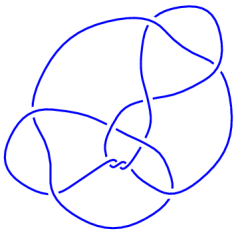
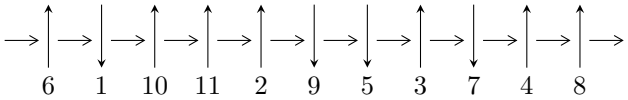
$11a_{151}$ $(K11a_{151})$



1

Arc Sequences



Solving Sequence

$$1,6 \underset{c_1}{\longrightarrow} 2 \underset{c_2}{\longrightarrow} 3,9 \underset{c_6}{\longrightarrow} 7 \underset{c_9}{\longrightarrow} 10 \underset{c_5}{\longrightarrow} 5 \underset{c_8}{\longrightarrow} 8 \underset{c_{11}}{\longrightarrow} 11 \underset{c_4}{\longrightarrow} 4 \gg c_3, c_7, c_{10}$$

Representation Ideals

$$I = \bigcap_{i=1}^{2} I_i^u$$

$I_1^u = \langle u^3 + u^2 + 2u + 1,\ -u^2 + a - u - 2,\ u^2 + 7b + 6u + 4 \rangle$

$I_2^u = \langle u^{66} + 2u^{65} + \cdots + 4u + 1,\ 5.94710 \times 10^{52} u^{65} + 1.17236 \times 10^{53} u^{64} + \cdots + 8.35081 \times 10^{52} b + 2.54635 \times 10^{53}$
$- 8.47686 \times 10^{52} u^{65} - 1.39894 \times 10^{53} u^{64} + \cdots + 1.19297 \times 10^{52} a - 2.19440 \times 10^{53} \rangle$

There are 2 irreducible components with 69 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. $\boldsymbol{I_1^u = \langle u^3+u^2+2u+1,\ -u^2+a-u-2,\ u^2+7b+6u+4\rangle}$

(i) Arc colorings

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

(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
$u=-0.569840$ $a=\ \ 1.75488$ $b=-0.129382$	-0.531480	2.84969
$u=-0.215080-1.307141I$ $a=\ \ 0.122561-0.744862I$ $b=-0.149595+1.040081I$	$-4.66906+2.82812I$	$-1.67995-11.45076I$
$u=-0.215080+1.307141I$ $a=\ \ 0.122561+0.744862I$ $b=-0.149595-1.040081I$	$-4.66906-2.82812I$	$-1.67995+11.45076I$

