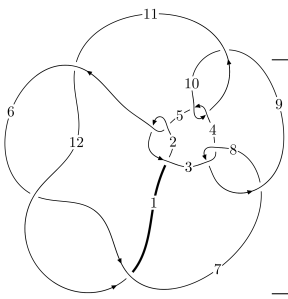
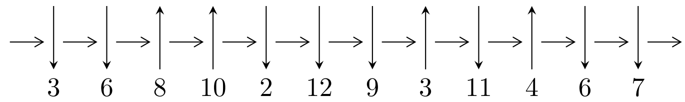
$12n_{0494}$ ($K12n_{0494}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle &-u^8 - 2u^6 - u^5 - 2u^4 - 2u^3 + 2u^2 + 4b - 2u, \\
&-3u^8 - 3u^7 - 8u^6 - 13u^5 - 17u^4 - 18u^3 - 12u^2 + 8a - 12u - 10, \\
&u^9 + 3u^7 + 3u^6 + 4u^5 + 7u^4 + 2u^3 + 8u^2 + 2u + 2\rangle \\
I^u_2 = \langle &-55u^{11} + 144u^{10} + \cdots + 246b + 197,\ -98u^{11} + 229u^{10} + \cdots + 615a - 179, \\
&u^{12} - 3u^{11} + 8u^{10} - 16u^9 + 27u^8 - 42u^7 + 48u^6 - 48u^5 + 41u^4 - 29u^3 + 22u^2 - 12u + 5\rangle \\
I^u_3 = \langle &u^3 + u^2 + 2b,\ u^3 + 2u^2 + 2a + u + 2,\ u^4 + u^2 + 2\rangle \\
I^u_4 = \langle &-2u^2b + 2b^2 + u^2 - 2b + u - 1,\ -u^2 + a - 2,\ u^3 + 2u - 1\rangle \\
I^u_5 = \langle &2u^2b + b^2 + bu + u^2 + 2b - 2u - 1,\ u^3 + u^2 + a + 2u + 2,\ u^4 + u^3 + 2u^2 + 2u + 1\rangle \\
I^u_6 = \langle &u^3 - u^2 + 2b - u - 1,\ u^3 - u^2 + a - 1,\ u^4 + 1\rangle \\
I^u_7 = \langle &2b - u - 1,\ a - u,\ u^2 + 1\rangle
\end{aligned}$$

