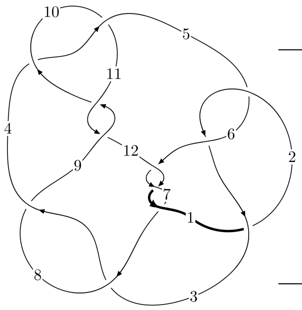
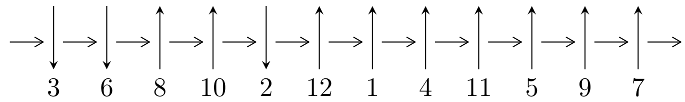
$12a_{0297}$ ($K12a_{0297}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 2u^{60} - 3u^{59} + \cdots + 4b - 6,\ -2u^{59} + 19u^{57} + \cdots + 4a - 8,\ u^{61} - 2u^{60} + \cdots - 4u + 2\rangle \\
I_2^u &= \langle -65u^7a^2 + 366u^7a + \cdots - 730a + 714,\ 2u^7a^2 - 4u^7a + \cdots + 8a - 4, \\
&\quad u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1\rangle \\
I_3^u &= \langle -u^2 + b - u + 1,\ -u^3 + 2u^2 + 2a + u,\ u^4 - u^2 + 2\rangle \\
I_4^u &= \langle b - 1,\ a + 1,\ u - 1\rangle \\
I_5^u &= \langle b - 1,\ a,\ u + 1\rangle \\
I_6^u &= \langle b + 1,\ a - 2,\ u - 1\rangle \\
I_7^u &= \langle b,\ a - 1,\ u + 1\rangle \\
I_8^u &= \langle u^3 + u^2 + b + 1,\ a - u - 1,\ u^4 + 1\rangle
\end{aligned}$$

