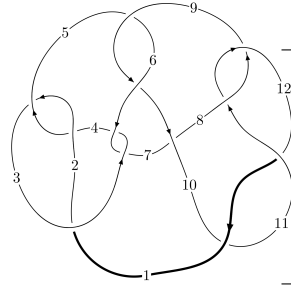
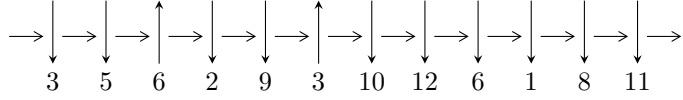


12n<sub>0081</sub> (K12n<sub>0081</sub>)



A knot diagram<sup>1</sup>

**Linearized knot diagram**



**Solving Sequence**

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

**Ideals for irreducible components<sup>2</sup> of  $X_{\text{par}}$**

$$I_1^u = \langle 5.53432 \times 10^{85} u^{57} - 8.84907 \times 10^{85} u^{56} + \dots + 1.15940 \times 10^{86} b - 1.39649 \times 10^{85}, \\ 2.61940 \times 10^{85} u^{57} - 5.40341 \times 10^{85} u^{56} + \dots + 2.31879 \times 10^{85} a - 2.38511 \times 10^{85}, u^{58} - 2u^{57} + \dots - u + 1 \rangle \\ I_2^u = \langle b + 1, 2u^7 + 3u^6 - 5u^5 - 7u^4 + 4u^3 + 3u^2 + a + 4, u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1 \rangle$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 66 representations.

<sup>1</sup>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>).

