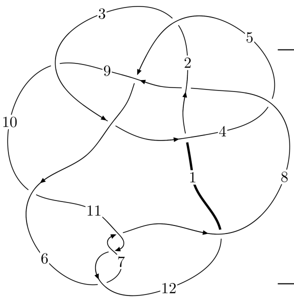
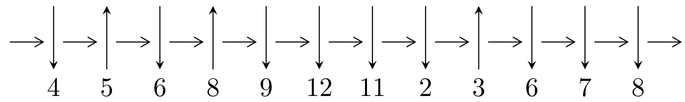
$12n_{0667}$ ($K12n_{0667}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle -3u^{20} - 26u^{19} + \cdots + 7b + 97,\ -83u^{20} - 325u^{19} + \cdots + 63a + 558,\ u^{21} + 5u^{20} + \cdots - 72u - 9\rangle \\
I_2^u &= \langle -3u^{14}a + 5u^{14} + \cdots + a + 24,\ -u^{14}a + 2u^{13}a + \cdots + 3a + 4,\ u^{15} - 2u^{14} + \cdots - 4u + 1\rangle \\
I_3^u &= \langle -u^6 - 2u^5 - 5u^4 - 6u^3 - 6u^2 + b - 4u - 1,\ u^8 + 2u^7 + 7u^6 + 10u^5 + 15u^4 + 14u^3 + 9u^2 + a + 5u - 1, \\
&\quad u^9 + 2u^8 + 7u^7 + 10u^6 + 16u^5 + 16u^4 + 13u^3 + 9u^2 + 2u + 1\rangle \\
I_4^u &= \langle b + 1,\ 2u^2a + a^2 - 2au + 3a + u - 1,\ u^3 - u^2 + 2u - 1\rangle
\end{aligned}
$$

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

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 67 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. $I^u_1 = \langle -3u^{20} - 26u^{19} + \cdots + 7b + 97,\ -83u^{20} - 325u^{19} + \cdots + 63a + 558,\ u^{21} + 5u^{20} + \cdots - 72u - 9\rangle$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} \frac{83}{63}u^{20} + \frac{325}{63}u^{19} + \cdots - 66u - \frac{62}{7} \\ \frac{3}{7}u^{20} + \frac{26}{7}u^{19} + \cdots - 95u - \frac{97}{7} \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{110}{63}u^{20} + \frac{559}{63}u^{19} + \cdots - 161u - \frac{159}{7} \\ \frac{3}{7}u^{20} + \frac{26}{7}u^{19} + \cdots - 95u - \frac{97}{7} \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{83}{63}u^{20} + \frac{325}{63}u^{19} + \cdots - 86u - \frac{90}{7} \\ \frac{5}{7}u^{20} + \frac{20}{7}u^{19} + \cdots - 52u - \frac{52}{7} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{97}{63}u^{20} - \frac{458}{63}u^{19} + \cdots + 111u + \frac{111}{7} \\ \frac{1}{7}u^{20} - \frac{10}{7}u^{19} + \cdots + 103u + \frac{110}{7} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{52}{63}u^{20} - \frac{215}{63}u^{19} + \cdots + 39u + \frac{38}{7} \\ \frac{2}{7}u^{20} + \frac{1}{7}u^{19} + \cdots + 36u + \frac{38}{7} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{4}{7}u^{20} + \frac{51}{7}u^{19} + \cdots - 324u - \frac{456}{7}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{21} + 2u^{20} + \cdots + 8u + 1$
c_2	$u^{21} + 15u^{20} + \cdots + 63u + 9$
c_4, c_9	$u^{21} - 2u^{20} + \cdots - 11u^2 + 1$
c_5, c_8	$u^{21} - u^{20} + \cdots - u - 1$
c_6, c_7, c_{11}	$u^{21} + 5u^{20} + \cdots - 72u - 9$
