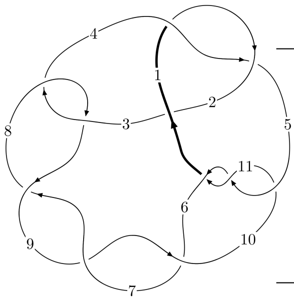
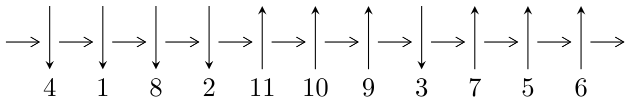
$11a_{58}$ ($K11a_{58}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{25} - 9u^{23} + \cdots + b + u,\ -u^{28} - u^{27} + \cdots + a - 3,\ u^{29} + 2u^{28} + \cdots + 3u + 1\rangle$$
$$I_2^u = \langle u^2 + b,\ a - 1,\ u^{12} - 4u^{10} + u^9 + 6u^8 - 3u^7 - u^6 + 3u^5 - 5u^4 + u^3 + 3u^2 - 2u + 1\rangle$$
$$I_3^u = \langle b + 1,\ a - 1,\ u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 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.

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$$\boldsymbol{I_1^u = \langle u^{25} - 9u^{23} + \cdots + b + u,\ -u^{28} - u^{27} + \cdots + a - 3,\ u^{29} + 2u^{28} + \cdots + 3u + 1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 + 2u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{28} + u^{27} + \cdots - 5u + 3 \\ -u^{25} + 9u^{23} + \cdots + 4u^2 - u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{28} + 11u^{26} + \cdots - 8u + 1 \\ u^{28} + u^{27} + \cdots + u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{27} + 11u^{25} + \cdots + 6u - 2 \\ -u^{28} - u^{27} + \cdots - u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^6 - 3u^4 + 2u^2 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^9 + 4u^7 - 5u^5 + 3u \\ -u^9 + 3u^7 - 3u^5 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^9 + 4u^7 - 5u^5 + 3u \\ -u^9 + 3u^7 - 3u^5 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{28} - 6u^{27} + 40u^{26} + 58u^{25} - 176u^{24} - 236u^{23} + 428u^{22} + 482u^{21} - 568u^{20} - 370u^{19} + 236u^{18} - 414u^{17} + 460u^{16} + 1092u^{15} - 788u^{14} - 532u^{13} + 356u^{12} - 584u^{11} + 236u^{10} + 608u^9 - 308u^8 + 84u^7 + 40u^6 - 178u^5 + 60u^4 - 26u^3 + 8u^2 + 6u - 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{29} - 2u^{28} + \cdots - u + 1$
c_2	$u^{29} + 16u^{28} + \cdots + 7u + 1$
c_3, c_8	$u^{29} + 2u^{28} + \cdots + 2u + 2$
c_5, c_{10}, c_{11}	$u^{29} + 2u^{28} + \cdots + 3u + 1$
c_6, c_7, c_9	$u^{29} - 6u^{28} + \cdots + 8u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{29} - 16y^{28} + \cdots + 7y - 1$
c_2	$y^{29} - 4y^{28} + \cdots - 17y - 1$
c_3, c_8	$y^{29} + 6y^{28} + \cdots + 8y - 4$
c_5, c_{10}, c_{11}	$y^{29} - 24y^{28} + \cdots + 23y - 1$
c_6, c_7, c_9	$y^{29} + 30y^{28} + \cdots + 504y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.050913 + 0.910185I$ $a = -0.45193 - 1.39576I$ $b = 0.00992 - 2.35228I$	$-10.46170 + 8.03356I$	$-4.76249 - 5.59744I$
$u = 0.050913 - 0.910185I$ $a = -0.45193 + 1.39576I$ $b = 0.00992 + 2.35228I$	$-10.46170 - 8.03356I$	$-4.76249 + 5.59744I$
$u = -0.008721 + 0.887960I$ $a = -0.49123 + 1.42056I$ $b = 0.14380 + 2.36020I$	$-10.71030 - 1.52343I$	$-5.35413 + 0.68771I$
$u = -0.008721 - 0.887960I$ $a = -0.49123 - 1.42056I$ $b = 0.14380 - 2.36020I$	$-10.71030 + 1.52343I$	$-5.35413 - 0.68771I$