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

* 9 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 98 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $I_1^u = \langle 2u^{60} - 3u^{59} + \cdots + 4b - 6,\ -2u^{59} + 19u^{57} + \cdots + 4a - 8,\ u^{61} - 2u^{60} + \cdots - 4u + 2 \rangle$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} \frac{1}{2}u^{59} - \frac{19}{4}u^{57} + \cdots - \frac{3}{2}u + 2 \\ -\frac{1}{2}u^{60} + \frac{3}{4}u^{59} + \cdots - \frac{5}{2}u + \frac{3}{2} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{60} - u^{59} + \cdots - 11u^3 - \frac{1}{2} \\ u^{60} - 10u^{58} + \cdots + \frac{3}{2}u + 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^5 + u \\ -u^7 + u^5 - 2u^3 + u \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -u^{10} + u^8 - 2u^6 + u^4 - u^2 + 1 \\ u^{10} - 2u^8 + 3u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{4}u^{56} - \frac{9}{4}u^{54} + \cdots - \frac{3}{2}u + \frac{1}{2} \\ -\frac{1}{4}u^{58} + \frac{5}{2}u^{56} + \cdots + 4u^3 - u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{4}u^{56} - \frac{9}{4}u^{54} + \cdots - \frac{3}{2}u + \frac{1}{2} \\ -\frac{1}{4}u^{56} + \frac{5}{2}u^{54} + \cdots - \frac{1}{2}u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{60} - 4u^{59} + \cdots + 16u^2 - 2u$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{61} + 21u^{60} + \cdots + 741u + 225$
c_2, c_5	$u^{61} + 3u^{60} + \cdots + 21u - 15$
c_3, c_8	$u^{61} - 2u^{60} + \cdots - 10164u - 3866$
c_4, c_{10}	$u^{61} + 2u^{60} + \cdots - 4u - 2$
c_6, c_7, c_{12}	$u^{61} - 3u^{60} + \cdots - 15u - 17$
c_9, c_{11}	$u^{61} - 20u^{60} + \cdots + 44u^2 - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{61} + 51y^{60} + \cdots - 783819y - 50625$
c_2, c_5	$y^{61} - 21y^{60} + \cdots + 741y - 225$
c_3, c_8	$y^{61} - 44y^{60} + \cdots + 225348784y - 14945956$
c_4, c_{10}	$y^{61} - 20y^{60} + \cdots + 44y^2 - 4$
c_6, c_7, c_{12}	$y^{61} - 69y^{60} + \cdots - 14123y - 289$
c_9, c_{11}	$y^{61} + 40y^{60} + \cdots + 352y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.684026 + 0.730349I$ $a = 1.009310 - 0.004276I$ $b = -0.980208 - 0.876387I$	$-3.51260 - 0.02973I$	$-1.53347 - 0.41407I$
$u = 0.684026 - 0.730349I$ $a = 1.009310 + 0.004276I$ $b = -0.980208 + 0.876387I$	$-3.51260 + 0.02973I$	$-1.53347 + 0.41407I$
$u = -0.596675 + 0.818364I$ $a = -0.780560 - 0.903959I$ $b = 1.80103 - 1.76065I$	$5.86684 + 10.52580I$	$7.47241 - 5.20514I$
$u = -0.596675 - 0.818364I$ $a = -0.780560 + 0.903959I$ $b = 1.80103 + 1.76065I$	$5.86684 - 10.52580I$	$7.47241 + 5.20514I$
$u = 0.980120 + 0.257609I$ $a = 1.103770 + 0.621483I$ $b = 0.089020 - 0.363650I$	$6.96905 + 0.16982I$	$14.1748 - 0.9961I$
$u = 0.980120 - 0.257609I$ $a = 1.103770 - 0.621483I$ $b = 0.089020 + 0.363650I$	$6.96905 - 0.16982I$	$14.1748 + 0.9961I$
$u = 0.570037 + 0.804645I$ $a = 0.113760 - 0.379871I$ $b = 0.174544 - 1.221640I$	$7.95075 - 4.31712I$	$9.88882 + 1.03046I$
$u = 0.570037 - 0.804645I$ $a = 0.113760 + 0.379871I$ $b = 0.174544 + 1.221640I$	$7.95075 + 4.31712I$	$9.88882 - 1.03046I$
