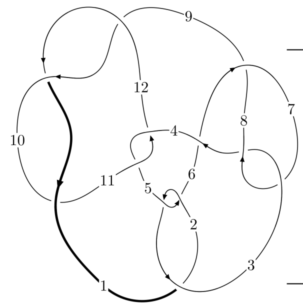
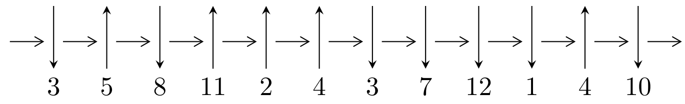
$12n_{0335}$ ($K12n_{0335}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -1.35069 \times 10^{64} u^{54} + 3.81695 \times 10^{64} u^{53} + \cdots + 1.37855 \times 10^{64} b + 9.95905 \times 10^{64}, \\ & -5.59560 \times 10^{64} u^{54} + 1.78086 \times 10^{65} u^{53} + \cdots + 4.13566 \times 10^{64} a + 2.40656 \times 10^{66}, \\ & u^{55} - 3u^{54} + \cdots - 180u + 36 \rangle \\ I_2^u = \langle & -bau + b^2 - 2ba + bu - au + 2b + 2u,\ a^2 - a - 1,\ u^2 + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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. $I_1^u = \langle -1.35 \times 10^{64}u^{54} + 3.82 \times 10^{64}u^{53} + \cdots + 1.38 \times 10^{64}b + 9.96 \times 10^{64},\ -5.60 \times 10^{64}u^{54} + 1.78 \times 10^{65}u^{53} + \cdots + 4.14 \times 10^{64}a + 2.41 \times 10^{66},\ u^{55} - 3u^{54} + \cdots - 180u + 36\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1.35301u^{54} - 4.30610u^{53} + \cdots + 353.805u - 58.1904\\0.979787u^{54} - 2.76881u^{53} + \cdots + 110.400u - 7.22427\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1.20076u^{54} - 2.20679u^{53} + \cdots - 306.550u + 94.2856\\0.569068u^{54} - 0.988169u^{53} + \cdots - 149.680u + 43.2863\end{pmatrix}$$
$$a_7 = \begin{pmatrix}2.77967u^{54} - 6.78822u^{53} + \cdots - 70.9703u + 69.9144\\0.436392u^{54} - 0.768297u^{53} + \cdots - 104.002u + 31.7186\end{pmatrix}$$
$$a_8 = \begin{pmatrix}2.34328u^{54} - 6.01992u^{53} + \cdots + 33.0317u + 38.1958\\0.436392u^{54} - 0.768297u^{53} + \cdots - 104.002u + 31.7186\end{pmatrix}$$
$$a_9 = \begin{pmatrix}2.64631u^{54} - 8.83637u^{53} + \cdots + 788.120u - 127.191\\0.0484147u^{54} - 0.320036u^{53} + \cdots + 86.8216u - 17.2120\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}2.08439u^{54} - 6.60302u^{53} + \cdots + 525.581u - 84.0141\\0.459586u^{54} - 1.41002u^{53} + \cdots + 83.1692u - 10.7895\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-2.48557u^{54} + 8.51354u^{53} + \cdots - 805.408u + 134.995\\-0.122323u^{54} + 0.796684u^{53} + \cdots - 177.994u + 38.7845\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.07522u^{54} - 3.77605u^{53} + \cdots - 430.874u + 130.101$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{55} + 23u^{54} + \cdots - 2664u - 1296$
c_2, c_5	$u^{55} + 3u^{54} + \cdots - 180u - 36$
c_3, c_7	$u^{55} + 3u^{54} + \cdots + 2u^2 - 9$
c_4, c_{11}	$u^{55} - u^{54} + \cdots - 4u + 1$
c_6	$u^{55} + 9u^{54} + \cdots + 711666u - 322299$
c_8	$u^{55} + 17u^{54} + \cdots + 36u + 81$
c_9, c_{10}, c_{12}	$u^{55} - 5u^{54} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{55} + 27y^{54} + \cdots + 195397920y - 1679616$
c_2, c_5	$y^{55} + 23y^{54} + \cdots - 2664y - 1296$
c_3, c_7	$y^{55} - 17y^{54} + \cdots + 36y - 81$
c_4, c_{11}	$y^{55} + 15y^{54} + \cdots + 20y - 1$
c_6	$y^{55} - 77y^{54} + \cdots + 1247977937268y - 103876645401$
c_8	$y^{55} + 47y^{54} + \cdots + 545940y - 6561$