c_{10}, c_{12}	$u^{21} - 5u^{20} + \cdots - 2988u - 1413$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{21} + 30y^{20} + \cdots + 6y - 1$
c_2	$y^{21} - 13y^{20} + \cdots - 1377y - 81$
c_4, c_9	$y^{21} - 22y^{20} + \cdots + 22y - 1$
c_5, c_8	$y^{21} - 11y^{20} + \cdots + 21y - 1$
c_6, c_7, c_{11}	$y^{21} + 23y^{20} + \cdots + 324y - 81$
c_{10}, c_{12}	$y^{21} + 19y^{20} + \cdots - 3839724y - 1996569$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.834623+0.573705I$ $a=\ 1.005930+0.264258I$ $b=\ 0.62121-1.82385I$	$6.40877+10.26430I$	$-4.52348-6.93928I$
$u=-0.834623-0.573705I$ $a=\ 1.005930-0.264258I$ $b=\ 0.62121+1.82385I$	$6.40877-10.26430I$	$-4.52348+6.93928I$
$u=-0.847213+0.586710I$ $a=-0.922945+0.173773I$ $b=\ 0.16137+1.79856I$	$6.42391-4.68256I$	$-3.99466+2.17560I$
$u=-0.847213-0.586710I$ $a=-0.922945-0.173773I$ $b=\ 0.16137-1.79856I$	$6.42391+4.68256I$	$-3.99466-2.17560I$
$u=\ 0.825151$ $a=-0.722716$ $b=-0.926404$	-5.68389	-17.0230
$u=-0.150569+1.281090I$ $a=\ 0.434742-0.402686I$ $b=\ 0.074569+0.138439I$	$3.22602+2.41816I$	$-3.53897-1.93549I$
$u=-0.150569-1.281090I$ $a=\ 0.434742+0.402686I$ $b=\ 0.074569-0.138439I$	$3.22602-2.41816I$	$-3.53897+1.93549I$
$u=-0.323088+0.617615I$ $a=\ 0.358624-0.512504I$ $b=-0.096498+0.850760I$	$0.52795+2.17494I$	$-5.93194-4.33334I$
$u=-0.323088-0.617615I$ $a=\ 0.358624+0.512504I$ $b=-0.096498-0.850760I$	$0.52795-2.17494I$	$-5.93194+4.33334I$
$u=\ 0.373837+1.314800I$ $a=\ 0.363936+0.564961I$ $b=-0.998750+0.204857I$	$-1.57111-4.30895I$	$-11.00324+1.55396I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.373837 - 1.314800I$ $a = 0.363936 - 0.564961I$ $b = -0.998750 - 0.204857I$	$-1.57111 + 4.30895I$	$-11.00324 - 1.55396I$
$u = -0.027283 + 1.412760I$ $a = 0.78061 + 1.55576I$ $b = -1.109230 - 0.677694I$	$3.18953 + 0.20531I$	$-5.89178 + 0.57061I$
$u = -0.027283 - 1.412760I$ $a = 0.78061 - 1.55576I$ $b = -1.109230 + 0.677694I$	$3.18953 - 0.20531I$	$-5.89178 - 0.57061I$
$u = -0.437416 + 0.103332I$ $a = 0.929988 - 0.551312I$ $b = -0.189823 + 0.028334I$	$-0.974855 + 0.275619I$	$-10.86571 - 2.54923I$
$u = -0.437416 - 0.103332I$ $a = 0.929988 + 0.551312I$ $b = -0.189823 - 0.028334I$	$-0.974855 - 0.275619I$	$-10.86571 + 2.54923I$
$u = -0.09149 + 1.57120I$ $a = -0.26719 - 1.73552I$ $b = 0.33826 + 1.86261I$	$7.94844 + 3.68537I$	$-6.18348 + 2.45338I$
$u = -0.09149 - 1.57120I$ $a = -0.26719 + 1.73552I$ $b = 0.33826 - 1.86261I$	$7.94844 - 3.68537I$	$-6.18348 - 2.45338I$
