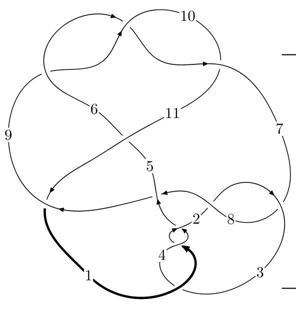
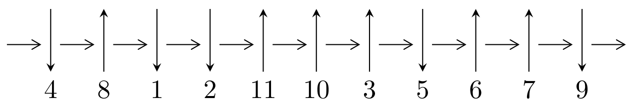
$11a_{257}$ ($K11a_{257}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 178u^{52} - 830u^{51} + \cdots + 4b + 135,\ -82u^{52} + 389u^{51} + \cdots + 4a - 64,\ u^{53} - 6u^{52} + \cdots + 5u - 1\rangle$$
$$I_2^u = \langle b + a,\ a^5 - a^4 + 2a^3 - a^2 + a - 1,\ u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 58 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. $\boldsymbol{I_1^u = \langle 178u^{52} - 830u^{51} + \cdots + 4b + 135,\ -82u^{52} + 389u^{51} + \cdots + 4a - 64,\ u^{53} - 6u^{52} + \cdots + 5u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{41}{2}u^{52} - \frac{389}{4}u^{51} + \cdots - \frac{285}{4}u + 16 \\ -\frac{89}{2}u^{52} + \frac{415}{2}u^{51} + \cdots + 143u - \frac{135}{4} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -24u^{52} + \frac{441}{4}u^{51} + \cdots + \frac{287}{4}u - \frac{71}{4} \\ -\frac{89}{2}u^{52} + \frac{415}{2}u^{51} + \cdots + 143u - \frac{135}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 8u^{52} - \frac{143}{4}u^{51} + \cdots - \frac{109}{4}u + \frac{21}{4} \\ -\frac{183}{4}u^{52} + 210u^{51} + \cdots + \frac{559}{4}u - \frac{131}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{16}u^{52} - \frac{5}{16}u^{51} + \cdots + \frac{15}{4}u + \frac{17}{16} \\ -\frac{1}{16}u^{52} + \frac{5}{16}u^{51} + \cdots + \frac{1}{4}u - \frac{1}{16} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.937500u^{52} + 4.56250u^{51} + \cdots + 3.37500u + 0.187500 \\ \frac{9}{8}u^{52} - \frac{11}{2}u^{51} + \cdots - \frac{33}{8}u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{16}u^{52} + \frac{5}{16}u^{51} + \cdots + \frac{5}{4}u - \frac{1}{16} \\ -u^{52} + \frac{39}{8}u^{51} + \cdots + \frac{37}{8}u - \frac{7}{8} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{16}u^{52} + \frac{5}{16}u^{51} + \cdots + \frac{5}{4}u - \frac{1}{16} \\ -u^{52} + \frac{39}{8}u^{51} + \cdots + \frac{37}{8}u - \frac{7}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 95u^{52} - \frac{3551}{8}u^{51} + \cdots - \frac{2445}{8}u + \frac{625}{8}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4	$u^{53} - 6u^{52} + \cdots + 5u - 1$
c_2, c_7	$u^{53} + u^{52} + \cdots + 32u - 32$
c_5	$u^{53} + 6u^{52} + \cdots + 5u + 1$
c_6, c_9, c_{10}	$u^{53} - 2u^{52} + \cdots - u - 1$
c_8	$u^{53} + 2u^{52} + \cdots - 353u - 505$
c_{11}	$u^{53} - 12u^{52} + \cdots + 577u - 73$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4	$y^{53} - 52y^{52} + \cdots - 3y - 1$
c_2, c_7	$y^{53} + 33y^{52} + \cdots - 3584y - 1024$
c_5	$y^{53} + 54y^{51} + \cdots + 3y - 1$
c_6, c_9, c_{10}	$y^{53} - 48y^{52} + \cdots - 5y - 1$
c_8	$y^{53} - 24y^{52} + \cdots - 2730661y - 255025$