$u = 0.594682 + 0.783135I$ $a = -0.477300 + 1.212940I$ $b = 2.02601 + 1.39309I$	$-0.22057 - 6.22999I$	$4.63185 + 5.17897I$
$u = 0.594682 - 0.783135I$ $a = -0.477300 - 1.212940I$ $b = 2.02601 - 1.39309I$	$-0.22057 + 6.22999I$	$4.63185 - 5.17897I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.971831 + 0.354476I$ $a = -0.11982 + 1.97303I$ $b = -0.327701 - 0.963726I$	$6.46298 - 5.79381I$	$12.8562 + 6.6036I$
$u = -0.971831 - 0.354476I$ $a = -0.11982 - 1.97303I$ $b = -0.327701 + 0.963726I$	$6.46298 + 5.79381I$	$12.8562 - 6.6036I$
$u = -0.693342 + 0.628373I$ $a = 1.030350 - 0.373254I$ $b = 0.509008 + 0.609720I$	$0.288787 + 0.262438I$	$10.25017 - 1.54244I$
$u = -0.693342 - 0.628373I$ $a = 1.030350 + 0.373254I$ $b = 0.509008 - 0.609720I$	$0.288787 - 0.262438I$	$10.25017 + 1.54244I$
$u = -0.741367 + 0.781988I$ $a = 0.968528 + 0.095329I$ $b = -0.766103 + 0.579735I$	$0.550417 - 1.022540I$	$7.58092 + 2.83590I$
$u = -0.741367 - 0.781988I$ $a = 0.968528 - 0.095329I$ $b = -0.766103 - 0.579735I$	$0.550417 + 1.022540I$	$7.58092 - 2.83590I$
$u = -0.813495 + 0.728217I$ $a = 1.226460 - 0.093979I$ $b = -1.10886 + 1.83090I$	$-5.14522 + 0.66407I$	0
$u = -0.813495 - 0.728217I$ $a = 1.226460 + 0.093979I$ $b = -1.10886 - 1.83090I$	$-5.14522 - 0.66407I$	0
$u = -1.105450 + 0.040560I$ $a = -1.17835 - 2.39972I$ $b = 0.67943 + 2.15568I$	$5.68265 - 5.26500I$	$11.79822 + 5.52257I$
$u = -1.105450 - 0.040560I$ $a = -1.17835 + 2.39972I$ $b = 0.67943 - 2.15568I$	$5.68265 + 5.26500I$	$11.79822 - 5.52257I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.798828 + 0.780694I$ $a = 1.072690 + 0.319738I$ $b = -0.61454 - 1.92988I$	$-0.34087 - 3.55037I$	$6.00000 + 0.I$
$u = 0.798828 - 0.780694I$ $a = 1.072690 - 0.319738I$ $b = -0.61454 + 1.92988I$	$-0.34087 + 3.55037I$	$6.00000 + 0.I$
$u = 0.456914 + 0.747552I$ $a = 0.187992 + 0.418041I$ $b = 0.929221 + 0.981503I$	$8.62819 + 1.29175I$	$10.29853 - 0.71245I$
$u = 0.456914 - 0.747552I$ $a = 0.187992 - 0.418041I$ $b = 0.929221 - 0.981503I$	$8.62819 - 1.29175I$	$10.29853 + 0.71245I$
$u = 1.128770 + 0.065228I$ $a = -0.96345 + 2.31373I$ $b = 0.41291 - 2.04529I$	$12.1138 + 9.4985I$	$14.0807 - 5.6869I$
$u = 1.128770 - 0.065228I$ $a = -0.96345 - 2.31373I$ $b = 0.41291 + 2.04529I$	$12.1138 - 9.4985I$	$14.0807 + 5.6869I$
$u = -1.133370 + 0.039127I$ $a = -1.07901 + 1.94352I$ $b = 0.67010 - 1.57030I$	$13.9993 - 3.0917I$	$16.1356 + 0.I$
$u = -1.133370 - 0.039127I$ $a = -1.07901 - 1.94352I$ $b = 0.67010 + 1.57030I$	$13.9993 + 3.0917I$	$16.1356 + 0.I$
$u = 0.789581 + 0.332833I$ $a = 0.29668 - 2.08794I$ $b = -0.413297 + 0.458976I$	$0.18640 + 3.40430I$	$8.29784 - 8.43367I$
$u = 0.789581 - 0.332833I$ $a = 0.29668 + 2.08794I$ $b = -0.413297 - 0.458976I$	$0.18640 - 3.40430I$	$8.29784 + 8.43367I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.899967 + 0.713782I$ $a = -1.58036 + 1.59577I$ $b = -0.51410 - 2.10453I$	$-4.88256 - 6.15868I$	0
$u = -0.899967 - 0.713782I$ $a = -1.58036 - 1.59577I$ $b = -0.51410 + 2.10453I$	$-4.88256 + 6.15868I$	0
$u = -0.963966 + 0.649853I$ $a = -0.433033 - 0.566210I$ $b = 0.829635 - 0.624531I$	$1.09575 - 5.31508I$	0
$u = -0.963966 - 0.649853I$ $a = -0.433033 + 0.566210I$ $b = 0.829635 + 0.624531I$	$1.09575 + 5.31508I$	0
