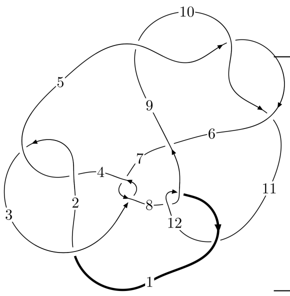
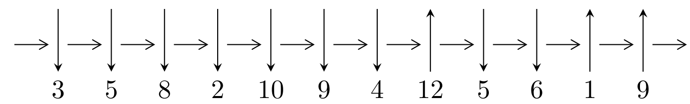
$12n_{0188}$ ($K12n_{0188}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle 1.51544 \times 10^{40} u^{40} + 2.56027 \times 10^{40} u^{39} + \cdots + 1.06321 \times 10^{41} b + 4.21643 \times 10^{41},$$
$$6.97778 \times 10^{40} u^{40} + 1.95337 \times 10^{41} u^{39} + \cdots + 2.12642 \times 10^{41} a - 9.27571 \times 10^{40},\ u^{41} + 3u^{40} + \cdots - 8u - 8$$
$$I^u_2 = \langle -2a^2 - au + b - 2a - u - 1,\ 4a^3 + 2a^2 u - u,\ u^2 - 2 \rangle$$

$$I^v_1 = \langle a,\ b + v + 2,\ v^3 + 3v^2 + 2v - 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 50 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.

$$I^u_1 = \langle 1.52\times10^{40}u^{40}+2.56\times10^{40}u^{39}+\cdots+1.06\times10^{41}b+4.22\times10^{41},\ 6.98\times10^{40}u^{40}+1.95\times10^{41}u^{39}+\cdots+2.13\times10^{41}a-9.28\times10^{40},\ u^{41}+3u^{40}+\cdots-8u-8\rangle$$

(i) Arc colorings

$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^3-2u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.328147u^{40}-0.918618u^{39}+\cdots-19.5503u+0.436213\\-0.142535u^{40}-0.240806u^{39}+\cdots+7.40030u-3.96576\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.328147u^{40}-0.918618u^{39}+\cdots-19.5503u+0.436213\\0.0824090u^{40}+0.163606u^{39}+\cdots+9.49889u-4.49235\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0838694u^{40}+0.525518u^{39}+\cdots+23.3356u+7.39263\\-0.124059u^{40}-0.154000u^{39}+\cdots+5.97827u+0.0223382\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.340779u^{40}-1.11522u^{39}+\cdots-14.5840u-9.80822\\0.0747081u^{40}-0.0614080u^{39}+\cdots-12.3801u+1.21809\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.207928u^{40}+0.679518u^{39}+\cdots+17.3573u+7.37029\\-0.124059u^{40}-0.154000u^{39}+\cdots+5.97827u+0.0223382\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.401561u^{40}+1.01803u^{39}+\cdots+27.2274u+2.78868\\-0.142281u^{40}-0.206934u^{39}+\cdots-0.775735u+2.43501\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.588415u^{40}-0.804243u^{39}+\cdots+87.6228u-60.0034$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} + 26u^{40} + \cdots + 206u + 1$
c_2, c_4	$u^{41} - 4u^{40} + \cdots - 14u - 1$
c_3, c_7	$u^{41} + 2u^{40} + \cdots + 8u - 1$
c_5, c_9, c_{10}	$u^{41} + 3u^{40} + \cdots - 8u - 8$
c_6	$u^{41} - 9u^{40} + \cdots + 10824u + 12200$
c_8, c_{12}	$u^{41} - 4u^{40} + \cdots + 5u - 7$
