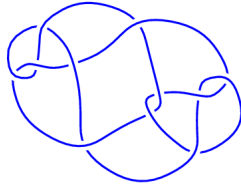
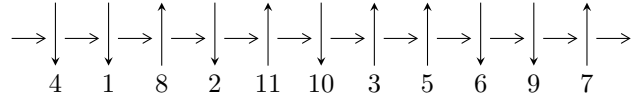


11a₃₅ (K11a₃₅)

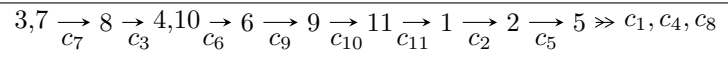


1

Arc Sequences



Solving Sequence



Representation Ideals

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

$$\begin{aligned} I_1^u = \langle & u^{66} + u^{65} + \dots + 192u + 64, \\ & -4.40475 \times 10^{109}u^{65} - 7.91518 \times 10^{109}u^{64} + \dots + 3.65226 \times 10^{109}b - 7.80820 \times 10^{111}, \\ & -3.71431 \times 10^{110}u^{65} - 1.38602 \times 10^{110}u^{64} + \dots + 7.30451 \times 10^{109}a - 2.42093 \times 10^{112} \rangle \end{aligned}$$

$$I_1^v = \langle -b^4 - b^3 - b^2 + v - 1, b^6 + 2b^5 + 2b^4 + b^3 + 2b^2 + 2b + 1, a \rangle$$

There are 2 irreducible components with 72 representations.

¹The knot diagram image is adapter from “C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, <http://www.indiana.edu/~knotinfo>”

$$\mathbf{I. } I_1^u = \langle u^{66} + u^{65} + \dots + 192u + 64, -4.40 \times 10^{109}u^{65} - 7.92 \times 10^{109}u^{64} + \dots + 3.65 \times 10^{109}b - 7.81 \times 10^{111}, -3.71 \times 10^{110}u^{65} - 1.39 \times 10^{110}u^{64} + \dots + 7.30 \times 10^{109}a - 2.42 \times 10^{112} \rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 5.08495u^{65} + 1.89748u^{64} + \dots + 468.117u + 331.429 \\ 1.20603u^{65} + 2.16720u^{64} + \dots + 81.6099u + 213.791 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 12.5346u^{65} + 3.74021u^{64} + \dots + 1659.29u + 1034.41 \\ -2.38732u^{65} + 0.792861u^{64} + \dots - 452.819u - 121.901 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -9.21649u^{65} - 2.05442u^{64} + \dots - 1640.03u - 982.241 \\ 6.96075u^{65} + 2.10359u^{64} + \dots + 1030.15u + 621.025 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.59472u^{65} + 2.51798u^{64} + \dots - 1.75296u + 185.109 \\ -6.12222u^{65} - 0.674437u^{64} + \dots - 963.140u - 481.800 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.59472u^{65} + 2.51798u^{64} + \dots - 1.75296u + 185.109 \\ -5.57708u^{65} - 1.77234u^{64} + \dots - 683.812u - 422.712 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.31573u^{65} + 2.14082u^{64} + \dots + 116.517u + 202.420 \\ -7.85084u^{65} - 1.69136u^{64} + \dots - 1155.11u - 643.699 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -7.71694u^{65} - 3.19242u^{64} + \dots - 961.388u - 666.909 \\ -6.12222u^{65} - 0.674437u^{64} + \dots - 963.140u - 481.800 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -7.71694u^{65} - 3.19242u^{64} + \dots - 961.388u - 666.909 \\ -6.12222u^{65} - 0.674437u^{64} + \dots - 963.140u - 481.800 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.39109 - 0.31894I$		
$a = 0.235675 - 0.606838I$	$9.01786 + 1.00374I$	$6.50365 - 0.74875I$
$b = 1.19700 - 1.98608I$		
$u = -1.39109 + 0.31894I$		
$a = 0.235675 + 0.606838I$	$9.01786 - 1.00374I$	$6.50365 + 0.74875I$
$b = 1.19700 + 1.98608I$		
$u = -1.36751 - 0.40245I$		
$a = 0.459244 + 0.444079I$	$8.61616 + 4.06846I$	$6.02832 - 1.29392I$
$b = 1.19557 + 1.78625I$		
$u = -1.36751 + 0.40245I$		
$a = 0.459244 - 0.444079I$	$8.61616 - 4.06846I$	$6.02832 + 1.29392I$
$b = 1.19557 - 1.78625I$		
$u = -1.35401 - 0.54106I$		
$a = 0.817828 + 0.138266I$	$5.89418 + 1.80044I$	$2.33557 - 0.45013I$
$b = 0.31555 + 1.85743I$		
$u = -1.35401 + 0.54106I$		
$a = 0.817828 - 0.138266I$	$5.89418 - 1.80044I$	$2.33557 + 0.45013I$
$b = 0.31555 - 1.85743I$		
$u = -1.30951 - 0.65576I$		
$a = 0.488787 - 0.710686I$	$4.6256 + 15.3717I$	$0.45442 - 9.93536I$
$b = 0.88197 - 3.48175I$		
$u = -1.30951 + 0.65576I$		
$a = 0.488787 + 0.710686I$	$4.6256 - 15.3717I$	$0.45442 + 9.93536I$
$b = 0.88197 + 3.48175I$		
$u = -1.271345 - 0.604689I$		
$a = -0.752364 + 0.272277I$	$1.42265 + 7.90790I$	$-2.63758 - 5.36573I$
$b = -0.222573 + 1.142517I$		
$u = -1.271345 + 0.604689I$		
$a = -0.752364 - 0.272277I$	$1.42265 - 7.90790I$	$-2.63758 + 5.36573I$
$b = -0.222573 - 1.142517I$		