$u = -0.28888 + 1.56597I$ $a = 0.45254 + 2.00394I$ $b = 1.01317 - 2.01561I$	$13.4087 + 14.4061I$	$-2.12525 - 6.98840I$
$u = -0.28888 - 1.56597I$ $a = 0.45254 - 2.00394I$ $b = 1.01317 + 2.01561I$	$13.4087 - 14.4061I$	$-2.12525 + 6.98840I$
$u = -0.28585 + 1.59217I$ $a = -0.77487 - 1.52631I$ $b = -0.35107 + 2.01142I$	$13.60260 - 0.45994I$	$-1.43013 + 1.46856I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.28585 - 1.59217I$ $a = -0.77487 + 1.52631I$ $b = -0.35107 - 2.01142I$	$13.60260 + 0.45994I$	$-1.43013 - 1.46856I$

II. $\boldsymbol{I_2^u = \langle -3u^{14}a + 5u^{14} + \cdots + a + 24,\ -u^{14}a + 2u^{13}a + \cdots + 3a + 4,\ u^{15} - 2u^{14} + \cdots - 4u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ \frac{3}{14}u^{14}a - \frac{5}{14}u^{14} + \cdots - \frac{1}{14}a - \frac{12}{7} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.214286au^{14} - 0.357143u^{14} + \cdots + 0.928571a - 1.71429 \\ \frac{3}{14}u^{14}a - \frac{5}{14}u^{14} + \cdots - \frac{1}{14}a - \frac{12}{7} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{10}{7}u^{14}a + \frac{9}{7}u^{14} + \cdots - \frac{8}{7}a - \frac{10}{7} \\ \frac{5}{14}u^{14}a + \frac{1}{14}u^{14} + \cdots - \frac{25}{14}a - \frac{6}{7} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{14}u^{14}a - \frac{5}{7}u^{14} + \cdots + \frac{6}{7}a + \frac{1}{14} \\ -0.142857au^{14} - 0.928571u^{14} + \cdots + 0.214286a - 0.357143 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{5}{14}u^{14}a - \frac{3}{7}u^{14} + \cdots + \frac{12}{7}a + \frac{9}{14} \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 11u^{14} - 16u^{13} + 97u^{12} - 120u^{11} + 326u^{10} - 337u^9 + 511u^8 - 400u^7 + 342u^6 - 95u^5 + 10u^4 + 150u^3 - 84u^2 + 55u - 19$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{30} - 7u^{29} + \cdots - 676u - 329$
c_2	$(u^{15} - 7u^{14} + \cdots + 28u - 8)^2$
c_4, c_9	$u^{30} - 14u^{28} + \cdots - 641u + 151$
c_5, c_8	$u^{30} + 9u^{26} + \cdots - u - 1$
c_6, c_7, c_{11}	$(u^{15} - 2u^{14} + \cdots - 4u + 1)^2$
c_{10}, c_{12}	$(u^{15} + 2u^{14} + \cdots - 16u + 5)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{30} + 33y^{29} + \cdots + 1028130y + 108241$
c_2	$(y^{15} - 7y^{14} + \cdots + 528y - 64)^2$
c_4, c_9	$y^{30} - 28y^{29} + \cdots + 125773y + 22801$
c_5, c_8	$y^{30} + 18y^{28} + \cdots - 35y + 1$
c_6, c_7, c_{11}	$(y^{15} + 16y^{14} + \cdots - 4y - 1)^2$
c_{10}, c_{12}	$(y^{15} + 16y^{14} + \cdots - 344y - 25)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.783022 + 0.548748I$ $a = -0.815000 - 0.070479I$ $b = 0.23196 - 1.72434I$	$7.57107 - 2.60312I$	$-2.84235 + 2.92184I$