II. $I_2^u =$
$\langle u^{66}+2u^{65}+\cdots+4u+1,\ 5.95\times10^{52}u^{65}+1.17\times10^{53}u^{64}+\cdots+8.35\times10^{52}b+2.55\times10^{53},\ -8.48\times10^{52}u^{65}-1.40\times10^{53}u^{64}+\cdots+1.19\times10^{52}a-2.19\times10^{53}\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^2+1\\-u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}7.10566u^{65}+11.7265u^{64}+\cdots+31.4641u+18.3944\\-0.712158u^{65}-1.40388u^{64}+\cdots-2.74081u-3.04922\end{pmatrix}$$
$$a_7 = \begin{pmatrix}8.72726u^{65}+14.2298u^{64}+\cdots+35.4678u+22.1382\\-2.15625u^{65}-3.59400u^{64}+\cdots-6.93271u-6.34045\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-5.31162u^{65}-8.22686u^{64}+\cdots-15.8436u-12.2934\\3.63832u^{65}+5.58995u^{64}+\cdots+12.4635u+8.35519\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}7.66328u^{65}+12.2341u^{64}+\cdots+30.8189u+18.9851\\-1.32415u^{65}-2.02616u^{64}+\cdots-2.81894u-3.05516\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-8.35519u^{65}-13.0721u^{64}+\cdots-33.0049u-20.9573\\2.39639u^{65}+3.80632u^{64}+\cdots+8.95306u+5.31162\end{pmatrix}$$
$$a_4 = \begin{pmatrix}9.70575u^{65}+15.5979u^{64}+\cdots+36.1966u+23.0110\\-3.81358u^{65}-6.82103u^{64}+\cdots-15.8119u-9.70575\end{pmatrix}$$
$$a_4 = \begin{pmatrix}9.70575u^{65}+15.5979u^{64}+\cdots+36.1966u+23.0110\\-3.81358u^{65}-6.82103u^{64}+\cdots-15.8119u-9.70575\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.893203-0.332658I$ $a=-1.067726-0.068534I$ $b=\ \ 0.060619+0.632472I$	$0.93680-1.27321I$	$6.69528+2.55768I$
$u=-0.893203+0.332658I$ $a=-1.067726+0.068534I$ $b=\ \ 0.060619-0.632472I$	$0.93680+1.27321I$	$6.69528-2.55768I$
$u=-0.886940-0.437138I$ $a=-1.43804-0.06126I$ $b=\ \ 0.278206+1.239242I$	$6.34153-10.49840I$	$7.22778+5.33949I$
$u=-0.886940+0.437138I$ $a=-1.43804+0.06126I$ $b=\ \ 0.278206-1.239242I$	$6.34153+10.49840I$	$7.22778-5.33949I$
$u=-0.789339-0.681407I$ $a=-0.170305+0.711151I$ $b=\ \ 0.612194-0.634929I$	$1.79345+2.44057I$	$6.79170-5.63627I$
$u=-0.789339+0.681407I$ $a=-0.170305-0.711151I$ $b=\ \ 0.612194+0.634929I$	$1.79345-2.44057I$	$6.79170+5.63627I$
$u=-0.742966-0.521978I$ $a=\ \ 0.391741+1.288387I$ $b=\ \ 0.73070-1.45249I$	$9.13813-4.00163I$	$10.02198+1.95783I$
$u=-0.742966+0.521978I$ $a=\ \ 0.391741-1.288387I$ $b=\ \ 0.73070+1.45249I$	$9.13813+4.00163I$	$10.02198-1.95783I$
$u=-0.648304-1.133232I$ $a=-0.040925+1.149182I$ $b=\ \ 1.78851-1.92707I$	$4.2340+16.1582I$	$4.67083-9.06843I$
$u=-0.648304+1.133232I$ $a=-0.040925-1.149182I$ $b=\ \ 1.78851+1.92707I$	$4.2340-16.1582I$	$4.67083+9.06843I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.640786-0.965266I$ $a=-0.478037-0.069398I$ $b=-0.261638+0.444397I$	$0.94099+2.93508I$	$4.73839-0.63684I$
$u=-0.640786+0.965266I$ $a=-0.478037+0.069398I$ $b=-0.261638-0.444397I$	$0.94099-2.93508I$	$4.73839+0.63684I$
