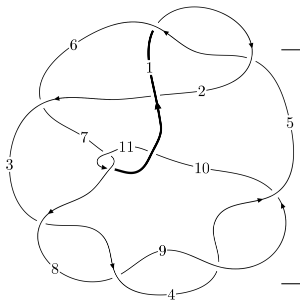
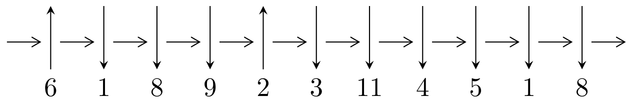
$11n_{88}$ ($K11n_{88}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u &= \langle -68u^{10} + 123u^9 + \cdots + 3382b - 1078,\ 1249u^{10} - 46u^9 + \cdots + 6764a - 1934, \\ &\quad u^{11} - u^{10} - 10u^9 + 9u^8 + 37u^7 - 31u^6 - 54u^5 + 48u^4 + 8u^3 - 4u - 4 \rangle \\ I_2^u &= \langle b + 1,\ 2a^2 - au + 4a - u + 3,\ u^2 - 2 \rangle \end{aligned}$$

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

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 17 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. $I^u_1 = \langle -68u^{10} + 123u^9 + \cdots + 3382b - 1078,\ 1249u^{10} - 46u^9 + \cdots + 6764a - 1934,\ u^{11} - u^{10} + \cdots - 4u - 4\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.184654u^{10} + 0.00680071u^9 + \cdots - 0.694855u + 0.285925 \\ 0.0201064u^{10} - 0.0363690u^9 + \cdots + 0.324660u + 0.318746 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.102750u^{10} + 0.0604672u^9 + \cdots + 2.38705u - 0.0990538 \\ -0.191455u^{10} - 0.00295683u^9 + \cdots - 0.937020u - 0.689533 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.164548u^{10} - 0.0295683u^9 + \cdots - 0.370195u + 0.604672 \\ 0.0201064u^{10} - 0.0363690u^9 + \cdots + 0.324660u + 0.318746 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.178888u^{10} + 0.0368125u^9 + \cdots - 0.609107u + 0.384684 \\ -0.175636u^{10} + 0.00887049u^9 + \cdots - 1.68894u - 0.931402 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.184654u^{10} + 0.00680071u^9 + \cdots - 0.694855u + 0.285925 \\ -0.181402u^{10} - 0.0211413u^9 + \cdots - 1.77469u - 1.03016 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1322}{1691}u^{10} - \frac{750}{1691}u^9 - \frac{13061}{1691}u^8 + \frac{6124}{1691}u^7 + \frac{523}{19}u^6 - \frac{20067}{1691}u^5 - \frac{60106}{1691}u^4 + \frac{35628}{1691}u^3 - \frac{7299}{1691}u^2 + \frac{756}{1691}u - \frac{12564}{1691}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{11} - 2u^{10} + 7u^9 - 10u^8 + 17u^7 - 19u^6 + 14u^5 - 18u^4 - 6u^2 - 6u - 1$
c_2	$u^{11} + 10u^{10} + \cdots + 24u - 1$
c_3, c_4, c_8 c_9	$u^{11} - u^{10} - 10u^9 + 9u^8 + 37u^7 - 31u^6 - 54u^5 + 48u^4 + 8u^3 - 4u - 4$
c_6	$u^{11} + 2u^{10} + \cdots - 90u - 13$
c_7, c_{11}	$u^{11} + 3u^{10} + \cdots - u - 7$
c_{10}	$u^{11} + 23u^{10} + \cdots + 225u + 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{11} + 10y^{10} + \cdots + 24y - 1$
c_2	$y^{11} - 14y^{10} + \cdots + 432y - 1$
c_3, c_4, c_8 c_9	$y^{11} - 21y^{10} + \cdots + 16y - 16$
c_6	$y^{11} - 38y^{10} + \cdots + 4460y - 169$
c_7, c_{11}	$y^{11} - 23y^{10} + \cdots + 225y - 49$
c_{10}	$y^{11} - 63y^{10} + \cdots - 61879y - 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.927671 + 0.197201I$ $a = -0.182641 + 0.461344I$ $b = 0.723376 - 0.590700I$	$-3.55618 + 2.69456I$	$-12.98158 - 3.53797I$
$u = 0.927671 - 0.197201I$ $a = -0.182641 - 0.461344I$ $b = 0.723376 + 0.590700I$	$-3.55618 - 2.69456I$	$-12.98158 + 3.53797I$
$u = 1.36751$ $a = -1.06580$ $b = -1.10452$	-6.50002	-13.6590
$u = -0.128515 + 0.466174I$ $a = 1.31999 + 0.78489I$ $b = -0.333924 - 0.361452I$	$-0.58979 + 1.50760I$	$-5.46704 - 3.06669I$
$u = -0.128515 - 0.466174I$ $a = 1.31999 - 0.78489I$ $b = -0.333924 + 0.361452I$	$-0.58979 - 1.50760I$	$-5.46704 + 3.06669I$
$u = -0.464364$ $a = 0.318779$ $b = 0.568678$	-0.828081	-11.8310
$u = -1.75254 + 0.61261I$ $a = -0.637478 - 0.443047I$ $b = -1.97688 - 0.71300I$	$-12.58100 + 1.38651I$	$-13.48038 - 0.69811I$
$u = -1.75254 - 0.61261I$ $a = -0.637478 + 0.443047I$ $b = -1.97688 + 0.71300I$	$-12.58100 - 1.38651I$	$-13.48038 + 0.69811I$
$u = 2.03058 + 0.31596I$ $a = 1.212210 - 0.346594I$ $b = 2.21938 + 0.57715I$	$13.7044 - 7.4448I$	$-12.73851 + 2.77525I$
$u = 2.03058 - 0.31596I$ $a = 1.212210 + 0.346594I$ $b = 2.21938 - 0.57715I$	$13.7044 + 7.4448I$	$-12.73851 - 2.77525I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -2.05754$ $a = 1.32286$ $b = 2.27195$	18.3080	-11.1750