$u = 0.783022 + 0.548748I$ $a = 1.150630 - 0.405666I$ $b = 0.61243 + 1.61879I$	$7.57107 - 2.60312I$	$-2.84235 + 2.92184I$
$u = 0.783022 - 0.548748I$ $a = -0.815000 + 0.070479I$ $b = 0.23196 + 1.72434I$	$7.57107 + 2.60312I$	$-2.84235 - 2.92184I$
$u = 0.783022 - 0.548748I$ $a = 1.150630 + 0.405666I$ $b = 0.61243 - 1.61879I$	$7.57107 + 2.60312I$	$-2.84235 - 2.92184I$
$u = -0.216855 + 1.221530I$ $a = 0.741221 - 0.405618I$ $b = -0.661072 + 0.460812I$	$1.58567 + 3.38986I$	$-3.26125 - 8.75376I$
$u = -0.216855 + 1.221530I$ $a = 0.660981 + 1.010040I$ $b = 0.913612 + 0.021844I$	$1.58567 + 3.38986I$	$-3.26125 - 8.75376I$
$u = -0.216855 - 1.221530I$ $a = 0.741221 + 0.405618I$ $b = -0.661072 - 0.460812I$	$1.58567 - 3.38986I$	$-3.26125 + 8.75376I$
$u = -0.216855 - 1.221530I$ $a = 0.660981 - 1.010040I$ $b = 0.913612 - 0.021844I$	$1.58567 - 3.38986I$	$-3.26125 + 8.75376I$
$u = -0.699136$ $a = 0.498930$ $b = -0.445090$	-2.08475	-3.31340
$u = -0.699136$ $a = 1.87307$ $b = 0.972659$	-2.08475	-3.31340

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.061637 + 0.608365I$ $a = 0.934694 + 0.293027I$ $b = 0.986562 + 0.556921I$	$1.61379 + 2.57496I$	$-1.10179 - 1.01110I$
$u = 0.061637 + 0.608365I$ $a = 0.94855 - 1.35297I$ $b = -0.329324 + 1.042070I$	$1.61379 + 2.57496I$	$-1.10179 - 1.01110I$
$u = 0.061637 - 0.608365I$ $a = 0.934694 - 0.293027I$ $b = 0.986562 - 0.556921I$	$1.61379 - 2.57496I$	$-1.10179 + 1.01110I$
$u = 0.061637 - 0.608365I$ $a = 0.94855 + 1.35297I$ $b = -0.329324 - 1.042070I$	$1.61379 - 2.57496I$	$-1.10179 + 1.01110I$
$u = 0.09920 + 1.46553I$ $a = -0.395823 - 0.646191I$ $b = -0.609648 + 0.043969I$	$6.22877 - 5.97807I$	$-2.99155 + 7.20850I$
$u = 0.09920 + 1.46553I$ $a = -0.26994 + 2.77190I$ $b = -0.31360 - 2.40695I$	$6.22877 - 5.97807I$	$-2.99155 + 7.20850I$
$u = 0.09920 - 1.46553I$ $a = -0.395823 + 0.646191I$ $b = -0.609648 - 0.043969I$	$6.22877 + 5.97807I$	$-2.99155 - 7.20850I$
$u = 0.09920 - 1.46553I$ $a = -0.26994 - 2.77190I$ $b = -0.31360 + 2.40695I$	$6.22877 + 5.97807I$	$-2.99155 - 7.20850I$
$u = -0.01760 + 1.52899I$ $a = -1.250130 - 0.500701I$ $b = 2.00715 + 0.63605I$	$8.69622 + 2.65996I$	$1.50438 - 2.01476I$
$u = -0.01760 + 1.52899I$ $a = 0.23286 - 2.06811I$ $b = -0.18397 + 1.61289I$	$8.69622 + 2.65996I$	$1.50438 - 2.01476I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.01760 - 1.52899I$ $a = -1.250130 + 0.500701I$ $b = 2.00715 - 0.63605I$	$8.69622 - 2.65996I$	$1.50438 + 2.01476I$
