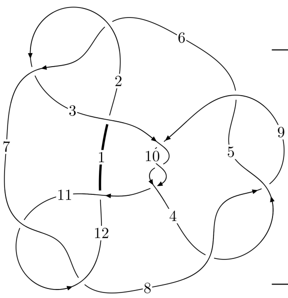
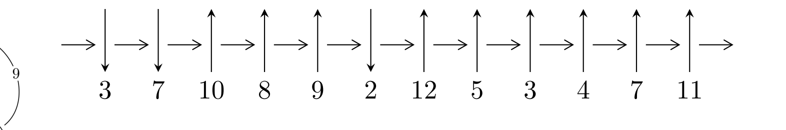
$12n_{0604}$ $(K12n_{0604})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 6141u^{12} + 35469u^{11} + \cdots + 4348b - 14051,\ -17214u^{12} - 43917u^{11} + \cdots + 47828a - 232915,$$
$$3u^{13} + 18u^{12} + 47u^{11} + 60u^{10} + 14u^9 - 84u^8 - 153u^7 - 114u^6 + 14u^5 + 105u^4 + 80u^3 + 2u^2 - 25u - 11\rangle$$
$$I_2^u = \langle u^9 - 2u^8 + u^7 + 2u^6 - 2u^5 - u^4 + u^2a + 3u^3 - au + b - 2u + 1,\ -2u^{10}a - 13u^{10} + \cdots - 2a - 35,$$
$$u^{11} - 2u^{10} + 4u^8 - 2u^7 - 4u^6 + 5u^5 + 2u^4 - 5u^3 + u^2 + 3u - 1\rangle$$
$$I_3^u = \langle b + 2a + 1,\ 2a^2 + 2a - 1,\ u - 1\rangle$$
$$I_4^u = \langle -2au + 2b - 2a + u + 3,\ 4a^2 - 4a + 1,\ u^2 + 2u + 1\rangle$$
$$I_5^u = \langle b,\ a - 1,\ u^3 - u + 1\rangle$$
$$I_6^u = \langle b + 1,\ a + u,\ u^3 - u + 1\rangle$$
$$I_7^u = \langle b,\ a - 1,\ u - 1\rangle$$
$$I_8^u = \langle b + 1,\ u^2a - au - 1\rangle$$
$$I_9^u = \langle b + 1,\ u + 1\rangle$$

* 7 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 48 representations.
* 2 irreducible components of $\dim_{\mathbb{C}} = 1$