$u = -0.401857 + 0.728661I$ $a = -0.711645 + 1.063690I$ $b = 0.222763 + 0.716405I$	$6.99087 - 7.50546I$	$8.25142 + 5.41277I$
$u = -0.401857 - 0.728661I$ $a = -0.711645 - 1.063690I$ $b = 0.222763 - 0.716405I$	$6.99087 + 7.50546I$	$8.25142 - 5.41277I$
$u = 0.475808 + 0.672313I$ $a = -0.225590 - 1.386850I$ $b = -0.018272 - 0.781142I$	$0.59272 + 3.70509I$	$5.79703 - 5.82804I$
$u = 0.475808 - 0.672313I$ $a = -0.225590 + 1.386850I$ $b = -0.018272 + 0.781142I$	$0.59272 - 3.70509I$	$5.79703 + 5.82804I$
$u = 0.928616 + 0.747007I$ $a = -1.66826 - 1.18025I$ $b = -0.11509 + 2.08092I$	$0.05447 + 9.30335I$	0
$u = 0.928616 - 0.747007I$ $a = -1.66826 + 1.18025I$ $b = -0.11509 - 2.08092I$	$0.05447 - 9.30335I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.990835 + 0.679184I$ $a = -0.347057 - 1.318090I$ $b = -0.534238 + 1.253020I$	$-2.58879 + 5.43080I$	0
$u = 0.990835 - 0.679184I$ $a = -0.347057 + 1.318090I$ $b = -0.534238 - 1.253020I$	$-2.58879 - 5.43080I$	0
$u = 1.028240 + 0.622031I$ $a = -1.253520 - 0.573644I$ $b = -0.78894 + 1.32269I$	$2.08349 + 1.29638I$	0
$u = 1.028240 - 0.622031I$ $a = -1.253520 + 0.573644I$ $b = -0.78894 - 1.32269I$	$2.08349 - 1.29638I$	0
$u = -1.051030 + 0.593594I$ $a = -1.092970 + 0.306940I$ $b = -0.664632 - 0.819333I$	$8.82075 + 2.55632I$	0
$u = -1.051030 - 0.593594I$ $a = -1.092970 - 0.306940I$ $b = -0.664632 + 0.819333I$	$8.82075 - 2.55632I$	0
$u = -0.967643 + 0.722048I$ $a = -0.001148 + 0.746254I$ $b = -0.390854 - 0.853517I$	$1.23996 - 4.65549I$	0
$u = -0.967643 - 0.722048I$ $a = -0.001148 - 0.746254I$ $b = -0.390854 + 0.853517I$	$1.23996 + 4.65549I$	0
$u = 1.055860 + 0.618891I$ $a = 0.58117 + 1.82280I$ $b = 1.34616 - 1.10013I$	$10.34380 + 3.85829I$	0
$u = 1.055860 - 0.618891I$ $a = 0.58117 - 1.82280I$ $b = 1.34616 + 1.10013I$	$10.34380 - 3.85829I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.040000 + 0.677333I$ $a = 0.70242 + 2.72007I$ $b = 2.36433 - 2.02891I$	$1.10337 + 11.75260I$	0
$u = 1.040000 - 0.677333I$ $a = 0.70242 - 2.72007I$ $b = 2.36433 + 2.02891I$	$1.10337 - 11.75260I$	0
$u = 1.054830 + 0.675605I$ $a = -1.53601 - 0.38119I$ $b = -0.01333 + 1.41794I$	$9.39588 + 9.88209I$	0
$u = 1.054830 - 0.675605I$ $a = -1.53601 + 0.38119I$ $b = -0.01333 - 1.41794I$	$9.39588 - 9.88209I$	0
$u = -1.051510 + 0.689969I$ $a = 1.00404 - 2.59975I$ $b = 1.96259 + 2.37317I$	$7.2336 - 16.1846I$	0
$u = -1.051510 - 0.689969I$ $a = 1.00404 + 2.59975I$ $b = 1.96259 - 2.37317I$	$7.2336 + 16.1846I$	0
$u = -0.060491 + 0.608567I$ $a = 0.847236 - 0.127415I$ $b = -0.534181 + 0.678808I$	$3.78928 + 2.56985I$	$6.99731 - 2.63136I$
$u = -0.060491 - 0.608567I$ $a = 0.847236 + 0.127415I$ $b = -0.534181 - 0.678808I$	$3.78928 - 2.56985I$	$6.99731 + 2.63136I$
$u = -0.516262$ $a = 1.73864$ $b = 0.0487944$	0.822482	12.8010
$u = 0.132981 + 0.413625I$ $a = 0.934359 + 0.065152I$ $b = -0.756818 - 0.341461I$	$-1.53288 - 0.93105I$	$-1.52612 + 1.38760I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.132981 - 0.413625I$		
$a = 0.934359 - 0.065152I$	$-1.53288 + 0.93105I$	$-1.52612 - 1.38760I$
$b = -0.756818 + 0.341461I$		