$u = -0.01760 - 1.52899I$ $a = 0.23286 + 2.06811I$ $b = -0.18397 - 1.61289I$	$8.69622 - 2.65996I$	$1.50438 + 2.01476I$
$u = 0.367791 + 0.287869I$ $a = -1.078570 + 0.747772I$ $b = -0.34613 - 1.55473I$	$0.39798 - 4.38767I$	$-9.5578 + 11.0682I$
$u = 0.367791 + 0.287869I$ $a = -1.52156 - 2.49296I$ $b = -0.006820 - 0.312135I$	$0.39798 - 4.38767I$	$-9.5578 + 11.0682I$
$u = 0.367791 - 0.287869I$ $a = -1.078570 - 0.747772I$ $b = -0.34613 + 1.55473I$	$0.39798 + 4.38767I$	$-9.5578 - 11.0682I$
$u = 0.367791 - 0.287869I$ $a = -1.52156 + 2.49296I$ $b = -0.006820 + 0.312135I$	$0.39798 + 4.38767I$	$-9.5578 - 11.0682I$
$u = 0.27238 + 1.54795I$ $a = -0.97464 + 1.65279I$ $b = -0.05742 - 2.01595I$	$14.4273 - 6.4879I$	$-0.59296 + 3.62205I$
$u = 0.27238 + 1.54795I$ $a = 0.45074 - 1.92343I$ $b = 0.99248 + 1.70658I$	$14.4273 - 6.4879I$	$-0.59296 + 3.62205I$
$u = 0.27238 - 1.54795I$ $a = -0.97464 - 1.65279I$ $b = -0.05742 + 2.01595I$	$14.4273 + 6.4879I$	$-0.59296 - 3.62205I$
$u = 0.27238 - 1.54795I$ $a = 0.45074 + 1.92343I$ $b = 0.99248 - 1.70658I$	$14.4273 + 6.4879I$	$-0.59296 - 3.62205I$

III. $\boldsymbol{I^u_3 = \langle -u^6 - 2u^5 - 5u^4 - 6u^3 - 6u^2 + b - 4u - 1,\ u^8 + 2u^7 + \cdots + a - 1,\ u^9 + 2u^8 + \cdots + 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} -u^8 - 2u^7 - 7u^6 - 10u^5 - 15u^4 - 14u^3 - 9u^2 - 5u + 1 \\ u^6 + 2u^5 + 5u^4 + 6u^3 + 6u^2 + 4u + 1 \end{pmatrix}$$

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

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

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

$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^7 - 2u^6 - 6u^5 - 8u^4 - 10u^3 - 9u^2 - 4u - 3 \\ -u^8 - 2u^7 - 6u^6 - 8u^5 - 11u^4 - 9u^3 - 6u^2 - 3u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^8 - 2u^7 - 7u^6 - 9u^5 - 14u^4 - 11u^3 - 7u^2 - 3u + 2 \\ u^7 + 2u^6 + 6u^5 + 8u^4 + 10u^3 + 8u^2 + 4u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^8 - 2u^7 - 6u^6 - 10u^5 - 13u^4 - 16u^3 - 11u^2 - 9u - 3 \\ -u^7 - u^6 - 4u^5 - 3u^4 - 4u^3 - 2u^2 + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^8 - 4u^6 - 13u^5 - 32u^4 - 38u^3 - 40u^2 - 24u - 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^9 + 3u^8 + 9u^7 + 14u^6 + 18u^5 + 18u^4 + 13u^3 + 8u^2 + 4u + 1$
c_2	$u^9 + 12u^8 + \cdots + 401u + 89$
c_4, c_9	$u^9 - u^8 - u^7 + 2u^6 + 2u^5 - 2u^4 - u^3 + 2u^2 - 1$
c_5, c_8	$u^9 - 2u^7 - u^6 + 2u^5 + 2u^4 - 2u^3 - u^2 + u + 1$
