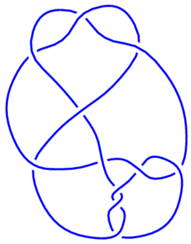
$11a_{257}$ $(K11a_{257})$



1

Arc Sequences

$$\rightarrow\downarrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow$$

4 8 1 2 11 10 3 5 6 7 9

Solving Sequence

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

Representation Ideals

$$I = I_1^u \bigcap I_1^v$$

$$\begin{aligned} I_1^u = \langle & u^{53} - u^{52} + \cdots + 32u + 32, \\ & -5.54210 \times 10^{74} u^{52} + 1.00634 \times 10^{75} u^{51} + \cdots + 4.34993 \times 10^{75} a + 1.36685 \times 10^{76}, \\ & 8.12564 \times 10^{74} u^{52} - 1.64015 \times 10^{75} u^{51} + \cdots + 4.34993 \times 10^{75} b - 2.82274 \times 10^{76} \rangle \end{aligned}$$

$$I_1^v = \langle -b^4 - b^3 - b + v,\ b^5 + 2b^4 + 2b^3 + 3b^2 + 2b + 1,\ a \rangle$$

There are 2 irreducible components with 58 representations.

[1] The knot diagram image is adapter from "C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo"

I. $I_1^u =$
$$\langle u^{53}-u^{52}+\cdots+32u+32,\ -5.54\times10^{74}u^{52}+1.01\times10^{75}u^{51}+\cdots+4.35\times10^{75}a+1.37\times10^{76},\ 8.13\times10^{74}u^{52}-1.64\times10^{75}u^{51}+\cdots+4.35\times10^{75}b-2.82\times10^{76}\rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.127407u^{52}-0.231346u^{51}+\cdots+2.51377u-3.14224\\-0.186799u^{52}+0.377052u^{51}+\cdots+0.365170u+6.48917\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.127407u^{52}-0.231346u^{51}+\cdots+2.51377u-3.14224\\-0.315075u^{52}+0.626133u^{51}+\cdots-0.385768u+9.81524\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.176149u^{52}-0.169235u^{51}+\cdots+6.50283u+1.36817\\-0.129352u^{52}+0.328232u^{51}+\cdots-0.630136u+5.95277\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.174728u^{52}+0.273011u^{51}+\cdots-2.46734u+2.48051\\-0.164893u^{52}+0.230733u^{51}+\cdots-2.39046u+2.37255\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.126769u^{52}+0.172366u^{51}+\cdots-2.09467u+0.996624\\0.0997625u^{52}-0.239566u^{51}+\cdots-0.350812u-2.52208\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-0.0520344u^{52}+0.146799u^{51}+\cdots-1.71844u+0.936085\\-0.0850408u^{52}+0.0104995u^{51}+\cdots-1.42076u-1.36118\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.00983469u^{52}-0.0422783u^{51}+\cdots+0.0768807u-0.107964\\-0.216696u^{52}+0.369654u^{51}+\cdots-1.66698u+3.41074\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.00983469u^{52}-0.0422783u^{51}+\cdots+0.0768807u-0.107964\\-0.216696u^{52}+0.369654u^{51}+\cdots-1.66698u+3.41074\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =**unknown**

