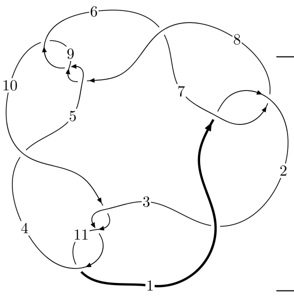
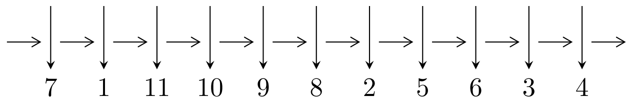
$11a_{245}$ ($K11a_{245}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & b - u,\ -u^{12} + u^{11} + 5u^{10} - 4u^9 - 9u^8 + 4u^7 + 4u^6 + 4u^5 + 6u^4 - 7u^3 - 5u^2 + a - u - 1, \\ & u^{14} - u^{13} - 6u^{12} + 5u^{11} + 14u^{10} - 8u^9 - 13u^8 - 2u^6 + 11u^5 + 11u^4 - 5u^3 - 4u^2 - 4u - 1\rangle \\ I_2^u = \langle & -u^{23} + 8u^{21} + \cdots + b + 1,\ u^{22} - 7u^{20} + \cdots + a - 1,\ u^{24} - u^{23} + \cdots + 4u^2 + 1\rangle \\ I_3^u = \langle & b + 1,\ a,\ u - 1\rangle \end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 39 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. $I_1^u = \langle b - u,\ -u^{12} + u^{11} + \cdots + a - 1,\ u^{14} - u^{13} + \cdots - 4u - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{12} - u^{11} + \cdots + u + 1 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{13} + u^{12} + \cdots - u + 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{13} + u^{12} + \cdots - u + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{12} - u^{11} - 5u^{10} + 4u^9 + 9u^8 - 5u^7 - 4u^6 - 6u^4 + 3u^3 + 5u^2 + 1 \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{12} - u^{11} - 5u^{10} + 4u^9 + 9u^8 - 5u^7 - 4u^6 - 6u^4 + 3u^3 + 5u^2 + 1 \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -2u^{12} - 2u^{11} + 14u^{10} + 12u^9 - 34u^8 - 28u^7 + 24u^6 + 24u^5 + 28u^4 + 10u^3 - 38u^2 - 24u - 20$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{14} + 3u^{13} + \cdots + 4u + 2$
c_2, c_4, c_6	$u^{14} + 3u^{13} + \cdots + 20u + 4$
c_3, c_5, c_8 c_9, c_{10}, c_{11}	$u^{14} - u^{13} + \cdots - 4u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{14} - 3y^{13} + \cdots - 20y + 4$
c_2, c_4, c_6	$y^{14} + 13y^{13} + \cdots - 168y + 16$
c_3, c_5, c_8 c_9, c_{10}, c_{11}	$y^{14} - 13y^{13} + \cdots - 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.029285 + 0.881113I$ $a = 0.03342 - 1.87376I$ $b = -0.029285 + 0.881113I$	$8.40861 + 3.17852I$	$-5.65702 - 2.68027I$
$u = -0.029285 - 0.881113I$ $a = 0.03342 + 1.87376I$ $b = -0.029285 - 0.881113I$	$8.40861 - 3.17852I$	$-5.65702 + 2.68027I$
$u = -1.276220 + 0.129179I$ $a = -2.13229 - 1.54329I$ $b = -1.276220 + 0.129179I$	$-5.86531 + 2.46178I$	$-16.4162 - 2.9434I$
$u = -1.276220 - 0.129179I$ $a = -2.13229 + 1.54329I$ $b = -1.276220 - 0.129179I$	$-5.86531 - 2.46178I$	$-16.4162 + 2.9434I$
$u = -1.284590 + 0.394747I$ $a = -0.34217 - 2.13508I$ $b = -1.284590 + 0.394747I$	$0.58736 + 5.97274I$	$-12.69846 - 3.76747I$
$u = -1.284590 - 0.394747I$ $a = -0.34217 + 2.13508I$ $b = -1.284590 - 0.394747I$	$0.58736 - 5.97274I$	$-12.69846 + 3.76747I$
$u = 1.364060 + 0.212940I$ $a = 1.10215 - 1.44780I$ $b = 1.364060 + 0.212940I$	$-8.69313 - 7.21786I$	$-18.5779 + 6.6599I$
$u = 1.364060 - 0.212940I$ $a = 1.10215 + 1.44780I$ $b = 1.364060 - 0.212940I$	$-8.69313 + 7.21786I$	$-18.5779 - 6.6599I$
$u = 1.38564$ $a = 1.62659$ $b = 1.38564$	-11.4128	-21.8330
$u = 1.329060 + 0.410124I$ $a = 0.27755 - 1.96683I$ $b = 1.329060 + 0.410124I$	$-0.11168 - 12.47310I$	$-13.5601 + 7.9056I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.329060 - 0.410124I$ $a = 0.27755 + 1.96683I$ $b = 1.329060 - 0.410124I$	$-0.11168 + 12.47310I$	$-13.5601 - 7.9056I$
$u = -0.150725 + 0.518889I$ $a = 0.285959 - 1.368390I$ $b = -0.150725 + 0.518889I$	$1.00801 + 1.75508I$	$-6.01712 - 6.20279I$
$u = -0.150725 - 0.518889I$ $a = 0.285959 + 1.368390I$ $b = -0.150725 - 0.518889I$	$1.00801 - 1.75508I$	$-6.01712 + 6.20279I$
$u = -0.290248$ $a = 0.924145$ $b = -0.290248$	-0.639037	-16.3130

II.