c_{11}	$u^{41} - 12u^{40} + \cdots + 1593u - 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} - 18y^{40} + \cdots + 44086y - 1$
c_2, c_4	$y^{41} - 26y^{40} + \cdots + 206y - 1$
c_3, c_7	$y^{41} + 6y^{40} + \cdots + 54y - 1$
c_5, c_9, c_{10}	$y^{41} - 55y^{40} + \cdots + 2752y - 64$
c_6	$y^{41} - 139y^{40} + \cdots + 8334688576y - 148840000$
c_8, c_{12}	$y^{41} - 12y^{40} + \cdots + 1593y - 49$
c_{11}	$y^{41} + 44y^{40} + \cdots + 664281y - 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.852625 + 0.482864I$ $a = -0.372803 - 0.780038I$ $b = 0.771778 - 0.848460I$	$-0.75167 - 5.04176I$	$-5.33106 + 6.16840I$
$u = 0.852625 - 0.482864I$ $a = -0.372803 + 0.780038I$ $b = 0.771778 + 0.848460I$	$-0.75167 + 5.04176I$	$-5.33106 - 6.16840I$
$u = -0.003882 + 1.032070I$ $a = -0.244627 - 1.101450I$ $b = 0.500255 + 0.850150I$	$-1.61122 + 4.08215I$	$-8.92321 - 7.89693I$
$u = -0.003882 - 1.032070I$ $a = -0.244627 + 1.101450I$ $b = 0.500255 - 0.850150I$	$-1.61122 - 4.08215I$	$-8.92321 + 7.89693I$
$u = -0.992946 + 0.343746I$ $a = 1.196560 + 0.016956I$ $b = -0.60773 - 1.75136I$	$-4.56663 + 3.64468I$	$-10.21223 - 4.25500I$
$u = -0.992946 - 0.343746I$ $a = 1.196560 - 0.016956I$ $b = -0.60773 + 1.75136I$	$-4.56663 - 3.64468I$	$-10.21223 + 4.25500I$
$u = 1.044990 + 0.164135I$ $a = -1.029770 + 0.479582I$ $b = -0.335570 + 0.883151I$	$-4.59839 - 1.02943I$	$-11.04507 + 3.64044I$
$u = 1.044990 - 0.164135I$ $a = -1.029770 - 0.479582I$ $b = -0.335570 - 0.883151I$	$-4.59839 + 1.02943I$	$-11.04507 - 3.64044I$
$u = -0.848129 + 0.093318I$ $a = 0.256235 - 0.617893I$ $b = 0.429896 - 0.866899I$	$-1.53932 + 0.15416I$	$-7.41256 - 0.66382I$
$u = -0.848129 - 0.093318I$ $a = 0.256235 + 0.617893I$ $b = 0.429896 + 0.866899I$	$-1.53932 - 0.15416I$	$-7.41256 + 0.66382I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.960191 + 0.725231I$ $a = 1.064690 - 0.333931I$ $b = -0.87449 + 1.44326I$	$-4.46221 - 9.77258I$	$-8.72581 + 8.02773I$
$u = 0.960191 - 0.725231I$ $a = 1.064690 + 0.333931I$ $b = -0.87449 - 1.44326I$	$-4.46221 + 9.77258I$	$-8.72581 - 8.02773I$
$u = 0.754982 + 0.217030I$ $a = 0.849726 - 0.921367I$ $b = -0.523840 + 0.308432I$	$3.10105 + 2.13666I$	$-4.09917 - 2.47051I$
$u = 0.754982 - 0.217030I$ $a = 0.849726 + 0.921367I$ $b = -0.523840 - 0.308432I$	$3.10105 - 2.13666I$	$-4.09917 + 2.47051I$
$u = 1.39900$ $a = -0.702767$ $b = -12.5949$	-4.90374	-140.900