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

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -au + a - \frac{1}{2}u + 1 \\ -au \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a-1 \\ -1 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -a-2 \\ -2a-3 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4au + 4u - 16$

(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
$u = 1.41421$ $a = -0.646447 + 0.612372I$ $b = -1.00000$	$-6.57974 - 2.02988I$	$-14.0000 + 3.4641I$
$u = 1.41421$ $a = -0.646447 - 0.612372I$ $b = -1.00000$	$-6.57974 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -1.41421$ $a = -1.35355 + 0.61237I$ $b = -1.00000$	$-6.57974 + 2.02988I$	$-14.0000 - 3.4641I$
$u = -1.41421$ $a = -1.35355 - 0.61237I$ $b = -1.00000$	$-6.57974 - 2.02988I$	$-14.0000 + 3.4641I$

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

(i) Arc colorings

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

$$a_{11} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} v+1 \\ -1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v - 14$

(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_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = 1.00000$	$-1.64493 + 2.02988I$	$-12.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = 1.00000$	$-1.64493 - 2.02988I$	$-12.00000 + 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^2(u^2+u+1)$ $\cdot\,(u^{11}-2u^{10}+7u^9-10u^8+17u^7-19u^6+14u^5-18u^4-6u^2-6u-1)$
c_2	$((u^2+u+1)^3)(u^{11}+10u^{10}+\cdots+24u-1)$
c_3, c_4, c_8 c_9	$u^2(u^2-2)^2$ $\cdot\,(u^{11}-u^{10}-10u^9+9u^8+37u^7-31u^6-54u^5+48u^4+8u^3-4u-4)$
c_5	$(u^2-u+1)(u^2+u+1)^2$ $\cdot\,(u^{11}-2u^{10}+7u^9-10u^8+17u^7-19u^6+14u^5-18u^4-6u^2-6u-1)$
c_6	$((u^2-u+1)^2)(u^2+u+1)(u^{11}+2u^{10}+\cdots-90u-13)$
c_7	$((u-1)^2)(u+1)^4(u^{11}+3u^{10}+\cdots-u-7)$
c_{10}	$((u-1)^6)(u^{11}+23u^{10}+\cdots+225u+49)$
c_{11}	$((u-1)^4)(u+1)^2(u^{11}+3u^{10}+\cdots-u-7)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y^2+y+1)^3)(y^{11}+10y^{10}+\cdots+24y-1)$
c_2	$((y^2+y+1)^3)(y^{11}-14y^{10}+\cdots+432y-1)$
c_3, c_4, c_8 c_9	$y^2(y-2)^4(y^{11}-21y^{10}+\cdots+16y-16)$
c_6	$((y^2+y+1)^3)(y^{11}-38y^{10}+\cdots+4460y-169)$
c_7, c_{11}	$((y-1)^6)(y^{11}-23y^{10}+\cdots+225y-49)$
c_{10}	$((y-1)^6)(y^{11}-63y^{10}+\cdots-61879y-2401)$