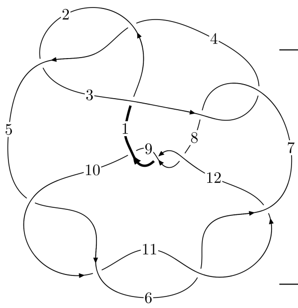
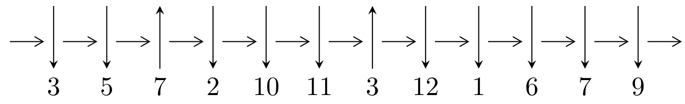
$12n_{0191}$ ($K12n_{0191}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.93013 \times 10^{22} u^{41} - 2.55618 \times 10^{22} u^{40} + \cdots + 3.19018 \times 10^{22} b + 3.37541 \times 10^{22},$$
$$3.37341 \times 10^{22} u^{41} - 5.52290 \times 10^{22} u^{40} + \cdots + 3.19018 \times 10^{22} a - 5.34100 \times 10^{22},\ u^{42} - 2u^{41} + \cdots + 9u^2 -$$
$$I_2^u = \langle b - 1,\ -u^2 + a - u + 1,\ u^3 + u^2 - 2u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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. $I^u_1 = \langle 2.93\times 10^{22}u^{41} - 2.56\times 10^{22}u^{40} + \cdots + 3.19\times 10^{22}b + 3.38\times 10^{22},\ 3.37\times 10^{22}u^{41} - 5.52\times 10^{22}u^{40} + \cdots + 3.19\times 10^{22}a - 5.34\times 10^{22},\ u^{42} - 2u^{41} + \cdots + 9u^2 - 1\rangle$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -1.05743u^{41} + 1.73122u^{40} + \cdots + 2.10719u + 1.67420 \\ -0.918482u^{41} + 0.801265u^{40} + \cdots - 1.32965u - 1.05806 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.468740u^{41} + 1.75288u^{40} + \cdots - 2.79645u + 2.00796 \\ 0.403032u^{41} - 0.477459u^{40} + \cdots - 0.178275u - 0.123472 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -0.944557u^{41} + 1.20115u^{40} + \cdots + 2.24614u + 1.02215 \\ -0.805605u^{41} + 0.271202u^{40} + \cdots - 1.19070u - 1.71011 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.557571u^{41} - 2.03034u^{40} + \cdots + 3.30377u - 2.22423 \\ 0.0502449u^{41} - 0.799422u^{40} + \cdots + 0.797791u - 1.15514 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.10864u^{41} + 1.93014u^{40} + \cdots + 1.65865u + 1.89346 \\ -0.771455u^{41} + 0.605910u^{40} + \cdots - 0.932314u - 1.18080 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.09560u^{41} + 2.57105u^{40} + \cdots - 3.54399u + 2.46417 \\ 0.00573169u^{41} + 0.199584u^{40} + \cdots - 0.855377u + 0.139917 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1450483983959842945472 2}{31901842262824074426539}u^{41} + \frac{28913484959271594911639}{31901842262824074426539}u^{40} + \cdots + \frac{57290609093260737576312 3}{31901842262824074426539}u - \frac{22296907913884467727679 3}{31901842262824074426539}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{42} + 20u^{41} + \cdots + 439u + 1$
c_2, c_4	$u^{42} - 4u^{41} + \cdots + 31u - 1$
c_3, c_7	$u^{42} - 3u^{41} + \cdots + 4u + 8$
c_5, c_6, c_{10} c_{11}	$u^{42} - 2u^{41} + \cdots + 9u^2 - 1$
c_8, c_9, c_{12}	$u^{42} + 2u^{41} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{42} + 8y^{41} + \cdots - 130935y + 1$
c_2, c_4	$y^{42} - 20y^{41} + \cdots - 439y + 1$
c_3, c_7	$y^{42} - 21y^{41} + \cdots - 4304y + 64$
c_5, c_6, c_{10} c_{11}	$y^{42} - 46y^{41} + \cdots - 18y + 1$
c_8, c_9, c_{12}	$y^{42} - 34y^{41} + \cdots - 18y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.622716 + 0.726936I$ $a = 0.249920 - 0.575224I$ $b = -1.08189 - 1.07126I$	$-1.64578 + 10.08720I$	$-11.9616 - 7.8917I$
$u = -0.622716 - 0.726936I$ $a = 0.249920 + 0.575224I$ $b = -1.08189 + 1.07126I$	$-1.64578 - 10.08720I$	$-11.9616 + 7.8917I$
$u = 0.630110 + 0.667113I$ $a = -0.067316 - 0.527398I$ $b = 1.195850 - 0.754840I$	$3.26280 - 5.05879I$	$-7.66762 + 6.22497I$
$u = 0.630110 - 0.667113I$ $a = -0.067316 + 0.527398I$ $b = 1.195850 + 0.754840I$	$3.26280 + 5.05879I$	$-7.66762 - 6.22497I$
$u = -0.410576 + 0.797115I$ $a = 0.590560 + 0.729454I$ $b = 0.654792 - 0.588986I$	$-1.01128 - 5.04828I$	$-10.54510 + 3.70923I$
$u = -0.410576 - 0.797115I$ $a = 0.590560 - 0.729454I$ $b = 0.654792 + 0.588986I$	$-1.01128 + 5.04828I$	$-10.54510 - 3.70923I$
$u = -0.613330 + 0.550269I$ $a = -0.152550 - 0.404189I$ $b = -1.211510 - 0.276966I$	$0.340193 - 0.146534I$	$-9.04090 - 2.32576I$
$u = -0.613330 - 0.550269I$ $a = -0.152550 + 0.404189I$ $b = -1.211510 + 0.276966I$	$0.340193 + 0.146534I$	$-9.04090 + 2.32576I$
$u = 0.384114 + 0.702008I$ $a = -0.371736 + 1.039810I$ $b = -0.789326 - 0.194769I$	$3.99048 + 0.46078I$	$-5.35173 - 0.25994I$
$u = 0.384114 - 0.702008I$ $a = -0.371736 - 1.039810I$ $b = -0.789326 + 0.194769I$	$3.99048 - 0.46078I$	$-5.35173 + 0.25994I$