[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. $\boldsymbol{I_1^u = \langle 6141u^{12} + 35469u^{11} + \cdots + 4348b - 14051,\ -1.72 \times 10^4u^{12} - 4.39 \times 10^4u^{11} + \cdots + 4.78 \times 10^4a - 2.33 \times 10^5,\ 3u^{13} + 18u^{12} + \cdots - 25u - 11\rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} 0.359915u^{12} + 0.918228u^{11} + \cdots + 7.51984u + 4.86985 \\ -1.41237u^{12} - 8.15754u^{11} + \cdots + 1.15501u + 3.23160 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.676612u^{12} + 3.37246u^{11} + \cdots - 1.01834u - 0.308857 \\ 1.52001u^{12} + 5.01127u^{11} + \cdots - 13.1615u - 3.97861 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -1.17283u^{12} - 6.60021u^{11} + \cdots - 6.76142u - 0.483336 \\ 0.411914u^{12} + 3.59407u^{11} + \cdots + 11.9177u + 2.69894 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.863344u^{12} - 5.14142u^{11} + \cdots - 4.86443u + 1.08965 \\ -0.00965961u^{12} + 1.66697u^{11} + \cdots + 20.0262u + 7.04140 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.863344u^{12} - 5.14142u^{11} + \cdots - 4.86443u + 1.08965 \\ 0.890064u^{12} + 5.82889u^{11} + \cdots + 22.8698u + 6.89972 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.234089u^{12} + 2.30426u^{11} + \cdots + 5.28669u + 0.892866 \\ -0.449862u^{12} - 3.58096u^{11} + \cdots - 21.4218u - 6.42916 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0502425u^{12} + 0.933470u^{11} + \cdots + 1.62986u - 0.0270135 \\ 0.638224u^{12} + 1.82498u^{11} + \cdots - 21.8395u - 8.12810 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{9825}{2174}u^{12} - \frac{54711}{2174}u^{11} + \cdots - \frac{20596}{1087}u + \frac{3441}{2174}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$9(9u^{13}+114u^{12}+\cdots+1485u+121)$
c_2, c_6	$3(3u^{13}-18u^{12}+\cdots+11u-11)$
c_3, c_4, c_5 c_8, c_9, c_{10}	$u^{13}+2u^{12}+\cdots-2u+2$
c_7, c_{11}	$3(3u^{13}+18u^{12}+\cdots-25u-11)$
c_{12}	$9(9u^{13}-42u^{12}+\cdots+669u-121)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$81(81y^{13} - 1962y^{12} + \cdots + 662717y - 14641)$
c_2, c_6	$9(9y^{13} - 114y^{12} + \cdots + 1485y - 121)$
c_3, c_4, c_5 c_8, c_9, c_{10}	$y^{13} - 12y^{12} + \cdots + 16y - 4$
c_7, c_{11}	$9(9y^{13} - 42y^{12} + \cdots + 669y - 121)$
c_{12}	$81(81y^{13} + 630y^{12} + \cdots + 37613y - 14641)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.15461$ $a = -0.667204$ $b = 1.65982$	14.2281	19.7580
$u = -0.875852 + 0.854559I$ $a = -0.480641 - 0.877360I$ $b = 0.160333 - 1.044863I$	$-8.47998 - 3.13363I$	$2.30766 + 3.10183I$
$u = -0.875852 - 0.854559I$ $a = -0.480641 + 0.877360I$ $b = 0.160333 + 1.044863I$	$-8.47998 + 3.13363I$	$2.30766 - 3.10183I$
$u = -0.195045 + 1.209339I$ $a = 0.484703 + 0.539351I$ $b = 1.182797 + 0.515971I$	$-2.29018 + 7.80194I$	$7.00595 - 5.86285I$
$u = -0.195045 - 1.209339I$ $a = 0.484703 - 0.539351I$ $b = 1.182797 - 0.515971I$	$-2.29018 - 7.80194I$	$7.00595 + 5.86285I$
$u = -0.602765 + 0.436556I$ $a = 0.289714 + 1.181214I$ $b = 0.018598 + 0.533941I$	$-0.98838 - 1.46599I$	$1.41277 + 4.35204I$
$u = -0.602765 - 0.436556I$ $a = 0.289714 - 1.181214I$ $b = 0.018598 - 0.533941I$	$-0.98838 + 1.46599I$	$1.41277 - 4.35204I$
$u = 0.734365$ $a = 0.253961$ $b = -0.323459$	0.880574	13.4560
$u = 0.692816$ $a = 1.53700$ $b = -1.80261$	12.2154	2.46050
$u = -1.32583 + 0.68048I$ $a = 0.433863 + 1.256459I$ $b = -1.39870 + 0.52665I$	$1.1831 - 14.4275I$	$9.59825 + 7.66969I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.32583 - 0.68048I$ $a = 0.433863 - 1.256459I$ $b = -1.39870 - 0.52665I$	$1.1831 + 14.4275I$	$9.59825 - 7.66969I$
$u = -1.29140 + 0.76843I$ $a = -0.107698 - 1.063230I$ $b = 1.270099 - 0.358705I$	$6.78301 - 8.58406I$	$12.8385 + 7.0528I$