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.218055 - 0.236603I$ $a = -0.575598 + 0.580176I$ $b = -0.78170 + 1.71977I$	$2.86632 + 4.91582I$	$3.89105 - 6.54024I$
$u = -1.218055 + 0.236603I$ $a = -0.575598 - 0.580176I$ $b = -0.78170 - 1.71977I$	$2.86632 - 4.91582I$	$3.89105 + 6.54024I$
$u = -1.080918 - 0.439200I$ $a = -0.326887 - 0.474087I$ $b = -0.452538 - 0.387008I$	$0.19546 + 5.03591I$	$0.49496 - 5.85341I$
$u = -1.080918 + 0.439200I$ $a = -0.326887 + 0.474087I$ $b = -0.452538 + 0.387008I$	$0.19546 - 5.03591I$	$0.49496 + 5.85341I$
$u = -1.009833 - 0.124969I$ $a = 0.975634 - 0.712434I$ $b = 1.47217 - 2.87040I$	$0.06491 + 6.40733I$	$0.77268 - 5.71211I$
$u = -1.009833 + 0.124969I$ $a = 0.975634 + 0.712434I$ $b = 1.47217 + 2.87040I$	$0.06491 - 6.40733I$	$0.77268 + 5.71211I$
$u = -0.863407 - 0.182464I$ $a = 1.143242 - 0.562272I$ $b = -0.921499 - 0.162636I$	$-2.52561 + 2.07395I$	$-2.79602 - 4.44669I$
$u = -0.863407 + 0.182464I$ $a = 1.143242 + 0.562272I$ $b = -0.921499 + 0.162636I$	$-2.52561 - 2.07395I$	$-2.79602 + 4.44669I$
$u = -0.746496 - 0.158495I$ $a = -1.236314 + 0.065913I$ $b = -1.73274 + 0.28984I$	$-2.87483 - 0.09947I$	$-1.36414 - 2.00887I$
$u = -0.746496 + 0.158495I$ $a = -1.236314 - 0.065913I$ $b = -1.73274 - 0.28984I$	$-2.87483 + 0.09947I$	$-1.36414 + 2.00887I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.734011 - 0.394708I$ $a = -0.833071 + 1.135506I$ $b = 0.01167 + 1.69563I$	$-0.63612 + 4.98818I$	$0.78705 - 6.33525I$
$u = -0.734011 + 0.394708I$ $a = -0.833071 - 1.135506I$ $b = 0.01167 - 1.69563I$	$-0.63612 - 4.98818I$	$0.78705 + 6.33525I$
$u = -0.732199 - 0.061582I$ $a = -1.54583 - 0.61101I$ $b = 0.752262 - 1.001886I$	$-0.78414 - 5.20993I$	$2.07404 + 2.62134I$
$u = -0.732199 + 0.061582I$ $a = -1.54583 + 0.61101I$ $b = 0.752262 + 1.001886I$	$-0.78414 + 5.20993I$	$2.07404 - 2.62134I$
$u = -0.398376 - 0.613174I$ $a = -0.403227 - 0.444892I$ $b = -0.452248 - 0.442752I$	$-1.87076 - 0.85798I$	$-4.38899 + 0.56558I$
$u = -0.398376 + 0.613174I$ $a = -0.403227 + 0.444892I$ $b = -0.452248 + 0.442752I$	$-1.87076 + 0.85798I$	$-4.38899 - 0.56558I$
$u = -0.336915 - 0.526553I$ $a = 1.34948 - 1.00309I$ $b = -0.216223 - 0.541312I$	$-1.69198 - 1.38184I$	$-1.86522 + 0.33712I$
$u = -0.336915 + 0.526553I$ $a = 1.34948 + 1.00309I$ $b = -0.216223 + 0.541312I$	$-1.69198 + 1.38184I$	$-1.86522 - 0.33712I$
$u = -0.305656 - 1.127732I$ $a = -0.741309 + 0.761547I$ $b = 1.67178 + 0.34259I$	$1.42413 - 8.94825I$	$-0.40645 + 7.59987I$
$u = -0.305656 + 1.127732I$ $a = -0.741309 - 0.761547I$ $b = 1.67178 - 0.34259I$	$1.42413 + 8.94825I$	$-0.40645 - 7.59987I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.281524 - 0.992856I$		
$a = 0.186751 - 0.987763I$	$-1.69775 - 2.04297I$	$-4.04234 + 3.06094I$
$b = -0.283053 - 0.994246I$		
$u = -0.281524 + 0.992856I$		
$a = 0.186751 + 0.987763I$	$-1.69775 + 2.04297I$	$-4.04234 - 3.06094I$
$b = -0.283053 + 0.994246I$		
$u = -0.109332 - 1.100351I$		
$a = 0.449088 + 1.007888I$	$1.87224 + 4.09931I$	$0.64012 - 2.35769I$
$b = -1.44291 + 0.78682I$		
$u = -0.109332 + 1.100351I$		
$a = 0.449088 - 1.007888I$	$1.87224 - 4.09931I$	$0.64012 + 2.35769I$
$b = -1.44291 - 0.78682I$		
$u = -0.022800 - 0.738745I$		
$a = 0.478996 - 1.082230I$	$-1.21777 - 1.53610I$	$-1.19079 + 4.33474I$
$b = -0.079422 - 0.664149I$		
$u = -0.022800 + 0.738745I$		
$a = 0.478996 + 1.082230I$	$-1.21777 + 1.53610I$	$-1.19079 - 4.33474I$
$b = -0.079422 + 0.664149I$		
$u = 0.161691 - 1.099821I$		
$a = 0.725123 + 0.343278I$	$3.55117 + 1.02644I$	$3.26543 - 2.61936I$
$b = -0.608910 - 0.557729I$		
$u = 0.161691 + 1.099821I$		
$a = 0.725123 - 0.343278I$	$3.55117 - 1.02644I$	$3.26543 + 2.61936I$
$b = -0.608910 + 0.557729I$		
$u = 0.267272 - 1.115645I$		
$a = -0.554455 + 0.536953I$	$3.30665 + 3.77744I$	$2.64079 - 3.14160I$
$b = 0.726828 - 0.297274I$		
$u = 0.267272 + 1.115645I$		
$a = -0.554455 - 0.536953I$	$3.30665 - 3.77744I$	$2.64079 + 3.14160I$
$b = 0.726828 + 0.297274I$		