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

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 46 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. $\boldsymbol{I_1^u = \langle -u^8 - 2u^6 - u^5 - 2u^4 - 2u^3 + 2u^2 + 4b - 2u,\ -3u^8 - 3u^7 + \cdots + 8a - 10,\ u^9 + 3u^7 + \cdots + 2u + 2\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{3}{8}u^8 + \frac{3}{8}u^7 + \cdots + \frac{3}{2}u + \frac{5}{4} \\ \frac{1}{4}u^8 + \frac{1}{2}u^6 + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{8}u^8 + \frac{1}{8}u^7 + \cdots + \frac{1}{2}u + \frac{3}{4} \\ \frac{1}{8}u^8 - \frac{1}{8}u^7 + \cdots + u + \frac{1}{4} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{3}{8}u^8 + \frac{1}{8}u^7 + \cdots - \frac{3}{2}u + \frac{3}{4} \\ -\frac{1}{4}u^8 - \frac{1}{2}u^6 + \cdots + \frac{1}{2}u^2 - \frac{1}{2}u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{8}u^8 + \frac{1}{8}u^7 + \cdots + \frac{1}{2}u + \frac{3}{4} \\ -\frac{1}{4}u^8 - \frac{1}{2}u^6 + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{2}u^8 + \frac{1}{2}u^7 + \cdots - 2u + 1 \\ -u^5 - u^3 - u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^8 + \frac{1}{2}u^7 + \cdots + 2u + 2 \\ -u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{1}{2}u^8 + \frac{1}{2}u^7 + \cdots + 2u + 2 \\ u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{7}{2}u^8 + \frac{1}{2}u^7 + 8u^6 + \frac{21}{2}u^5 + \frac{19}{2}u^4 + 17u^3 + 14u - 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 + 9u^8 + 34u^7 + 67u^6 + 110u^5 + 195u^4 + 74u^3 + 13u^2 + 5u + 4$
c_2, c_5, c_6 c_{11}, c_{12}	$u^9 + 3u^8 - 3u^6 + 8u^5 + 7u^4 - 8u^3 - u^2 - u + 2$
c_3, c_4, c_8 c_{10}	$u^9 + 3u^7 - 3u^6 + 4u^5 - 7u^4 + 2u^3 - 8u^2 + 2u - 2$
c_7, c_9	$u^9 + 6u^8 + 17u^7 + 19u^6 - 10u^5 - 69u^4 - 104u^3 - 84u^2 - 28u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - 13y^8 + \cdots - 79y - 16$
c_2, c_5, c_6 c_{11}, c_{12}	$y^9 - 9y^8 + 34y^7 - 67y^6 + 110y^5 - 195y^4 + 74y^3 - 13y^2 + 5y - 4$
c_3, c_4, c_8 c_{10}	$y^9 + 6y^8 + 17y^7 + 19y^6 - 10y^5 - 69y^4 - 104y^3 - 84y^2 - 28y - 4$
c_7, c_9	$y^9 - 2y^8 + \cdots + 112y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.605578 + 0.988703I$ $a = -0.498037 - 1.109200I$ $b = 0.448043 - 0.671342I$	$-1.16289 + 6.06815I$	$-4.01464 - 9.38796I$
$u = 0.605578 - 0.988703I$ $a = -0.498037 + 1.109200I$ $b = 0.448043 + 0.671342I$	$-1.16289 - 6.06815I$	$-4.01464 + 9.38796I$
$u = -0.393682 + 1.170050I$ $a = -0.161336 + 1.318460I$ $b = 0.282547 + 0.651319I$	$-1.55283 - 2.10568I$	$-8.24909 + 2.94817I$
$u = -0.393682 - 1.170050I$ $a = -0.161336 - 1.318460I$ $b = 0.282547 - 0.651319I$	$-1.55283 + 2.10568I$	$-8.24909 - 2.94817I$
$u = -1.28577$ $a = 2.25673$ $b = 2.08230$	-11.6795	-6.68460
$u = -0.167967 + 0.528611I$ $a = 0.919569 + 0.464661I$ $b = 0.114544 + 0.334046I$	$-0.079794 - 1.130890I$	$-1.24369 + 6.31560I$
$u = -0.167967 - 0.528611I$ $a = 0.919569 - 0.464661I$ $b = 0.114544 - 0.334046I$	$-0.079794 + 1.130890I$	$-1.24369 - 6.31560I$
$u = 0.59896 + 1.45234I$ $a = -0.88856 + 1.33082I$ $b = -2.38628 + 0.41174I$	$18.5049 + 13.3202I$	$-10.15028 - 5.68943I$
$u = 0.59896 - 1.45234I$ $a = -0.88856 - 1.33082I$ $b = -2.38628 - 0.41174I$	$18.5049 - 13.3202I$	$-10.15028 + 5.68943I$