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.188691-0.195565I$ $a=-0.094810+0.604257I$ $b=-0.345791-0.896343I$	$-5.17639-3.49609I$	$-4.63095+4.25730I$
$u=-1.188691+0.195565I$ $a=-0.094810-0.604257I$ $b=-0.345791+0.896343I$	$-5.17639+3.49609I$	$-4.63095-4.25730I$
$u=-0.855231-0.401653I$ $a=1.36023-0.49535I$ $b=2.26240-0.51589I$	$2.25469+0.67746I$	$3.01493-1.14045I$
$u=-0.855231+0.401653I$ $a=1.36023+0.49535I$ $b=2.26240+0.51589I$	$2.25469-0.67746I$	$3.01493+1.14045I$
$u=-0.664472-0.233706I$ $a=1.77243-0.98321I$ $b=0.441092+0.997387I$	$5.56278-5.20660I$	$8.08747+4.37223I$
$u=-0.664472+0.233706I$ $a=1.77243+0.98321I$ $b=0.441092-0.997387I$	$5.56278+5.20660I$	$8.08747-4.37223I$
$u=-0.62157-1.36984I$ $a=0.526383+0.032505I$ $b=2.16537+0.14998I$	$-8.94669+9.97082I$	$-4.89802-7.16229I$
$u=-0.62157+1.36984I$ $a=0.526383-0.032505I$ $b=2.16537-0.14998I$	$-8.94669-9.97082I$	$-4.89802+7.16229I$
$u=-0.542183-1.242343I$ $a=-0.371271+1.005181I$ $b=-0.989057-0.612601I$	$-0.57753+4.59375I$	$1.46970-3.14047I$
$u=-0.542183+1.242343I$ $a=-0.371271-1.005181I$ $b=-0.989057+0.612601I$	$-0.57753-4.59375I$	$1.46970+3.14047I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.492745$ $a = -2.37990$ $b = 0.0734104$	2.04678	5.78295
$u = -0.473285 - 0.433941I$ $a = -0.852569 - 0.110133I$ $b = -0.434150 - 0.031178I$	$0.824240 + 0.967983I$	$5.68123 - 4.85193I$
$u = -0.473285 + 0.433941I$ $a = -0.852569 + 0.110133I$ $b = -0.434150 + 0.031178I$	$0.824240 - 0.967983I$	$5.68123 + 4.85193I$
$u = -0.435882 - 1.186922I$ $a = -0.589814 + 0.966814I$ $b = -2.85835 + 1.34356I$	$2.63587 + 9.48987I$	$2.19993 - 7.65628I$
$u = -0.435882 + 1.186922I$ $a = -0.589814 - 0.966814I$ $b = -2.85835 - 1.34356I$	$2.63587 - 9.48987I$	$2.19993 + 7.65628I$
$u = -0.391683 - 0.808198I$ $a = -0.49058 + 1.44909I$ $b = -0.331394 + 1.155264I$	$2.96531 - 2.94902I$	$0.90325 + 1.99862I$
$u = -0.391683 + 0.808198I$ $a = -0.49058 - 1.44909I$ $b = -0.331394 - 1.155264I$	$2.96531 + 2.94902I$	$0.90325 - 1.99862I$
$u = -0.37407 - 1.44840I$ $a = -0.455980 - 0.212206I$ $b = -1.92907 + 0.40766I$	$-10.80814 + 1.96242I$	$-7.50155 - 0.08639I$
$u = -0.37407 + 1.44840I$ $a = -0.455980 + 0.212206I$ $b = -1.92907 - 0.40766I$	$-10.80814 - 1.96242I$	$-7.50155 + 0.08639I$
$u = -0.296375 - 1.071012I$ $a = -0.052619 - 0.628437I$ $b = -0.238161 - 0.850981I$	$-1.05950 + 2.27821I$	$0.19319 - 2.78604I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.296375 + 1.071012I$ $a = -0.052619 + 0.628437I$ $b = -0.238161 + 0.850981I$	$-1.05950 - 2.27821I$	$0.19319 + 2.78604I$
$u = -0.183707 - 1.120874I$ $a = 0.261584 - 0.844218I$ $b = 0.68375 - 1.70437I$	$-1.20946 + 2.41405I$	$-1.58592 - 4.08041I$
$u = -0.183707 + 1.120874I$ $a = 0.261584 + 0.844218I$ $b = 0.68375 + 1.70437I$	$-1.20946 - 2.41405I$	$-1.58592 + 4.08041I$
$u = -0.112836 - 0.967417I$ $a = 0.38926 - 1.45859I$ $b = 1.02729 + 1.05497I$	$2.89086 + 4.92095I$	$-0.55924 - 4.00619I$
$u = -0.112836 + 0.967417I$ $a = 0.38926 + 1.45859I$ $b = 1.02729 - 1.05497I$	$2.89086 - 4.92095I$	$-0.55924 + 4.00619I$
$u = 0.009419 - 1.108929I$ $a = 0.610995 - 0.184702I$ $b = 2.01125 + 0.11837I$	$-3.50201 + 0.91026I$	$-5.44392 - 1.30086I$
$u = 0.009419 + 1.108929I$ $a = 0.610995 + 0.184702I$ $b = 2.01125 - 0.11837I$	$-3.50201 - 0.91026I$	$-5.44392 + 1.30086I$
$u = 0.059792 - 1.053412I$ $a = 0.589497 + 0.386440I$ $b = 0.549337 - 0.381676I$	$-3.20353 - 1.98495I$	$-3.73935 + 3.73440I$
$u = 0.059792 + 1.053412I$ $a = 0.589497 - 0.386440I$ $b = 0.549337 + 0.381676I$	$-3.20353 + 1.98495I$	$-3.73935 - 3.73440I$
$u = 0.090176 - 1.135126I$ $a = 0.328587 + 1.188059I$ $b = 2.11046 + 1.46912I$	$1.51168 - 4.33800I$	$-0.23892 + 2.49464I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.090176 + 1.135126I$ $a = 0.328587 - 1.188059I$ $b = 2.11046 - 1.46912I$	$1.51168 + 4.33800I$	$-0.23892 - 2.49464I$
$u = 0.29619 - 1.46580I$ $a = -0.018015 + 0.911867I$ $b = -1.72500 + 0.48191I$	$-6.20214 + 1.77875I$	$-2.88575 - 1.86526I$
$u = 0.29619 + 1.46580I$ $a = -0.018015 - 0.911867I$ $b = -1.72500 - 0.48191I$	$-6.20214 - 1.77875I$	$-2.88575 + 1.86526I$
$u = 0.343484 - 0.504413I$ $a = 0.432801 - 0.568812I$ $b = 0.872344 - 0.560597I$	$-1.84631 + 0.73042I$	$-6.32026 + 1.11956I$
$u = 0.343484 + 0.504413I$ $a = 0.432801 + 0.568812I$ $b = 0.872344 + 0.560597I$	$-1.84631 - 0.73042I$	$-6.32026 - 1.11956I$
$u = 0.382495 - 1.166080I$ $a = -0.611148 - 0.022214I$ $b = -2.14436 + 0.16052I$	$-2.67007 - 5.91475I$	$-2.65705 + 7.38929I$
$u = 0.382495 + 1.166080I$ $a = -0.611148 + 0.022214I$ $b = -2.14436 - 0.16052I$	$-2.67007 + 5.91475I$	$-2.65705 - 7.38929I$
$u = 0.46482 - 1.42497I$ $a = -0.392089 - 0.602633I$ $b = -1.22102 - 1.36037I$	$-8.05943 - 5.77245I$	$-3.63249 + 4.48533I$
$u = 0.46482 + 1.42497I$ $a = -0.392089 + 0.602633I$ $b = -1.22102 + 1.36037I$	$-8.05943 + 5.77245I$	$-3.63249 - 4.48533I$
$u = 0.475600 - 0.956286I$ $a = 0.492810 + 1.223395I$ $b = 0.900856 + 0.121424I$	$4.99265 - 1.07686I$	$5.54603 + 2.94632I$

