - 1.99617I$	$-4.10076 + 3.62729I$
$u = -0.028596 - 1.074730I$ $a = -1.60467 - 2.59295I$ $b = 0.865196 + 0.489813I$	$1.60703 - 1.99617I$	$-4.10076 + 3.62729I$
$u = -0.730031 + 0.790482I$ $a = 1.124130 + 0.092019I$ $b = 0.982872 + 0.347185I$	$-3.79282 - 0.40298I$	$-11.07070 + 0.52831I$
$u = -0.730031 + 0.790482I$ $a = 0.801595 - 0.042941I$ $b = 0.213919 - 0.536430I$	$-3.79282 - 0.40298I$	$-11.07070 + 0.52831I$
$u = -0.730031 - 0.790482I$ $a = 1.124130 - 0.092019I$ $b = 0.982872 - 0.347185I$	$-3.79282 + 0.40298I$	$-11.07070 - 0.52831I$
$u = -0.730031 - 0.790482I$ $a = 0.801595 + 0.042941I$ $b = 0.213919 + 0.536430I$	$-3.79282 + 0.40298I$	$-11.07070 - 0.52831I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.709633 + 0.857826I$ $a = 1.50924 + 0.06570I$ $b = 1.162280 - 0.314153I$	$-7.28578 - 2.71284I$	$-15.8994 + 3.4466I$
$u = 0.709633 + 0.857826I$ $a = -1.89841 + 2.00937I$ $b = -1.134280 - 0.338014I$	$-7.28578 - 2.71284I$	$-15.8994 + 3.4466I$
$u = 0.709633 - 0.857826I$ $a = 1.50924 - 0.06570I$ $b = 1.162280 + 0.314153I$	$-7.28578 + 2.71284I$	$-15.8994 - 3.4466I$
$u = 0.709633 - 0.857826I$ $a = -1.89841 - 2.00937I$ $b = -1.134280 + 0.338014I$	$-7.28578 + 2.71284I$	$-15.8994 - 3.4466I$
$u = 0.048600 + 1.113390I$ $a = -1.10147 + 1.83797I$ $b = 0.429611 - 0.922254I$	$7.71400 - 5.04935I$	$-0.87471 + 3.42516I$
$u = 0.048600 + 1.113390I$ $a = -1.08873 - 2.37779I$ $b = 1.032690 + 0.699331I$	$7.71400 - 5.04935I$	$-0.87471 + 3.42516I$
$u = 0.048600 - 1.113390I$ $a = -1.10147 - 1.83797I$ $b = 0.429611 + 0.922254I$	$7.71400 + 5.04935I$	$-0.87471 - 3.42516I$
$u = 0.048600 - 1.113390I$ $a = -1.08873 + 2.37779I$ $b = 1.032690 - 0.699331I$	$7.71400 + 5.04935I$	$-0.87471 - 3.42516I$
$u = -0.630136 + 0.611565I$ $a = 0.979082 + 0.056700I$ $b = 1.231410 + 0.064735I$	$-3.29780 + 0.92992I$	$-9.59628 - 3.68841I$
$u = -0.630136 + 0.611565I$ $a = 0.90502 - 1.81588I$ $b = -0.766634 + 0.363749I$	$-3.29780 + 0.92992I$	$-9.59628 - 3.68841I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.630136 - 0.611565I$ $a = 0.979082 - 0.056700I$ $b = 1.231410 - 0.064735I$	$-3.29780 - 0.92992I$	$-9.59628 + 3.68841I$
$u = -0.630136 - 0.611565I$ $a = 0.90502 + 1.81588I$ $b = -0.766634 - 0.363749I$	$-3.29780 - 0.92992I$	$-9.59628 + 3.68841I$
$u = -0.711244 + 0.915096I$ $a = 0.223384 - 0.239937I$ $b = -0.229078 - 0.626885I$	$-3.41810 + 5.89464I$	$-10.05487 - 6.44091I$
$u = -0.711244 + 0.915096I$ $a = -1.45569 - 1.48316I$ $b = -1.009990 + 0.409220I$	$-3.41810 + 5.89464I$	$-10.05487 - 6.44091I$
$u = -0.711244 - 0.915096I$ $a = 0.223384 + 0.239937I$ $b = -0.229078 + 0.626885I$	$-3.41810 - 5.89464I$	$-10.05487 + 6.44091I$
$u = -0.711244 - 0.915096I$ $a = -1.45569 + 1.48316I$ $b = -1.009990 - 0.409220I$	$-3.41810 - 5.89464I$	$-10.05487 + 6.44091I$
$u = 0.696118 + 0.446614I$ $a = -0.429932 + 1.245830I$ $b = -0.983943 - 0.673017I$	$2.60250 - 3.33239I$	$-6.76330 + 3.21859I$
$u = 0.696118 + 0.446614I$ $a = 0.375203 - 0.425155I$ $b = -0.451734 + 0.862793I$	$2.60250 - 3.33239I$	$-6.76330 + 3.21859I$