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.537566 - 0.745292I$ $a = -1.070246 - 0.646829I$ $b = 0.236722 - 1.215296I$	$-4.18666 + 4.48001I$	$-6.69694 - 5.16197I$
$u = 0.537566 + 0.745292I$ $a = -1.070246 + 0.646829I$ $b = 0.236722 + 1.215296I$	$-4.18666 - 4.48001I$	$-6.69694 + 5.16197I$
$u = 0.621390 - 0.121358I$ $a = 0.775308 - 0.798636I$ $b = 0.336210 - 0.363768I$	$1.34836 - 0.65111I$	$6.35993 + 0.81332I$
$u = 0.621390 + 0.121358I$ $a = 0.775308 + 0.798636I$ $b = 0.336210 + 0.363768I$	$1.34836 + 0.65111I$	$6.35993 - 0.81332I$
$u = 0.637792 - 0.558811I$ $a = 0.602781 + 1.180342I$ $b = 0.31039 + 2.74067I$	$-4.43668 - 2.24930I$	$-6.85477 + 5.22437I$
$u = 0.637792 + 0.558811I$ $a = 0.602781 - 1.180342I$ $b = 0.31039 - 2.74067I$	$-4.43668 + 2.24930I$	$-6.85477 - 5.22437I$
$u = 0.873320 - 0.019975I$ $a = 0.354113 - 0.729664I$ $b = 0.464517 - 0.316903I$	$1.40693 - 0.59491I$	$4.38934 - 0.28224I$
$u = 0.873320 + 0.019975I$ $a = 0.354113 + 0.729664I$ $b = 0.464517 + 0.316903I$	$1.40693 + 0.59491I$	$4.38934 + 0.28224I$
$u = 0.982125 - 0.418265I$ $a = -1.086400 - 0.100022I$ $b = 1.112521 - 0.568204I$	$-3.31662 - 1.71384I$	$-4.79820 + 2.74926I$
$u = 0.982125 + 0.418265I$ $a = -1.086400 + 0.100022I$ $b = 1.112521 + 0.568204I$	$-3.31662 + 1.71384I$	$-4.79820 - 2.74926I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.993401 - 0.069400I$ $a = -0.517959 + 0.709367I$ $b = -1.41736 + 2.02139I$	$1.86956 - 1.30967I$	$3.95870 + 0.74968I$
$u = 0.993401 + 0.069400I$ $a = -0.517959 - 0.709367I$ $b = -1.41736 - 2.02139I$	$1.86956 + 1.30967I$	$3.95870 - 0.74968I$
$u = 1.057198 - 0.511764I$ $a = 0.677649 + 0.778694I$ $b = -0.70451 + 2.25120I$	$-2.51518 - 9.28456I$	$-3.64841 + 9.58734I$
$u = 1.057198 + 0.511764I$ $a = 0.677649 - 0.778694I$ $b = -0.70451 - 2.25120I$	$-2.51518 + 9.28456I$	$-3.64841 - 9.58734I$
$u = 1.183748 - 0.111758I$ $a = 0.666943 - 0.421006I$ $b = 0.53810 - 1.48036I$	$3.13736 - 0.33428I$	$4.85916 - 0.25871I$
$u = 1.183748 + 0.111758I$ $a = 0.666943 + 0.421006I$ $b = 0.53810 + 1.48036I$	$3.13736 + 0.33428I$	$4.85916 + 0.25871I$
$u = 1.294453 - 0.359352I$ $a = 0.804326 + 0.168448I$ $b = 0.311649 + 0.691634I$	$3.30286 - 2.13568I$	$0.136697 + 0.919824I$
$u = 1.294453 + 0.359352I$ $a = 0.804326 - 0.168448I$ $b = 0.311649 - 0.691634I$	$3.30286 + 2.13568I$	$0.136697 - 0.919824I$
$u = 1.31702 - 0.63438I$ $a = -0.499660 + 0.365592I$ $b = -1.14212 + 1.64769I$	$6.65145 - 10.08607I$	$3.42420 + 5.72376I$
$u = 1.31702 + 0.63438I$ $a = -0.499660 - 0.365592I$ $b = -1.14212 - 1.64769I$	$6.65145 + 10.08607I$	$3.42420 - 5.72376I$