Solution to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.475600 + 0.956286I$ $a = 0.492810 - 1.223395I$ $b = 0.900856 - 0.121424I$	$4.99265 + 1.07686I$	$5.54603 - 2.94632I$
$u = 0.55462 - 1.35931I$ $a = 0.057201 - 0.557594I$ $b = 0.401082 - 0.573266I$	$-7.38726 - 5.90070I$	$-2.56652 + 2.20051I$
$u = 0.55462 + 1.35931I$ $a = 0.057201 + 0.557594I$ $b = 0.401082 + 0.573266I$	$-7.38726 + 5.90070I$	$-2.56652 - 2.20051I$
$u = 0.574960 - 0.227723I$ $a = 0.059130 + 1.078041I$ $b = 0.132159 - 0.455097I$	$0.17010 + 2.09238I$	$3.71444 - 4.57317I$
$u = 0.574960 + 0.227723I$ $a = 0.059130 - 1.078041I$ $b = 0.132159 + 0.455097I$	$0.17010 - 2.09238I$	$3.71444 + 4.57317I$
$u = 0.637313 - 0.488996I$ $a = -1.52789 - 0.89025I$ $b = -1.44620 - 0.05526I$	$6.40428 - 3.28310I$	$8.64938 + 3.46229I$
$u = 0.637313 + 0.488996I$ $a = -1.52789 + 0.89025I$ $b = -1.44620 + 0.05526I$	$6.40428 + 3.28310I$	$8.64938 - 3.46229I$
$u = 0.65952 - 1.35739I$ $a = 0.585757 + 0.760011I$ $b = 3.12350 + 1.01978I$	$-3.5199 - 13.7301I$	$-0.47152 + 7.72319I$
$u = 0.65952 + 1.35739I$ $a = 0.585757 - 0.760011I$ $b = 3.12350 - 1.01978I$	$-3.5199 + 13.7301I$	$-0.47152 - 7.72319I$
$u = 1.126197 - 0.022940I$ $a = 0.725938 - 0.060946I$ $b = 0.203956 + 0.084885I$	$-3.24184 + 0.00358I$	$-1.53150 + 0.33065I$

