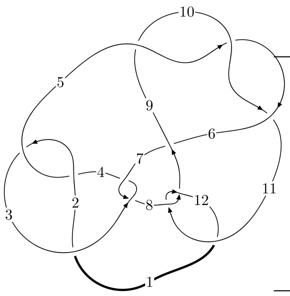
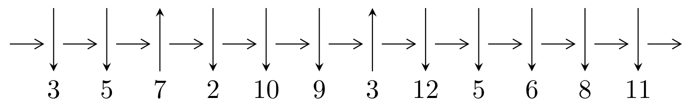
$12n_{0185}$ ($K12n_{0185}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 376024023995393u^{34} + 337812687444816u^{33} + \cdots + 236220224312633b - 92299978153456, \\
& - 21436667059562u^{34} - 138041311777599u^{33} + \cdots + 236220224312633a - 507133705138188, \\
& u^{35} + 2u^{34} + \cdots + 7u^2 - 1\rangle \\
I_2^u = \langle & -u^7 - u^6 + 2u^5 + 3u^4 - 2u^2 + b - 3u - 2,\ -u^7 + u^6 + 3u^5 - 2u^4 - 3u^3 + a + 2, \\
& u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 43 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. $I_1^u = \langle 3.76 \times 10^{14}u^{34} + 3.38 \times 10^{14}u^{33} + \cdots + 2.36 \times 10^{14}b - 9.23 \times 10^{13},\ -2.14 \times 10^{13}u^{34} - 1.38 \times 10^{14}u^{33} + \cdots + 2.36 \times 10^{14}a - 5.07 \times 10^{14},\ u^{35} + 2u^{34} + \cdots + 7u^2 - 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0907487u^{34} + 0.584376u^{33} + \cdots + 2.44395u + 2.14687 \\ -1.59184u^{34} - 1.43008u^{33} + \cdots - 0.811363u + 0.390737 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0907487u^{34} + 0.584376u^{33} + \cdots + 2.44395u + 2.14687 \\ -1.45102u^{34} - 1.18233u^{33} + \cdots - 0.902112u - 0.0121412 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.575913u^{34} + 0.751783u^{33} + \cdots + 1.72764u - 0.721893 \\ 0.273973u^{34} + 0.369123u^{33} + \cdots + 0.836448u - 1.01092 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0507248u^{34} + 0.357239u^{33} + \cdots + 1.91500u + 2.35136 \\ -1.53287u^{34} - 1.32266u^{33} + \cdots - 0.588139u + 0.311133 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.356599u^{34} + 0.653291u^{33} + \cdots + 1.26570u - 0.986457 \\ 0.215125u^{34} + 0.426155u^{33} + \cdots + 0.736752u - 0.781963 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.722473u^{34} - 1.09863u^{33} + \cdots - 1.64586u + 1.70851 \\ 0.119619u^{34} + 0.128063u^{33} + \cdots - 0.342320u - 0.375739 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{2062473679663797}{236220224312633}u^{34} - \frac{828575186416011}{236220224312633}u^{33} + \cdots + \frac{12598333068563340}{236220224312633}u - \frac{231203744342586}{236220224312633}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{35} + 49u^{34} + \cdots + 3150u + 1$
c_2, c_4	$u^{35} - 9u^{34} + \cdots - 70u + 1$
c_3, c_7	$u^{35} - 3u^{34} + \cdots - 2432u - 256$
c_5, c_9, c_{10}	$u^{35} + 2u^{34} + \cdots + 7u^2 - 1$
c_6	$u^{35} - 6u^{34} + \cdots + 1364u - 847$
c_8, c_{11}	$u^{35} + 2u^{34} + \cdots + 4u + 1$
c_{12}	$u^{35} + 24u^{34} + \cdots + 14u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{35} - 117y^{34} + \cdots + 9175798y - 1$
c_2, c_4	$y^{35} - 49y^{34} + \cdots + 3150y - 1$
c_3, c_7	$y^{35} + 51y^{34} + \cdots + 5423104y - 65536$
c_5, c_9, c_{10}	$y^{35} - 36y^{34} + \cdots + 14y - 1$
c_6	$y^{35} - 36y^{34} + \cdots + 23619926y - 717409$
c_8, c_{11}	$y^{35} - 24y^{34} + \cdots + 14y - 1$
c_{12}	$y^{35} - 24y^{34} + \cdots + 402y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.571697 + 0.825819I$ $a = 1.02997 + 1.33115I$ $b = -0.13854 - 1.61473I$	$-8.58737 + 2.74263I$	$-10.41024 - 2.56572I$