II. $\boldsymbol{I_2^u = \langle -55u^{11} + 144u^{10} + \cdots + 246b + 197,\ -98u^{11} + 229u^{10} + \cdots + 615a - 179,\ u^{12} - 3u^{11} + \cdots - 12u + 5\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.159350u^{11} - 0.372358u^{10} + \cdots + 1.42439u + 0.291057 \\ 0.223577u^{11} - 0.585366u^{10} + \cdots + 2.53252u - 0.800813 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.572358u^{11} + 1.05854u^{10} + \cdots - 4.13659u + 3.06341 \\ -0.231707u^{11} + 0.430894u^{10} + \cdots - 1.06098u + 1.27236 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.139837u^{11} - 0.143089u^{10} + \cdots - 0.110569u + 0.289431 \\ 0.394309u^{11} - 0.674797u^{10} + \cdots + 2.29675u - 1.70325 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.572358u^{11} + 1.05854u^{10} + \cdots - 4.13659u + 3.06341 \\ -1.05285u^{11} + 1.82927u^{10} + \cdots - 6.10163u + 4.56504 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1.44390u^{11} + 2.63252u^{10} + \cdots - 10.5870u + 6.54634 \\ -2.73984u^{11} + 4.94309u^{10} + \cdots - 17.7561u + 10.5772 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.413008u^{11} + 0.686179u^{10} + \cdots - 2.71220u + 3.35447 \\ -0.829268u^{11} + 1.24390u^{10} + \cdots - 4.56911u + 3.76423 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1.24228u^{11} + 1.93008u^{10} + \cdots - 7.28130u + 6.11870 \\ -3.35772u^{11} + 5.53659u^{10} + \cdots - 19.9187u + 12.7480 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{146}{123}u^{11} + \frac{114}{41}u^{10} - \frac{1024}{123}u^9 + \frac{540}{41}u^8 - \frac{996}{41}u^7 + \frac{1288}{41}u^6 - \frac{1388}{41}u^5 + \frac{1156}{41}u^4 - \frac{1768}{123}u^3 + \frac{2074}{123}u^2 - \frac{470}{123}u + \frac{104}{123}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + 11u^5 + 43u^4 + 66u^3 + 27u^2 + 11u + 1)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(u^6 - u^5 - 5u^4 + 4u^3 + 5u^2 + u - 1)^2$
c_3, c_4, c_8 c_{10}	$u^{12} + 3u^{11} + \cdots + 12u + 5$
c_7, c_9	$u^{12} + 7u^{11} + \cdots + 76u + 25$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - 35y^5 + 451y^4 - 2274y^3 - 637y^2 - 67y + 1)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(y^6 - 11y^5 + 43y^4 - 66y^3 + 27y^2 - 11y + 1)^2$
c_3, c_4, c_8 c_{10}	$y^{12} + 7y^{11} + \cdots + 76y + 25$
c_7, c_9	$y^{12} - 5y^{11} + \cdots + 4124y + 625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.187195 + 1.051250I$ $a = 0.042610 - 0.239290I$ $b = 0.799220 + 0.595347I$	-3.90045	$-12.16498 + 0.I$
$u = 0.187195 - 1.051250I$ $a = 0.042610 + 0.239290I$ $b = 0.799220 - 0.595347I$	-3.90045	$-12.16498 + 0.I$
$u = -0.461242 + 0.712140I$ $a = 0.931142 - 0.466748I$ $b = 0.0261039 - 0.1100110I$	$-0.02949 - 1.42716I$	$-2.28345 + 4.88332I$
$u = -0.461242 - 0.712140I$ $a = 0.931142 + 0.466748I$ $b = 0.0261039 + 0.1100110I$	$-0.02949 + 1.42716I$	$-2.28345 - 4.88332I$
$u = 0.497740 + 0.566185I$ $a = 0.790067 + 0.866041I$ $b = 0.349904 + 0.608879I$	$-0.02949 - 1.42716I$	$-2.28345 + 4.88332I$
$u = 0.497740 - 0.566185I$ $a = 0.790067 - 0.866041I$ $b = 0.349904 - 0.608879I$	$-0.02949 + 1.42716I$	$-2.28345 - 4.88332I$
$u = 1.256410 + 0.018334I$ $a = -2.14746 - 0.23652I$ $b = -2.02885 - 0.02831I$	$-16.3520 + 6.7708I$	$-8.38492 - 2.96218I$
$u = 1.256410 - 0.018334I$ $a = -2.14746 + 0.23652I$ $b = -2.02885 + 0.02831I$	$-16.3520 - 6.7708I$	$-8.38492 + 2.96218I$
$u = -0.61652 + 1.48694I$ $a = 0.83408 + 1.46579I$ $b = 2.18635 + 0.61399I$	$-16.3520 - 6.7708I$	$-8.38492 + 2.96218I$
$u = -0.61652 - 1.48694I$ $a = 0.83408 - 1.46579I$ $b = 2.18635 - 0.61399I$	$-16.3520 + 6.7708I$	$-8.38492 - 2.96218I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.63641 + 1.48830I$ $a = -0.65044 + 1.52111I$ $b = -1.83272 + 0.63406I$	18.5691	$-10.49827 + 0.I$
$u = 0.63641 - 1.48830I$ $a = -0.65044 - 1.52111I$ $b = -1.83272 - 0.63406I$	18.5691	$-10.49827 + 0.I$