c_{11}	$y^{53} + 12y^{52} + \cdots - 67257y - 5329$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.982418 + 0.186223I$ $a = -0.479524 + 0.755081I$ $b = 0.048069 - 0.323425I$	$-1.84631 + 0.73042I$	0
$u = -0.982418 - 0.186223I$ $a = -0.479524 - 0.755081I$ $b = 0.048069 + 0.323425I$	$-1.84631 - 0.73042I$	0
$u = -0.760759 + 0.648532I$ $a = 0.116454 + 1.176580I$ $b = -0.921747 - 0.370981I$	$1.51168 - 4.33800I$	0
$u = -0.760759 - 0.648532I$ $a = 0.116454 - 1.176580I$ $b = -0.921747 + 0.370981I$	$1.51168 + 4.33800I$	0
$u = -0.964025 + 0.386334I$ $a = 0.434988 - 1.154090I$ $b = 0.204570 + 0.572039I$	$2.96531 + 2.94902I$	0
$u = -0.964025 - 0.386334I$ $a = 0.434988 + 1.154090I$ $b = 0.204570 - 0.572039I$	$2.96531 - 2.94902I$	0
$u = -0.680941 + 0.650505I$ $a = -0.138770 - 1.031700I$ $b = 0.944950 + 0.173323I$	$-3.50201 - 0.91026I$	0
$u = -0.680941 - 0.650505I$ $a = -0.138770 + 1.031700I$ $b = 0.944950 - 0.173323I$	$-3.50201 + 0.91026I$	0
$u = -0.407582 + 0.847824I$ $a = 0.393026 + 0.322879I$ $b = -1.32942 + 0.64140I$	$2.63587 + 9.48987I$	$0. - 7.65628I$
$u = -0.407582 - 0.847824I$ $a = 0.393026 - 0.322879I$ $b = -1.32942 - 0.64140I$	$2.63587 - 9.48987I$	$0. + 7.65628I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.433922 + 0.813375I$ $a = -0.340896 - 0.426596I$ $b = 1.261610 - 0.534848I$	$-2.67007 + 5.91475I$	$0. - 7.38929I$
$u = -0.433922 - 0.813375I$ $a = -0.340896 + 0.426596I$ $b = 1.261610 + 0.534848I$	$-2.67007 - 5.91475I$	$0. + 7.38929I$
$u = -0.554849 + 0.709779I$ $a = 0.217443 + 0.777212I$ $b = -1.072060 + 0.149681I$	$-1.20946 + 2.41405I$	$0. - 4.08041I$
$u = -0.554849 - 0.709779I$ $a = 0.217443 - 0.777212I$ $b = -1.072060 - 0.149681I$	$-1.20946 - 2.41405I$	$0. + 4.08041I$
$u = -0.455576 + 0.714744I$ $a = 0.149975 + 0.576727I$ $b = -1.027580 + 0.397314I$	$-1.05950 + 2.27821I$	$0. - 2.78604I$
$u = -0.455576 - 0.714744I$ $a = 0.149975 - 0.576727I$ $b = -1.027580 - 0.397314I$	$-1.05950 - 2.27821I$	$0. + 2.78604I$
$u = -0.280767 + 0.714209I$ $a = 0.082115 - 0.233998I$ $b = 0.850866 - 0.798684I$	$4.99265 + 1.07686I$	$5.54603 - 2.94632I$
$u = -0.280767 - 0.714209I$ $a = 0.082115 + 0.233998I$ $b = 0.850866 + 0.798684I$	$4.99265 - 1.07686I$	$5.54603 + 2.94632I$
$u = -1.249920 + 0.188145I$ $a = 1.31747 - 0.73074I$ $b = -0.601101 + 0.517228I$	$2.25469 - 0.67746I$	0
$u = -1.249920 - 0.188145I$ $a = 1.31747 + 0.73074I$ $b = -0.601101 - 0.517228I$	$2.25469 + 0.67746I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.309040 + 0.052760I$ $a = -0.419594 - 1.100620I$ $b = 0.36327 + 1.84192I$	$2.89086 - 4.92095I$	0
$u = 1.309040 - 0.052760I$ $a = -0.419594 + 1.100620I$ $b = 0.36327 - 1.84192I$	$2.89086 + 4.92095I$	0
$u = 1.349770 + 0.028214I$ $a = 0.209932 + 0.804803I$ $b = -0.18196 - 1.58583I$	$-3.20353 - 1.98495I$	0