c_6, c_7	$u^9 + 2u^8 + 7u^7 + 10u^6 + 16u^5 + 16u^4 + 13u^3 + 9u^2 + 2u + 1$
c_{10}, c_{12}	$u^9 + 2u^8 + 3u^7 + u^6 - 18u^5 - 20u^4 - 4u^3 - 11u^2 - 1$
c_{11}	$u^9 - 2u^8 + 7u^7 - 10u^6 + 16u^5 - 16u^4 + 13u^3 - 9u^2 + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^9 + 9y^8 + 33y^7 + 46y^6 + 14y^5 - 14y^4 - 3y^3 + 4y^2 - 1$
c_2	$y^9 - 6y^8 + \cdots + 8789y - 7921$
c_4, c_9	$y^9 - 3y^8 + 9y^7 - 14y^6 + 18y^5 - 18y^4 + 13y^3 - 8y^2 + 4y - 1$
c_5, c_8	$y^9 - 4y^8 + 8y^7 - 13y^6 + 18y^5 - 18y^4 + 14y^3 - 9y^2 + 3y - 1$
c_6, c_7, c_{11}	$y^9 + 10y^8 + 41y^7 + 86y^6 + 86y^5 + 4y^4 - 75y^3 - 61y^2 - 14y - 1$
c_{10}, c_{12}	$y^9 + 2y^8 - 31y^7 - 37y^6 + 384y^5 - 230y^4 - 422y^3 - 161y^2 - 22y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.942156$ $a = 0.835924$ $b = 0.693833$	-4.78668	-6.85480
$u = 0.025437 + 1.219490I$ $a = -0.848257 + 0.499627I$ $b = -0.174357 - 0.757557I$	$3.87432 - 3.77454I$	$-1.17699 + 5.61151I$
$u = 0.025437 - 1.219490I$ $a = -0.848257 - 0.499627I$ $b = -0.174357 + 0.757557I$	$3.87432 + 3.77454I$	$-1.17699 - 5.61151I$
$u = -0.465053 + 1.257920I$ $a = 0.128314 + 0.500319I$ $b = 0.628101 + 0.278164I$	$-0.89563 + 5.00672I$	$-5.11040 - 6.89072I$
$u = -0.465053 - 1.257920I$ $a = 0.128314 - 0.500319I$ $b = 0.628101 - 0.278164I$	$-0.89563 - 5.00672I$	$-5.11040 + 6.89072I$
$u = -0.05596 + 1.56008I$ $a = -0.27494 - 1.81410I$ $b = 0.58625 + 1.89814I$	$8.14041 + 4.21823I$	$-1.16365 - 10.14642I$
$u = -0.05596 - 1.56008I$ $a = -0.27494 + 1.81410I$ $b = 0.58625 - 1.89814I$	$8.14041 - 4.21823I$	$-1.16365 + 10.14642I$
$u = -0.033345 + 0.402052I$ $a = 2.07693 - 1.08799I$ $b = 0.113094 + 1.126000I$	$1.14384 + 3.68908I$	$-2.12153 - 6.55211I$
$u = -0.033345 - 0.402052I$ $a = 2.07693 + 1.08799I$ $b = 0.113094 - 1.126000I$	$1.14384 - 3.68908I$	$-2.12153 + 6.55211I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^2 - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y-1)^6$
c_2	y^6
c_4, c_5, c_8 c_9	$y^6 - 7y^5 + 21y^4 - 31y^3 + 21y^2 - 7y + 1$
c_6, c_7, c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_{10}, c_{12}	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 1.153780 + 0.265134I$ $b = -1.00000$	$1.37919 - 2.82812I$	$-7.68821 - 2.81140I$
$u = 0.215080 + 1.307140I$ $a = -0.398899 + 1.224590I$ $b = -1.00000$	$1.37919 - 2.82812I$	$-7.68821 - 2.81140I$
$u = 0.215080 - 1.307140I$ $a = 1.153780 - 0.265134I$ $b = -1.00000$	$1.37919 + 2.82812I$	$-7.68821 + 2.81140I$