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

(i) Arc colorings

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

(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_8 c_{10}	u^4+u^2+2
c_7, c_9	$(u^2-u+2)^2$

(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_8 c_{10}	$(y^2+y+2)^2$
c_7, c_9	$(y^2+3y+4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.676097 + 0.978318I$ $a = -0.02193 - 2.01465I$ $b = 1.066120 - 0.864054I$	$-2.46740 + 5.33349I$	$-10.00000 - 5.29150I$
$u = 0.676097 - 0.978318I$ $a = -0.02193 + 2.01465I$ $b = 1.066120 + 0.864054I$	$-2.46740 - 5.33349I$	$-10.00000 + 5.29150I$
$u = -0.676097 + 0.978318I$ $a = -0.978073 + 0.631100I$ $b = -0.566121 + 0.458821I$	$-2.46740 - 5.33349I$	$-10.00000 + 5.29150I$
$u = -0.676097 - 0.978318I$ $a = -0.978073 - 0.631100I$ $b = -0.566121 - 0.458821I$	$-2.46740 + 5.33349I$	$-10.00000 - 5.29150I$

IV. $\boldsymbol{I_4^u = \langle -2u^2b + 2b^2 + u^2 - 2b + u - 1,\ -u^2 + a - 2,\ u^3 + 2u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^6 + 7u^5 + 9u^4 + 33u^3 + 299u^2 + 434u + 121$
c_2, c_5, c_6 c_{11}, c_{12}	$u^6 + 3u^5 + u^4 + 5u^3 + 19u^2 + 4u - 11$
c_3, c_4, c_8 c_{10}	$(u^3 + 2u + 1)^2$
c_7, c_9	$(u^3 + 4u^2 + 4u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - 31y^5 + 217y^4 - 1541y^3 + 62935y^2 - 115998y + 14641$
c_2, c_5, c_6 c_{11}, c_{12}	$y^6 - 7y^5 + 9y^4 - 33y^3 + 299y^2 - 434y + 121$
c_3, c_4, c_8 c_{10}	$(y^3 + 4y^2 + 4y - 1)^2$
c_7, c_9	$(y^3 - 8y^2 + 24y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.22670 + 1.46771I$ $a = -0.102785 - 0.665457I$ $b = 0.811775 - 0.345273I$	$-12.73060 - 5.13794I$	$-11.31793 + 3.20902I$
$u = -0.22670 + 1.46771I$ $a = -0.102785 - 0.665457I$ $b = -1.91456 - 0.32018I$	$-12.73060 - 5.13794I$	$-11.31793 + 3.20902I$
$u = -0.22670 - 1.46771I$ $a = -0.102785 + 0.665457I$ $b = 0.811775 + 0.345273I$	$-12.73060 + 5.13794I$	$-11.31793 - 3.20902I$
$u = -0.22670 - 1.46771I$ $a = -0.102785 + 0.665457I$ $b = -1.91456 + 0.32018I$	$-12.73060 + 5.13794I$	$-11.31793 - 3.20902I$
$u = 0.453398$ $a = 2.20557$ $b = 1.33345$	-2.50267	0.635870
$u = 0.453398$ $a = 2.20557$ $b = -0.127877$	-2.50267	0.635870

V.

