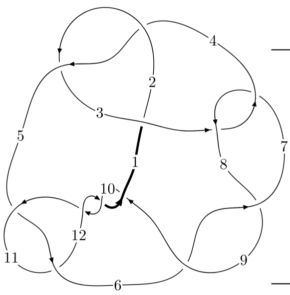
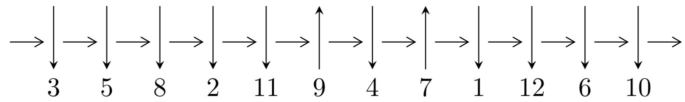
$12a_{0106}$ $(K12a_{0106})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

Ideals for irreducible components[2] of $X_{\mathbf{par}}$

$$I_1^u = \langle u^{73} + u^{72} + \cdots - 2u^2 + b,\ -u^{43} + 6u^{41} + \cdots + a - 2,\ u^{75} + 2u^{74} + \cdots + 2u + 1\rangle$$
$$I_2^u = \langle -2u^2 + b + 2u + 1,\ a + u,\ u^3 - u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 78 representations.

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[1] 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`).

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$$I_1^u = \langle u^{73}+u^{72}+\cdots-2u^2+b,\ -u^{43}+6u^{41}+\cdots+a-2,\ u^{75}+2u^{74}+\cdots+2u+1\rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{43} - 6u^{41} + \cdots - 2u + 2 \\ -u^{73} - u^{72} + \cdots - 3u^3 + 2u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{74} - u^{73} + \cdots - 4u + 1 \\ -u^{74} - u^{73} + \cdots + 3u^2 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{74} - u^{73} + \cdots + 2u - 2 \\ -u^{74} + u^{73} + \cdots + 6u^3 - 3u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^4 - u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^6 + u^4 - 2u^2 + 1 \\ -u^6 - u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{13} - 2u^{11} + 5u^9 - 6u^7 + 6u^5 - 4u^3 + u \\ u^{13} - u^{11} + 3u^9 - 2u^7 + 2u^5 - u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{20} + 3u^{18} + \cdots - u^2 + 1 \\ -u^{20} + 2u^{18} - 6u^{16} + 8u^{14} - 11u^{12} + 10u^{10} - 8u^8 + 4u^6 - 3u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^{74} + 2u^{73} + \cdots + 9u - 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{75} + 42u^{74} + \cdots + 39u + 1$
c_2, c_4	$u^{75} - 4u^{74} + \cdots - u + 1$
c_3, c_7	$u^{75} + u^{74} + \cdots + 20u + 8$
c_5, c_{11}	$u^{75} + 2u^{74} + \cdots + 2u + 1$
c_6, c_8	$u^{75} - 21u^{74} + \cdots - 752u + 64$
c_9, c_{10}, c_{12}	$u^{75} + 20u^{74} + \cdots + 14u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{75} - 14y^{74} + \cdots + 943y - 1$
c_2, c_4	$y^{75} - 42y^{74} + \cdots + 39y - 1$
c_3, c_7	$y^{75} + 21y^{74} + \cdots - 752y - 64$
c_5, c_{11}	$y^{75} - 20y^{74} + \cdots + 14y - 1$
c_6, c_8	$y^{75} + 61y^{74} + \cdots + 232704y - 4096$
c_9, c_{10}, c_{12}	$y^{75} + 72y^{74} + \cdots - 10y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.887145 + 0.421919I$ $a = -1.304670 + 0.309765I$ $b = -1.36625 + 1.06588I$	$0.04333 - 6.34447I$	$-7.93297 + 10.47635I$