$u = -1.29140 - 0.76843I$ $a = -0.107698 + 1.063230I$ $b = 1.270099 + 0.358705I$	$6.78301 + 8.58406I$	$12.8385 - 7.0528I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle u^9 - 2u^8 + \cdots + b + 1,\ -2u^{10}a - 13u^{10} + \cdots - 2a - 35,\ u^{11} - 2u^{10} + \cdots + 3u - 1\rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} a \\ -u^9 + 2u^8 - u^7 - 2u^6 + 2u^5 + u^4 - u^2a - 3u^3 + au + 2u - 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u^9 + 2u^8 - 3u^6 + 2u^5 + u^3a + 2u^4 - u^2a - 3u^3 + a + 3u - 1 \\ -2u^9 + 3u^8 + \cdots + 2u - 1 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -u^{10}a + u^{10} + \cdots - u + 5 \\ -u^8a + u^7a - u^5a - u^2a + u^3 - u^2 + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{10} - 2u^9 - u^8 + 5u^7 - u^6 - 6u^5 + 4u^4 + 4u^3 - 5u^2 - u + 3 \\ u^{10} - 2u^9 - u^8 + 4u^7 - u^6 - 4u^5 + 2u^4 + 2u^3 - 3u^2 - u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{10} - 2u^9 - u^8 + 5u^7 - u^6 - 6u^5 + 4u^4 + 4u^3 - 5u^2 - u + 3 \\ 2u^{10} - 3u^9 - 2u^8 + 6u^7 - 6u^5 + 2u^4 + 4u^3 - 3u^2 - 2u + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{10} - u^9 - u^8 + 3u^7 - 3u^5 + 3u^4 + 2u^3 - 3u^2 + 2 \\ -u^{10} + u^9 + 3u^8 - 3u^7 - 4u^6 + 7u^5 + 2u^4 - 6u^3 + 2u^2 + 4u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{10} - u^9 + \cdots + a + 4 \\ u^{10}a - u^9a + \cdots + a + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{10} + 6u^9 - 10u^7 + 4u^6 + 6u^5 - 12u^4 - 4u^3 + 8u^2 - 6u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{11}+12u^{10}+\cdots-5u+1)^2$
c_2, c_6	$(u^{11}+2u^{10}-4u^9-8u^8+6u^7+8u^6-7u^5+2u^4+7u^3-3u^2-u-1)^2$
c_3, c_4, c_5 c_8, c_9, c_{10}	$u^{22}+2u^{21}+\cdots-54u-23$
c_7, c_{11}	$(u^{11}-2u^{10}+4u^8-2u^7-4u^6+5u^5+2u^4-5u^3+u^2+3u-1)^2$
c_{12}	$(u^{11}-4u^{10}+\cdots+11u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{11} - 24y^{10} + \cdots - 13y - 1)^2$
c_2, c_6	$(y^{11} - 12y^{10} + \cdots - 5y - 1)^2$
c_3, c_4, c_5 c_8, c_9, c_{10}	$y^{22} - 16y^{21} + \cdots - 1306y + 529$
c_7, c_{11}	$(y^{11} - 4y^{10} + \cdots + 11y - 1)^2$
c_{12}	$(y^{11} + 8y^{10} + \cdots + 67y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.952018+0.226513I$ $a=-0.347172-0.939025I$ $b=-0.930670-0.421418I$	$5.02081-0.74196I$	$15.5393+1.1191I$
$u=-0.952018+0.226513I$ $a=-1.36874-1.45440I$ $b=\ 1.254363-0.162092I$	$5.02081-0.74196I$	$15.5393+1.1191I$
$u=-0.952018-0.226513I$ $a=-0.347172+0.939025I$ $b=-0.930670+0.421418I$	$5.02081+0.74196I$	$15.5393-1.1191I$
$u=-0.952018-0.226513I$ $a=-1.36874+1.45440I$ $b=\ 1.254363+0.162092I$	$5.02081+0.74196I$	$15.5393-1.1191I$
$u=-0.850023+0.614930I$ $a=\ 0.76372+1.33350I$ $b=-1.49337+0.42695I$	$0.08426-2.41892I$	$7.07184+2.88947I$
$u=-0.850023+0.614930I$ $a=\ 0.077370+0.159281I$ $b=\ 1.27603+0.68990I$	$0.08426-2.41892I$	$7.07184+2.88947I$
$u=-0.850023-0.614930I$ $a=\ 0.76372-1.33350I$ $b=-1.49337-0.42695I$	$0.08426+2.41892I$	$7.07184-2.88947I$
$u=-0.850023-0.614930I$ $a=\ 0.077370-0.159281I$ $b=\ 1.27603-0.68990I$	$0.08426+2.41892I$	$7.07184-2.88947I$
$u=\ 0.523691+0.948055I$ $a=-0.534548+1.013410I$ $b=\ 0.196709+0.952827I$	$-5.32590-2.58451I$	$3.80806+1.01660I$
$u=\ 0.523691+0.948055I$ $a=\ 0.382826-0.290327I$ $b=\ 1.191516-0.585396I$	$-5.32590-2.58451I$	$3.80806+1.01660I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.523691 - 0.948055I$ $a = -0.534548 - 1.013410I$ $b = 0.196709 - 0.952827I$	$-5.32590 + 2.58451I$	$3.80806 - 1.01660I$
$u = 0.523691 - 0.948055I$ $a = 0.382826 + 0.290327I$ $b = 1.191516 + 0.585396I$	$-5.32590 + 2.58451I$	$3.80806 - 1.01660I$
$u = 0.978643 + 0.595733I$ $a = -0.010571 - 0.992888I$ $b = -0.109176 - 0.710565I$	$2.61864 + 4.69742I$	$9.08124 - 5.88322I$
$u = 0.978643 + 0.595733I$ $a = -0.17727 + 1.45820I$ $b = 1.225999 + 0.305614I$	$2.61864 + 4.69742I$	$9.08124 - 5.88322I$
$u = 0.978643 - 0.595733I$ $a = -0.010571 + 0.992888I$ $b = -0.109176 + 0.710565I$	$2.61864 - 4.69742I$	$9.08124 + 5.88322I$
$u = 0.978643 - 0.595733I$ $a = -0.17727 - 1.45820I$ $b = 1.225999 - 0.305614I$	$2.61864 - 4.69742I$	$9.08124 + 5.88322I$
$u = 1.126055 + 0.711355I$ $a = -0.407610 + 0.813195I$ $b = 0.097811 + 1.107042I$	$-3.47965 + 8.65115I$	$6.21430 - 5.57892I$
$u = 1.126055 + 0.711355I$ $a = 0.531471 - 1.289216I$ $b = -1.43289 - 0.49484I$	$-3.47965 + 8.65115I$	$6.21430 - 5.57892I$
$u = 1.126055 - 0.711355I$ $a = -0.407610 - 0.813195I$ $b = 0.097811 - 1.107042I$	$-3.47965 - 8.65115I$	$6.21430 + 5.57892I$
$u = 1.126055 - 0.711355I$ $a = 0.531471 + 1.289216I$ $b = -1.43289 + 0.49484I$	$-3.47965 - 8.65115I$	$6.21430 + 5.57892I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.347303$ $a = -3.28286$ $b = -1.15435$	2.16369	2.57060
$u = 0.347303$ $a = 4.46391$ $b = 0.601712$	2.16369	2.57060

