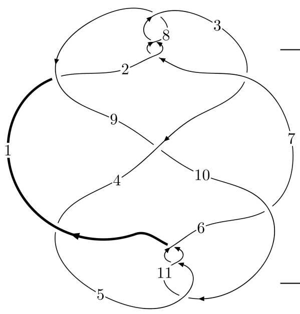
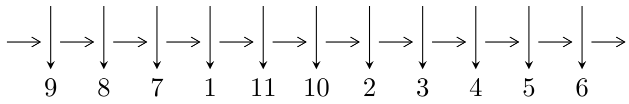
$11a_{357}$ ($K11a_{357}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^9 - 4u^7 + 5u^5 + u^2 - 3u - 1 \rangle$$
$$I_2^u = \langle u^{36} - u^{35} + \cdots - 4u^3 + 1 \rangle$$

* 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. $I_1^u = \langle u^9 - 4u^7 + 5u^5 + u^2 - 3u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^6 + 4u^5 + 12u^4 - 8u^3 - 8u^2 + 4u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_6	$u^9 + 4u^7 - 2u^6 + 5u^5 - 6u^4 - 2u^3 - 5u^2 - 5u - 1$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$u^9 - 4u^7 + 5u^5 + u^2 - 3u - 1$
c_9	$u^9 + 7u^8 + 25u^7 + 54u^6 + 74u^5 + 55u^4 + u^3 - 42u^2 - 36u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6	$y^9 + 8y^8 + 26y^7 + 32y^6 - 25y^5 - 116y^4 - 110y^3 - 17y^2 + 15y - 1$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$y^9 - 8y^8 + 26y^7 - 40y^6 + 19y^5 + 24y^4 - 30y^3 - y^2 + 11y - 1$
c_9	$y^9 + y^8 + 17y^7 + 16y^6 + 102y^5 - 29y^4 + 157y^3 - 956y^2 + 624y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.098375 + 0.814801I$	$7.35406 - 4.61617I$	$-4.22495 + 4.01969I$
$u = \quad 0.098375 - 0.814801I$	$7.35406 + 4.61617I$	$-4.22495 - 4.01969I$
$u = \quad 1.18251$	-5.71950	-15.9090
$u = -1.188580 + 0.361061I$	$0.69960 + 3.87858I$	$-10.64109 - 3.78555I$
$u = -1.188580 - 0.361061I$	$0.69960 - 3.87858I$	$-10.64109 + 3.78555I$
$u = -1.37937$	-11.3909	-21.8270
$u = \quad 1.341750 + 0.354713I$	$-1.71371 - 13.05000I$	$-13.4391 + 8.3124I$
$u = \quad 1.341750 - 0.354713I$	$-1.71371 + 13.05000I$	$-13.4391 - 8.3124I$
$u = -0.306233$	-0.504287	-19.6540

II. $I_2^u = \langle u^{36} - u^{35} + \cdots - 4u^3 + 1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -u^5 + 2u^3 - u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{15} + 6u^{13} - 14u^{11} + 14u^9 - 2u^7 - 6u^5 + 2u^3 + 2u \\ u^{17} - 7u^{15} + 19u^{13} - 22u^{11} + 3u^9 + 14u^7 - 6u^5 - 4u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{10} - 5u^8 + 8u^6 - 3u^4 - 3u^2 + 1 \\ u^{10} - 4u^8 + 5u^6 - 3u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{20} - 9u^{18} + \cdots - 3u^2 + 1 \\ u^{20} - 8u^{18} + 26u^{16} - 40u^{14} + 19u^{12} + 24u^{10} - 30u^8 + 9u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2u^{35} - u^{34} + \cdots - 7u^2 + 1 \\ -u^{34} + 14u^{32} + \cdots - 4u^2 + 3u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2u^{35} - u^{34} + \cdots - 7u^2 + 1 \\ -u^{34} + 14u^{32} + \cdots - 4u^2 + 3u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{27} + 44u^{25} + 4u^{24} - 208u^{23} - 40u^{22} + 532u^{21} + 172u^{20} - 732u^{19} - 400u^{18} + 348u^{17} + 504u^{16} + 416u^{15} - 244u^{14} - 628u^{13} - 156u^{12} + 112u^{11} + 224u^{10} + 208u^9 - 20u^8 - 40u^7 - 56u^6 - 48u^5 + 4u^4 - 8u^3 + 4u^2 - 4u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_6	$u^{36} + 3u^{35} + \cdots - 12u - 7$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$u^{36} - u^{35} + \cdots - 4u^3 + 1$
c_9	$(u^{18} - 3u^{17} + \cdots - 7u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6	$y^{36} + 23y^{35} + \cdots - 340y + 49$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$y^{36} - 29y^{35} + \cdots + 8y^2 + 1$
c_9	$(y^{18} + 3y^{17} + \cdots - 31y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.114880 + 0.814996I$	$2.86466 + 8.83442I$	$-8.85054 - 6.32425I$