$u = 0.887145 - 0.421919I$ $a = -1.304670 - 0.309765I$ $b = -1.36625 - 1.06588I$	$0.04333 + 6.34447I$	$-7.93297 - 10.47635I$
$u = -0.990634 + 0.243871I$ $a = 0.370425 - 0.564934I$ $b = 0.509716 - 0.608237I$	$-4.44660 + 0.09147I$	$-11.59766 + 0.I$
$u = -0.990634 - 0.243871I$ $a = 0.370425 + 0.564934I$ $b = 0.509716 + 0.608237I$	$-4.44660 - 0.09147I$	$-11.59766 + 0.I$
$u = 1.000630 + 0.265543I$ $a = 2.03967 + 0.36176I$ $b = 1.38837 - 1.74230I$	$-8.14996 - 1.57539I$	$-15.1216 + 0.I$
$u = 1.000630 - 0.265543I$ $a = 2.03967 - 0.36176I$ $b = 1.38837 + 1.74230I$	$-8.14996 + 1.57539I$	$-15.1216 + 0.I$
$u = -1.002040 + 0.280364I$ $a = -2.56830 - 0.43571I$ $b = -1.18117 - 1.37862I$	$-8.06174 + 4.47030I$	0
$u = -1.002040 - 0.280364I$ $a = -2.56830 + 0.43571I$ $b = -1.18117 + 1.37862I$	$-8.06174 - 4.47030I$	0
$u = 0.997744 + 0.300446I$ $a = 0.162900 + 0.569242I$ $b = 0.500726 + 0.752913I$	$-4.11035 - 5.87109I$	0
$u = 0.997744 - 0.300446I$ $a = 0.162900 - 0.569242I$ $b = 0.500726 - 0.752913I$	$-4.11035 + 5.87109I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.023860 + 0.232154I$ $a = 2.01282 - 0.17234I$ $b = 1.11389 + 1.64325I$	$-7.89110 - 4.43076I$	0
$u = -1.023860 - 0.232154I$ $a = 2.01282 + 0.17234I$ $b = 1.11389 - 1.64325I$	$-7.89110 + 4.43076I$	0
$u = -0.930948 + 0.071026I$ $a = 1.266100 + 0.027107I$ $b = 1.047670 + 0.599871I$	$-1.97213 - 1.46805I$	$-10.98188 + 4.43556I$
$u = -0.930948 - 0.071026I$ $a = 1.266100 - 0.027107I$ $b = 1.047670 - 0.599871I$	$-1.97213 + 1.46805I$	$-10.98188 - 4.43556I$
$u = 1.023180 + 0.307631I$ $a = -2.48345 + 0.20439I$ $b = -1.21466 + 1.45040I$	$-7.44212 - 10.73660I$	0
$u = 1.023180 - 0.307631I$ $a = -2.48345 - 0.20439I$ $b = -1.21466 - 1.45040I$	$-7.44212 + 10.73660I$	0
$u = 0.745430 + 0.809040I$ $a = -0.366987 - 1.071930I$ $b = -2.70214 - 0.22546I$	$-1.06539 - 5.24431I$	0
$u = 0.745430 - 0.809040I$ $a = -0.366987 + 1.071930I$ $b = -2.70214 + 0.22546I$	$-1.06539 + 5.24431I$	0
$u = 0.882590 + 0.702538I$ $a = -0.829874 - 0.592338I$ $b = -1.79400 + 1.05298I$	$2.08360 - 2.69427I$	0
$u = 0.882590 - 0.702538I$ $a = -0.829874 + 0.592338I$ $b = -1.79400 - 1.05298I$	$2.08360 + 2.69427I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.743473 + 0.453790I$ $a = 0.007570 - 0.366607I$ $b = -0.316775 + 0.512887I$	$1.49999 - 2.25964I$	$-3.17178 + 5.04191I$
$u = 0.743473 - 0.453790I$ $a = 0.007570 + 0.366607I$ $b = -0.316775 - 0.512887I$	$1.49999 + 2.25964I$	$-3.17178 - 5.04191I$
$u = 0.795943 + 0.812291I$ $a = -0.495301 - 0.730597I$ $b = -0.970310 + 0.264145I$	$2.31304 - 1.29591I$	0
$u = 0.795943 - 0.812291I$ $a = -0.495301 + 0.730597I$ $b = -0.970310 - 0.264145I$	$2.31304 + 1.29591I$	0