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

(i) Arc colorings

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

(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_{11} c_{12}	$(u-1)^2$
c_3, c_4, c_5 c_8, c_9, c_{10}	u^2-3
c_6, c_7	$(u+1)^2$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.36603$ $b = 1.73205$	13.1595	12.0000
$u = 1.00000$ $a = 0.366025$ $b = -1.73205$	13.1595	12.0000

IV. $I_4^u = \langle -2au + 2b - 2a + u + 3,\ 4a^2 - 4a + 1,\ u^2 + 2u + 1 \rangle$

(i) Arc colorings

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

(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_6 c_7, c_8, c_{12}	$(u-1)^4$
c_2, c_4, c_5 c_9, c_{10}, c_{11}	$(u+1)^4$

(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}	$(y-1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0.500000$ $b = -1.00000$	3.28987	12.0000
$u = -1.00000$ $a = \quad 0.500000$ $b = -1.00000$	3.28987	12.0000
$u = -1.00000$ $a = \quad 0.500000$ $b = -1.00000$	3.28987	12.0000
$u = -1.00000$ $a = \quad 0.500000$ $b = -1.00000$	3.28987	12.0000

V. $I_5^u = \langle b,\ a-1,\ u^3-u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.662359 + 0.562280I$ $a = 1.00000$ $b = 0$	1.64493	6.00000
$u = 0.662359 - 0.562280I$ $a = 1.00000$ $b = 0$	1.64493	6.00000
$u = -1.32472$ $a = 1.00000$ $b = 0$	1.64493	6.00000