$u=-0.627293-1.165176I$ $a=-0.102093+0.901979I$ $b=\ \ 1.22622-1.56395I$	$-1.53699+6.84958I$	$2.00507-5.82058I$
$u=-0.627293+1.165176I$ $a=-0.102093-0.901979I$ $b=\ \ 1.22622+1.56395I$	$-1.53699-6.84958I$	$2.00507+5.82058I$
$u=-0.618729-1.050954I$ $a=-1.057994-0.338143I$ $b=-0.12777+1.65559I$	$7.56649+9.18924I$	$7.11738-7.19339I$
$u=-0.618729+1.050954I$ $a=-1.057994+0.338143I$ $b=-0.12777-1.65559I$	$7.56649-9.18924I$	$7.11738+7.19339I$
$u=-0.516301-1.034956I$ $a=-0.396217-1.250801I$ $b=-1.66301+1.61916I$	$1.42288+7.01342I$	$2.46904-8.54237I$
$u=-0.516301+1.034956I$ $a=-0.396217+1.250801I$ $b=-1.66301-1.61916I$	$1.42288-7.01342I$	$2.46904+8.54237I$
$u=-0.503518-0.347045I$ $a=\ \ 1.95488+0.23615I$ $b=-0.551149-1.270422I$	$3.23237-2.81118I$	$6.49138+3.43190I$
$u=-0.503518+0.347045I$ $a=\ \ 1.95488-0.23615I$ $b=-0.551149+1.270422I$	$3.23237+2.81118I$	$6.49138-3.43190I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.477372-0.943179I$ $a=\ \ 0.324367-0.983761I$ $b=-1.73724+2.48467I$	$-2.01954+2.54235I$	$9.35040+6.65492I$
$u=-0.477372+0.943179I$ $a=\ \ 0.324367+0.983761I$ $b=-1.73724-2.48467I$	$-2.01954-2.54235I$	$9.35040-6.65492I$
$u=-0.427074$ $a=-0.433828$ $b=-0.336075$	0.801791	12.7100
$u=-0.422028-1.013152I$ $a=\ \ 0.42251-1.48918I$ $b=-1.47500+1.02933I$	$-0.83525+3.14253I$	$-0.65111-4.39876I$
$u=-0.422028+1.013152I$ $a=\ \ 0.42251+1.48918I$ $b=-1.47500-1.02933I$	$-0.83525-3.14253I$	$-0.65111+4.39876I$
$u=-0.407213$ $a=\ \ 3.44853$ $b=-1.05852$	1.47039	6.43281
$u=-0.386686-0.758034I$ $a=\ \ 0.593747-0.711855I$ $b=\ \ 0.586006-1.214527I$	$-1.32206+1.19867I$	$-0.30232-8.95765I$
$u=-0.386686+0.758034I$ $a=\ \ 0.593747+0.711855I$ $b=\ \ 0.586006+1.214527I$	$-1.32206-1.19867I$	$-0.30232+8.95765I$
$u=-0.301350-0.971582I$ $a=\ \ 1.01800-1.10633I$ $b=-0.559633-0.170616I$	$0.012797-0.793621I$	$-0.540072+0.843099I$
$u=-0.301350+0.971582I$ $a=\ \ 1.01800+1.10633I$ $b=-0.559633+0.170616I$	$0.012797+0.793621I$	$-0.540072-0.843099I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.263360-1.365466I$ $a=-0.207188+0.642987I$ $b=\ \ 0.127253-0.960247I$	$-4.52691+2.53329I$	$9.64246+10.16006I$
$u=-0.263360+1.365466I$ $a=-0.207188-0.642987I$ $b=\ \ 0.127253+0.960247I$	$-4.52691-2.53329I$	$9.64246-10.16006I$
$u=-0.073346-1.249265I$ $a=-0.459853+0.956008I$ $b=-0.043571-0.947032I$	$0.33897-7.84486I$	$1.41108+5.52703I$
$u=-0.073346+1.249265I$ $a=-0.459853-0.956008I$ $b=-0.043571+0.947032I$	$0.33897+7.84486I$	$1.41108-5.52703I$
$u=\ \ 0.010647-0.950386I$ $a=\ \ 0.878581-0.110969I$ $b=\ \ 0.018046-0.954751I$	$4.00663-3.04870I$	$3.98275+2.96326I$
$u=\ \ 0.010647+0.950386I$ $a=\ \ 0.878581+0.110969I$ $b=\ \ 0.018046+0.954751I$	$4.00663+3.04870I$	$3.98275-2.96326I$
$u=\ \ 0.104431-1.298246I$ $a=\ \ 0.292746+0.847286I$ $b=-0.003012-0.940640I$	$-5.91703+3.42293I$	$-2.52268-7.14492I$
$u=\ \ 0.104431+1.298246I$ $a=\ \ 0.292746-0.847286I$ $b=-0.003012+0.940640I$	$-5.91703-3.42293I$	$-2.52268+7.14492I$
