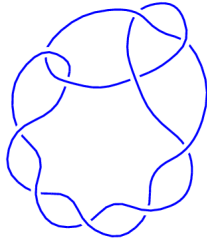
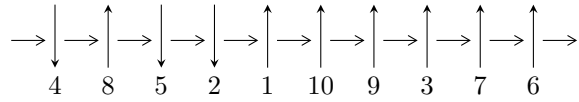


10₃₄ (K10a₁₉)

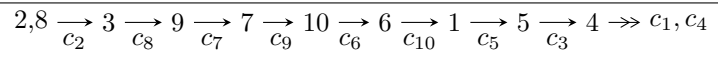


1

Arc Sequences



Solving Sequence



Representation Ideals

$$I = I_1^u$$

$$I_1^u = \langle u^{18} - u^{17} + \dots - u + 1 \rangle$$

There are 1 irreducible components with 18 representations.

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

$$\text{I. } I_1^u = \langle u^{18} - u^{17} - u^{16} + 2u^{15} + 6u^{14} - 7u^{13} - 5u^{12} + 10u^{11} + 11u^{10} - 15u^9 - 7u^8 + 14u^7 + 6u^6 - 10u^5 - 2u^4 + 6u^3 - u^2 - u + 1 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^5 + u \\ -u^7 + u^5 - 2u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^7 - 2u^3 \\ u^9 - u^7 + 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^9 + 3u^5 + u \\ -u^{11} + u^9 - 4u^7 + 3u^5 - 3u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{11} - 4u^7 - 3u^3 \\ u^{13} - u^{11} + 5u^9 - 4u^7 + 6u^5 - 3u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{13} - 2u^{11} + 5u^9 - 8u^7 + 6u^5 - 6u^3 + u \\ u^{13} - u^{11} + 5u^9 - 4u^7 + 6u^5 - 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class = -1

$$\text{(iii) Cusp Shapes} = -4u^{16} + 4u^{15} + 4u^{14} - 8u^{13} - 24u^{12} + 24u^{11} + 20u^{10} - 36u^9 - 44u^8 + 40u^7 + 28u^6 - 40u^5 - 24u^4 + 16u^3 + 8u^2 - 12u + 2$$

(iv) Complex Volumes and Cusp Shapes

| Solution to I_1^u | $\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$ | Cusp shape |
|-----------------------------|---------------------------------------|-----------------------|
| $u = -0.944193 - 0.919683I$ | $-12.31671 + 3.38380I$ | $0.20360 - 2.27447I$ |
| $u = -0.944193 + 0.919683I$ | $-12.31671 - 3.38380I$ | $0.20360 + 2.27447I$ |
| $u = -0.885264 - 0.680601I$ | $-5.44176 + 6.61296I$ | $-1.60438 - 7.00860I$ |
| $u = -0.885264 + 0.680601I$ | $-5.44176 - 6.61296I$ | $-1.60438 + 7.00860I$ |
| $u = -0.727312 - 0.096422I$ | $1.138658 + 0.137643I$ | $9.21435 - 0.51404I$ |
| $u = -0.727312 + 0.096422I$ | $1.138658 - 0.137643I$ | $9.21435 + 0.51404I$ |
| $u = -0.718345 - 0.757260I$ | $-5.99819 - 1.29789I$ | $-3.32252 + 0.68135I$ |
| $u = -0.718345 + 0.757260I$ | $-5.99819 + 1.29789I$ | $-3.32252 - 0.68135I$ |
| $u = 0.275451 - 0.493368I$ | $-1.67574 + 0.60080I$ | $-4.05524 - 0.52802I$ |
| $u = 0.275451 + 0.493368I$ | $-1.67574 - 0.60080I$ | $-4.05524 + 0.52802I$ |
| $u = 0.784251 - 0.644550I$ | $-2.41237 - 2.42038I$ | $1.45127 + 3.59982I$ |
| $u = 0.784251 + 0.644550I$ | $-2.41237 + 2.42038I$ | $1.45127 - 3.59982I$ |
| $u = 0.816176 - 0.315615I$ | $0.00395 - 3.50386I$ | $4.01768 + 8.20647I$ |
| $u = 0.816176 + 0.315615I$ | $0.00395 + 3.50386I$ | $4.01768 - 8.20647I$ |
| $u = 0.932919 - 0.939980I$ | $-16.3133 + 1.5857I$ | $-3.06627 - 0.65832I$ |
| $u = 0.932919 + 0.939980I$ | $-16.3133 - 1.5857I$ | $-3.06627 + 0.65832I$ |
| $u = 0.966316 - 0.920631I$ | $-16.2022 - 8.4223I$ | $-2.83851 + 5.16445I$ |
| $u = 0.966316 + 0.920631I$ | $-16.2022 + 8.4223I$ | $-2.83851 - 5.16445I$ |

II. u-Polynomials

| Crossings | u-Polynomials at each crossings |
|----------------------------------|--|
| c_1, c_4 | $(u^{18} + u^{17} + \dots + 3u + 1)$ |
| c_2, c_8 | $(u^{18} + u^{17} + \dots + u + 1)$ |
| c_3 | $(u^{18} + 11u^{17} + \dots + 3u + 1)$ |
| c_5, c_6, c_7 c_9, c_{10} | $(u^{18} + 3u^{17} + \dots + 3u + 1)$ |

III. Riley Polynomials

| Crossings | Riley Polynomials at each crossings |
|----------------------------------|--|
| c_1, c_4 | $(y^{18} - 11y^{17} + \dots - 3y + 1)$ |
| c_2, c_8 | $(y^{18} - 3y^{17} + \dots - 3y + 1)$ |
| c_3 | $(y^{18} - 7y^{17} + \dots + y + 1)$ |
| c_5, c_6, c_7 c_9, c_{10} | $(y^{18} + 25y^{17} + \dots + 9y + 1)$ |