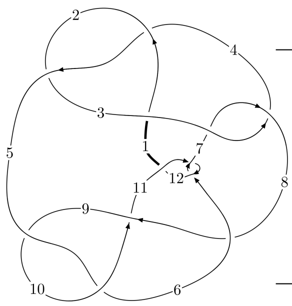
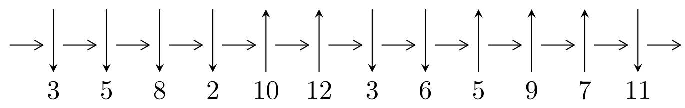
$12n_{0182}$ ($K12n_{0182}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$5{,}10 \xrightarrow[c_5]{} 3{,}6 \xrightarrow[c_2]{} 2 \xrightarrow[c_1]{} 1 \xrightarrow[c_4]{} 4 \xrightarrow[c_9]{} 9 \xrightarrow[c_{10}]{} 11 \xrightarrow[c_8]{} 8 \xrightarrow[c_7]{} 7 \xrightarrow[c_{12}]{} 12 \twoheadrightarrow c_3, c_6, c_{11}$$

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

$$I_1^u = \langle -1.36510 \times 10^{17} u^{43} + 9.54484 \times 10^{15} u^{42} + \cdots + 1.53293 \times 10^{18} b + 1.33198 \times 10^{18},$$
$$- 1.62174 \times 10^{18} u^{43} + 1.01186 \times 10^{18} u^{42} + \cdots + 1.53293 \times 10^{18} a - 2.65681 \times 10^{18},\ u^{44} - 2u^{43} + \cdots - u -$$
$$I_2^u = \langle b + 1,\ -2u^8 + u^7 + 5u^6 - 3u^5 - 4u^4 + 3u^3 - 2u^2 + a + 2,\ u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 53 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.

$\boldsymbol{I_1^u = \langle -1.37\times10^{17}u^{43}+9.54\times10^{15}u^{42}+\cdots+1.53\times10^{18}b+1.33\times10^{18},\ -1.62\times10^{18}u^{43}+1.01\times10^{18}u^{42}+\cdots+1.53\times10^{18}a-2.66\times10^{18},\ u^{44}-2u^{43}+\cdots-u-1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix}1.05794u^{43} - 0.660080u^{42} + \cdots - 1.09633u + 1.73316\\0.0890516u^{43} - 0.00622654u^{42} + \cdots - 0.0813299u - 0.868912\end{pmatrix}$$

$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_2 = \begin{pmatrix}1.14699u^{43} - 0.666307u^{42} + \cdots - 1.17766u + 0.864250\\0.0890516u^{43} - 0.00622654u^{42} + \cdots - 0.0813299u - 0.868912\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.108274u^{43} - 0.166759u^{42} + \cdots - 0.652412u - 1.28055\\0.0893388u^{43} - 0.0640460u^{42} + \cdots + 0.0125622u + 0.212283\end{pmatrix}$$