$\boldsymbol{I_5^u = \langle 2u^2b+b^2+bu+u^2+2b-2u-1,\ u^3+u^2+a+2u+2,\ u^4+u^3+2u^2+2u+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2+1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^3-u^2-2u-2 \\ b \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3b+2bu-u^2-u-2 \\ u^3b+u^2b+u^3+2bu+2b \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^3b+u^2b+bu+u^2+2b+2 \\ -u^3b-3u^3-2bu-u^2-4u-2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^3b+2bu-u^2-u-2 \\ 2u^3b+u^2b+u^3+3bu+3b+2u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^3-2u^2-2u-3 \\ 2u^3+4u+1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3+2u+1 \\ u^3+u^2+u+2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2u^3+3u+2 \\ 2u^3+2u^2+3u+4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^3+4u-6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4 - 5y^3 - 2y^2 + 36y + 81)^2$
c_2, c_5, c_6 c_{11}, c_{12}	$(y^4 - 5y^3 + 10y^2 - 12y + 9)^2$
c_3, c_4, c_8 c_{10}	$(y^4 + 3y^3 + 2y^2 + 1)^2$
c_7, c_9	$(y^4 - 5y^3 + 6y^2 + 4y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.621744 + 0.440597I$ $a = -1.070700 - 0.758745I$ $b = -0.134247 + 0.897284I$	$-6.57974 - 2.02988I$	$-8.00000 + 3.46410I$
$u = -0.621744 + 0.440597I$ $a = -1.070700 - 0.758745I$ $b = -1.62889 - 0.24213I$	$-6.57974 - 2.02988I$	$-8.00000 + 3.46410I$
$u = -0.621744 - 0.440597I$ $a = -1.070700 + 0.758745I$ $b = -0.134247 - 0.897284I$	$-6.57974 + 2.02988I$	$-8.00000 - 3.46410I$
$u = -0.621744 - 0.440597I$ $a = -1.070700 + 0.758745I$ $b = -1.62889 + 0.24213I$	$-6.57974 + 2.02988I$	$-8.00000 - 3.46410I$
$u = 0.121744 + 1.306620I$ $a = 0.070696 - 0.758745I$ $b = -0.95112 - 1.30886I$	$-6.57974 + 2.02988I$	$-8.00000 - 3.46410I$
$u = 0.121744 + 1.306620I$ $a = 0.070696 - 0.758745I$ $b = 2.21426 - 0.63406I$	$-6.57974 + 2.02988I$	$-8.00000 - 3.46410I$
$u = 0.121744 - 1.306620I$ $a = 0.070696 + 0.758745I$ $b = -0.95112 + 1.30886I$	$-6.57974 - 2.02988I$	$-8.00000 + 3.46410I$
$u = 0.121744 - 1.306620I$ $a = 0.070696 + 0.758745I$ $b = 2.21426 + 0.63406I$	$-6.57974 - 2.02988I$	$-8.00000 + 3.46410I$

VI. $I_6^u = \langle u^3 - u^2 + 2b - u - 1,\ u^3 - u^2 + a - 1,\ u^4 + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(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_8 c_{10}	$(y^2+1)^2$
c_7, c_9	$(y+1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = 1.70711 + 0.29289I$ $b = 1.207110 + 0.500000I$	-1.64493	-8.00000
$u = 0.707107 - 0.707107I$ $a = 1.70711 - 0.29289I$ $b = 1.207110 - 0.500000I$	-1.64493	-8.00000
$u = -0.707107 + 0.707107I$ $a = 0.29289 - 1.70711I$ $b = -0.207107 - 0.500000I$	-1.64493	-8.00000
$u = -0.707107 - 0.707107I$ $a = 0.29289 + 1.70711I$ $b = -0.207107 + 0.500000I$	-1.64493	-8.00000

VII. $\boldsymbol{I_7^u = \langle 2b - u - 1,\ a - u,\ u^2 + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.000000I$		
$a=$	$1.000000I$	-1.64493	-8.00000
$b=$	$0.500000+0.500000I$		
$u=$	$-1.000000I$		
$a=$	$-1.000000I$	-1.64493	-8.00000
$b=$	$0.500000-0.500000I$		