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.418033+0.606743I$ $a=\ \ 0.084600+1.400980I$ $b=\ \ 0.934140+0.238589I$	$0.90530+4.12360I$	$-8.68102-5.50502I$
$u=-0.418033-0.606743I$ $a=\ \ 0.084600-1.400980I$ $b=\ \ 0.934140-0.238589I$	$0.90530-4.12360I$	$-8.68102+5.50502I$
$u=\ \ 1.36749$ $a=\ \ 0.995996$ $b=\ \ 1.03484$	-6.50001	-13.6470
$u=\ \ 0.505963+0.303182I$ $a=\ \ 1.89815+1.24925I$ $b=-0.202771+1.082850I$	$-4.34422-3.06091I$	$-15.9828+7.3630I$
$u=\ \ 0.505963-0.303182I$ $a=\ \ 1.89815-1.24925I$ $b=-0.202771-1.082850I$	$-4.34422+3.06091I$	$-15.9828-7.3630I$
$u=\ \ 1.38819+0.34209I$ $a=-0.381252+0.184770I$ $b=\ \ 0.108566-0.214622I$	$-6.74773+0.95826I$	0
$u=\ \ 1.38819-0.34209I$ $a=-0.381252-0.184770I$ $b=\ \ 0.108566+0.214622I$	$-6.74773-0.95826I$	0
$u=-1.43233$ $a=\ \ 10.9436$ $b=\ \ 11.6572$	-8.26088	77.1970
$u=-0.561117$ $a=-2.94490$ $b=-0.320377$	-5.90144	-19.1780
$u=-1.44186+0.20173I$ $a=\ \ 0.423668+1.035100I$ $b=\ \ 0.236187+0.379056I$	$-1.83573+2.73592I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.44186-0.20173I$ $a=\ 0.423668-1.035100I$ $b=\ 0.236187-0.379056I$	$-1.83573-2.73592I$	0
$u=-1.47192$ $a=\ 1.74936$ $b=\ 2.58881$	-8.07301	0
$u=\ 1.47089+0.06692I$ $a=\ 0.12566+2.06315I$ $b=-0.51913+1.71572I$	$-6.78843-2.26447I$	0
$u=\ 1.47089-0.06692I$ $a=\ 0.12566-2.06315I$ $b=-0.51913-1.71572I$	$-6.78843+2.26447I$	0
$u=\ 1.48233+0.17827I$ $a=-0.54943+1.55713I$ $b=-0.523659+0.673391I$	$-5.29803-6.90242I$	0
$u=\ 1.48233-0.17827I$ $a=-0.54943-1.55713I$ $b=-0.523659-0.673391I$	$-5.29803+6.90242I$	0
$u=-1.51313+0.07664I$ $a=-0.40049+1.89572I$ $b=\ 0.471789+1.251810I$	$-11.04660+4.37109I$	0
$u=-1.51313-0.07664I$ $a=-0.40049-1.89572I$ $b=\ 0.471789-1.251810I$	$-11.04660-4.37109I$	0
$u=\ 1.52457$ $a=\ 0.592680$ $b=-0.635110$	-12.8376	0
$u=-0.349126+0.309363I$ $a=-1.252420+0.444201I$ $b=\ 0.207903+0.938910I$	$-0.798095+1.043220I$	$-8.93837-6.28488I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.349126 - 0.309363I$ $a = -1.252420 - 0.444201I$ $b = 0.207903 - 0.938910I$	$-0.798095 - 1.043220I$	$-8.93837 + 6.28488I$
$u = -0.464350$ $a = -0.268787$ $b = -0.520788$	-0.827896	-11.7750
$u = 1.57075 + 0.24415I$ $a = 0.42013 - 1.89705I$ $b = 1.31507 - 1.60521I$	$-8.8765 - 13.6938I$	0
$u = 1.57075 - 0.24415I$ $a = 0.42013 + 1.89705I$ $b = 1.31507 + 1.60521I$	$-8.8765 + 13.6938I$	0
$u = 0.175152 + 0.368374I$ $a = 0.719520 - 0.426879I$ $b = 0.25392 + 1.93248I$	$-3.37453 + 0.76491I$	$-10.40964 + 7.93136I$
$u = 0.175152 - 0.368374I$ $a = 0.719520 + 0.426879I$ $b = 0.25392 - 1.93248I$	$-3.37453 - 0.76491I$	$-10.40964 - 7.93136I$
$u = -1.57812 + 0.22378I$ $a = -0.70680 - 1.63267I$ $b = -1.47281 - 1.33651I$	$-4.07471 + 8.38744I$	0
$u = -1.57812 - 0.22378I$ $a = -0.70680 + 1.63267I$ $b = -1.47281 + 1.33651I$	$-4.07471 - 8.38744I$	0
$u = 1.60757 + 0.18431I$ $a = 0.894775 - 1.082450I$ $b = 1.49803 - 0.87021I$	$-7.24321 - 2.57720I$	0
$u = 1.60757 - 0.18431I$ $a = 0.894775 + 1.082450I$ $b = 1.49803 + 0.87021I$	$-7.24321 + 2.57720I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.321929$ $a = \quad 2.42803$ $b = -0.909883$	-2.06972	3.71630
$u = -1.82062$ $a = -0.545929$ $b = -1.04503$	-19.0753	0