$$a_4 = \begin{pmatrix}1.02965u^{43} - 0.560533u^{42} + \cdots - 0.952635u + 1.81995\\0.0297535u^{43} + 0.00665588u^{42} + \cdots - 0.112208u - 0.958338\end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix}u^3\\-u^3+u\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-u^3\\u^5-u^3+u\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.763419u^{43} + 1.17680u^{42} + \cdots + 2.97987u - 0.290205\\0.246436u^{43} - 0.344490u^{42} + \cdots - 0.623825u + 0.0577269\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.143931u^{43} + 0.0553767u^{42} + \cdots - 0.710282u - 1.19853\\0.201658u^{43} + 0.0756056u^{42} + \cdots + 0.749462u + 0.516983\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1914830631575013385}{510976393730080697}u^{43} + \frac{344553853487150851}{510976393730080697}u^{42} + \cdots + \frac{143617252098136043}{510976393730080697}u - \frac{6332818336569097832}{510976393730080697}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{44} + 58u^{43} + \cdots + 579u + 1$
c_2, c_4	$u^{44} - 10u^{43} + \cdots - 39u - 1$
c_3, c_7	$u^{44} - u^{43} + \cdots + 8192u + 512$
c_5, c_9	$u^{44} - 2u^{43} + \cdots - u - 1$
c_6, c_{11}	$u^{44} - 2u^{43} + \cdots - u - 1$
c_8	$u^{44} - 6u^{43} + \cdots + 537u + 117$
c_{10}	$u^{44} - 18u^{43} + \cdots - 15u + 1$
c_{12}	$u^{44} + 30u^{43} + \cdots - 15u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{44} - 134y^{43} + \cdots + 635013y + 1$
c_2, c_4	$y^{44} - 58y^{43} + \cdots - 579y + 1$
c_3, c_7	$y^{44} - 57y^{43} + \cdots - 14417920y + 262144$
c_5, c_9	$y^{44} - 18y^{43} + \cdots - 15y + 1$
c_6, c_{11}	$y^{44} + 30y^{43} + \cdots - 15y + 1$
c_8	$y^{44} - 18y^{43} + \cdots - 749115y + 13689$
c_{10}	$y^{44} + 18y^{43} + \cdots - 103y + 1$
c_{12}	$y^{44} - 30y^{43} + \cdots - 303y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.688110 + 0.685606I$ $a = 0.863564 + 0.136667I$ $b = -1.10774 - 1.23190I$	$-5.98385 - 2.15414I$	$-9.20742 + 2.18421I$
$u = 0.688110 - 0.685606I$ $a = 0.863564 - 0.136667I$ $b = -1.10774 + 1.23190I$	$-5.98385 + 2.15414I$	$-9.20742 - 2.18421I$
$u = 0.845683 + 0.592317I$ $a = -1.25164 - 1.23315I$ $b = -1.243990 + 0.046469I$	$-3.00115 + 2.34547I$	$0.61315 - 3.20636I$
$u = 0.845683 - 0.592317I$ $a = -1.25164 + 1.23315I$ $b = -1.243990 - 0.046469I$	$-3.00115 - 2.34547I$	$0.61315 + 3.20636I$
$u = 0.905356 + 0.530754I$ $a = 1.20385 - 5.40977I$ $b = -0.922690 + 0.021453I$	$-3.18610 + 2.04679I$	$-26.8865 + 3.7587I$
$u = 0.905356 - 0.530754I$ $a = 1.20385 + 5.40977I$ $b = -0.922690 - 0.021453I$	$-3.18610 - 2.04679I$	$-26.8865 - 3.7587I$
$u = 0.515365 + 0.921554I$ $a = 0.0523760 - 0.1117110I$ $b = 1.80210 + 0.36838I$	$-15.2823 - 8.3356I$	$-7.68501 + 3.11371I$
$u = 0.515365 - 0.921554I$ $a = 0.0523760 + 0.1117110I$ $b = 1.80210 - 0.36838I$	$-15.2823 + 8.3356I$	$-7.68501 - 3.11371I$
$u = 0.497628 + 0.931746I$ $a = 0.0477482 + 0.1144550I$ $b = 1.79749 - 0.07891I$	$-15.1569 + 3.5164I$	$-7.98502 - 2.64030I$
$u = 0.497628 - 0.931746I$ $a = 0.0477482 - 0.1144550I$ $b = 1.79749 + 0.07891I$	$-15.1569 - 3.5164I$	$-7.98502 + 2.64030I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.804579 + 0.489610I$ $a = 1.071560 - 0.142770I$ $b = -0.0319136 - 0.0206061I$	$-1.74326 - 2.05593I$	$-4.38426 + 3.93247I$
$u = -0.804579 - 0.489610I$ $a = 1.071560 + 0.142770I$ $b = -0.0319136 + 0.0206061I$	$-1.74326 + 2.05593I$	$-4.38426 - 3.93247I$
$u = -0.511016 + 0.933628I$ $a = 0.0888703 - 0.0020707I$ $b = 1.71985 - 0.15282I$	$-10.83690 + 2.46216I$	$-5.51655 - 0.44407I$
$u = -0.511016 - 0.933628I$ $a = 0.0888703 + 0.0020707I$ $b = 1.71985 + 0.15282I$	$-10.83690 - 2.46216I$	$-5.51655 + 0.44407I$