$u = -0.571697 - 0.825819I$ $a = 1.02997 - 1.33115I$ $b = -0.13854 + 1.61473I$	$-8.58737 - 2.74263I$	$-10.41024 + 2.56572I$
$u = 0.552087 + 0.825280I$ $a = -0.87268 + 1.55881I$ $b = -0.20679 - 1.66620I$	$-12.94840 + 3.24222I$	$-12.66532 - 0.54583I$
$u = 0.552087 - 0.825280I$ $a = -0.87268 - 1.55881I$ $b = -0.20679 + 1.66620I$	$-12.94840 - 3.24222I$	$-12.66532 + 0.54583I$
$u = 0.575473 + 0.807100I$ $a = -1.29277 + 1.27295I$ $b = 0.43025 - 1.79381I$	$-13.0318 - 8.6571I$	$-12.52203 + 5.43059I$
$u = 0.575473 - 0.807100I$ $a = -1.29277 - 1.27295I$ $b = 0.43025 + 1.79381I$	$-13.0318 + 8.6571I$	$-12.52203 - 5.43059I$
$u = -1.215130 + 0.192273I$ $a = 0.340293 + 0.190807I$ $b = -0.450734 + 0.019324I$	$-1.72471 + 0.87161I$	$-4.58345 + 0.49262I$
$u = -1.215130 - 0.192273I$ $a = 0.340293 - 0.190807I$ $b = -0.450734 - 0.019324I$	$-1.72471 - 0.87161I$	$-4.58345 - 0.49262I$
$u = -0.128163 + 0.673108I$ $a = -0.157665 + 0.722315I$ $b = 0.179473 - 0.037885I$	$1.43459 + 2.27058I$	$-1.42314 - 3.26969I$
$u = -0.128163 - 0.673108I$ $a = -0.157665 - 0.722315I$ $b = 0.179473 + 0.037885I$	$1.43459 - 2.27058I$	$-1.42314 + 3.26969I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.521823 + 0.375425I$ $a = 1.98216 + 0.47145I$ $b = -0.419285 + 1.197250I$	$-4.17337 - 3.54764I$	$-13.9483 + 7.1314I$
$u = 0.521823 - 0.375425I$ $a = 1.98216 - 0.47145I$ $b = -0.419285 - 1.197250I$	$-4.17337 + 3.54764I$	$-13.9483 - 7.1314I$
$u = -0.628588$ $a = -2.61914$ $b = -0.676319$	-6.22799	-17.7300
$u = 1.38882$ $a = -0.0130861$ $b = 1.19281$	-6.53287	-13.8260
$u = 1.366140 + 0.266698I$ $a = -0.369885 + 0.416733I$ $b = 0.1060940 + 0.0070702I$	$-3.30368 - 5.68455I$	$-8.00000 + 0.I$
$u = 1.366140 - 0.266698I$ $a = -0.369885 - 0.416733I$ $b = 0.1060940 - 0.0070702I$	$-3.30368 + 5.68455I$	$-8.00000 + 0.I$
$u = -1.44080$ $a = -0.727727$ $b = 7.36351$	-8.27744	27.9740
$u = -1.47539$ $a = -0.857502$ $b = 2.36593$	-8.21207	-8.00000
$u = 1.47608 + 0.08600I$ $a = 0.570629 + 0.485997I$ $b = -0.33599 + 1.45625I$	$-6.62003 - 2.59519I$	0
$u = 1.47608 - 0.08600I$ $a = 0.570629 - 0.485997I$ $b = -0.33599 - 1.45625I$	$-6.62003 + 2.59519I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.349636 + 0.351362I$ $a = -1.224010 - 0.204907I$ $b = 0.210574 + 0.830362I$	$-0.594132 + 1.120540I$	$-6.95383 - 6.15774I$
$u = -0.349636 - 0.351362I$ $a = -1.224010 + 0.204907I$ $b = 0.210574 - 0.830362I$	$-0.594132 - 1.120540I$	$-6.95383 + 6.15774I$
$u = -1.52553 + 0.10391I$ $a = -0.768523 + 0.940824I$ $b = 0.459596 + 1.316590I$	$-10.99510 + 5.24946I$	0
$u = -1.52553 - 0.10391I$ $a = -0.768523 - 0.940824I$ $b = 0.459596 - 1.316590I$	$-10.99510 - 5.24946I$	0
$u = 1.54711$ $a = 1.47176$ $b = -0.141707$	-13.5056	0
$u = 0.209346 + 0.398609I$ $a = 0.21466 - 2.09699I$ $b = 0.49858 + 1.79535I$	$-3.31433 + 0.90397I$	$-10.45251 + 5.11287I$
$u = 0.209346 - 0.398609I$ $a = 0.21466 + 2.09699I$ $b = 0.49858 - 1.79535I$	$-3.31433 - 0.90397I$	$-10.45251 - 5.11287I$
$u = -0.439838$ $a = 0.227233$ $b = -0.497327$	-0.965385	-10.6440
$u = -1.56383 + 0.27842I$ $a = 1.192970 - 0.084215I$ $b = -0.57843 - 2.00327I$	$19.4383 + 12.6641I$	0