$u = -0.114880 - 0.814996I$	$2.86466 - 8.83442I$	$-8.85054 + 6.32425I$
$u = -0.075687 + 0.812840I$	$4.10849 + 0.36044I$	$-7.24415 - 0.04898I$
$u = -0.075687 - 0.812840I$	$4.10849 - 0.36044I$	$-7.24415 + 0.04898I$
$u = -1.137600 + 0.360537I$	$-0.25332 - 4.56891I$	$-11.76762 + 2.55639I$
$u = -1.137600 - 0.360537I$	$-0.25332 + 4.56891I$	$-11.76762 - 2.55639I$
$u = 1.161330 + 0.360877I$	$4.10849 + 0.36044I$	$-7.24415 - 0.04898I$
$u = 1.161330 - 0.360877I$	$4.10849 - 0.36044I$	$-7.24415 + 0.04898I$
$u = -0.042366 + 0.732635I$	$2.49914 + 1.48028I$	$-7.39740 - 4.69129I$
$u = -0.042366 - 0.732635I$	$2.49914 - 1.48028I$	$-7.39740 + 4.69129I$
$u = 0.125186 + 0.707270I$	$-2.91493 - 2.96900I$	$-12.88830 + 4.22200I$
$u = 0.125186 - 0.707270I$	$-2.91493 + 2.96900I$	$-12.88830 - 4.22200I$
$u = -1.253710 + 0.284832I$	$-1.22218 + 2.17847I$	$-11.24475 + 0.74332I$
$u = -1.253710 - 0.284832I$	$-1.22218 - 2.17847I$	$-11.24475 - 0.74332I$
$u = 1.294410 + 0.195773I$	-6.07645	$-17.0816 + 0.I$
$u = 1.294410 - 0.195773I$	-6.07645	$-17.0816 + 0.I$
$u = 1.31676$	-5.41700	-18.3110
$u = 1.299400 + 0.312670I$	$-1.69882 - 5.26707I$	$-12.9078 + 7.0444I$
$u = 1.299400 - 0.312670I$	$-1.69882 + 5.26707I$	$-12.9078 - 7.0444I$
$u = -1.347930 + 0.085501I$	$-2.91493 + 2.96900I$	$-12.88830 - 4.22200I$
$u = -1.347930 - 0.085501I$	$-2.91493 - 2.96900I$	$-12.88830 + 4.22200I$
$u = 1.317490 + 0.356084I$	$-0.25332 - 4.56891I$	$-11.76762 + 2.55639I$
$u = 1.317490 - 0.356084I$	$-0.25332 + 4.56891I$	$-11.76762 - 2.55639I$
$u = -1.335910 + 0.303663I$	$-7.50591 + 6.65729I$	$-18.0029 - 5.6815I$
$u = -1.335910 - 0.303663I$	$-7.50591 - 6.65729I$	$-18.0029 + 5.6815I$
$u = 0.629383$	-5.41700	-18.3110
$u = -1.332130 + 0.356156I$	$2.86466 + 8.83442I$	$-8.85054 - 6.32425I$
$u = -1.332130 - 0.356156I$	$2.86466 - 8.83442I$	$-8.85054 + 6.32425I$
$u = 1.377060 + 0.080377I$	$-7.50591 - 6.65729I$	$-18.0029 + 5.6815I$
$u = 1.377060 - 0.080377I$	$-7.50591 + 6.65729I$	$-18.0029 - 5.6815I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.488414 + 0.379131I$	$-1.69882 + 5.26707I$	$-12.9078 - 7.0444I$
$u = -0.488414 - 0.379131I$	$-1.69882 - 5.26707I$	$-12.9078 + 7.0444I$
$u = 0.410957 + 0.392187I$	$2.49914 - 1.48028I$	$-7.39740 + 4.69129I$
$u = 0.410957 - 0.392187I$	$2.49914 + 1.48028I$	$-7.39740 - 4.69129I$
$u = -0.330280 + 0.456150I$	$-1.22218 - 2.17847I$	$-11.24475 - 0.74332I$
$u = -0.330280 - 0.456150I$	$-1.22218 + 2.17847I$	$-11.24475 + 0.74332I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_6	$(u^9 + 4u^7 - 2u^6 + 5u^5 - 6u^4 - 2u^3 - 5u^2 - 5u - 1)$ $\cdot (u^{36} + 3u^{35} + \cdots - 12u - 7)$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$(u^9 - 4u^7 + 5u^5 + u^2 - 3u - 1)(u^{36} - u^{35} + \cdots - 4u^3 + 1)$
c_9	$(u^9 + 7u^8 + 25u^7 + 54u^6 + 74u^5 + 55u^4 + u^3 - 42u^2 - 36u - 8)$ $\cdot (u^{18} - 3u^{17} + \cdots - 7u + 1)^2$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6	$(y^9 + 8y^8 + 26y^7 + 32y^6 - 25y^5 - 116y^4 - 110y^3 - 17y^2 + 15y - 1)$ $\cdot (y^{36} + 23y^{35} + \cdots - 340y + 49)$
c_2, c_5, c_7 c_8, c_{10}, c_{11}	$(y^9 - 8y^8 + 26y^7 - 40y^6 + 19y^5 + 24y^4 - 30y^3 - y^2 + 11y - 1)$ $\cdot (y^{36} - 29y^{35} + \cdots + 8y^2 + 1)$
c_9	$(y^9 + y^8 + 17y^7 + 16y^6 + 102y^5 - 29y^4 + 157y^3 - 956y^2 + 624y - 64)$ $\cdot (y^{18} + 3y^{17} + \cdots - 31y + 1)^2$