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(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	$u - 1$
c_3, c_4, c_7 c_8, c_9, c_{10}	u
c_5, c_{11}, 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

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^9(u+1)^2(u^4+5u^3+10u^2+12u+9)^2$ $\cdot(u^6+7u^5+9u^4+33u^3+299u^2+434u+121)$ $\cdot(u^6+11u^5+43u^4+66u^3+27u^2+11u+1)^2$ $\cdot(u^9+9u^8+34u^7+67u^6+110u^5+195u^4+74u^3+13u^2+5u+4)$
c_2, c_6	$(u-1)^5(u+1)^4(u^2+1)(u^4-u^3-2u^2+3)^2$ $\cdot(u^6-u^5-5u^4+4u^3+5u^2+u-1)^2$ $\cdot(u^6+3u^5+u^4+5u^3+19u^2+4u-11)$ $\cdot(u^9+3u^8-3u^6+8u^5+7u^4-8u^3-u^2-u+2)$
c_3, c_4, c_8 c_{10}	$u(u^2+1)(u^3+2u+1)^2(u^4+1)(u^4+u^2+2)(u^4-u^3+\cdots-2u+1)^2$ $\cdot(u^9+3u^7-3u^6+4u^5-7u^4+2u^3-8u^2+2u-2)$ $\cdot(u^{12}+3u^{11}+\cdots+12u+5)$
c_5, c_{11}, c_{12}	$(u-1)^4(u+1)^5(u^2+1)(u^4-u^3-2u^2+3)^2$ $\cdot(u^6-u^5-5u^4+4u^3+5u^2+u-1)^2$ $\cdot(u^6+3u^5+u^4+5u^3+19u^2+4u-11)$ $\cdot(u^9+3u^8-3u^6+8u^5+7u^4-8u^3-u^2-u+2)$
c_7, c_9	$u(u-1)^2(u^2+1)^2(u^2-u+2)^2(u^3+4u^2+4u-1)^2$ $\cdot(u^4+3u^3+2u^2+1)^2$ $\cdot(u^9+6u^8+17u^7+19u^6-10u^5-69u^4-104u^3-84u^2-28u-4)$ $\cdot(u^{12}+7u^{11}+\cdots+76u+25)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^{11}(y^4-5y^3-2y^2+36y+81)^2$ $\cdot(y^6-35y^5+451y^4-2274y^3-637y^2-67y+1)^2$ $\cdot(y^6-31y^5+217y^4-1541y^3+62935y^2-115998y+14641)$ $\cdot(y^9-13y^8+\cdots-79y-16)$
c_2, c_5, c_6 c_{11}, c_{12}	$(y-1)^9(y+1)^2(y^4-5y^3+10y^2-12y+9)^2$ $\cdot(y^6-11y^5+43y^4-66y^3+27y^2-11y+1)^2$ $\cdot(y^6-7y^5+9y^4-33y^3+299y^2-434y+121)$ $\cdot(y^9-9y^8+34y^7-67y^6+110y^5-195y^4+74y^3-13y^2+5y-4)$
c_3, c_4, c_8 c_{10}	$y(y+1)^2(y^2+1)^2(y^2+y+2)^2(y^3+4y^2+4y-1)^2$ $\cdot(y^4+3y^3+2y^2+1)^2$ $\cdot(y^9+6y^8+17y^7+19y^6-10y^5-69y^4-104y^3-84y^2-28y-4)$ $\cdot(y^{12}+7y^{11}+\cdots+76y+25)$
c_7, c_9	$y(y-1)^2(y+1)^4(y^2+3y+4)^2(y^3-8y^2+24y-1)^2$ $\cdot((y^4-5y^3+6y^2+4y+1)^2)(y^9-2y^8+\cdots+112y-16)$ $\cdot(y^{12}-5y^{11}+\cdots+4124y+625)$