$u = 0.133621 + 0.570297I$ $a = 0.730715 + 0.096398I$ $b = -0.904782 - 0.312265I$	$1.42682 + 1.35308I$	$0.34829 - 2.41862I$
$u = 0.133621 - 0.570297I$ $a = 0.730715 - 0.096398I$ $b = -0.904782 + 0.312265I$	$1.42682 - 1.35308I$	$0.34829 + 2.41862I$
$u = -1.25091 + 0.70431I$ $a = -0.754563 - 0.312340I$ $b = 0.351245 + 0.928373I$	$-5.21609 + 2.28754I$	0
$u = -1.25091 - 0.70431I$ $a = -0.754563 + 0.312340I$ $b = 0.351245 - 0.928373I$	$-5.21609 - 2.28754I$	0
$u = -1.45442$ $a = 0.0474720$ $b = 1.21109$	-3.37736	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.45857+0.03382I$ $a=-0.622583-0.555978I$ $b=\ \ 0.018701-1.107830I$	$-1.93777-2.95731I$	0
$u=-1.45857-0.03382I$ $a=-0.622583+0.555978I$ $b=\ \ 0.018701+1.107830I$	$-1.93777+2.95731I$	0
$u=\ \ 0.056546+0.456890I$ $a=-0.64877+2.24584I$ $b=\ \ 0.904670-0.938053I$	$-1.28446-0.76291I$	$-5.31890-1.67979I$
$u=\ \ 0.056546-0.456890I$ $a=-0.64877-2.24584I$ $b=\ \ 0.904670+0.938053I$	$-1.28446+0.76291I$	$-5.31890+1.67979I$
$u=\ \ 0.383174+0.054663I$ $a=\ \ 2.52375+1.73333I$ $b=\ \ 0.214376+0.665960I$	$4.29502-2.99232I$	$-13.6444+6.7796I$
$u=\ \ 0.383174-0.054663I$ $a=\ \ 2.52375-1.73333I$ $b=\ \ 0.214376-0.665960I$	$4.29502+2.99232I$	$-13.6444-6.7796I$
$u=-0.330545$ $a=\ \ 1.68251$ $b=\ \ 0.579990$	-0.892017	-11.9900
$u=-1.68875+0.14392I$ $a=-0.003537-0.668461I$ $b=-0.518040-1.262490I$	$-9.61160+7.52378I$	0
$u=-1.68875-0.14392I$ $a=-0.003537+0.668461I$ $b=-0.518040+1.262490I$	$-9.61160-7.52378I$	0
$u=\ \ 1.70883+0.02668I$ $a=-0.117584-0.623199I$ $b=-0.23211-1.39628I$	$-10.81520-0.66337I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.70883 - 0.02668I$ $a = -0.117584 + 0.623199I$ $b = -0.23211 + 1.39628I$	$-10.81520 + 0.66337I$	0
$u = -1.71449 + 0.22965I$ $a = -0.820677 + 0.232700I$ $b = 0.88143 + 1.93236I$	$-13.5365 + 13.6208I$	0
$u = -1.71449 - 0.22965I$ $a = -0.820677 - 0.232700I$ $b = 0.88143 - 1.93236I$	$-13.5365 - 13.6208I$	0
$u = 1.73059 + 0.09206I$ $a = -0.776808 - 0.320765I$ $b = 0.52492 - 1.87002I$	$-14.2793 - 5.4313I$	0
$u = 1.73059 - 0.09206I$ $a = -0.776808 + 0.320765I$ $b = 0.52492 + 1.87002I$	$-14.2793 + 5.4313I$	0
$u = -1.73927 + 0.03941I$ $a = 0.823370 + 0.279136I$ $b = -0.408494 + 0.947607I$	$-14.6346 + 1.8508I$	0
$u = -1.73927 - 0.03941I$ $a = 0.823370 - 0.279136I$ $b = -0.408494 - 0.947607I$	$-14.6346 - 1.8508I$	0
$u = -0.220223$ $a = 3.89905$ $b = -3.25550$	0.393691	-52.4600
$u = 1.79882 + 0.15440I$ $a = 0.795536 + 0.161122I$ $b = -0.531853 + 1.253250I$	$-15.9531 - 5.8349I$	0