c_9, c_{10}, c_{12}	$y^{55} - 45y^{54} + \cdots - 76y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.059953+1.012980I$ $a=\ \ 0.039284+0.228627I$ $b=\ \ 3.38648-7.92146I$	$-3.35243+2.03755I$	$55.1037+12.6479I$
$u=-0.059953-1.012980I$ $a=\ \ 0.039284-0.228627I$ $b=\ \ 3.38648+7.92146I$	$-3.35243-2.03755I$	$55.1037-12.6479I$
$u=\ \ 0.503627+0.897107I$ $a=\ \ 0.934263-0.027824I$ $b=\ \ 1.02333+1.27124I$	$-2.25554+4.57545I$	$-5.65078-7.74410I$
$u=\ \ 0.503627-0.897107I$ $a=\ \ 0.934263+0.027824I$ $b=\ \ 1.02333-1.27124I$	$-2.25554-4.57545I$	$-5.65078+7.74410I$
$u=-0.749649+0.722966I$ $a=-1.365230+0.185901I$ $b=-1.50650+0.41105I$	$1.75202+1.88837I$	$-2.61590-0.91978I$
$u=-0.749649-0.722966I$ $a=-1.365230-0.185901I$ $b=-1.50650-0.41105I$	$1.75202-1.88837I$	$-2.61590+0.91978I$
$u=-0.364761+0.993866I$ $a=\ \ 0.008868+0.879146I$ $b=\ \ 1.02933-1.07956I$	$-4.91412-2.97553I$	$-9.62258+3.34712I$
$u=-0.364761-0.993866I$ $a=\ \ 0.008868-0.879146I$ $b=\ \ 1.02933+1.07956I$	$-4.91412+2.97553I$	$-9.62258-3.34712I$
$u=\ \ 0.258557+1.030090I$ $a=-0.830582-0.163972I$ $b=-1.38989-0.45028I$	$-3.67536+0.88537I$	$-11.38095+0.I$
$u=\ \ 0.258557-1.030090I$ $a=-0.830582+0.163972I$ $b=-1.38989+0.45028I$	$-3.67536-0.88537I$	$-11.38095+0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.718519 + 0.847961I$ $a = -1.296050 - 0.245653I$ $b = -1.49635 - 0.46822I$	$1.59469 + 3.95590I$	$0. - 4.38344I$
$u = 0.718519 - 0.847961I$ $a = -1.296050 + 0.245653I$ $b = -1.49635 + 0.46822I$	$1.59469 - 3.95590I$	$0. + 4.38344I$
$u = 0.177488 + 1.115120I$ $a = 1.338900 + 0.369569I$ $b = 0.511338 + 0.177719I$	$-11.38140 - 0.95537I$	$-13.23793 + 0.I$
$u = 0.177488 - 1.115120I$ $a = 1.338900 - 0.369569I$ $b = 0.511338 - 0.177719I$	$-11.38140 + 0.95537I$	$-13.23793 + 0.I$
$u = 0.715954 + 0.884530I$ $a = -0.021837 - 1.295710I$ $b = 0.555987 + 0.117408I$	$1.48173 + 1.52459I$	0
$u = 0.715954 - 0.884530I$ $a = -0.021837 + 1.295710I$ $b = 0.555987 - 0.117408I$	$1.48173 - 1.52459I$	0
$u = -0.629070 + 0.579280I$ $a = 0.899218 + 0.140744I$ $b = 0.684898 - 0.590344I$	$0.99052 - 1.29254I$	$2.78379 + 2.92308I$
$u = -0.629070 - 0.579280I$ $a = 0.899218 - 0.140744I$ $b = 0.684898 + 0.590344I$	$0.99052 + 1.29254I$	$2.78379 - 2.92308I$
$u = 0.962772 + 0.634354I$ $a = -0.348395 + 1.141660I$ $b = -0.848577 + 0.156761I$	$6.13413 - 3.62958I$	0
$u = 0.962772 - 0.634354I$ $a = -0.348395 - 1.141660I$ $b = -0.848577 - 0.156761I$	$6.13413 + 3.62958I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.072657+1.156240I$ $a=-0.250058-0.246628I$ $b=-0.995895-0.128359I$	$-1.49791-2.22374I$	0
$u=-0.072657-1.156240I$ $a=-0.250058+0.246628I$ $b=-0.995895+0.128359I$	$-1.49791+2.22374I$	0
$u=-0.937527+0.741922I$ $a=-0.383327-1.039020I$ $b=-0.900494-0.104724I$	$6.37472-2.61690I$	0
$u=-0.937527-0.741922I$ $a=-0.383327+1.039020I$ $b=-0.900494+0.104724I$	$6.37472+2.61690I$	0
$u=1.152520+0.350922I$ $a=0.578184-0.918755I$ $b=1.052210-0.449986I$	$2.57652-8.84046I$	0
$u=1.152520-0.350922I$ $a=0.578184+0.918755I$ $b=1.052210+0.449986I$	$2.57652+8.84046I$	0
$u=-0.701046+0.984062I$ $a=0.061127+1.262660I$ $b=0.749098-0.104477I$	$0.95535-7.42151I$	0
$u=-0.701046-0.984062I$ $a=0.061127-1.262660I$ $b=0.749098+0.104477I$	$0.95535+7.42151I$	0