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

(i) Arc colorings

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

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

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

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

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

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

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

$$a_{10} = \begin{pmatrix} u+1 \\ 1 \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.662359 + 0.562280I$ $a = -0.662359 - 0.562280I$ $b = -1.00000$	1.64493	6.00000
$u = 0.662359 - 0.562280I$ $a = -0.662359 + 0.562280I$ $b = -1.00000$	1.64493	6.00000
$u = -1.32472$ $a = 1.32472$ $b = -1.00000$	1.64493	6.00000

VII. $I_7^u = \langle b,\ a-1,\ u-1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

(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_{11} c_{12}	$u-1$
c_3, c_4, c_5 c_8, c_9, c_{10}	u
c_6, c_7	$u+1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_7		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	1.00000	0	0
$b =$	0		

VIII. $I_8^u = \langle b+1,\ u^2a - au - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	3.28987	12.0000

IX. $I^u_9 = \langle b+1,\ u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	3.28987	12.0000

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$9(u-1)^7(u^3+2u^2+u+1)^2(u^{11}+12u^{10}+\cdots-5u+1)^2$ $\cdot(9u^{13}+114u^{12}+\cdots+1485u+121)$
c_2	$3(u-1)^3(u+1)^4(u^3-u+1)^2$ $\cdot(u^{11}+2u^{10}-4u^9-8u^8+6u^7+8u^6-7u^5+2u^4+7u^3-3u^2-u-1)^2$ $\cdot(3u^{13}-18u^{12}+\cdots+11u-11)$
c_3, c_8	$u^4(u-1)^7(u^2-3)(u^{13}+2u^{12}+\cdots-2u+2)$ $\cdot(u^{22}+2u^{21}+\cdots-54u-23)$
c_4, c_5, c_9 c_{10}	$u^4(u-1)^3(u+1)^4(u^2-3)(u^{13}+2u^{12}+\cdots-2u+2)$ $\cdot(u^{22}+2u^{21}+\cdots-54u-23)$
c_6	$3(u-1)^4(u+1)^3(u^3-u+1)^2$ $\cdot(u^{11}+2u^{10}-4u^9-8u^8+6u^7+8u^6-7u^5+2u^4+7u^3-3u^2-u-1)^2$ $\cdot(3u^{13}-18u^{12}+\cdots+11u-11)$
c_7	$3(u-1)^4(u+1)^3(u^3-u+1)^2$ $\cdot(u^{11}-2u^{10}+4u^8-2u^7-4u^6+5u^5+2u^4-5u^3+u^2+3u-1)^2$ $\cdot(3u^{13}+18u^{12}+\cdots-25u-11)$
c_{11}	$3(u-1)^3(u+1)^4(u^3-u+1)^2$ $\cdot(u^{11}-2u^{10}+4u^8-2u^7-4u^6+5u^5+2u^4-5u^3+u^2+3u-1)^2$ $\cdot(3u^{13}+18u^{12}+\cdots-25u-11)$
c_{12}	$9(u-1)^7(u^3-2u^2+u-1)^2(u^{11}-4u^{10}+\cdots+11u-1)^2$ $\cdot(9u^{13}-42u^{12}+\cdots+669u-121)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$81(y-1)^7(y^3-2y^2-3y-1)^2(y^{11}-24y^{10}+\cdots-13y-1)^2$ $\cdot(81y^{13}-1962y^{12}+\cdots+662717y-14641)$
c_2, c_6	$9(y-1)^7(y^3-2y^2+y-1)^2(y^{11}-12y^{10}+\cdots-5y-1)^2$ $\cdot(9y^{13}-114y^{12}+\cdots+1485y-121)$
c_3, c_4, c_5 c_8, c_9, c_{10}	$y^4(y-3)^2(y-1)^7(y^{13}-12y^{12}+\cdots+16y-4)$ $\cdot(y^{22}-16y^{21}+\cdots-1306y+529)$
c_7, c_{11}	$9(y-1)^7(y^3-2y^2+y-1)^2(y^{11}-4y^{10}+\cdots+11y-1)^2$ $\cdot(9y^{13}-42y^{12}+\cdots+669y-121)$
c_{12}	$81(y-1)^7(y^3-2y^2-3y-1)^2(y^{11}+8y^{10}+\cdots+67y-1)^2$ $\cdot(81y^{13}+630y^{12}+\cdots+37613y-14641)$