$u = 1.79882 - 0.15440I$ $a = 0.795536 - 0.161122I$ $b = -0.531853 - 1.253250I$	$-15.9531 + 5.8349I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.84865$ $a = -0.623981$ $b = \quad 0.738641$	-6.53181	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4au - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41421$ $a = -0.620443 + 0.526697I$ $b = 0.510969 + 0.491114I$	$-0.26574 + 2.82812I$	$-4.49024 - 2.97945I$
$u = 1.41421$ $a = -0.620443 - 0.526697I$ $b = 0.510969 - 0.491114I$	$-0.26574 - 2.82812I$	$-4.49024 + 2.97945I$
$u = 1.41421$ $a = 0.533779$ $b = 4.80649$	-4.40332	-11.0200
$u = -1.41421$ $a = 0.620443 + 0.526697I$ $b = 0.16431 + 1.61567I$	$-0.26574 - 2.82812I$	$-4.49024 + 2.97945I$
$u = -1.41421$ $a = 0.620443 - 0.526697I$ $b = 0.16431 - 1.61567I$	$-0.26574 + 2.82812I$	$-4.49024 - 2.97945I$
$u = -1.41421$ $a = -0.533779$ $b = -0.157054$	-4.40332	-11.0200

III. $I_1^v = \langle a,\ b+v+2,\ v^3+3v^2+2v-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2v^2+6v+10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.324718$ $a = 0$ $b = -2.32472$	0.531480	12.1590
$v = -1.66236 + 0.56228I$ $a = 0$ $b = -0.337641 - 0.562280I$	$4.66906 - 2.82812I$	$4.92040 - 0.36516I$
$v = -1.66236 - 0.56228I$ $a = 0$ $b = -0.337641 + 0.562280I$	$4.66906 + 2.82812I$	$4.92040 + 0.36516I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^3-u^2+2u-1)^3)(u^{41}+26u^{40}+\cdots+206u+1)$
c_2	$((u^3+u^2-1)^3)(u^{41}-4u^{40}+\cdots-14u-1)$
c_3	$(u^3-u^2+2u-1)(u^3+u^2+2u+1)^2(u^{41}+2u^{40}+\cdots+8u-1)$
c_4	$((u^3-u^2+1)^3)(u^{41}-4u^{40}+\cdots-14u-1)$
c_5, c_9, c_{10}	$u^3(u^2-2)^3(u^{41}+3u^{40}+\cdots-8u-8)$
c_6	$u^3(u^2-2)^3(u^{41}-9u^{40}+\cdots+10824u+12200)$
c_7	$((u^3-u^2+2u-1)^2)(u^3+u^2+2u+1)(u^{41}+2u^{40}+\cdots+8u-1)$
c_8	$((u-1)^6)(u+1)^3(u^{41}-4u^{40}+\cdots+5u-7)$
c_{11}	$((u+1)^9)(u^{41}-12u^{40}+\cdots+1593u-49)$
c_{12}	$((u-1)^3)(u+1)^6(u^{41}-4u^{40}+\cdots+5u-7)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^3+3y^2+2y-1)^3)(y^{41}-18y^{40}+\cdots+44086y-1)$
c_2, c_4	$((y^3-y^2+2y-1)^3)(y^{41}-26y^{40}+\cdots+206y-1)$
c_3, c_7	$((y^3+3y^2+2y-1)^3)(y^{41}+6y^{40}+\cdots+54y-1)$
c_5, c_9, c_{10}	$y^3(y-2)^6(y^{41}-55y^{40}+\cdots+2752y-64)$
c_6	$y^3(y-2)^6(y^{41}-139y^{40}+\cdots+8.33469\times 10^9 y-1.48840\times 10^8)$
c_8, c_{12}	$((y-1)^9)(y^{41}-12y^{40}+\cdots+1593y-49)$
c_{11}	$((y-1)^9)(y^{41}+44y^{40}+\cdots+664281y-2401)$