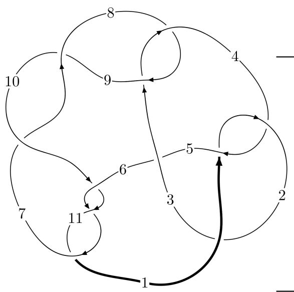
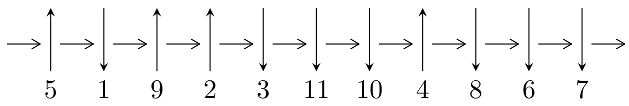
$11a_{12}$ $(K11a_{12})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 5u^{52} - 9u^{51} + \cdots + b - 4,\ 5u^{52} - 8u^{51} + \cdots + 2a - 5,\ u^{53} - 3u^{52} + \cdots + 6u^2 + 1 \rangle$$
$$I_2^u = \langle b,\ a^2 + a + 1,\ u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 55 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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$$\boldsymbol{I_1^u = \langle 5u^{52}-9u^{51}+\cdots+b-4,\ 5u^{52}-8u^{51}+\cdots+2a-5,\ u^{53}-3u^{52}+\cdots+6u^2+1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^3-2u \\ -u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{5}{2}u^{52}+4u^{51}+\cdots+\frac{1}{2}u+\frac{5}{2} \\ -5u^{52}+9u^{51}+\cdots+3u+4 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{9}{2}u^{52}+8u^{51}+\cdots+\frac{5}{2}u+\frac{9}{2} \\ -\frac{1}{2}u^{52}+u^{51}+\cdots+\frac{1}{2}u+\frac{1}{2} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{2}u^{52}-u^{51}+\cdots+\frac{11}{2}u+\frac{1}{2} \\ u^{16}-6u^{14}+\cdots-6u^3-4u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^6-3u^4+2u^2+1 \\ -u^6+2u^4-u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{11}{2}u^{52}+10u^{51}+\cdots+\frac{5}{2}u+\frac{9}{2} \\ 2u^{52}-3u^{51}+\cdots-u-1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{11}{2}u^{52}+10u^{51}+\cdots+\frac{5}{2}u+\frac{9}{2} \\ 2u^{52}-3u^{51}+\cdots-u-1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 11u^{52}-15u^{51}+\cdots-11u-8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{53} + 2u^{52} + \cdots - 3u - 1$
c_2	$u^{53} + 24u^{52} + \cdots + u - 1$
c_3, c_8	$u^{53} + u^{52} + \cdots + 12u + 4$
c_5	$u^{53} - 2u^{52} + \cdots + 5u - 1$
c_6, c_{10}, c_{11}	$u^{53} - 3u^{52} + \cdots + 6u^2 + 1$
c_7, c_9	$u^{53} + 15u^{52} + \cdots - 120u - 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{53} + 24y^{52} + \cdots + y - 1$
c_2	$y^{53} + 12y^{52} + \cdots + 25y - 1$
c_3, c_8	$y^{53} + 15y^{52} + \cdots - 120y - 16$
c_5	$y^{53} + 50y^{51} + \cdots + 49y - 1$
c_6, c_{10}, c_{11}	$y^{53} - 43y^{52} + \cdots - 12y - 1$
c_7, c_9	$y^{53} + 43y^{52} + \cdots - 1248y - 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.968116 + 0.283551I$ $a = -0.381885 + 0.265140I$ $b = 0.072613 - 0.438240I$	$-2.32930 + 1.08642I$	$-8.77370 + 0.57725I$
$u = -0.968116 - 0.283551I$ $a = -0.381885 - 0.265140I$ $b = 0.072613 + 0.438240I$	$-2.32930 - 1.08642I$	$-8.77370 - 0.57725I$
$u = -0.108156 + 0.876063I$ $a = -1.32408 - 1.36471I$ $b = 1.61654 + 1.16042I$	$3.78899 + 9.71652I$	$-1.28115 - 7.65601I$
$u = -0.108156 - 0.876063I$ $a = -1.32408 + 1.36471I$ $b = 1.61654 - 1.16042I$	$3.78899 - 9.71652I$	$-1.28115 + 7.65601I$
$u = -0.082170 + 0.858832I$ $a = 1.44862 + 0.76672I$ $b = -1.73090 - 0.73690I$	$5.69104 + 4.47611I$	$1.74448 - 3.16326I$
$u = -0.082170 - 0.858832I$ $a = 1.44862 - 0.76672I$ $b = -1.73090 + 0.73690I$	$5.69104 - 4.47611I$	$1.74448 + 3.16326I$
$u = -0.007145 + 0.820800I$ $a = 1.52444 - 0.74981I$ $b = -1.84453 + 0.32226I$	$6.01459 + 1.53976I$	$2.52644 - 2.51375I$