$u=\ \ 0.127139-0.784024I$ $a=-0.776775-0.573919I$ $b=-0.042614-0.780889I$	$-1.72069+1.07315I$	$-1.43813-5.39557I$
$u=\ \ 0.127139+0.784024I$ $a=-0.776775+0.573919I$ $b=-0.042614+0.780889I$	$-1.72069-1.07315I$	$-1.43813+5.39557I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.308392 - 0.295184I$ $a = -2.16318 - 0.94286I$ $b = 0.436188 - 0.731540I$	$-1.70503 + 0.88678I$	$-1.07228 - 2.74548I$
$u = 0.308392 + 0.295184I$ $a = -2.16318 + 0.94286I$ $b = 0.436188 + 0.731540I$	$-1.70503 - 0.88678I$	$-1.07228 + 2.74548I$
$u = 0.372330 - 0.966152I$ $a = -0.71705 - 1.22172I$ $b = 0.635335 + 0.613059I$	$-4.16615 - 1.29044I$	$-6.42044 + 1.41575I$
$u = 0.372330 + 0.966152I$ $a = -0.71705 + 1.22172I$ $b = 0.635335 - 0.613059I$	$-4.16615 + 1.29044I$	$-6.42044 - 1.41575I$
$u = 0.490775 - 1.009753I$ $a = 0.050202 - 1.234535I$ $b = 1.73077 + 1.49983I$	$-3.33981 - 4.65284I$	$-3.86882 + 8.36996I$
$u = 0.490775 + 1.009753I$ $a = 0.050202 + 1.234535I$ $b = 1.73077 - 1.49983I$	$-3.33981 + 4.65284I$	$-3.86882 - 8.36996I$
$u = 0.496332 - 0.710814I$ $a = -0.254141 - 0.800937I$ $b = 0.81193 - 2.11193I$	$4.10544 - 2.40688I$	$5.61601 + 0.93346I$
$u = 0.496332 + 0.710814I$ $a = -0.254141 + 0.800937I$ $b = 0.81193 + 2.11193I$	$4.10544 + 2.40688I$	$5.61601 - 0.93346I$
$u = 0.538866 - 0.909098I$ $a = -0.472812 - 0.706075I$ $b = 5.56489 - 0.30058I$	$3.51441 - 1.89915I$	$-6.74058 + 10.60084I$
$u = 0.538866 + 0.909098I$ $a = -0.472812 + 0.706075I$ $b = 5.56489 + 0.30058I$	$3.51441 + 1.89915I$	$-6.74058 - 10.60084I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.564876 - 1.135128I$ $a = -0.073078 + 0.707525I$ $b = -0.58777 - 1.86360I$	$6.26544 - 3.61924I$	$7.55383 + 5.69986I$
$u = 0.564876 + 1.135128I$ $a = -0.073078 - 0.707525I$ $b = -0.58777 + 1.86360I$	$6.26544 + 3.61924I$	$7.55383 - 5.69986I$
$u = 0.612668 - 1.023978I$ $a = 0.794130 - 0.357693I$ $b = 0.395162 + 1.268381I$	$1.33847 - 6.45954I$	$4.27383 + 8.40284I$
$u = 0.612668 + 1.023978I$ $a = 0.794130 + 0.357693I$ $b = 0.395162 - 1.268381I$	$1.33847 + 6.45954I$	$4.27383 - 8.40284I$
$u = 0.644245 - 1.145513I$ $a = 0.094859 + 1.051465I$ $b = -1.59384 - 1.71257I$	$-2.16297 - 12.09952I$	$1.13718 + 9.18819I$
$u = 0.644245 + 1.145513I$ $a = 0.094859 - 1.051465I$ $b = -1.59384 + 1.71257I$	$-2.16297 + 12.09952I$	$1.13718 - 9.18819I$
$u = 0.706967 - 0.574992I$ $a = -0.344274 + 0.907805I$ $b = -0.497576 - 1.179167I$	$2.68558 + 1.37819I$	$7.68512 - 2.61183I$
$u = 0.706967 + 0.574992I$ $a = -0.344274 - 0.907805I$ $b = -0.497576 + 1.179167I$	$2.68558 - 1.37819I$	$7.68512 + 2.61183I$
$u = 0.721856 - 1.027072I$ $a = 0.704898 + 0.295214I$ $b = -0.614618 + 0.468031I$	$6.10958 + 0.48289I$	$8.03921 - 2.23159I$
$u = 0.721856 + 1.027072I$ $a = 0.704898 - 0.295214I$ $b = -0.614618 - 0.468031I$	$6.10958 - 0.48289I$	$8.03921 + 2.23159I$