$u=-1.159080+0.396377I$ $a=0.586340+0.734811I$ $b=0.989615+0.342386I$	$3.69536+2.42722I$	0
$u=-1.159080-0.396377I$ $a=0.586340-0.734811I$ $b=0.989615-0.342386I$	$3.69536-2.42722I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.203618 + 0.681460I$ $a = -0.591078 - 0.840978I$ $b = -0.472677 + 0.984550I$	$-2.07887 + 0.90467I$	$-6.07000 + 0.56339I$
$u = 0.203618 - 0.681460I$ $a = -0.591078 + 0.840978I$ $b = -0.472677 - 0.984550I$	$-2.07887 - 0.90467I$	$-6.07000 - 0.56339I$
$u = 0.110493 + 0.692074I$ $a = 0.739047 - 0.175124I$ $b = -0.665968 + 0.952652I$	$-1.59698 - 1.61659I$	$-1.44406 - 0.65784I$
$u = 0.110493 - 0.692074I$ $a = 0.739047 + 0.175124I$ $b = -0.665968 - 0.952652I$	$-1.59698 + 1.61659I$	$-1.44406 + 0.65784I$
$u = -0.801899 + 1.028120I$ $a = 1.117420 + 0.073109I$ $b = 1.48706 - 0.77147I$	$5.47096 - 3.75621I$	0
$u = -0.801899 - 1.028120I$ $a = 1.117420 - 0.073109I$ $b = 1.48706 + 0.77147I$	$5.47096 + 3.75621I$	0
$u = 0.763372 + 1.097560I$ $a = 1.130030 - 0.021844I$ $b = 1.57911 + 0.85143I$	$4.68957 + 9.94524I$	0
$u = 0.763372 - 1.097560I$ $a = 1.130030 + 0.021844I$ $b = 1.57911 - 0.85143I$	$4.68957 - 9.94524I$	0
$u = 0.132026 + 0.646971I$ $a = 2.61608 + 0.55117I$ $b = 0.941369 + 0.117297I$	$-9.42726 + 2.36390I$	$-1.16452 - 4.84130I$
$u = 0.132026 - 0.646971I$ $a = 2.61608 - 0.55117I$ $b = 0.941369 - 0.117297I$	$-9.42726 - 2.36390I$	$-1.16452 + 4.84130I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.738573 + 1.127370I$ $a = -0.861984 - 0.010078I$ $b = -0.82426 - 1.30675I$	$-6.84994 + 8.00995I$	0
$u = 0.738573 - 1.127370I$ $a = -0.861984 + 0.010078I$ $b = -0.82426 + 1.30675I$	$-6.84994 - 8.00995I$	0
$u = 1.085430 + 0.809644I$ $a = -0.259628 - 0.401649I$ $b = 0.278041 - 0.746527I$	$-5.33599 - 1.38467I$	0
$u = 1.085430 - 0.809644I$ $a = -0.259628 + 0.401649I$ $b = 0.278041 + 0.746527I$	$-5.33599 + 1.38467I$	0
$u = 0.71206 + 1.27104I$ $a = -1.045930 + 0.191194I$ $b = -1.50069 - 1.14574I$	$-0.2861 + 15.4592I$	0
$u = 0.71206 - 1.27104I$ $a = -1.045930 - 0.191194I$ $b = -1.50069 + 1.14574I$	$-0.2861 - 15.4592I$	0
$u = -0.74916 + 1.25256I$ $a = -0.978931 - 0.217150I$ $b = -1.36649 + 1.02579I$	$1.06335 - 9.19388I$	0
$u = -0.74916 - 1.25256I$ $a = -0.978931 + 0.217150I$ $b = -1.36649 - 1.02579I$	$1.06335 + 9.19388I$	0
$u = -0.87172 + 1.17361I$ $a = -0.522134 - 0.089230I$ $b = -0.540213 + 0.695522I$	$-1.56919 - 4.20311I$	0
$u = -0.87172 - 1.17361I$ $a = -0.522134 + 0.089230I$ $b = -0.540213 - 0.695522I$	$-1.56919 + 4.20311I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.422680$ $a = -1.62609$ $b = -1.25011$	-2.48655	-1.11980
$u = 0.383224 + 0.053506I$ $a = 0.13292 + 2.07512I$ $b = -0.541303 - 0.058971I$	$-0.85477 - 1.49574I$	$-2.42286 + 5.05757I$
$u = 0.383224 - 0.053506I$ $a = 0.13292 - 2.07512I$ $b = -0.541303 + 0.058971I$	$-0.85477 + 1.49574I$	$-2.42286 - 5.05757I$
$u = 0.18963 + 1.71301I$ $a = 0.303194 + 0.184743I$ $b = -0.0935061 + 0.0909681I$	$-4.31137 - 3.46877I$	0
$u = 0.18963 - 1.71301I$ $a = 0.303194 - 0.184743I$ $b = -0.0935061 - 0.0909681I$	$-4.31137 + 3.46877I$	0