<sup>2</sup>All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$$I_1^u = \langle 5.53 \times 10^{85} u^{57} - 8.85 \times 10^{85} u^{56} + \dots + 1.16 \times 10^{86} b - 1.40 \times 10^{85}, 2.62 \times 10^{85} u^{57} - 5.40 \times 10^{85} u^{56} + \dots + 2.32 \times 10^{85} a - 2.39 \times 10^{85}, u^{58} - 2u^{57} + \dots - u + 1 \rangle$$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1.12964u^{57} + 2.33027u^{56} + \dots - 0.0189625u + 1.02860 \\ -0.477346u^{57} + 0.763249u^{56} + \dots + 1.48654u + 0.120450 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -0.742987u^{57} + 1.16928u^{56} + \dots + 2.16233u + 0.683441 \\ -0.147869u^{57} + 0.246417u^{56} + \dots + 0.573664u + 0.388653 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -1.60699u^{57} + 3.09352u^{56} + \dots + 1.46757u + 1.14905 \\ -0.477346u^{57} + 0.763249u^{56} + \dots + 1.48654u + 0.120450 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.768033u^{57} + 1.20204u^{56} + \dots + 2.30970u + 0.755400 \\ 0.0250459u^{57} - 0.0327586u^{56} + \dots - 0.147371u - 0.0719590 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.238196u^{57} - 0.406882u^{56} + \dots - 2.56618u - 0.552552 \\ -0.0179618u^{57} + 0.0170715u^{56} + \dots + 0.925015u - 0.0202253 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.20110u^{57} + 2.45056u^{56} + \dots + 0.266941u + 1.22004 \\ -0.484972u^{57} + 0.772733u^{56} + \dots + 1.53536u + 0.143087 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.842522u^{57} + 1.44178u^{56} + \dots + 3.31034u + 1.38391 \\ 0.240620u^{57} - 0.365565u^{56} + \dots - 0.386959u - 0.465919 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.606276u^{57} + 0.938630u^{56} + \dots + 1.72832u + 0.349414 \\ -0.275800u^{57} + 0.459793u^{56} + \dots + 0.913732u + 0.679907 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-1.20777u^{57} + 0.883719u^{56} + \dots - 4.35534u - 9.32260$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{58} + 19u^{57} + \dots + 1227u + 1$
$c_2, c_4$	$u^{58} - 9u^{57} + \dots - 43u + 1$
$c_3, c_6$	$u^{58} + 7u^{57} + \dots + 2688u + 256$
$c_5, c_9$	$u^{58} + 2u^{57} + \dots + u + 1$
$c_7$	$u^{58} - 2u^{57} + \dots + 42759u + 8017$
$c_8, c_{11}$	$u^{58} + 2u^{57} + \dots + 7u + 1$
$c_{10}, c_{12}$	$u^{58} + 18u^{57} + \dots + 11u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{58} + 49y^{57} + \dots - 1420135y + 1$
$c_2, c_4$	$y^{58} - 19y^{57} + \dots - 1227y + 1$
$c_3, c_6$	$y^{58} - 51y^{57} + \dots - 3719168y + 65536$
$c_5, c_9$	$y^{58} - 14y^{57} + \dots - 11y + 1$
$c_7$	$y^{58} + 22y^{57} + \dots + 71584681y + 64272289$
$c_8, c_{11}$	$y^{58} - 18y^{57} + \dots - 11y + 1$
$c_{10}, c_{12}$	$y^{58} + 46y^{57} + \dots - 251y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.757964 + 0.476676I$ $a = 0.211091 - 1.285110I$ $b = -0.733524 + 1.001690I$	$1.39650 + 7.38606I$	$-8.93309 - 9.73199I$
$u = -0.757964 - 0.476676I$ $a = 0.211091 + 1.285110I$ $b = -0.733524 - 1.001690I$	$1.39650 - 7.38606I$	$-8.93309 + 9.73199I$
$u = 0.733536 + 0.503634I$ $a = 0.207333 + 1.258410I$ $b = -0.622314 - 0.960850I$	$1.93231 - 1.77262I$	$-7.23531 + 4.32887I$
$u = 0.733536 - 0.503634I$ $a = 0.207333 - 1.258410I$ $b = -0.622314 + 0.960850I$	$1.93231 + 1.77262I$	$-7.23531 - 4.32887I$
$u = 0.150361 + 0.862598I$ $a = 0.283573 + 0.156210I$ $b = 0.296125 - 0.128802I$	$1.86705 - 2.42873I$	$-2.94093 + 3.38399I$
$u = 0.150361 - 0.862598I$ $a = 0.283573 - 0.156210I$ $b = 0.296125 + 0.128802I$	$1.86705 + 2.42873I$	$-2.94093 - 3.38399I$
$u = 0.729010 + 0.900450I$ $a = -0.278287 + 0.714115I$ $b = 0.512624 - 0.941655I$	$1.79327 - 3.50993I$	$-8.00000 + 0.I$
$u = 0.729010 - 0.900450I$ $a = -0.278287 - 0.714115I$ $b = 0.512624 + 0.941655I$	$1.79327 + 3.50993I$	$-8.00000 + 0.I$
$u = -0.707674 + 0.373154I$ $a = 0.190149 - 1.303650I$ $b = -0.946128 + 0.714336I$	$-3.61079 + 2.96792I$	$-16.6955 - 7.6738I$
$u = -0.707674 - 0.373154I$ $a = 0.190149 + 1.303650I$ $b = -0.946128 - 0.714336I$	$-3.61079 - 2.96792I$	$-16.6955 + 7.6738I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.828609 + 0.884235I$ $a = -0.466481 + 0.852083I$ $b = 0.613518 - 1.215300I$	$8.38484 - 8.22953I$	0
$u = 0.828609 - 0.884235I$ $a = -0.466481 - 0.852083I$ $b = 0.613518 + 1.215300I$	$8.38484 + 8.22953I$	0
$u = -0.827954 + 0.902716I$ $a = -0.485901 - 0.807428I$ $b = 0.663928 + 1.180430I$	$9.06399 + 2.20407I$	0
$u = -0.827954 - 0.902716I$ $a = -0.485901 + 0.807428I$ $b = 0.663928 - 1.180430I$	$9.06399 - 2.20407I$	0
$u = 0.758547 + 0.131049I$ $a = -0.057075 + 0.644979I$ $b = -1.47907 - 0.32636I$	$-1.42978 - 4.33965I$	$-13.8036 + 5.9098I$
$u = 0.758547 - 0.131049I$ $a = -0.057075 - 0.644979I$ $b = -1.47907 + 0.32636I$	$-1.42978 + 4.33965I$	$-13.8036 - 5.9098I$
$u = -0.738708 + 0.184329I$ $a = -0.061286 - 0.888067I$ $b = -1.37022 + 0.42544I$	$-1.16921 - 0.90179I$	$-13.10774 - 0.16863I$
$u = -0.738708 - 0.184329I$ $a = -0.061286 + 0.888067I$ $b = -1.37022 - 0.42544I$	$-1.16921 + 0.90179I$	$-13.10774 + 0.16863I$
$u = -0.771402 + 0.979679I$ $a = -0.418138 - 0.593129I$ $b = 0.735262 + 0.914814I$	$4.73839 + 0.20490I$	0
$u = -0.771402 - 0.979679I$ $a = -0.418138 + 0.593129I$ $b = 0.735262 - 0.914814I$	$4.73839 - 0.20490I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.725261$ $a = -0.320581$ $b = -1.46548$	-5.24110	-20.4300
$u = 1.010850 + 0.787058I$ $a = 0.82799 - 1.23601I$ $b = 0.817179 + 0.885590I$	$7.78595 + 1.97085I$	0
$u = 1.010850 - 0.787058I$ $a = 0.82799 + 1.23601I$ $b = 0.817179 - 0.885590I$	$7.78595 - 1.97085I$	0
$u = 0.747268 + 1.058050I$ $a = -0.395621 + 0.438566I$ $b = 0.813908 - 0.746877I$	$1.08274 + 2.68379I$	0
$u = 0.747268 - 1.058050I$ $a = -0.395621 - 0.438566I$ $b = 0.813908 + 0.746877I$	$1.08274 - 2.68379I$	0
$u = 0.562499 + 0.418736I$ $a = 0.47527 + 1.47284I$ $b = -0.667885 - 0.412194I$	$-0.84022 - 1.37563I$	$-6.44015 + 4.83399I$
$u = 0.562499 - 0.418736I$ $a = 0.47527 - 1.47284I$ $b = -0.667885 + 0.412194I$	$-0.84022 + 1.37563I$	$-6.44015 - 4.83399I$
$u = -1.021400 + 0.806453I$ $a = 0.76138 + 1.27349I$ $b = 0.872213 - 0.895148I$	$8.43324 + 4.16970I$	0
$u = -1.021400 - 0.806453I$ $a = 0.76138 - 1.27349I$ $b = 0.872213 + 0.895148I$	$8.43324 - 4.16970I$	0
$u = 0.464370 + 0.505657I$ $a = 2.19485 + 0.67921I$ $b = -0.485517 + 0.294137I$	$2.55163 - 1.79957I$	$-5.78089 + 4.77562I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.464370 - 0.505657I$ $a = 2.19485 - 0.67921I$ $b = -0.485517 - 0.294137I$	$2.55163 + 1.79957I$	$-5.78089 - 4.77562I$
$u = 1.302260 + 0.215056I$ $a = 0.724570 - 0.182519I$ $b = 0.657572 + 0.133991I$	$-1.94270 - 1.43075I$	0
$u = 1.302260 - 0.215056I$ $a = 0.724570 + 0.182519I$ $b = 0.657572 - 0.133991I$	$-1.94270 + 1.43075I$	0
$u = -0.429870 + 0.520549I$ $a = 2.51794 - 0.86930I$ $b = -0.605155 - 0.307118I$	$2.25105 - 3.87043I$	$-6.73442 + 0.34200I$
$u = -0.429870 - 0.520549I$ $a = 2.51794 + 0.86930I$ $b = -0.605155 + 0.307118I$	$2.25105 + 3.87043I$	$-6.73442 - 0.34200I$
$u = -0.831079 + 1.050820I$ $a = -0.560219 - 0.451422I$ $b = 0.967229 + 0.864793I$	$8.14146 - 2.33310I$	0
$u = -0.831079 - 1.050820I$ $a = -0.560219 + 0.451422I$ $b = 0.967229 - 0.864793I$	$8.14146 + 2.33310I$	0
$u = 0.834599 + 1.071090I$ $a = -0.562906 + 0.405830I$ $b = 0.998315 - 0.821896I$	$7.22076 + 8.31025I$	0
$u = 0.834599 - 1.071090I$ $a = -0.562906 - 0.405830I$ $b = 0.998315 + 0.821896I$	$7.22076 - 8.31025I$	0
$u = 1.113430 + 0.804823I$ $a = 0.544448 - 1.077950I$ $b = 0.972357 + 0.706110I$	$0.57880 - 2.87211I$	0



