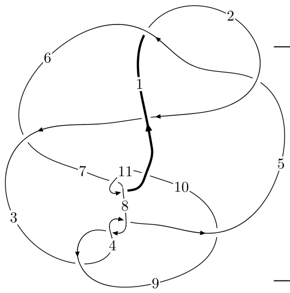
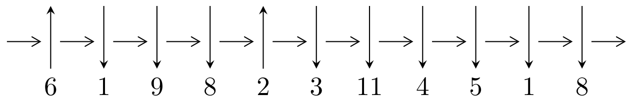
$11n_{90}$ ($K11n_{90}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 &= \langle -1238113u^{25} + 2413455u^{24} + \cdots + 2221939b + 1586090, \\
&\quad 4519597u^{25} - 816584u^{24} + \cdots + 13331634a - 13110217,\ u^{26} - 2u^{25} + \cdots - u + 3\rangle \\
I^u_2 &= \langle b - 1,\ a^2 - 2au + 2a + u - 2,\ u^2 - u + 1\rangle \\
I^u_3 &= \langle b + 1,\ a - u - 1,\ u^2 + u + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 32 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.

$\boldsymbol{I_1^u = \langle -1.24 \times 10^6 u^{25} + 2.41 \times 10^6 u^{24} + \cdots + 2.22 \times 10^6 b + 1.59 \times 10^6,\ 4.52 \times 10^6 u^{25} - 8.17 \times 10^5 u^{24} + \cdots + 1.33 \times 10^7 a - 1.31 \times 10^7,\ u^{26} - 2u^{25} + \cdots - u + 3 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.339013u^{25} + 0.0612516u^{24} + \cdots + 0.0332859u + 0.983392 \\ 0.557222u^{25} - 1.08619u^{24} + \cdots + 1.41616u - 0.713831 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.254668u^{25} + 0.460389u^{24} + \cdots - 3.72725u - 2.65550 \\ 0.0489476u^{25} - 0.702694u^{24} + \cdots + 2.91017u - 0.764005 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.321877u^{25} + 0.0594569u^{24} + \cdots - 3.45009u + 0.683981 \\ -0.681651u^{25} + 1.22699u^{24} + \cdots - 0.0147380u + 0.770149 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^5 - 2u^3 - u \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.359774u^{25} + 1.28645u^{24} + \cdots - 3.46483u + 1.45413 \\ -0.681651u^{25} + 1.22699u^{24} + \cdots - 0.0147380u + 0.770149 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.237944u^{25} + 0.0813342u^{24} + \cdots - 2.32111u + 1.17821 \\ -0.616774u^{25} + 1.26410u^{24} + \cdots + 0.644379u + 1.01704 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.237944u^{25} + 0.0813342u^{24} + \cdots - 2.32111u + 1.17821 \\ -0.616774u^{25} + 1.26410u^{24} + \cdots + 0.644379u + 1.01704 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1151955}{2221939}u^{25} + \frac{814709}{2221939}u^{24} + \cdots - \frac{5153343}{2221939}u - \frac{28973115}{2221939}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{26} - 2u^{25} + \cdots - u + 3$
c_2	$u^{26} + 16u^{25} + \cdots - 43u + 9$
c_3, c_4, c_8	$u^{26} + u^{25} + \cdots - 8u - 4$
c_6	$u^{26} + 2u^{25} + \cdots - 13u + 3$
c_7, c_{11}	$u^{26} + 3u^{25} + \cdots + 22u - 3$
c_9	$u^{26} - u^{25} + \cdots - 32u - 4$
c_{10}	$u^{26} + 33u^{25} + \cdots + 64u + 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{26} + 16y^{25} + \cdots - 43y + 9$
c_2	$y^{26} - 8y^{25} + \cdots - 7123y + 81$