$u = 1.189730 + 0.056062I$ $a = -0.370086 - 0.255115I$ $b = -1.23899 - 0.69502I$	$2.39907 + 0.12369I$	$3.50407 + 1.07759I$
$u = 1.189730 - 0.056062I$ $a = -0.370086 + 0.255115I$ $b = -1.23899 + 0.69502I$	$2.39907 - 0.12369I$	$3.50407 - 1.07759I$
$u = 1.242320 + 0.189774I$ $a = -0.715591 + 0.438399I$ $b = 0.20240 + 2.88734I$	$0.91595 + 3.56420I$	$0.67873 - 4.99863I$
$u = 1.242320 - 0.189774I$ $a = -0.715591 - 0.438399I$ $b = 0.20240 - 2.88734I$	$0.91595 - 3.56420I$	$0.67873 + 4.99863I$
$u = 0.230236 + 0.672244I$ $a = -0.11327 - 1.56979I$ $b = -0.07670 - 1.55700I$	$-1.85869 + 5.19499I$	$-2.04173 - 8.30480I$
$u = 0.230236 - 0.672244I$ $a = -0.11327 + 1.56979I$ $b = -0.07670 + 1.55700I$	$-1.85869 - 5.19499I$	$-2.04173 + 8.30480I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.249690 + 0.417811I$ $a = -0.215564 - 0.608911I$ $b = -0.927812 - 0.165212I$	$-3.02235 + 1.47420I$	$1.47993 - 0.60903I$
$u = 1.249690 - 0.417811I$ $a = -0.215564 + 0.608911I$ $b = -0.927812 + 0.165212I$	$-3.02235 - 1.47420I$	$1.47993 + 0.60903I$
$u = -1.311940 + 0.179476I$ $a = -0.339083 + 0.475947I$ $b = -0.644137 + 0.471467I$	$4.98921 - 3.78682I$	$7.27007 + 4.16727I$
$u = -1.311940 - 0.179476I$ $a = -0.339083 - 0.475947I$ $b = -0.644137 - 0.471467I$	$4.98921 + 3.78682I$	$7.27007 - 4.16727I$
$u = -1.342150 + 0.040293I$ $a = -0.537408 - 0.444706I$ $b = -0.23164 - 1.41782I$	$6.61715 - 2.27209I$	$8.89752 + 3.80982I$
$u = -1.342150 - 0.040293I$ $a = -0.537408 + 0.444706I$ $b = -0.23164 + 1.41782I$	$6.61715 + 2.27209I$	$8.89752 - 3.80982I$
$u = 1.286000 + 0.418935I$ $a = -0.762208 + 0.613998I$ $b = 1.69138 + 2.74611I$	$-6.68464 + 6.20004I$	$-1.73580 - 3.81481I$
$u = 1.286000 - 0.418935I$ $a = -0.762208 - 0.613998I$ $b = 1.69138 - 2.74611I$	$-6.68464 - 6.20004I$	$-1.73580 + 3.81481I$
$u = -1.333980 + 0.244603I$ $a = -0.683762 - 0.524847I$ $b = 0.83387 - 2.33932I$	$3.04589 - 8.42692I$	$3.52830 + 8.66921I$
$u = -1.333980 - 0.244603I$ $a = -0.683762 + 0.524847I$ $b = 0.83387 + 2.33932I$	$3.04589 + 8.42692I$	$3.52830 - 8.66921I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.301320+0.407588I$ $a=-0.248387+0.609615I$ $b=-0.872384+0.107277I$	$-2.63518-7.77071I$	$2.10858+5.30383I$
$u=-1.301320-0.407588I$ $a=-0.248387-0.609615I$ $b=-0.872384-0.107277I$	$-2.63518+7.77071I$	$2.10858-5.30383I$
$u=\ \ 0.529946+0.329108I$ $a=\ \ 0.667313-0.986592I$ $b=-0.347726-0.588274I$	$0.93542+1.41053I$	$5.39446-5.74020I$
$u=\ \ 0.529946-0.329108I$ $a=\ \ 0.667313+0.986592I$ $b=-0.347726+0.588274I$	$0.93542-1.41053I$	$5.39446+5.74020I$
$u=-1.320520+0.424615I$ $a=-0.743481-0.622059I$ $b=\ \ 1.72687-2.60904I$	$-6.1783-12.8069I$	$-0.92308+8.12569I$
$u=-1.320520-0.424615I$ $a=-0.743481+0.622059I$ $b=\ \ 1.72687+2.60904I$	$-6.1783+12.8069I$	$-0.92308-8.12569I$
$u=-0.063245+0.516212I$ $a=-0.28684+2.09363I$ $b=\ \ 0.49644+1.38676I$	$-3.02142-1.01433I$	$-6.77496+0.83339I$