$I_2^u = \langle -u^{23}+8u^{21}+\cdots+b+1,\ u^{22}-7u^{20}+\cdots+a-1,\ u^{24}-u^{23}+\cdots+4u^2+1\rangle$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3-2u \\ -u^3+u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u^{22}+7u^{20}+\cdots+5u+1 \\ u^{23}-8u^{21}+\cdots-u-1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{21}+8u^{19}+\cdots+5u+2 \\ u^{23}-7u^{21}+\cdots-u-2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{19}-6u^{17}+\cdots+4u+1 \\ 2u^{23}-15u^{21}+\cdots-u-2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{16}+5u^{14}+\cdots+4u+1 \\ 2u^{23}-16u^{21}+\cdots-u-2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{16}+5u^{14}+\cdots+4u+1 \\ 2u^{23}-16u^{21}+\cdots-u-2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{20}+28u^{18}+4u^{17}-80u^{16}-24u^{15}+100u^{14}+56u^{13}-4u^{12}-48u^{11}-124u^{10}-24u^9+92u^8+64u^7+36u^6-12u^5-44u^4-24u^3-8u^2-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^{12} - u^{11} - u^{10} + 2u^9 + 3u^8 - 4u^7 - 2u^6 + 4u^5 + 2u^4 - 3u^3 - u^2 + 1)^2$
c_2, c_4, c_6	$(u^{12} + 3u^{11} + \cdots + 2u + 1)^2$
c_3, c_5, c_8 c_9, c_{10}, c_{11}	$u^{24} - u^{23} + \cdots + 4u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^{12} - 3y^{11} + \cdots - 2y + 1)^2$
c_2, c_4, c_6	$(y^{12} + 13y^{11} + \cdots + 6y + 1)^2$
c_3, c_5, c_8 c_9, c_{10}, c_{11}	$y^{24} - 17y^{23} + \cdots + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.070751 + 0.894321I$ $a = -1.21139 + 1.52083I$ $b = 1.299300 - 0.409615I$	$4.26829 + 7.80134I$	$-9.63389 - 5.63981I$
$u = -0.070751 - 0.894321I$ $a = -1.21139 - 1.52083I$ $b = 1.299300 + 0.409615I$	$4.26829 - 7.80134I$	$-9.63389 + 5.63981I$
$u = -1.110590 + 0.134720I$ $a = 0.738153 + 0.451331I$ $b = 0.149210 - 0.343690I$	$-1.55013 + 0.71593I$	$-8.04353 - 0.64874I$
$u = -1.110590 - 0.134720I$ $a = 0.738153 - 0.451331I$ $b = 0.149210 + 0.343690I$	$-1.55013 - 0.71593I$	$-8.04353 + 0.64874I$
$u = -0.778878 + 0.387180I$ $a = -0.213014 + 0.440226I$ $b = 1.242510 + 0.071539I$	$-4.72717 - 0.35310I$	$-18.6669 + 0.6298I$
$u = -0.778878 - 0.387180I$ $a = -0.213014 - 0.440226I$ $b = 1.242510 - 0.071539I$	$-4.72717 + 0.35310I$	$-18.6669 - 0.6298I$
$u = 0.013292 + 0.856991I$ $a = 1.23384 + 1.58823I$ $b = -1.251930 - 0.421635I$	$4.62532 - 1.48234I$	$-8.84742 + 0.67542I$
$u = 0.013292 - 0.856991I$ $a = 1.23384 - 1.58823I$ $b = -1.251930 + 0.421635I$	$4.62532 + 1.48234I$	$-8.84742 - 0.67542I$
$u = 1.242510 + 0.071539I$ $a = -0.023283 - 0.340995I$ $b = -0.778878 + 0.387180I$	$-4.72717 - 0.35310I$	$-18.6669 + 0.6298I$