c_3, c_4, c_8	$y^{26} + 21y^{25} + \cdots + 64y + 16$
c_6	$y^{26} - 32y^{25} + \cdots - 187y + 9$
c_7, c_{11}	$y^{26} - 33y^{25} + \cdots - 64y + 9$
c_9	$y^{26} - 39y^{25} + \cdots - 128y + 16$
c_{10}	$y^{26} - 73y^{25} + \cdots + 35108y + 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.987320 + 0.168214I$ $a = 1.297460 + 0.513052I$ $b = -1.63497 - 0.20181I$	$-5.22414 - 5.39338I$	$-6.45106 + 2.82273I$
$u = 0.987320 - 0.168214I$ $a = 1.297460 - 0.513052I$ $b = -1.63497 + 0.20181I$	$-5.22414 + 5.39338I$	$-6.45106 - 2.82273I$
$u = -1.01037$ $a = -1.32902$ $b = 1.68442$	-9.37437	-9.45940
$u = -0.541900 + 0.798242I$ $a = -1.229580 - 0.630085I$ $b = 0.190153 + 0.181187I$	$4.95516 - 2.19764I$	$0.54342 + 3.86213I$
$u = -0.541900 - 0.798242I$ $a = -1.229580 + 0.630085I$ $b = 0.190153 - 0.181187I$	$4.95516 + 2.19764I$	$0.54342 - 3.86213I$
$u = 0.280901 + 0.919746I$ $a = 0.066362 - 0.266060I$ $b = 0.270359 + 0.442643I$	$-0.60039 + 1.42912I$	$-6.05587 - 3.68708I$
$u = 0.280901 - 0.919746I$ $a = 0.066362 + 0.266060I$ $b = 0.270359 - 0.442643I$	$-0.60039 - 1.42912I$	$-6.05587 + 3.68708I$
$u = -0.086149 + 0.939073I$ $a = 1.12447 + 1.41361I$ $b = 1.170170 - 0.263604I$	$1.87196 - 0.46648I$	$-9.69334 - 0.39377I$
$u = -0.086149 - 0.939073I$ $a = 1.12447 - 1.41361I$ $b = 1.170170 + 0.263604I$	$1.87196 + 0.46648I$	$-9.69334 + 0.39377I$
$u = -0.714585 + 0.848170I$ $a = 1.111130 + 0.871548I$ $b = -1.336900 + 0.007719I$	$-0.16795 - 2.70526I$	$-6.45261 + 3.54399I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.714585 - 0.848170I$ $a = 1.111130 - 0.871548I$ $b = -1.336900 - 0.007719I$	$-0.16795 + 2.70526I$	$-6.45261 - 3.54399I$
$u = 0.409972 + 1.042740I$ $a = -0.333921 + 0.008202I$ $b = 0.687191 + 0.474750I$	$-0.71901 + 1.35928I$	$-6.71358 - 0.21049I$
$u = 0.409972 - 1.042740I$ $a = -0.333921 - 0.008202I$ $b = 0.687191 - 0.474750I$	$-0.71901 - 1.35928I$	$-6.71358 + 0.21049I$
$u = -0.232752 + 1.110800I$ $a = -0.406380 + 1.143680I$ $b = -0.979109 - 0.571742I$	$-3.76323 - 2.26383I$	$-13.05428 + 2.02208I$
$u = -0.232752 - 1.110800I$ $a = -0.406380 - 1.143680I$ $b = -0.979109 + 0.571742I$	$-3.76323 + 2.26383I$	$-13.05428 - 2.02208I$
$u = 0.432711 + 1.187740I$ $a = 0.517506 + 1.268290I$ $b = 0.659883 - 0.866942I$	$-0.86443 + 6.41567I$	$-7.45843 - 6.37638I$
$u = 0.432711 - 1.187740I$ $a = 0.517506 - 1.268290I$ $b = 0.659883 + 0.866942I$	$-0.86443 - 6.41567I$	$-7.45843 + 6.37638I$
$u = 0.683039 + 0.071498I$ $a = -0.81507 - 1.50432I$ $b = 0.587913 + 0.647297I$	$2.38839 - 2.21658I$	$-3.00360 + 3.59199I$
$u = 0.683039 - 0.071498I$ $a = -0.81507 + 1.50432I$ $b = 0.587913 - 0.647297I$	$2.38839 + 2.21658I$	$-3.00360 - 3.59199I$