$u = 0.696118 - 0.446614I$ $a = -0.429932 - 1.245830I$ $b = -0.983943 + 0.673017I$	$2.60250 + 3.33239I$	$-6.76330 - 3.21859I$
$u = 0.696118 - 0.446614I$ $a = 0.375203 + 0.425155I$ $b = -0.451734 - 0.862793I$	$2.60250 + 3.33239I$	$-6.76330 - 3.21859I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.642253 + 1.006370I$ $a = -0.28971 - 1.62874I$ $b = -1.280510 + 0.056589I$	$-2.14842 + 4.14236I$	$-7.79961 - 2.04013I$
$u = -0.642253 + 1.006370I$ $a = -1.61379 - 0.81510I$ $b = 0.751258 + 0.461288I$	$-2.14842 + 4.14236I$	$-7.79961 - 2.04013I$
$u = -0.642253 - 1.006370I$ $a = -0.28971 + 1.62874I$ $b = -1.280510 - 0.056589I$	$-2.14842 - 4.14236I$	$-7.79961 + 2.04013I$
$u = -0.642253 - 1.006370I$ $a = -1.61379 + 0.81510I$ $b = 0.751258 - 0.461288I$	$-2.14842 - 4.14236I$	$-7.79961 + 2.04013I$
$u = 0.611328 + 1.036450I$ $a = -1.171880 + 0.475269I$ $b = 0.974751 - 0.714129I$	$4.22211 - 1.64856I$	$-3.98491 + 2.12263I$
$u = 0.611328 + 1.036450I$ $a = 0.40901 - 1.68159I$ $b = 0.489978 + 0.891236I$	$4.22211 - 1.64856I$	$-3.98491 + 2.12263I$
$u = 0.611328 - 1.036450I$ $a = -1.171880 - 0.475269I$ $b = 0.974751 + 0.714129I$	$4.22211 + 1.64856I$	$-3.98491 - 2.12263I$
$u = 0.611328 - 1.036450I$ $a = 0.40901 + 1.68159I$ $b = 0.489978 - 0.891236I$	$4.22211 + 1.64856I$	$-3.98491 - 2.12263I$
$u = 0.673649 + 1.023570I$ $a = -0.12488 + 1.47943I$ $b = -1.314250 + 0.172694I$	$-2.81425 - 8.17190I$	$-9.55732 + 8.00325I$
$u = 0.673649 + 1.023570I$ $a = 0.29874 - 3.07399I$ $b = 0.942920 + 0.509265I$	$-2.81425 - 8.17190I$	$-9.55732 + 8.00325I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.673649 - 1.023570I$ $a = -0.12488 - 1.47943I$ $b = -1.314250 - 0.172694I$	$-2.81425 + 8.17190I$	$-9.55732 - 8.00325I$
$u = 0.673649 - 1.023570I$ $a = 0.29874 + 3.07399I$ $b = 0.942920 - 0.509265I$	$-2.81425 + 8.17190I$	$-9.55732 - 8.00325I$
$u = -0.680810 + 1.043630I$ $a = -1.54320 - 0.40737I$ $b = 0.377634 + 0.934666I$	$3.04348 + 11.60290I$	$-5.65053 - 7.70694I$
$u = -0.680810 + 1.043630I$ $a = 0.80613 + 2.68508I$ $b = 1.073030 - 0.677122I$	$3.04348 + 11.60290I$	$-5.65053 - 7.70694I$
$u = -0.680810 - 1.043630I$ $a = -1.54320 + 0.40737I$ $b = 0.377634 - 0.934666I$	$3.04348 - 11.60290I$	$-5.65053 + 7.70694I$
$u = -0.680810 - 1.043630I$ $a = 0.80613 - 2.68508I$ $b = 1.073030 + 0.677122I$	$3.04348 - 11.60290I$	$-5.65053 + 7.70694I$
$u = -0.330533 + 0.488116I$ $a = 1.010390 + 0.142244I$ $b = 1.168370 + 0.123140I$	$-3.18273 + 1.02630I$	$-10.18992 - 6.41690I$
$u = -0.330533 + 0.488116I$ $a = 0.66597 - 3.17396I$ $b = -0.903345 + 0.276517I$	$-3.18273 + 1.02630I$	$-10.18992 - 6.41690I$
$u = -0.330533 - 0.488116I$ $a = 1.010390 - 0.142244I$ $b = 1.168370 - 0.123140I$	$-3.18273 - 1.02630I$	$-10.18992 + 6.41690I$
$u = -0.330533 - 0.488116I$ $a = 0.66597 + 3.17396I$ $b = -0.903345 - 0.276517I$	$-3.18273 - 1.02630I$	$-10.18992 + 6.41690I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	0.495857		
$a =$	$0.858117 + 0.046148I$	-0.537061	-10.4180
$b =$	$0.631170 + 0.441733I$		
$u =$	0.495857		
$a =$	$0.858117 - 0.046148I$	-0.537061	-10.4180