$u = 1.242510 - 0.071539I$ $a = -0.023283 + 0.340995I$ $b = -0.778878 - 0.387180I$	$-4.72717 + 0.35310I$	$-18.6669 - 0.6298I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.321894+0.643464I$ $a=-0.65810+1.42592I$ $b=\ \ 1.279920-0.182904I$	$-3.36661+4.24921I$	$-14.1765-6.9831I$
$u=-0.321894-0.643464I$ $a=-0.65810-1.42592I$ $b=\ \ 1.279920+0.182904I$	$-3.36661-4.24921I$	$-14.1765+6.9831I$
$u=\ \ 1.279920+0.182904I$ $a=-0.443771+0.752880I$ $b=-0.321894-0.643464I$	$-3.36661-4.24921I$	$-14.1765+6.9831I$
$u=\ \ 1.279920-0.182904I$ $a=-0.443771-0.752880I$ $b=-0.321894+0.643464I$	$-3.36661+4.24921I$	$-14.1765-6.9831I$
$u=-1.213270+0.447486I$ $a=-0.537563-0.128960I$ $b=\ \ 1.263090+0.396551I$	$0.75031-3.01307I$	$-12.63175+2.63251I$
$u=-1.213270-0.447486I$ $a=-0.537563+0.128960I$ $b=\ \ 1.263090-0.396551I$	$0.75031+3.01307I$	$-12.63175-2.63251I$
$u=-1.251930+0.421635I$ $a=\ \ 0.704102+1.098600I$ $b=\ \ 0.013292-0.856991I$	$4.62532+1.48234I$	$-8.84742-0.67542I$
$u=-1.251930-0.421635I$ $a=\ \ 0.704102-1.098600I$ $b=\ \ 0.013292+0.856991I$	$4.62532-1.48234I$	$-8.84742+0.67542I$
$u=\ \ 1.263090+0.396551I$ $a=\ \ 0.492596-0.221226I$ $b=-1.213270+0.447486I$	$0.75031-3.01307I$	$-12.63175+2.63251I$
$u=\ \ 1.263090-0.396551I$ $a=\ \ 0.492596+0.221226I$ $b=-1.213270-0.447486I$	$0.75031+3.01307I$	$-12.63175-2.63251I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.299300 + 0.409615I$ $a = -0.629315 + 1.115020I$ $b = -0.070751 - 0.894321I$	$4.26829 - 7.80134I$	$-9.63389 + 5.63981I$
$u = \quad 1.299300 - 0.409615I$ $a = -0.629315 - 1.115020I$ $b = -0.070751 + 0.894321I$	$4.26829 + 7.80134I$	$-9.63389 - 5.63981I$
$u = \quad 0.149210 + 0.343690I$ $a = \quad 0.04774 + 2.58289I$ $b = -1.110590 - 0.134720I$	$-1.55013 - 0.71593I$	$-8.04353 + 0.64874I$
$u = \quad 0.149210 - 0.343690I$ $a = \quad 0.04774 - 2.58289I$ $b = -1.110590 + 0.134720I$	$-1.55013 + 0.71593I$	$-8.04353 - 0.64874I$

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = -1.00000$	-3.28987	-12.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$u(u^{12} - u^{11} - u^{10} + 2u^9 + 3u^8 - 4u^7 - 2u^6 + 4u^5 + 2u^4 - 3u^3 - u^2 + 1)^2$ $\cdot\,(u^{14} + 3u^{13} + \cdots + 4u + 2)$
c_2, c_4, c_6	$u(u^{12} + 3u^{11} + \cdots + 2u + 1)^2(u^{14} + 3u^{13} + \cdots + 20u + 4)$
c_3, c_8, c_9	$(u+1)(u^{14} - u^{13} + \cdots - 4u - 1)(u^{24} - u^{23} + \cdots + 4u^2 + 1)$
c_5, c_{10}, c_{11}	$(u-1)(u^{14} - u^{13} + \cdots - 4u - 1)(u^{24} - u^{23} + \cdots + 4u^2 + 1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y(y^{12} - 3y^{11} + \cdots - 2y + 1)^2(y^{14} - 3y^{13} + \cdots - 20y + 4)$
c_2, c_4, c_6	$y(y^{12} + 13y^{11} + \cdots + 6y + 1)^2(y^{14} + 13y^{13} + \cdots - 168y + 16)$
c_3, c_5, c_8 c_9, c_{10}, c_{11}	$(y - 1)(y^{14} - 13y^{13} + \cdots - 8y + 1)(y^{24} - 17y^{23} + \cdots + 8y + 1)$