$u = 0.215080 - 1.307140I$ $a = -0.398899 - 1.224590I$ $b = -1.00000$	$1.37919 + 2.82812I$	$-7.68821 + 2.81140I$
$u = 0.569840$ $a = 0.161059$ $b = -1.00000$	-2.75839	-17.6240
$u = 0.569840$ $a = -2.67081$ $b = -1.00000$	-2.75839	-17.6240

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

$$a_9 = \begin{pmatrix} -2 \\ -1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = -1.00000$	-1.64493	-6.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3	$(u-1)^6(u+1)$ $\cdot(u^9+3u^8+9u^7+14u^6+18u^5+18u^4+13u^3+8u^2+4u+1)$ $\cdot(u^{21}+2u^{20}+\cdots+8u+1)(u^{30}-7u^{29}+\cdots-676u-329)$
c_2	$u^7(u^9+12u^8+\cdots+401u+89)(u^{15}-7u^{14}+\cdots+28u-8)^2$ $\cdot(u^{21}+15u^{20}+\cdots+63u+9)$
c_4, c_9	$(u+1)(u^6+u^5-3u^4-3u^3+3u^2+u-1)$ $\cdot(u^9-u^8-u^7+2u^6+2u^5-2u^4-u^3+2u^2-1)$ $\cdot(u^{21}-2u^{20}+\cdots-11u^2+1)(u^{30}-14u^{28}+\cdots-641u+151)$
c_5, c_8	$(u+1)(u^6+u^5-3u^4-3u^3+3u^2+u-1)$ $\cdot(u^9-2u^7+\cdots+u+1)(u^{21}-u^{20}+\cdots-u-1)$ $\cdot(u^{30}+9u^{26}+\cdots-u-1)$
c_6, c_7	$u(u^3-u^2+2u-1)^2$ $\cdot(u^9+2u^8+7u^7+10u^6+16u^5+16u^4+13u^3+9u^2+2u+1)$ $\cdot((u^{15}-2u^{14}+\cdots-4u+1)^2)(u^{21}+5u^{20}+\cdots-72u-9)$
c_{10}, c_{12}	$u(u^3-u^2+1)^2(u^9+2u^8+3u^7+u^6-18u^5-20u^4-4u^3-11u^2-1)$ $\cdot((u^{15}+2u^{14}+\cdots-16u+5)^2)(u^{21}-5u^{20}+\cdots-2988u-1413)$
c_{11}	$u(u^3+u^2+2u+1)^2$ $\cdot(u^9-2u^8+7u^7-10u^6+16u^5-16u^4+13u^3-9u^2+2u-1)$ $\cdot((u^{15}-2u^{14}+\cdots-4u+1)^2)(u^{21}+5u^{20}+\cdots-72u-9)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y-1)^7(y^9+9y^8+33y^7+46y^6+14y^5-14y^4-3y^3+4y^2-1)$ $\cdot(y^{21}+30y^{20}+\cdots+6y-1)(y^{30}+33y^{29}+\cdots+1028130y+108241)$
c_2	$y^7(y^9-6y^8+\cdots+8789y-7921)(y^{15}-7y^{14}+\cdots+528y-64)^2$ $\cdot(y^{21}-13y^{20}+\cdots-1377y-81)$
c_4, c_9	$(y-1)(y^6-7y^5+21y^4-31y^3+21y^2-7y+1)$ $\cdot(y^9-3y^8+9y^7-14y^6+18y^5-18y^4+13y^3-8y^2+4y-1)$ $\cdot(y^{21}-22y^{20}+\cdots+22y-1)(y^{30}-28y^{29}+\cdots+125773y+22801)$
c_5, c_8	$(y-1)(y^6-7y^5+21y^4-31y^3+21y^2-7y+1)$ $\cdot(y^9-4y^8+8y^7-13y^6+18y^5-18y^4+14y^3-9y^2+3y-1)$ $\cdot(y^{21}-11y^{20}+\cdots+21y-1)(y^{30}+18y^{28}+\cdots-35y+1)$
c_6, c_7, c_{11}	$y(y^3+3y^2+2y-1)^2$ $\cdot(y^9+10y^8+41y^7+86y^6+86y^5+4y^4-75y^3-61y^2-14y-1)$ $\cdot((y^{15}+16y^{14}+\cdots-4y-1)^2)(y^{21}+23y^{20}+\cdots+324y-81)$
c_{10}, c_{12}	$y(y^3-y^2+2y-1)^2$ $\cdot(y^9+2y^8-31y^7-37y^6+384y^5-230y^4-422y^3-161y^2-22y-1)$ $\cdot(y^{15}+16y^{14}+\cdots-344y-25)^2$ $\cdot(y^{21}+19y^{20}+\cdots-3839724y-1996569)$