Solution to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.34232 - 0.57388I$	$7.33465 - 7.05782I$	$4.34818 + 5.54118I$
$a = -0.141440 - 0.625617I$		
$b = -1.17986 - 1.94723I$		
$u = 1.34232 + 0.57388I$	$7.33465 + 7.05782I$	$4.34818 - 5.54118I$
$a = -0.141440 + 0.625617I$		
$b = -1.17986 + 1.94723I$		
$u = 1.36094 - 0.43446I$	$6.69261 - 9.35838I$	$3.18338 + 5.76402I$
$a = -0.599054 - 0.643162I$		
$b = -0.85806 - 3.26757I$		
$u = 1.36094 + 0.43446I$	$6.69261 + 9.35838I$	$3.18338 - 5.76402I$
$a = -0.599054 + 0.643162I$		
$b = -0.85806 + 3.26757I$		
$u = 1.40275 - 0.27923I$	$7.43584 + 4.27253I$	$4.14218 - 4.27530I$
$a = -0.807162 + 0.286403I$		
$b = -0.53917 + 2.27660I$		
$u = 1.40275 + 0.27923I$	$7.43584 - 4.27253I$	$4.14218 + 4.27530I$
$a = -0.807162 - 0.286403I$		
$b = -0.53917 - 2.27660I$		