$u = -0.007145 - 0.820800I$ $a = 1.52444 + 0.74981I$ $b = -1.84453 - 0.32226I$	$6.01459 - 1.53976I$	$2.52644 + 2.51375I$
$u = -1.18911$ $a = -0.404114$ $b = 1.21704$	-2.34833	0
$u = 0.031004 + 0.805221I$ $a = -1.40526 + 1.45329I$ $b = 1.78482 - 0.80414I$	$4.38710 - 3.67589I$	$0.16278 + 2.56525I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.031004 - 0.805221I$ $a = -1.40526 - 1.45329I$ $b = 1.78482 + 0.80414I$	$4.38710 + 3.67589I$	$0.16278 - 2.56525I$
$u = -0.108842 + 0.774169I$ $a = -0.215748 - 0.202638I$ $b = 0.884831 + 0.268769I$	$0.49494 + 2.64295I$	$-4.27164 - 3.21466I$
$u = -0.108842 - 0.774169I$ $a = -0.215748 + 0.202638I$ $b = 0.884831 - 0.268769I$	$0.49494 - 2.64295I$	$-4.27164 + 3.21466I$
$u = 1.226730 + 0.035206I$ $a = -0.322557 - 1.040730I$ $b = 0.081070 - 0.587091I$	$-2.80413 - 2.50478I$	0
$u = 1.226730 - 0.035206I$ $a = -0.322557 + 1.040730I$ $b = 0.081070 + 0.587091I$	$-2.80413 + 2.50478I$	0
$u = -0.616308 + 0.457732I$ $a = -0.500886 - 1.035960I$ $b = 0.030166 + 0.720650I$	$-3.24252 - 1.36437I$	$-10.10455 + 0.49514I$
$u = -0.616308 - 0.457732I$ $a = -0.500886 + 1.035960I$ $b = 0.030166 - 0.720650I$	$-3.24252 + 1.36437I$	$-10.10455 - 0.49514I$
$u = -1.163700 + 0.443994I$ $a = -0.632507 - 1.100300I$ $b = -1.092410 + 0.318801I$	$0.55249 - 5.00025I$	0
$u = -1.163700 - 0.443994I$ $a = -0.632507 + 1.100300I$ $b = -1.092410 - 0.318801I$	$0.55249 + 5.00025I$	0
$u = -1.218450 + 0.268078I$ $a = 0.170099 + 0.071272I$ $b = -0.35378 - 1.55230I$	$-2.73834 + 1.08871I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.218450-0.268078I$ $a=\ 0.170099-0.071272I$ $b=-0.35378+1.55230I$	$-2.73834-1.08871I$	0
$u=-1.191390+0.413451I$ $a=\ 0.165753+1.023680I$ $b=\ 1.384980+0.151319I$	$2.28411+0.08613I$	0
$u=-1.191390-0.413451I$ $a=\ 0.165753-1.023680I$ $b=\ 1.384980-0.151319I$	$2.28411-0.08613I$	0
$u=-0.430093+0.598904I$ $a=-1.44144-0.66547I$ $b=\ 0.441095+0.500611I$	$-2.63045+5.30697I$	$-7.17193-8.38740I$
$u=-0.430093-0.598904I$ $a=-1.44144+0.66547I$ $b=\ 0.441095-0.500611I$	$-2.63045-5.30697I$	$-7.17193+8.38740I$
$u=\ 1.244290+0.351593I$ $a=-0.585410+1.135750I$ $b=-1.101840+0.108048I$	$0.641453-0.489898I$	0
$u=\ 1.244290-0.351593I$ $a=-0.585410-1.135750I$ $b=-1.101840-0.108048I$	$0.641453+0.489898I$	0
$u=-1.294170+0.057870I$ $a=\ 0.733580-0.333474I$ $b=-2.30447+0.90915I$	$-4.79813+3.38896I$	0
$u=-1.294170-0.057870I$ $a=\ 0.733580+0.333474I$ $b=-2.30447-0.90915I$	$-4.79813-3.38896I$	0
$u=-1.262360+0.367119I$ $a=-0.757803+0.671105I$ $b=\ 1.92362+1.39721I$	$2.12308+2.73219I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.262360 - 0.367119I$ $a = -0.757803 - 0.671105I$ $b = 1.92362 - 1.39721I$	$2.12308 - 2.73219I$	0
$u = 1.273870 + 0.366638I$ $a = 0.073628 - 1.101770I$ $b = 1.35653 - 0.53361I$	$2.03469 - 5.80979I$	0
$u = 1.273870 - 0.366638I$ $a = 0.073628 + 1.101770I$ $b = 1.35653 + 0.53361I$	$2.03469 + 5.80979I$	0
$u = -1.291970 + 0.356069I$ $a = 1.120780 - 0.449943I$ $b = -2.13237 - 2.00334I$	$0.26166 + 7.85803I$	0
$u = -1.291970 - 0.356069I$ $a = 1.120780 + 0.449943I$ $b = -2.13237 + 2.00334I$	$0.26166 - 7.85803I$	0