$u = 1.349770 - 0.028214I$ $a = 0.209932 - 0.804803I$ $b = -0.18196 + 1.58583I$	$-3.20353 + 1.98495I$	0
$u = -1.384270 + 0.010881I$ $a = -1.89998 + 0.04672I$ $b = 1.086340 - 0.036544I$	$-3.24184 + 0.00358I$	0
$u = -1.384270 - 0.010881I$ $a = -1.89998 - 0.04672I$ $b = 1.086340 + 0.036544I$	$-3.24184 - 0.00358I$	0
$u = -1.41369 + 0.09323I$ $a = 2.01362 - 0.40791I$ $b = -1.167340 + 0.325383I$	$-5.17639 + 3.49609I$	0
$u = -1.41369 - 0.09323I$ $a = 2.01362 + 0.40791I$ $b = -1.167340 - 0.325383I$	$-5.17639 - 3.49609I$	0
$u = -1.42461 + 0.12859I$ $a = -2.04808 + 0.56618I$ $b = 1.187440 - 0.454960I$	$-0.01422 + 7.04483I$	0
$u = -1.42461 - 0.12859I$ $a = -2.04808 - 0.56618I$ $b = 1.187440 + 0.454960I$	$-0.01422 - 7.04483I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.43980 + 0.26155I$ $a = -1.64867 - 0.07993I$ $b = 1.43587 + 0.98145I$	$-0.57753 - 4.59375I$	0
$u = 1.43980 - 0.26155I$ $a = -1.64867 + 0.07993I$ $b = 1.43587 - 0.98145I$	$-0.57753 + 4.59375I$	0
$u = 0.094833 + 0.506795I$ $a = 1.277970 + 0.040231I$ $b = -0.118381 - 1.080780I$	$6.40428 + 3.28310I$	$8.64938 - 3.46229I$
$u = 0.094833 - 0.506795I$ $a = 1.277970 - 0.040231I$ $b = -0.118381 + 1.080780I$	$6.40428 - 3.28310I$	$8.64938 + 3.46229I$
$u = 1.49730 + 0.26665I$ $a = 1.66735 - 0.24380I$ $b = -1.46502 - 0.70007I$	$-7.38726 - 5.90070I$	0
$u = 1.49730 - 0.26665I$ $a = 1.66735 + 0.24380I$ $b = -1.46502 + 0.70007I$	$-7.38726 + 5.90070I$	0
$u = 1.49777 + 0.31809I$ $a = 1.95330 - 0.24247I$ $b = -1.71613 - 0.71417I$	$-3.5199 - 13.7301I$	0
$u = 1.49777 - 0.31809I$ $a = 1.95330 + 0.24247I$ $b = -1.71613 + 0.71417I$	$-3.5199 + 13.7301I$	0
$u = 1.50330 + 0.29927I$ $a = -1.85081 + 0.27564I$ $b = 1.62759 + 0.68002I$	$-8.94669 - 9.97082I$	0
$u = 1.50330 - 0.29927I$ $a = -1.85081 - 0.27564I$ $b = 1.62759 - 0.68002I$	$-8.94669 + 9.97082I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.297732 + 0.359699I$ $a = -2.02123 - 0.17904I$ $b = 0.728284 + 0.956131I$	$5.56278 - 5.20660I$	$8.08747 + 4.37223I$
$u = 0.297732 - 0.359699I$ $a = -2.02123 + 0.17904I$ $b = 0.728284 - 0.956131I$	$5.56278 + 5.20660I$	$8.08747 - 4.37223I$
$u = 1.52827 + 0.22236I$ $a = 1.40930 - 0.42475I$ $b = -1.244310 - 0.531664I$	$-8.05943 - 5.77245I$	0
$u = 1.52827 - 0.22236I$ $a = 1.40930 + 0.42475I$ $b = -1.244310 + 0.531664I$	$-8.05943 + 5.77245I$	0
$u = 1.53880 + 0.17846I$ $a = -1.142980 + 0.488982I$ $b = 1.010830 + 0.467594I$	$-10.80810 - 1.96242I$	0
$u = 1.53880 - 0.17846I$ $a = -1.142980 - 0.488982I$ $b = 1.010830 - 0.467594I$	$-10.80810 + 1.96242I$	0
$u = 1.54665 + 0.14104I$ $a = 0.909678 - 0.537410I$ $b = -0.805465 - 0.419819I$	$-6.20214 + 1.77875I$	0
$u = 1.54665 - 0.14104I$ $a = 0.909678 + 0.537410I$ $b = -0.805465 + 0.419819I$	$-6.20214 - 1.77875I$	0