$u=-0.063245-0.516212I$ $a=-0.28684-2.09363I$ $b=\ \ 0.49644-1.38676I$	$-3.02142+1.01433I$	$-6.77496-0.83339I$
$u=-0.193938$ $a=\ \ 4.58305$ $b=\ \ 0.469396$	-1.29813	-8.53890

II. $I_2^u = \langle u^2 + b,\ a - 1,\ u^{12} - 4u^{10} + \cdots - 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^9 - 12u^7 + 4u^6 + 12u^5 - 8u^4 + 8u^3 + 4u^2 - 12u + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.944825 + 0.321917I$ $a = 1.00000$ $b = -0.789064 - 0.608311I$	$0.21101 - 1.41510I$	$1.82674 + 4.90874I$
$u = 0.944825 - 0.321917I$ $a = 1.00000$ $b = -0.789064 + 0.608311I$	$0.21101 + 1.41510I$	$1.82674 - 4.90874I$
$u = 0.031664 + 0.878090I$ $a = 1.00000$ $b = 0.770039 - 0.055609I$	$-6.79074 + 3.16396I$	$-1.82674 - 2.56480I$
$u = 0.031664 - 0.878090I$ $a = 1.00000$ $b = 0.770039 + 0.055609I$	$-6.79074 - 3.16396I$	$-1.82674 + 2.56480I$
$u = -1.186690 + 0.158407I$ $a = 1.00000$ $b = -1.38315 + 0.37596I$	$0.21101 - 1.41510I$	$1.82674 + 4.90874I$
$u = -1.186690 - 0.158407I$ $a = 1.00000$ $b = -1.38315 - 0.37596I$	$0.21101 + 1.41510I$	$1.82674 - 4.90874I$
$u = 1.240280 + 0.455646I$ $a = 1.00000$ $b = -1.33067 - 1.13025I$	$-6.79074 - 3.16396I$	$-1.82674 + 2.56480I$
$u = 1.240280 - 0.455646I$ $a = 1.00000$ $b = -1.33067 + 1.13025I$	$-6.79074 + 3.16396I$	$-1.82674 - 2.56480I$
$u = -1.271940 + 0.422443I$ $a = 1.00000$ $b = -1.43937 + 1.07464I$	$-6.79074 - 3.16396I$	$-1.82674 + 2.56480I$
$u = -1.271940 - 0.422443I$ $a = 1.00000$ $b = -1.43937 - 1.07464I$	$-6.79074 + 3.16396I$	$-1.82674 - 2.56480I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.241868+0.480324I$		
$a=$	1.00000	$0.21101+1.41510I$	$1.82674-4.90874I$
$b=$	$0.172212-0.232350I$		
$u=$	$0.241868-0.480324I$		
$a=$	1.00000	$0.21101-1.41510I$	$1.82674+4.90874I$
$b=$	$0.172212+0.232350I$		

III. $I^u_3 = \langle b+1,\ a-1,\ u-1\rangle$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$		
$a = \quad 1.00000$	0	0
$b = -1.00000$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^{12}-4u^{10}+\cdots-2u+1)$ $\cdot\,(u^{29}-2u^{28}+\cdots-u+1)$
c_2	$(u+1)(u^{12}+8u^{11}+\cdots-2u+1)(u^{29}+16u^{28}+\cdots+7u+1)$
c_3, c_8	$u(u^4-u^3+u^2+1)^3(u^{29}+2u^{28}+\cdots+2u+2)$
c_4	$(u+1)(u^{12}-4u^{10}+\cdots-2u+1)$ $\cdot\,(u^{29}-2u^{28}+\cdots-u+1)$
c_5	$(u+1)(u^{12}-4u^{10}+\cdots-2u+1)$ $\cdot\,(u^{29}+2u^{28}+\cdots+3u+1)$
c_6, c_7, c_9	$u(u^4-u^3+3u^2-2u+1)^3(u^{29}-6u^{28}+\cdots+8u+4)$
c_{10}, c_{11}	$(u-1)(u^{12}-4u^{10}+\cdots-2u+1)$ $\cdot\,(u^{29}+2u^{28}+\cdots+3u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y-1)(y^{12}-8y^{11}+\cdots+2y+1)(y^{29}-16y^{28}+\cdots+7y-1)$
c_2	$(y-1)(y^{12}-8y^{11}+\cdots+2y+1)(y^{29}-4y^{28}+\cdots-17y-1)$
c_3, c_8	$y(y^4+y^3+3y^2+2y+1)^3(y^{29}+6y^{28}+\cdots+8y-4)$
c_5, c_{10}, c_{11}	$(y-1)(y^{12}-8y^{11}+\cdots+2y+1)(y^{29}-24y^{28}+\cdots+23y-1)$
c_6, c_7, c_9	$y(y^4+5y^3+\cdots+2y+1)^3(y^{29}+30y^{28}+\cdots+504y-16)$