$u = -0.849836 + 0.684332I$ $a = 0.27393 + 1.58284I$ $b = -2.08374 - 0.15007I$	$-7.96382 - 2.63414I$	$-10.69768 + 3.24229I$
$u = -0.849836 - 0.684332I$ $a = 0.27393 - 1.58284I$ $b = -2.08374 + 0.15007I$	$-7.96382 + 2.63414I$	$-10.69768 - 3.24229I$
$u = 0.880721 + 0.195510I$ $a = 0.851230 + 0.816240I$ $b = 0.027650 - 0.386682I$	$1.49461 + 0.44791I$	$5.81228 - 0.84575I$
$u = 0.880721 - 0.195510I$ $a = 0.851230 - 0.816240I$ $b = 0.027650 + 0.386682I$	$1.49461 - 0.44791I$	$5.81228 + 0.84575I$
$u = -0.698557 + 0.569479I$ $a = 0.474798 - 0.585716I$ $b = -0.826219 + 0.509582I$	$-1.84063 - 0.16201I$	$-3.33593 + 0.20561I$
$u = -0.698557 - 0.569479I$ $a = 0.474798 + 0.585716I$ $b = -0.826219 - 0.509582I$	$-1.84063 + 0.16201I$	$-3.33593 - 0.20561I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.960365 + 0.600329I$ $a = -0.22638 + 1.69062I$ $b = -0.608152 - 0.737629I$	$-1.02255 - 4.55319I$	$-0.74748 + 6.17596I$
$u = -0.960365 - 0.600329I$ $a = -0.22638 - 1.69062I$ $b = -0.608152 + 0.737629I$	$-1.02255 + 4.55319I$	$-0.74748 - 6.17596I$
$u = -0.860051 + 0.047625I$ $a = 1.74194 + 1.29974I$ $b = -0.364953 - 0.686094I$	$-1.23921 - 2.55790I$	$-0.72063 + 3.92676I$
$u = -0.860051 - 0.047625I$ $a = 1.74194 - 1.29974I$ $b = -0.364953 + 0.686094I$	$-1.23921 + 2.55790I$	$-0.72063 - 3.92676I$
$u = 0.970487 + 0.654541I$ $a = -0.73443 - 1.96174I$ $b = -0.86872 + 1.43316I$	$-5.13822 + 7.34601I$	$-6.99400 - 7.81515I$
$u = 0.970487 - 0.654541I$ $a = -0.73443 + 1.96174I$ $b = -0.86872 - 1.43316I$	$-5.13822 - 7.34601I$	$-6.99400 + 7.81515I$
$u = 1.132370 + 0.387785I$ $a = -0.128368 + 0.373910I$ $b = 0.558289 + 0.000722I$	$3.49180 + 1.33135I$	$7.33904 - 0.67803I$
$u = 1.132370 - 0.387785I$ $a = -0.128368 - 0.373910I$ $b = 0.558289 - 0.000722I$	$3.49180 - 1.33135I$	$7.33904 + 0.67803I$
$u = -1.137390 + 0.514032I$ $a = -0.404883 - 0.128194I$ $b = 0.649155 - 0.317441I$	$2.59233 - 6.57074I$	$3.54533 + 3.81879I$
$u = -1.137390 - 0.514032I$ $a = -0.404883 + 0.128194I$ $b = 0.649155 + 0.317441I$	$2.59233 + 6.57074I$	$3.54533 - 3.81879I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.270670+0.015648I$ $a=-1.99358-0.44608I$ $b=\ \ 1.65558+0.23166I$	$-8.56328-6.02412I$	$-2.00000+3.26167I$
$u=-1.270670-0.015648I$ $a=-1.99358+0.44608I$ $b=\ \ 1.65558-0.23166I$	$-8.56328+6.02412I$	$-2.00000-3.26167I$
$u=\ \ 1.28468$ $a=-1.81405$ $b=\ \ 1.56686$	-4.09522	-1.39870
$u=\ \ 1.121640+0.694109I$ $a=-0.38211+2.16430I$ $b=\ \ 1.76719-0.45741I$	$-13.4269+14.2723I$	0
$u=\ \ 1.121640-0.694109I$ $a=-0.38211-2.16430I$ $b=\ \ 1.76719+0.45741I$	$-13.4269-14.2723I$	0
$u=-0.194814+0.648377I$ $a=\ \ 0.686468-0.152693I$ $b=\ \ 0.408342+0.262891I$	$-0.02630+2.06519I$	$0.09253-2.36039I$
$u=-0.194814-0.648377I$ $a=\ \ 0.686468+0.152693I$ $b=\ \ 0.408342-0.262891I$	$-0.02630-2.06519I$	$0.09253+2.36039I$
$u=-1.128940+0.699014I$ $a=-0.50088-1.83474I$ $b=\ \ 1.68302+0.25609I$	$-8.94545-8.44958I$	0
$u=-1.128940-0.699014I$ $a=-0.50088+1.83474I$ $b=\ \ 1.68302-0.25609I$	$-8.94545+8.44958I$	0
$u=\ \ 1.136310+0.692427I$ $a=-0.83675+1.65755I$ $b=\ \ 1.75390-0.02647I$	$-13.20280+2.44542I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.136310 - 0.692427I$ $a = -0.83675 - 1.65755I$ $b = 1.75390 + 0.02647I$	$-13.20280 - 2.44542I$	0
$u = 0.228003 + 0.393046I$ $a = 2.05111 - 0.21934I$ $b = -1.129040 + 0.431943I$	$-4.33669 + 1.37214I$	$-7.87004 - 0.50855I$
$u = 0.228003 - 0.393046I$ $a = 2.05111 + 0.21934I$ $b = -1.129040 - 0.431943I$	$-4.33669 - 1.37214I$	$-7.87004 + 0.50855I$
$u = -0.295609$ $a = 1.91719$ $b = -0.837652$	-1.20532	-9.09590