$b =$	$0.631170 - 0.441733I$		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2-12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.676097 + 0.978318I$ $a = -0.021927 + 0.631100I$ $b = -1.00000$	$-4.11234 - 5.33349I$	$-14.0000 + 5.2915I$
$u = 0.676097 - 0.978318I$ $a = -0.021927 - 0.631100I$ $b = -1.00000$	$-4.11234 + 5.33349I$	$-14.0000 - 5.2915I$
$u = -0.676097 + 0.978318I$ $a = -0.97807 - 2.01465I$ $b = -1.00000$	$-4.11234 + 5.33349I$	$-14.0000 - 5.2915I$
$u = -0.676097 - 0.978318I$ $a = -0.97807 + 2.01465I$ $b = -1.00000$	$-4.11234 - 5.33349I$	$-14.0000 + 5.2915I$

IV. $I_4^u = \langle b-1,\ a+u-1,\ u^4+1 \rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u+1 \\ 1 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ u^3 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3+u-1 \\ u^3-1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u^3 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3 \\ u^3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = 0.292893 - 0.707107I$ $b = 1.00000$	-4.93480	-16.0000
$u = 0.707107 - 0.707107I$ $a = 0.292893 + 0.707107I$ $b = 1.00000$	-4.93480	-16.0000
$u = -0.707107 + 0.707107I$ $a = 1.70711 - 0.70711I$ $b = 1.00000$	-4.93480	-16.0000
$u = -0.707107 - 0.707107I$ $a = 1.70711 + 0.70711I$ $b = 1.00000$	-4.93480	-16.0000

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u+1 \\ -1 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 2u \\ -u \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.00000 + 1.00000I$ $b = -1.00000$	0	-8.00000
$u = -1.000000I$ $a = 1.00000 - 1.00000I$ $b = -1.00000$	0	-8.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$	-3.28987	-12.0000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$((u-1)^{11})(u^{43}+17u^{42}+\cdots+16u+1)$ $\cdot(u^{62}+33u^{61}+\cdots+2505u+256)$
c_2, c_6	$((u-1)^5)(u+1)^6(u^{43}+u^{42}+\cdots-8u^2+1)(u^{62}+u^{61}+\cdots+19u+16)$
c_3, c_9	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^{31}-u^{30}+\cdots+2u^2+1)^2$ $\cdot(u^{43}+3u^{42}+\cdots+2u+2)$
c_4, c_7	$u(u^2+1)(u^4+1)(u^4+u^2+2)(u^{31}+5u^{30}+\cdots+40u+7)^2$ $\cdot(u^{43}-15u^{42}+\cdots-2154u+158)$
c_5, c_{12}	$((u-1)^6)(u+1)^5(u^{43}+u^{42}+\cdots-8u^2+1)(u^{62}+u^{61}+\cdots+19u+16)$
c_8	$u(u+1)^2(u^2+1)^2(u^2+u+2)^2(u^{31}-11u^{30}+\cdots-4u+1)^2$ $\cdot(u^{43}-15u^{42}+\cdots+12u+4)$
c_{10}	$u(u-1)^2(u^2+1)^2(u^2-u+2)^2(u^{31}-11u^{30}+\cdots-4u+1)^2$ $\cdot(u^{43}-15u^{42}+\cdots+12u+4)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$((y-1)^{11})(y^{43}+31y^{42}+\cdots+36y-1)$ $\cdot(y^{62}-9y^{61}+\cdots+636463y+65536)$
c_2, c_5, c_6 c_{12}	$((y-1)^{11})(y^{43}-17y^{42}+\cdots+16y-1)$ $\cdot(y^{62}-33y^{61}+\cdots-2505y+256)$
c_3, c_9	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2(y^{31}+11y^{30}+\cdots-4y-1)^2$ $\cdot(y^{43}+15y^{42}+\cdots+12y-4)$
c_4, c_7	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2(y^{31}+23y^{30}+\cdots-640y-49)^2$ $\cdot(y^{43}+27y^{42}+\cdots+268172y-24964)$
c_8, c_{10}	$y(y-1)^2(y+1)^4(y^2+3y+4)^2(y^{31}+19y^{30}+\cdots-8y-1)^2$ $\cdot(y^{43}+27y^{42}+\cdots+784y-16)$