$u = -1.56383 - 0.27842I$ $a = 1.192970 + 0.084215I$ $b = -0.57843 + 2.00327I$	$19.4383 - 12.6641I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.56397 + 0.29270I$ $a = 1.145030 + 0.192290I$ $b = -0.07466 - 1.64853I$	$19.6118 + 0.8962I$	0
$u = -1.56397 - 0.29270I$ $a = 1.145030 - 0.192290I$ $b = -0.07466 + 1.64853I$	$19.6118 - 0.8962I$	0
$u = 1.56922 + 0.28522I$ $a = -1.121370 + 0.038644I$ $b = 0.40086 - 1.74127I$	$-15.6045 - 6.8496I$	0
$u = 1.56922 - 0.28522I$ $a = -1.121370 - 0.038644I$ $b = 0.40086 + 1.74127I$	$-15.6045 + 6.8496I$	0
$u = 0.344297$ $a = 3.18086$ $b = -0.768868$	−2.11337	0.398900

II. $\boldsymbol{I_2^u = \langle -u^7 - u^6 + 2u^5 + 3u^4 - 2u^2 + b - 3u - 2,\ -u^7 + u^6 + 3u^5 - 2u^4 - 3u^3 + a + 2,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle}$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} u^7 - u^6 - 3u^5 + 2u^4 + 3u^3 - 2 \\ u^7 + u^6 - 2u^5 - 3u^4 + 2u^2 + 3u + 2 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^7 - 9u^6 + 10u^5 + 27u^4 + 2u^3 - 18u^2 - 20u - 29$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = -0.805639 - 0.183365I$ $b = 0.037144 + 0.630517I$	$-2.68559 + 1.13123I$	$-13.38132 - 1.25921I$
$u = -1.180120 - 0.268597I$ $a = -0.805639 + 0.183365I$ $b = 0.037144 - 0.630517I$	$-2.68559 - 1.13123I$	$-13.38132 + 1.25921I$
$u = -0.108090 + 0.747508I$ $a = -0.189481 - 1.310380I$ $b = 0.082879 + 0.802680I$	$0.51448 + 2.57849I$	$-10.25723 - 4.63100I$
$u = -0.108090 - 0.747508I$ $a = -0.189481 + 1.310380I$ $b = 0.082879 - 0.802680I$	$0.51448 - 2.57849I$	$-10.25723 + 4.63100I$
$u = 1.37100$ $a = 0.729394$ $b = 5.33104$	-8.14766	-37.4550
$u = 1.334530 + 0.318930I$ $a = 0.708845 - 0.169402I$ $b = -0.259819 + 0.832925I$	$-4.02461 - 6.44354I$	$-13.7170 + 7.8762I$
$u = 1.334530 - 0.318930I$ $a = 0.708845 + 0.169402I$ $b = -0.259819 - 0.832925I$	$-4.02461 + 6.44354I$	$-13.7170 - 7.8762I$
$u = -0.463640$ $a = -2.15684$ $b = 0.948553$	-2.48997	-22.8330

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^{35}+49u^{34}+\cdots+3150u+1)$
c_2	$((u-1)^8)(u^{35}-9u^{34}+\cdots-70u+1)$
c_3, c_7	$u^8(u^{35}-3u^{34}+\cdots-2432u-256)$
c_4	$((u+1)^8)(u^{35}-9u^{34}+\cdots-70u+1)$
c_5	$(u^8+u^7-3u^6-2u^5+3u^4+2u-1)(u^{35}+2u^{34}+\cdots+7u^2-1)$
c_6	$(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{35}-6u^{34}+\cdots+1364u-847)$
c_8	$(u^8-u^7+\cdots+2u-1)(u^{35}+2u^{34}+\cdots+4u+1)$
c_9, c_{10}	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)(u^{35}+2u^{34}+\cdots+7u^2-1)$
c_{11}	$(u^8+u^7+\cdots-2u-1)(u^{35}+2u^{34}+\cdots+4u+1)$
c_{12}	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{35}+24u^{34}+\cdots+14u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^{35}-117y^{34}+\cdots+9175798y-1)$
c_2, c_4	$((y-1)^8)(y^{35}-49y^{34}+\cdots+3150y-1)$
c_3, c_7	$y^8(y^{35}+51y^{34}+\cdots+5423104y-65536)$
c_5, c_9, c_{10}	$(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{35}-36y^{34}+\cdots+14y-1)$
c_6	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{35}-36y^{34}+\cdots+23619926y-717409)$
c_8, c_{11}	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{35}-24y^{34}+\cdots+14y-1)$
c_{12}	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{35}-24y^{34}+\cdots+402y-1)$