II. $\boldsymbol{I_2^u = \langle -bau + b^2 - 2ba + bu - au + 2b + 2u,\ a^2 - a - 1,\ u^2 + 1\rangle}$

(i) Arc colorings

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

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

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

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

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

$$a_{11} = \begin{pmatrix} a \\ b \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -au - u \\ -bau + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2bau + bu - au \\ -ba + u + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2bau + ba + bu - au - u - 1 \\ -ba + u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -a - 1 \\ -ba + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ b - a \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4bau + 4u - 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^8$
c_2, c_5	$(u^2+1)^4$
c_3, c_6, c_7	$(u^4-u^2+1)^2$
c_4, c_{11}	$(u^4+3u^2+1)^2$
c_8	$(u^2+u+1)^4$
c_9, c_{10}	$(u^2+u-1)^4$
c_{12}	$(u^2-u-1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^8$
c_2, c_5	$(y+1)^8$
c_3, c_6, c_7	$(y^2-y+1)^4$
c_4, c_{11}	$(y^2+3y+1)^4$
c_8	$(y^2+y+1)^4$
c_9, c_{10}, c_{12}	$(y^2-3y+1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.618034$ $b = -0.216775 - 0.809017I$	$-2.63189 - 2.02988I$	$-10.00000 + 3.46410I$
$u = 1.000000I$ $a = -0.618034$ $b = -3.01929 - 0.80902I$	$-2.63189 + 2.02988I$	$-10.00000 - 3.46410I$
$u = 1.000000I$ $a = 1.61803$ $b = 1.153270 + 0.309017I$	$-10.52760 + 2.02988I$	$-10.00000 - 3.46410I$
$u = 1.000000I$ $a = 1.61803$ $b = 0.082801 + 0.309017I$	$-10.52760 - 2.02988I$	$-10.00000 + 3.46410I$
$u = -1.000000I$ $a = -0.618034$ $b = -0.216775 + 0.809017I$	$-2.63189 + 2.02988I$	$-10.00000 - 3.46410I$
$u = -1.000000I$ $a = -0.618034$ $b = -3.01929 + 0.80902I$	$-2.63189 - 2.02988I$	$-10.00000 + 3.46410I$
$u = -1.000000I$ $a = 1.61803$ $b = 1.153270 - 0.309017I$	$-10.52760 - 2.02988I$	$-10.00000 + 3.46410I$
$u = -1.000000I$ $a = 1.61803$ $b = 0.082801 - 0.309017I$	$-10.52760 + 2.02988I$	$-10.00000 - 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^{55}+23u^{54}+\cdots-2664u-1296)$
c_2, c_5	$((u^2+1)^4)(u^{55}+3u^{54}+\cdots-180u-36)$
c_3, c_7	$((u^4-u^2+1)^2)(u^{55}+3u^{54}+\cdots+2u^2-9)$
c_4, c_{11}	$((u^4+3u^2+1)^2)(u^{55}-u^{54}+\cdots-4u+1)$
c_6	$((u^4-u^2+1)^2)(u^{55}+9u^{54}+\cdots+711666u-322299)$
c_8	$((u^2+u+1)^4)(u^{55}+17u^{54}+\cdots+36u+81)$
c_9, c_{10}	$((u^2+u-1)^4)(u^{55}-5u^{54}+\cdots+4u+1)$
c_{12}	$((u^2-u-1)^4)(u^{55}-5u^{54}+\cdots+4u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^{55}+27y^{54}+\cdots+1.95398\times10^8y-1679616)$
c_2, c_5	$((y+1)^8)(y^{55}+23y^{54}+\cdots-2664y-1296)$
c_3, c_7	$((y^2-y+1)^4)(y^{55}-17y^{54}+\cdots+36y-81)$
c_4, c_{11}	$((y^2+3y+1)^4)(y^{55}+15y^{54}+\cdots+20y-1)$
c_6	$(y^2-y+1)^4$ $\cdot(y^{55}-77y^{54}+\cdots+1247977937268y-103876645401)$
c_8	$((y^2+y+1)^4)(y^{55}+47y^{54}+\cdots+545940y-6561)$
c_9, c_{10}, c_{12}	$((y^2-3y+1)^4)(y^{55}-45y^{54}+\cdots-76y-1)$