$u = 0.234258 + 0.285587I$ $a = 2.09531 - 0.08804I$ $b = -0.631451 - 0.724461I$	$0.17010 - 2.09238I$	$3.71444 + 4.57317I$
$u = 0.234258 - 0.285587I$ $a = 2.09531 + 0.08804I$ $b = -0.631451 + 0.724461I$	$0.17010 + 2.09238I$	$3.71444 - 4.57317I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.025576 + 0.363456I$ $a = -1.41418 + 0.47907I$ $b = 0.134953 + 0.733098I$	$0.824240 + 0.967983I$	$5.68123 - 4.85193I$
$u = 0.025576 - 0.363456I$ $a = -1.41418 - 0.47907I$ $b = 0.134953 - 0.733098I$	$0.824240 - 0.967983I$	$5.68123 + 4.85193I$
$u = 0.260469$ $a = -2.68640$ $b = 0.794640$	2.04678	5.78300

II. $I_2^u = \langle b + a,\ a^5 - a^4 + 2a^3 - a^2 + a - 1,\ u + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ -a \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ -a \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -a \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -a^2 - 1 \\ a^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a^4 + a^2 + 1 \\ -a^4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -a^2 - 1 \\ -a^4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -a^2 - 1 \\ -a^4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -a^4 - 4a^3 + 2a^2 - 5a + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -0.339110 + 0.822375I$ $b = 0.339110 - 0.822375I$	$-1.31583 + 1.53058I$	$-0.02714 - 4.76366I$
$u = -1.00000$ $a = -0.339110 - 0.822375I$ $b = 0.339110 + 0.822375I$	$-1.31583 - 1.53058I$	$-0.02714 + 4.76366I$
$u = -1.00000$ $a = 0.766826$ $b = -0.766826$	0.756147	-2.80750
$u = -1.00000$ $a = 0.455697 + 1.200150I$ $b = -0.455697 - 1.200150I$	$4.22763 - 4.40083I$	$4.43089 + 2.80751I$
$u = -1.00000$ $a = 0.455697 - 1.200150I$ $b = -0.455697 + 1.200150I$	$4.22763 + 4.40083I$	$4.43089 - 2.80751I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{53}-6u^{52}+\cdots+5u-1)$
c_2, c_7	$u^5(u^{53}+u^{52}+\cdots+32u-32)$
c_3, c_4	$((u+1)^5)(u^{53}-6u^{52}+\cdots+5u-1)$
c_5	$(u^5+3u^4+4u^3+u^2-u-1)(u^{53}+6u^{52}+\cdots+5u+1)$
c_6	$(u^5-u^4-2u^3+u^2+u+1)(u^{53}-2u^{52}+\cdots-u-1)$
c_8	$(u^5-u^4+2u^3-u^2+u-1)(u^{53}+2u^{52}+\cdots-353u-505)$
c_9, c_{10}	$(u^5+u^4-2u^3-u^2+u-1)(u^{53}-2u^{52}+\cdots-u-1)$
c_{11}	$(u^5-u^4+2u^3-u^2+u-1)(u^{53}-12u^{52}+\cdots+577u-73)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4	$((y-1)^5)(y^{53} - 52y^{52} + \cdots - 3y - 1)$
c_2, c_7	$y^5(y^{53} + 33y^{52} + \cdots - 3584y - 1024)$
c_5	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)(y^{53} + 54y^{51} + \cdots + 3y - 1)$
c_6, c_9, c_{10}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)(y^{53} - 48y^{52} + \cdots - 5y - 1)$
c_8	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)(y^{53} - 24y^{52} + \cdots - 2730661y - 255025)$
c_{11}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)(y^{53} + 12y^{52} + \cdots - 67257y - 5329)$