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 1.126197 + 0.022940I$ $a = \ \ 0.725938 + 0.060946I$ $b = \ \ 0.203956 - 0.084885I$	$-3.24184 - 0.00358I$	$-1.53150 - 0.33065I$
$u = \ \ 1.211771 - 0.269117I$ $a = -1.045860 - 0.460989I$ $b = -0.75903 + 1.61278I$	$-0.01422 + 7.04483I$	$0.31193 - 4.88753I$
$u = \ \ 1.211771 + 0.269117I$ $a = -1.045860 + 0.460989I$ $b = -0.75903 - 1.61278I$	$-0.01422 - 7.04483I$	$0.31193 + 4.88753I$

II. $I_1^v = \langle -b^4 - b^3 - b + v,\ b^5 + 2b^4 + 2b^3 + 3b^2 + 2b + 1,\ a\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.766826$ $a = 0$ $b = -1.58802$	0.756147	-2.80750
$v = -0.339110 - 0.822375I$ $a = 0$ $b = -0.438694 - 0.557752I$	$-1.31583 - 1.53058I$	$-0.02714 + 4.76366I$
$v = -0.339110 + 0.822375I$ $a = 0$ $b = -0.438694 + 0.557752I$	$-1.31583 + 1.53058I$	$-0.02714 - 4.76366I$
$v = 0.455697 + 1.200152I$ $a = 0$ $b = 0.232705 - 1.093812I$	$4.22763 - 4.40083I$	$4.43089 + 2.80751I$
$v = 0.455697 - 1.200152I$ $a = 0$ $b = 0.232705 + 1.093812I$	$4.22763 + 4.40083I$	$4.43089 - 2.80751I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
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	$(u^5+3u^4+\cdots-u-1)(u^{53}+6u^{52}+\cdots+5u+1)$
c_6	$(u^5-u^4+\cdots+u+1)(u^{53}+2u^{52}+\cdots-u+1)$
c_8	$(u^5-u^4+\cdots+u-1)(u^{53}+2u^{52}+\cdots-353u-505)$
c_9, c_{10}	$(u^5+u^4+\cdots+u-1)(u^{53}+2u^{52}+\cdots-u+1)$
c_{11}	$(u^5-u^4+\cdots+u-1)(u^{53}+12u^{52}+\cdots+577u+73)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
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	$(y^5 - y^4 + \cdots + 3y - 1)(y^{53} + 54y^{51} + \cdots + 3y - 1)$
c_6, c_9, c_{10}	$(y^5 - 5y^4 + \cdots - y - 1)(y^{53} - 48y^{52} + \cdots - 5y - 1)$
c_8	$(y^5 + 3y^4 + \cdots - y - 1)(y^{53} - 24y^{52} + \cdots - 2730661y - 255025)$
c_{11}	$(y^5 + 3y^4 + \cdots - y - 1)(y^{53} + 12y^{52} + \cdots - 67257y - 5329)$