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.113430 - 0.804823I$ $a = 0.544448 + 1.077950I$ $b = 0.972357 - 0.706110I$	$0.57880 + 2.87211I$	0
$u = -1.089310 + 0.851827I$ $a = 0.480537 + 1.230050I$ $b = 1.055730 - 0.794375I$	$3.73913 + 6.53652I$	0
$u = -1.089310 - 0.851827I$ $a = 0.480537 - 1.230050I$ $b = 1.055730 + 0.794375I$	$3.73913 - 6.53652I$	0
$u = -1.083120 + 0.904822I$ $a = 0.329084 + 1.363660I$ $b = 1.19685 - 0.84814I$	$7.31786 + 9.44466I$	0
$u = -1.083120 - 0.904822I$ $a = 0.329084 - 1.363660I$ $b = 1.19685 + 0.84814I$	$7.31786 - 9.44466I$	0
$u = 1.08928 + 0.91350I$ $a = 0.284481 - 1.359270I$ $b = 1.22723 + 0.83313I$	$6.3813 - 15.5051I$	0
$u = 1.08928 - 0.91350I$ $a = 0.284481 + 1.359270I$ $b = 1.22723 - 0.83313I$	$6.3813 + 15.5051I$	0
$u = 1.11634 + 0.88115I$ $a = 0.344161 - 1.208590I$ $b = 1.144810 + 0.743437I$	$-0.06948 - 9.72018I$	0
$u = 1.11634 - 0.88115I$ $a = 0.344161 + 1.208590I$ $b = 1.144810 - 0.743437I$	$-0.06948 + 9.72018I$	0
$u = -1.43228 + 0.28779I$ $a = 0.602581 + 0.217299I$ $b = 0.746089 - 0.144890I$	$-3.47621 + 6.76006I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.43228 - 0.28779I$ $a = 0.602581 - 0.217299I$ $b = 0.746089 + 0.144890I$	$-3.47621 - 6.76006I$	0
$u = -1.47635$ $a = 0.603436$ $b = 0.732744$	$-7.57251$	0
$u = -0.310564 + 0.379876I$ $a = 2.83067 - 3.52170I$ $b = -0.888180 - 0.051391I$	$-2.59810 - 0.31577I$	$-24.5055 - 6.4182I$
$u = -0.310564 - 0.379876I$ $a = 2.83067 + 3.52170I$ $b = -0.888180 + 0.051391I$	$-2.59810 + 0.31577I$	$-24.5055 + 6.4182I$
$u = -0.485729$ $a = -2.58176$ $b = -1.10599$	$-2.22309$	1.58660
$u = -0.030516 + 0.465574I$ $a = 7.05708 - 0.52655I$ $b = -1.088060 - 0.022657I$	$0.94270 + 2.75058I$	$17.8156 - 8.6403I$
$u = -0.030516 - 0.465574I$ $a = 7.05708 + 0.52655I$ $b = -1.088060 + 0.022657I$	$0.94270 - 2.75058I$	$17.8156 + 8.6403I$
$u = 0.418573$ $a = 1.13637$ $b = 0.0289678$	$-0.881313$	$-11.5040$