II. $I_2^u = \langle -65u^7a^2 + 366u^7a + \cdots - 730a + 714,\ 2u^7a^2 - 4u^7a + \cdots + 8a - 4,\ u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ 0.631068a^2u^7 - 3.55340au^7 + \cdots + 7.08738a - 6.93204 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.32039a^2u^7 - 5.01942au^7 + \cdots + 9.21359a - 7.61165 \\ -1.66990a^2u^7 + 5.49515au^7 + \cdots - 8.44660a + 8.09709 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^5 + u \\ -u^7 + u^5 - 2u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^5 - u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^5 - u \\ u^7 - u^5 + 2u^3 - u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.834951a^2u^7 - 1.74757au^7 + \cdots + 4.22330a - 3.04854 \\ 0.174757a^2u^7 - 4.73786au^7 + \cdots + 8.11650a - 7.24272 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.834951a^2u^7 - 1.74757au^7 + \cdots + 4.22330a - 3.04854 \\ -0.776699a^2u^7 + 4.83495au^7 + \cdots - 9.18447a + 9.30097 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 + 8u^5 + 4u^4 - 8u^3 - 4u^2 + 4u + 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{24} + 16u^{23} + \cdots + 4u + 1$
c_2, c_5, c_6 c_7, c_{12}	$u^{24} - 8u^{22} + \cdots + 2u - 1$
c_3, c_8	$(u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1)^3$
c_4, c_{10}	$(u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1)^3$
c_9, c_{11}	$(u^8 - 3u^7 + 7u^6 - 10u^5 + 11u^4 - 10u^3 + 6u^2 - 4u + 1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{24} - 16y^{23} + \cdots - 12y + 1$
c_2, c_5, c_6 c_7, c_{12}	$y^{24} - 16y^{23} + \cdots - 4y + 1$
c_3, c_8	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^3$
c_4, c_{10}	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)^3$
c_9, c_{11}	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.570868 + 0.730671I$ $a = 1.043500 - 0.060246I$ $b = -1.101120 + 0.799785I$	$1.04066 + 1.13123I$	$7.41522 - 0.51079I$
$u = -0.570868 + 0.730671I$ $a = 0.359671 + 0.817635I$ $b = -0.016317 + 1.139980I$	$1.04066 + 1.13123I$	$7.41522 - 0.51079I$
$u = -0.570868 + 0.730671I$ $a = 0.208103 - 1.124120I$ $b = 1.75850 - 0.67186I$	$1.04066 + 1.13123I$	$7.41522 - 0.51079I$
$u = -0.570868 - 0.730671I$ $a = 1.043500 + 0.060246I$ $b = -1.101120 - 0.799785I$	$1.04066 - 1.13123I$	$7.41522 + 0.51079I$
$u = -0.570868 - 0.730671I$ $a = 0.359671 - 0.817635I$ $b = -0.016317 - 1.139980I$	$1.04066 - 1.13123I$	$7.41522 + 0.51079I$
$u = -0.570868 - 0.730671I$ $a = 0.208103 + 1.124120I$ $b = 1.75850 + 0.67186I$	$1.04066 - 1.13123I$	$7.41522 + 0.51079I$
$u = 0.855237 + 0.665892I$ $a = 1.278090 - 0.370791I$ $b = -1.93181 - 1.61226I$	$-2.15941 + 2.57849I$	$4.27708 - 3.56796I$
$u = 0.855237 + 0.665892I$ $a = 0.504800 + 0.137739I$ $b = 0.0664349 - 0.0459194I$	$-2.15941 + 2.57849I$	$4.27708 - 3.56796I$
$u = 0.855237 + 0.665892I$ $a = -1.40393 - 2.38771I$ $b = -1.22880 + 1.98137I$	$-2.15941 + 2.57849I$	$4.27708 - 3.56796I$
$u = 0.855237 - 0.665892I$ $a = 1.278090 + 0.370791I$ $b = -1.93181 + 1.61226I$	$-2.15941 - 2.57849I$	$4.27708 + 3.56796I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.855237 - 0.665892I$ $a = 0.504800 - 0.137739I$ $b = 0.0664349 + 0.0459194I$	$-2.15941 - 2.57849I$	$4.27708 + 3.56796I$
$u = 0.855237 - 0.665892I$ $a = -1.40393 + 2.38771I$ $b = -1.22880 - 1.98137I$	$-2.15941 - 2.57849I$	$4.27708 + 3.56796I$
$u = 1.09818$ $a = 1.32236$ $b = -0.189255$	6.50273	13.8640
$u = 1.09818$ $a = -1.39057 + 2.07577I$ $b = 0.97427 - 1.80941I$	6.50273	13.8640
$u = 1.09818$ $a = -1.39057 - 2.07577I$ $b = 0.97427 + 1.80941I$	6.50273	13.8640
$u = -1.031810 + 0.655470I$ $a = -1.50786 + 0.47222I$ $b = -0.28319 - 1.61385I$	$2.37968 - 6.44354I$	$9.42845 + 5.29417I$
$u = -1.031810 + 0.655470I$ $a = -0.13296 + 1.59682I$ $b = -0.67376 - 1.25902I$	$2.37968 - 6.44354I$	$9.42845 + 5.29417I$
$u = -1.031810 + 0.655470I$ $a = 0.22313 - 2.40784I$ $b = 2.31545 + 1.17039I$	$2.37968 - 6.44354I$	$9.42845 + 5.29417I$
$u = -1.031810 - 0.655470I$ $a = -1.50786 - 0.47222I$ $b = -0.28319 + 1.61385I$	$2.37968 + 6.44354I$	$9.42845 - 5.29417I$
$u = -1.031810 - 0.655470I$ $a = -0.13296 - 1.59682I$ $b = -0.67376 + 1.25902I$	$2.37968 + 6.44354I$	$9.42845 - 5.29417I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.031810 - 0.655470I$ $a = \quad 0.22313 + 2.40784I$ $b = \quad 2.31545 - 1.17039I$	$2.37968 + 6.44354I$	$9.42845 - 5.29417I$
$u = -0.603304$ $a = \quad 1.26502$ $b = -1.64063$	0.845036	11.8940
$u = -0.603304$ $a = \quad 1.52434 + 0.84915I$ $b = \quad 0.0352752 - 0.0977915I$	0.845036	11.8940
$u = -0.603304$ $a = \quad 1.52434 - 0.84915I$ $b = \quad 0.0352752 + 0.0977915I$	0.845036	11.8940