II.

$\boldsymbol{I_2^u = \langle b+1,\ -2u^8+u^7+\cdots+a+2,\ u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6u^8-3u^7-10u^6+8u^5+2u^4-8u^3+12u^2-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_7	u^9
c_4	$(u+1)^9$
c_5	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_6	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_8, c_{12}	$u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1$
c_9	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_{10}	$u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1$
c_{11}	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_7	y^9
c_5, c_9	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_6, c_{11}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_8, c_{12}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_{10}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.772920 + 0.510351I$ $a = -1.67861 + 2.31573I$ $b = -1.00000$	$-3.42837 + 2.09337I$	$-0.35753 + 5.88316I$
$u = 0.772920 - 0.510351I$ $a = -1.67861 - 2.31573I$ $b = -1.00000$	$-3.42837 - 2.09337I$	$-0.35753 - 5.88316I$
$u = -0.825933$ $a = 0.871015$ $b = -1.00000$	-0.446489	3.46070
$u = -1.173910 + 0.391555I$ $a = 0.893484 + 0.630694I$ $b = -1.00000$	$2.72642 - 1.33617I$	$-4.05086 + 0.75351I$
$u = -1.173910 - 0.391555I$ $a = 0.893484 - 0.630694I$ $b = -1.00000$	$2.72642 + 1.33617I$	$-4.05086 - 0.75351I$
$u = 0.141484 + 0.739668I$ $a = -0.309843 + 0.043204I$ $b = -1.00000$	$-1.02799 - 2.45442I$	$-7.24378 + 3.91612I$
$u = 0.141484 - 0.739668I$ $a = -0.309843 - 0.043204I$ $b = -1.00000$	$-1.02799 + 2.45442I$	$-7.24378 - 3.91612I$
$u = 1.172470 + 0.500383I$ $a = 0.659464 - 0.874093I$ $b = -1.00000$	$1.95319 + 7.08493I$	$-4.07818 - 8.89461I$
$u = 1.172470 - 0.500383I$ $a = 0.659464 + 0.874093I$ $b = -1.00000$	$1.95319 - 7.08493I$	$-4.07818 + 8.89461I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{44}+58u^{43}+\cdots+579u+1)$
c_2	$((u-1)^9)(u^{44}-10u^{43}+\cdots-39u-1)$
c_3, c_7	$u^9(u^{44}-u^{43}+\cdots+8192u+512)$
c_4	$((u+1)^9)(u^{44}-10u^{43}+\cdots-39u-1)$
c_5	$(u^9-u^8+\cdots-u+1)(u^{44}-2u^{43}+\cdots-u-1)$
c_6	$(u^9-u^8+\cdots+u+1)(u^{44}-2u^{43}+\cdots-u-1)$
c_8	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{44}-6u^{43}+\cdots+537u+117)$
c_9	$(u^9+u^8+\cdots-u-1)(u^{44}-2u^{43}+\cdots-u-1)$
c_{10}	$(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)$ $\cdot(u^{44}-18u^{43}+\cdots-15u+1)$
c_{11}	$(u^9+u^8+\cdots+u-1)(u^{44}-2u^{43}+\cdots-u-1)$
c_{12}	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{44}+30u^{43}+\cdots-15u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{44}-134y^{43}+\cdots+635013y+1)$
c_2, c_4	$((y-1)^9)(y^{44}-58y^{43}+\cdots-579y+1)$
c_3, c_7	$y^9(y^{44}-57y^{43}+\cdots-1.44179\times 10^7 y+262144)$
c_5, c_9	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{44}-18y^{43}+\cdots-15y+1)$
c_6, c_{11}	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{44}+30y^{43}+\cdots-15y+1)$
c_8	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{44}-18y^{43}+\cdots-749115y+13689)$
c_{10}	$(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{44}+18y^{43}+\cdots-103y+1)$
c_{12}	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{44}-30y^{43}+\cdots-303y+1)$