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

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} u^2+u-1 \\ 1 \end{pmatrix}$$

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

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

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

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

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

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

$$a_4 = \begin{pmatrix} u^2+u-1 \\ 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^2+4u-24$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.24698$ $a = 1.80194$ $b = 1.00000$	-7.98968	-20.5670
$u = -0.445042$ $a = -1.24698$ $b = 1.00000$	-2.34991	-25.9780
$u = -1.80194$ $a = 0.445042$ $b = 1.00000$	-19.2692	-34.4550

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{42}+20u^{41}+\cdots+439u+1)$
c_2	$((u-1)^3)(u^{42}-4u^{41}+\cdots+31u-1)$
c_3, c_7	$u^3(u^{42}-3u^{41}+\cdots+4u+8)$
c_4	$((u+1)^3)(u^{42}-4u^{41}+\cdots+31u-1)$
c_5, c_6	$(u^3-u^2-2u+1)(u^{42}-2u^{41}+\cdots+9u^2-1)$
c_8, c_9	$(u^3-u^2-2u+1)(u^{42}+2u^{41}+\cdots+4u+1)$
c_{10}, c_{11}	$(u^3+u^2-2u-1)(u^{42}-2u^{41}+\cdots+9u^2-1)$
c_{12}	$(u^3+u^2-2u-1)(u^{42}+2u^{41}+\cdots+4u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^3)(y^{42}+8y^{41}+\cdots-130935y+1)$
c_2, c_4	$((y-1)^3)(y^{42}-20y^{41}+\cdots-439y+1)$
c_3, c_7	$y^3(y^{42}-21y^{41}+\cdots-4304y+64)$
c_5, c_6, c_{10} c_{11}	$(y^3-5y^2+6y-1)(y^{42}-46y^{41}+\cdots-18y+1)$
c_8, c_9, c_{12}	$(y^3-5y^2+6y-1)(y^{42}-34y^{41}+\cdots-18y+1)$