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 + 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.978318 + 0.676097I$ $a = -1.19178 - 0.84480I$ $b = 0.47832 + 1.99897I$	$-0.82247 + 5.33349I$	$6.00000 - 5.29150I$
$u = 0.978318 - 0.676097I$ $a = -1.19178 + 0.84480I$ $b = 0.47832 - 1.99897I$	$-0.82247 - 5.33349I$	$6.00000 + 5.29150I$
$u = -0.978318 + 0.676097I$ $a = 0.19178 + 1.80095I$ $b = -1.47832 - 0.64678I$	$-0.82247 - 5.33349I$	$6.00000 + 5.29150I$
$u = -0.978318 - 0.676097I$ $a = 0.19178 - 1.80095I$ $b = -1.47832 + 0.64678I$	$-0.82247 + 5.33349I$	$6.00000 - 5.29150I$

IV. $I^u_4 = \langle b-1,\ a+1,\ u-1 \rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 1.00000$ $a = -1.00000$ $b = \ \ 1.00000$	4.93480	18.0000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 0$ $b = 1.00000$	3.28987	12.0000

VI. $I_6^u = \langle b+1,\ a-2,\ u-1 \rangle$

(i) Arc colorings

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

$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

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

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

$a_6 = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$

$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_9 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$

$a_{12} = \begin{pmatrix} 2 \\ -1 \end{pmatrix}$

$a_8 = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$

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

$a_1 = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 2.00000$ $b = -1.00000$	3.28987	12.0000

VII. $\boldsymbol{I^u_7 = \langle b,\ a-1,\ u+1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix}0\\-1\end{pmatrix}$$

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_6 = \begin{pmatrix}2\\-1\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-1\\0\end{pmatrix}$$

$$a_9 = \begin{pmatrix}1\\-1\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-2\\1\end{pmatrix}$$

$$a_8 = \begin{pmatrix}2\\-1\end{pmatrix}$$

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

$$a_1 = \begin{pmatrix}2\\-1\end{pmatrix}$$

$$a_7 = \begin{pmatrix}2\\-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 1.00000$ $b = 0$	1.64493	6.00000