$$\text{II. } I_1^v = \langle -b^4 - b^3 - b^2 + v - 1, b^6 + 2b^5 + 2b^4 + b^3 + 2b^2 + 2b + 1, a \rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} b^4 + b^3 + b^2 + 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} b^4 + b^3 + b^2 + 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} b^4 + b^3 + b^2 + 1 \\ b^5 + b^4 + b^3 + b^2 + 2b + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} b^5 + b^4 + 2b + 1 \\ -b^4 - b^3 - b^2 - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -b^2 - b - 1 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} b^5 + b^4 + b^3 + b - 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} b^5 + b^4 + b^3 + b \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -b^5 - b^4 - b^3 - b + 1 \\ 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -b^5 - b^4 - b^3 - b + 1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.428243 + 0.664531I$ $a = 0$ $b = -1.000936 - 0.863088I$	$-3.53554 + 0.92430I$	$-6.79748 - 1.68215I$
$v = -0.428243 - 0.664531I$ $a = 0$ $b = -1.000936 + 0.863088I$	$-3.53554 - 0.92430I$	$-6.79748 + 1.68215I$
$v = 1.002193 + 0.295542I$ $a = 0$ $b = -0.573013 - 0.494098I$	$0.245672 + 0.924305I$	$-1.96974 - 0.88960I$
$v = 1.002193 - 0.295542I$ $a = 0$ $b = -0.573013 + 0.494098I$	$0.245672 - 0.924305I$	$-1.96974 + 0.88960I$
$v = -1.073950 - 0.558752I$ $a = 0$ $b = 0.573950 - 0.818891I$	$-1.64493 + 5.69302I$	$-5.23279 - 6.15196I$
$v = -1.073950 + 0.558752I$ $a = 0$ $b = 0.573950 + 0.818891I$	$-1.64493 - 5.69302I$	$-5.23279 + 6.15196I$

III. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(u - 1)^6(u^{66} + 7u^{65} + \dots + 8u + 1)$
c_2	$(u + 1)^6(u^{66} + 29u^{65} + \dots + 8u + 1)$
c_3, c_7	$u^6(u^{66} + u^{65} + \dots + 192u + 64)$
c_4	$(u + 1)^6(u^{66} + 7u^{65} + \dots + 8u + 1)$
c_5	$(u^6 + 3u^5 + \dots + u + 1)(u^{66} + 6u^{65} + \dots + 5u + 1)$
c_6	$(u^6 + u^5 + \dots + u + 1)(u^{66} + 2u^{65} + \dots + u + 1)$
c_8, c_{11}	$(u^6 + u^5 + \dots + u + 1)(u^{66} + 2u^{65} + \dots + 49u + 49)$
c_9	$(u^6 - u^5 + \dots - u + 1)(u^{66} + 2u^{65} + \dots + u + 1)$
c_{10}	$(u + 1)(u^6 + 3u^5 + \dots + u + 1)(u^{65} + 29u^{64} + \dots - 2u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1, c_4	$(y - 1)^6(y^{66} - 29y^{65} + \dots - 8y + 1)$
c_2	$(y - 1)^6(y^{66} + 23y^{65} + \dots + 40y + 1)$
c_3, c_7	$y^6(y^{66} - 39y^{65} + \dots - 81920y + 4096)$
c_5	$(y^6 + y^5 + \dots + 3y + 1)(y^{66} + 2y^{65} + \dots + 57y + 1)$
c_6	$(y^6 - 3y^5 + \dots - y + 1)(y^{66} - 30y^{65} + \dots + y + 1)$
c_8, c_{11}	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)$ $(y^{66} - 54y^{65} + \dots + 34349y + 2401)$
c_9	$(y^6 - 3y^5 + \dots - y + 1)(y^{66} - 30y^{65} + \dots + y + 1)$
c_{10}	$(y^6 + y^5 + \dots + 3y + 1)(y^{66} + 14y^{65} + \dots - 15y + 1)$