$u = 0.576371 + 1.269310I$ $a = -0.02214 - 1.67156I$ $b = -1.66528 + 0.31996I$	$-8.60064 + 11.02740I$	$-8.81919 - 5.78425I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.576371 - 1.269310I$ $a = -0.02214 + 1.67156I$ $b = -1.66528 - 0.31996I$	$-8.60064 - 11.02740I$	$-8.81919 + 5.78425I$
$u = 0.376370 + 1.343310I$ $a = -0.157273 - 0.643532I$ $b = -1.74770 - 0.06929I$	$-10.10760 - 0.68348I$	$-10.33009 + 0.33748I$
$u = 0.376370 - 1.343310I$ $a = -0.157273 + 0.643532I$ $b = -1.74770 + 0.06929I$	$-10.10760 + 0.68348I$	$-10.33009 - 0.33748I$
$u = -0.49655 + 1.32834I$ $a = 0.015741 - 1.194450I$ $b = 1.76275 + 0.15335I$	$-13.5263 - 5.3591I$	$-12.04516 + 3.16064I$
$u = -0.49655 - 1.32834I$ $a = 0.015741 + 1.194450I$ $b = 1.76275 - 0.15335I$	$-13.5263 + 5.3591I$	$-12.04516 - 3.16064I$
$u = -0.339124$ $a = 1.65907$ $b = -0.613341$	-0.865956	-11.4730

II. $I_2^u = \langle b-1,\ a^2-2au+2a+u-2,\ u^2-u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u-4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.724745 + 0.158919I$ $b = 1.00000$	$3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 0.500000 + 0.866025I$ $a = -1.72474 + 1.57313I$ $b = 1.00000$	$3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 0.500000 - 0.866025I$ $a = 0.724745 - 0.158919I$ $b = 1.00000$	$3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 0.500000 - 0.866025I$ $a = -1.72474 - 1.57313I$ $b = 1.00000$	$3.28987 - 2.02988I$	$-6.00000 + 3.46410I$

III. $I_3^u = \langle b+1,\ a-u-1,\ u^2+u+1 \rangle$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0.500000 + 0.866025I$ $b = -1.00000$	$-1.64493 - 2.02988I$	$-12.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = 0.500000 - 0.866025I$ $b = -1.00000$	$-1.64493 + 2.02988I$	$-12.00000 - 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^2+u+1)(u^{26}-2u^{25}+\cdots-u+3)$
c_2	$((u^2+u+1)^3)(u^{26}+16u^{25}+\cdots-43u+9)$
c_3, c_4, c_8	$u^2(u^2+2)^2(u^{26}+u^{25}+\cdots-8u-4)$
c_5	$(u^2-u+1)(u^2+u+1)^2(u^{26}-2u^{25}+\cdots-u+3)$
c_6	$((u^2-u+1)^2)(u^2+u+1)(u^{26}+2u^{25}+\cdots-13u+3)$
c_7	$((u-1)^2)(u+1)^4(u^{26}+3u^{25}+\cdots+22u-3)$
c_9	$u^2(u^2+2)^2(u^{26}-u^{25}+\cdots-32u-4)$
c_{10}	$((u-1)^6)(u^{26}+33u^{25}+\cdots+64u+9)$
c_{11}	$((u-1)^4)(u+1)^2(u^{26}+3u^{25}+\cdots+22u-3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y^2+y+1)^3)(y^{26}+16y^{25}+\cdots-43y+9)$
c_2	$((y^2+y+1)^3)(y^{26}-8y^{25}+\cdots-7123y+81)$
c_3, c_4, c_8	$y^2(y+2)^4(y^{26}+21y^{25}+\cdots+64y+16)$
c_6	$((y^2+y+1)^3)(y^{26}-32y^{25}+\cdots-187y+9)$
c_7, c_{11}	$((y-1)^6)(y^{26}-33y^{25}+\cdots-64y+9)$
c_9	$y^2(y+2)^4(y^{26}-39y^{25}+\cdots-128y+16)$
c_{10}	$((y-1)^6)(y^{26}-73y^{25}+\cdots+35108y+81)$