VIII. $I^u_8 = \langle u^3 + u^2 + b + 1,\ a - u - 1,\ u^4 + 1 \rangle$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} u + 1 \\ -u^3 - u^2 - 1 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u \\ u^3 + 1 \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} 0 \\ -u^3 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u^3 - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = 1.70711 + 0.70711I$ $b = -0.29289 - 1.70711I$	-1.64493	4.00000
$u = 0.707107 - 0.707107I$ $a = 1.70711 - 0.70711I$ $b = -0.29289 + 1.70711I$	-1.64493	4.00000
$u = -0.707107 + 0.707107I$ $a = 0.292893 + 0.707107I$ $b = -1.70711 + 0.29289I$	-1.64493	4.00000
$u = -0.707107 - 0.707107I$ $a = 0.292893 - 0.707107I$ $b = -1.70711 - 0.29289I$	-1.64493	4.00000

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u-1)^{11}(u+1)(u^{24}+16u^{23}+\cdots+4u+1)$ $\cdot(u^{61}+21u^{60}+\cdots+741u+225)$
c_2	$u(u-1)^6(u+1)^6(u^{24}-8u^{22}+\cdots+2u-1)$ $\cdot(u^{61}+3u^{60}+\cdots+21u-15)$
c_3, c_8	$u(u-1)^2(u+1)^2(u^4+1)(u^4-u^2+2)$ $\cdot(u^8+u^7-3u^6-2u^5+3u^4+2u-1)^3$ $\cdot(u^{61}-2u^{60}+\cdots-10164u-3866)$
c_4, c_{10}	$u(u-1)^2(u+1)^2(u^4+1)(u^4-u^2+2)$ $\cdot((u^8-u^7+\cdots+2u-1)^3)(u^{61}+2u^{60}+\cdots-4u-2)$
c_5	$u(u-1)^7(u+1)^5(u^{24}-8u^{22}+\cdots+2u-1)$ $\cdot(u^{61}+3u^{60}+\cdots+21u-15)$
c_6, c_7	$u(u-1)^6(u+1)^6(u^{24}-8u^{22}+\cdots+2u-1)$ $\cdot(u^{61}-3u^{60}+\cdots-15u-17)$
c_9	$u(u-1)^2(u+1)^2(u^2+1)^2(u^2+u+2)^2$ $\cdot(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)^3$ $\cdot(u^{61}-20u^{60}+\cdots+44u^2-4)$
c_{11}	$u(u-1)^4(u^2+1)^2(u^2-u+2)^2$ $\cdot(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)^3$ $\cdot(u^{61}-20u^{60}+\cdots+44u^2-4)$
c_{12}	$u(u-1)^5(u+1)^7(u^{24}-8u^{22}+\cdots+2u-1)$ $\cdot(u^{61}-3u^{60}+\cdots-15u-17)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y-1)^{12}(y^{24}-16y^{23}+\cdots-12y+1)$ $\cdot\,(y^{61}+51y^{60}+\cdots-783819y-50625)$
c_2, c_5	$y(y-1)^{12}(y^{24}-16y^{23}+\cdots-4y+1)$ $\cdot\,(y^{61}-21y^{60}+\cdots+741y-225)$
c_3, c_8	$y(y-1)^4(y^2+1)^2(y^2-y+2)^2$ $\cdot\,(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)^3$ $\cdot\,(y^{61}-44y^{60}+\cdots+225348784y-14945956)$
c_4, c_{10}	$y(y-1)^4(y^2+1)^2(y^2-y+2)^2$ $\cdot\,(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^3$ $\cdot\,(y^{61}-20y^{60}+\cdots+44y^2-4)$
c_6, c_7, c_{12}	$y(y-1)^{12}(y^{24}-16y^{23}+\cdots-4y+1)$ $\cdot\,(y^{61}-69y^{60}+\cdots-14123y-289)$
c_9, c_{11}	$y(y-1)^4(y+1)^4(y^2+3y+4)^2$ $\cdot\,(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^3$ $\cdot\,(y^{61}+40y^{60}+\cdots+352y-16)$