$u = 1.355440 + 0.136049I$ $a = -0.753075 - 0.237855I$ $b = 0.928079 - 0.540827I$	$-5.74714 - 3.41063I$	0
$u = 1.355440 - 0.136049I$ $a = -0.753075 + 0.237855I$ $b = 0.928079 + 0.540827I$	$-5.74714 + 3.41063I$	0
$u = 1.333880 + 0.341289I$ $a = 0.269451 + 0.152167I$ $b = -0.70513 + 1.50804I$	$-4.03348 - 6.68828I$	0
$u = 1.333880 - 0.341289I$ $a = 0.269451 - 0.152167I$ $b = -0.70513 - 1.50804I$	$-4.03348 + 6.68828I$	0
$u = 1.329340 + 0.384853I$ $a = -0.862126 - 0.636182I$ $b = 1.64046 - 1.66007I$	$1.26818 - 8.94141I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.329340 - 0.384853I$ $a = -0.862126 + 0.636182I$ $b = 1.64046 + 1.66007I$	$1.26818 + 8.94141I$	0
$u = 1.398170 + 0.082873I$ $a = 0.626703 - 0.081349I$ $b = -0.96603 + 1.31820I$	$-9.55416 - 0.10492I$	0
$u = 1.398170 - 0.082873I$ $a = 0.626703 + 0.081349I$ $b = -0.96603 - 1.31820I$	$-9.55416 + 0.10492I$	0
$u = 1.347190 + 0.390740I$ $a = 1.171490 + 0.397318I$ $b = -1.70731 + 2.12421I$	$-0.7808 - 14.2618I$	0
$u = 1.347190 - 0.390740I$ $a = 1.171490 - 0.397318I$ $b = -1.70731 - 2.12421I$	$-0.7808 + 14.2618I$	0
$u = 1.397480 + 0.165043I$ $a = 0.932544 + 0.257510I$ $b = -1.53992 + 0.33246I$	$-8.47430 - 7.85966I$	0
$u = 1.397480 - 0.165043I$ $a = 0.932544 - 0.257510I$ $b = -1.53992 - 0.33246I$	$-8.47430 + 7.85966I$	0
$u = -0.340173 + 0.453801I$ $a = 1.060390 + 0.375276I$ $b = -0.159985 - 0.452155I$	$-0.42373 + 1.39478I$	$-2.79014 - 5.25225I$
$u = -0.340173 - 0.453801I$ $a = 1.060390 - 0.375276I$ $b = -0.159985 + 0.452155I$	$-0.42373 - 1.39478I$	$-2.79014 + 5.25225I$
$u = 0.020226 + 0.357518I$ $a = 2.02061 + 0.44390I$ $b = -0.218240 - 0.573207I$	$0.51548 + 1.38171I$	$2.20295 - 4.47540I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.020226 - 0.357518I$ $a = 2.02061 - 0.44390I$ $b = -0.218240 + 0.573207I$	$0.51548 - 1.38171I$	$2.20295 + 4.47540I$
$u = 0.219966 + 0.200182I$ $a = -3.43324 - 0.35025I$ $b = 0.603600 + 0.354674I$	$-0.24387 - 2.48522I$	$1.64376 + 3.61634I$
$u = 0.219966 - 0.200182I$ $a = -3.43324 + 0.35025I$ $b = 0.603600 - 0.354674I$	$-0.24387 + 2.48522I$	$1.64376 - 3.61634I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a - 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -0.500000 + 0.866025I$ $b = 0$	$-1.64493 + 2.02988I$	$-3.00000 - 3.46410I$
$u = -1.00000$ $a = -0.500000 - 0.866025I$ $b = 0$	$-1.64493 - 2.02988I$	$-3.00000 + 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)(u^{53}+2u^{52}+\cdots-3u-1)$
c_2	$(u^2+u+1)(u^{53}+24u^{52}+\cdots+u-1)$
c_3, c_8	$u^2(u^{53}+u^{52}+\cdots+12u+4)$
c_4	$(u^2-u+1)(u^{53}+2u^{52}+\cdots-3u-1)$
c_5	$(u^2+u+1)(u^{53}-2u^{52}+\cdots+5u-1)$
c_6	$((u-1)^2)(u^{53}-3u^{52}+\cdots+6u^2+1)$
c_7, c_9	$u^2(u^{53}+15u^{52}+\cdots-120u-16)$
c_{10}, c_{11}	$((u+1)^2)(u^{53}-3u^{52}+\cdots+6u^2+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^2+y+1)(y^{53}+24y^{52}+\cdots+y-1)$
c_2	$(y^2+y+1)(y^{53}+12y^{52}+\cdots+25y-1)$
c_3, c_8	$y^2(y^{53}+15y^{52}+\cdots-120y-16)$
c_5	$(y^2+y+1)(y^{53}+50y^{51}+\cdots+49y-1)$
c_6, c_{10}, c_{11}	$((y-1)^2)(y^{53}-43y^{52}+\cdots-12y-1)$
c_7, c_9	$y^2(y^{53}+43y^{52}+\cdots-1248y-256)$