Solution to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.747809 - 0.382078I$ $a = 0.982939 - 0.436312I$ $b = 0.605214 + 0.686874I$	$8.51869 - 1.38556I$	$10.68003 + 0.04077I$
$u = 0.747809 + 0.382078I$ $a = 0.982939 + 0.436312I$ $b = 0.605214 - 0.686874I$	$8.51869 + 1.38556I$	$10.68003 - 0.04077I$
$u = 0.861313 - 0.608674I$ $a = 0.420830 + 0.985449I$ $b = -1.035075 - 0.573403I$	$7.36680 - 6.32316I$	$8.51632 + 6.52961I$
$u = 0.861313 + 0.608674I$ $a = 0.420830 - 0.985449I$ $b = -1.035075 + 0.573403I$	$7.36680 + 6.32316I$	$8.51632 - 6.52961I$
$u = 0.900019 - 0.409306I$ $a = 1.287907 - 0.018413I$ $b = -0.259301 + 0.971541I$	$0.06237 + 6.42817I$	$3.87818 - 5.79651I$
$u = 0.900019 + 0.409306I$ $a = 1.287907 + 0.018413I$ $b = -0.259301 - 0.971541I$	$0.06237 - 6.42817I$	$3.87818 + 5.79651I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u^3+u^2+2u+1)(u^{66}+2u^{65}+\cdots+4u+1)$
c_2	$(u^3+3u^2+2u-1)(u^{66}+30u^{65}+\cdots+2u+1)$
c_3	$(u^3+u^2-1)(u^{66}+2u^{65}+\cdots-u^2-1)$
c_4	$(u^3+u^2-1)(u^{66}+2u^{65}+\cdots-u^2-1)$
c_5	$(u^3-u^2+2u-1)(u^{66}+2u^{65}+\cdots+4u+1)$
c_6	$(u-1)^3(u^{66}+4u^{65}+\cdots-491u-49)$
c_7	$(7u^3+u^2-4u+1)(7u^{66}+18u^{65}+\cdots-13446u-999)$
c_8	$(7u^3-u^2+u+1)(7u^{66}+10u^{65}+\cdots-1391u+241)$
c_9	$(u+1)^3(u^{66}+4u^{65}+\cdots-491u-49)$
c_{10}	$(u^3-u^2+1)(u^{66}+2u^{65}+\cdots-u^2-1)$
c_{11}	$u^3(u^{66}+5u^{65}+\cdots+3108u+392)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_5	$(y^3+3y^2+2y-1)(y^{66}+30y^{65}+\cdots+2y+1)$
c_2	$(y^3-5y^2+10y-1)(y^{66}+14y^{65}+\cdots+14y+1)$
c_3	$(y^3-y^2+2y-1)(y^{66}-62y^{65}+\cdots+2y+1)$
c_4	$(y^3-y^2+2y-1)(y^{66}-62y^{65}+\cdots+2y+1)$
c_6	$(y-1)^3(y^{66}-36y^{65}+\cdots-105155y+2401)$
c_7	$(49y^3-57y^2+14y-1)$ $(49y^{66}+2434y^{65}+\cdots-82043766y+998001)$
c_8	$(49y^3+13y^2+3y-1)(49y^{66}+880y^{65}+\cdots-442127y+58081)$
c_9	$(y-1)^3(y^{66}-36y^{65}+\cdots-105155y+2401)$
c_{10}	$(y^3-y^2+2y-1)(y^{66}-62y^{65}+\cdots+2y+1)$
c_{11}	$y^3(y^{66}-21y^{65}+\cdots-925904y+153664)$