$$\text{II. } I_2^u = \langle b+1, 2u^7+3u^6-5u^5-7u^4+4u^3+3u^2+a+4, u^8+u^7-3u^6-2u^5+3u^4+2u-1 \rangle$$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2u^7 - 3u^6 + 5u^5 + 7u^4 - 4u^3 - 3u^2 - 4 \\ -1 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -2u^7 - 3u^6 + 5u^5 + 7u^4 - 4u^3 - 3u^2 - 5 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2u^7 - 3u^6 + 5u^5 + 7u^4 - 4u^3 - 3u^2 - 4 \\ -1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^6 + 3u^4 - 2u^2 - 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = -8u^7 - 16u^6 + 18u^5 + 36u^4 - 15u^3 - 13u^2 + 4u - 37$$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_2, c_4$	$(y - 1)^8$
$c_3, c_6$	$y^8$
$c_5, c_7, c_9$	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
$c_8, c_{11}$	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
$c_{10}, c_{12}$	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = -0.615431 + 0.295452I$ $b = -1.00000$	$-2.68559 - 1.13123I$	$-13.04860 - 0.79986I$
$u = 1.180120 - 0.268597I$ $a = -0.615431 - 0.295452I$ $b = -1.00000$	$-2.68559 + 1.13123I$	$-13.04860 + 0.79986I$
$u = 0.108090 + 0.747508I$ $a = 1.68119 + 0.49658I$ $b = -1.00000$	$0.51448 - 2.57849I$	$-11.13007 + 2.07507I$
$u = 0.108090 - 0.747508I$ $a = 1.68119 - 0.49658I$ $b = -1.00000$	$0.51448 + 2.57849I$	$-11.13007 - 2.07507I$
$u = -1.37100$ $a = -0.532015$ $b = -1.00000$	$-8.14766$	$-21.6800$
$u = -1.334530 + 0.318930I$ $a = -0.473764 - 0.240160I$ $b = -1.00000$	$-4.02461 + 6.44354I$	$-15.6905 - 2.6628I$
$u = -1.334530 - 0.318930I$ $a = -0.473764 + 0.240160I$ $b = -1.00000$	$-4.02461 - 6.44354I$	$-15.6905 + 2.6628I$
$u = 0.463640$ $a = -4.65198$ $b = -1.00000$	$-2.48997$	$-37.5820$

### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1$	$((u-1)^8)(u^{58} + 19u^{57} + \dots + 1227u + 1)$
$c_2$	$((u-1)^8)(u^{58} - 9u^{57} + \dots - 43u + 1)$
$c_3, c_6$	$u^8(u^{58} + 7u^{57} + \dots + 2688u + 256)$
$c_4$	$((u+1)^8)(u^{58} - 9u^{57} + \dots - 43u + 1)$
$c_5$	$(u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1)(u^{58} + 2u^{57} + \dots + u + 1)$
$c_7$	$(u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1)(u^{58} - 2u^{57} + \dots + 42759u + 8017)$
$c_8$	$(u^8 - u^7 + \dots + 2u - 1)(u^{58} + 2u^{57} + \dots + 7u + 1)$
$c_9$	$(u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1)(u^{58} + 2u^{57} + \dots + u + 1)$
$c_{10}$	$(u^8 - 3u^7 + 7u^6 - 10u^5 + 11u^4 - 10u^3 + 6u^2 - 4u + 1) \cdot (u^{58} + 18u^{57} + \dots + 11u + 1)$
$c_{11}$	$(u^8 + u^7 + \dots - 2u - 1)(u^{58} + 2u^{57} + \dots + 7u + 1)$
$c_{12}$	$(u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1) \cdot (u^{58} + 18u^{57} + \dots + 11u + 1)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1$	$((y - 1)^8)(y^{58} + 49y^{57} + \dots - 1420135y + 1)$
$c_2, c_4$	$((y - 1)^8)(y^{58} - 19y^{57} + \dots - 1227y + 1)$
$c_3, c_6$	$y^8(y^{58} - 51y^{57} + \dots - 3719168y + 65536)$
$c_5, c_9$	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)$ $\cdot (y^{58} - 14y^{57} + \dots - 11y + 1)$
$c_7$	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)$ $\cdot (y^{58} + 22y^{57} + \dots + 71584681y + 64272289)$
$c_8, c_{11}$	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)$ $\cdot (y^{58} - 18y^{57} + \dots - 11y + 1)$
$c_{10}, c_{12}$	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)$ $\cdot (y^{58} + 46y^{57} + \dots - 251y + 1)$