$u = -0.786206 + 0.833290I$ $a = -0.548362 + 1.180140I$ $b = -3.10995 - 0.03398I$	$-1.046790 - 0.233605I$	0
$u = -0.786206 - 0.833290I$ $a = -0.548362 - 1.180140I$ $b = -3.10995 + 0.03398I$	$-1.046790 + 0.233605I$	0
$u = 0.788338 + 0.844997I$ $a = -0.39372 + 2.64094I$ $b = 3.47934 + 2.39014I$	$-0.77118 + 3.07466I$	0
$u = 0.788338 - 0.844997I$ $a = -0.39372 - 2.64094I$ $b = 3.47934 - 2.39014I$	$-0.77118 - 3.07466I$	0
$u = -0.795768 + 0.856610I$ $a = -0.458519 + 0.581639I$ $b = -0.661200 - 0.385202I$	$3.38785 - 4.33505I$	0
$u = -0.795768 - 0.856610I$ $a = -0.458519 - 0.581639I$ $b = -0.661200 + 0.385202I$	$3.38785 + 4.33505I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.784804 + 0.867935I$ $a = -0.16460 - 2.47990I$ $b = 3.54552 - 1.97189I$	$0.25516 - 9.43024I$	0
$u = -0.784804 - 0.867935I$ $a = -0.16460 + 2.47990I$ $b = 3.54552 + 1.97189I$	$0.25516 + 9.43024I$	0
$u = -0.761209 + 0.303390I$ $a = -0.66189 - 1.48897I$ $b = -0.843213 - 1.134480I$	$-2.11424 + 2.43489I$	$-12.3251 - 6.9587I$
$u = -0.761209 - 0.303390I$ $a = -0.66189 + 1.48897I$ $b = -0.843213 + 1.134480I$	$-2.11424 - 2.43489I$	$-12.3251 + 6.9587I$
$u = 0.875605 + 0.815188I$ $a = -1.64111 + 0.93843I$ $b = 0.07441 + 2.48036I$	$4.23581 - 1.11329I$	0
$u = 0.875605 - 0.815188I$ $a = -1.64111 - 0.93843I$ $b = 0.07441 - 2.48036I$	$4.23581 + 1.11329I$	0
$u = -0.891540 + 0.799179I$ $a = -1.006990 + 0.953772I$ $b = -2.96795 - 1.32514I$	$2.74184 + 2.99741I$	0
$u = -0.891540 - 0.799179I$ $a = -1.006990 - 0.953772I$ $b = -2.96795 + 1.32514I$	$2.74184 - 2.99741I$	0
$u = -0.858105 + 0.855314I$ $a = -0.72834 - 1.53155I$ $b = 1.71110 - 1.68955I$	$7.80149 - 3.18910I$	0
$u = -0.858105 - 0.855314I$ $a = -0.72834 + 1.53155I$ $b = 1.71110 + 1.68955I$	$7.80149 + 3.18910I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.911589 + 0.805325I$ $a = 0.91456 - 1.70167I$ $b = -1.01479 - 2.88671I$	$4.12505 - 4.94897I$	0
$u = 0.911589 - 0.805325I$ $a = 0.91456 + 1.70167I$ $b = -1.01479 + 2.88671I$	$4.12505 + 4.94897I$	0
$u = -0.880512 + 0.845442I$ $a = 0.187760 + 0.773523I$ $b = -0.238660 + 0.915735I$	$8.84457 + 1.81738I$	0
$u = -0.880512 - 0.845442I$ $a = 0.187760 - 0.773523I$ $b = -0.238660 - 0.915735I$	$8.84457 - 1.81738I$	0
$u = 0.965168 + 0.770733I$ $a = -0.697279 - 0.434511I$ $b = -1.42752 + 0.24371I$	$1.79639 - 4.64940I$	0
$u = 0.965168 - 0.770733I$ $a = -0.697279 + 0.434511I$ $b = -1.42752 - 0.24371I$	$1.79639 + 4.64940I$	0
$u = 0.982212 + 0.751243I$ $a = -1.32097 - 0.56552I$ $b = -2.17734 + 2.46253I$	$-1.77467 - 0.61424I$	0
$u = 0.982212 - 0.751243I$ $a = -1.32097 + 0.56552I$ $b = -2.17734 - 2.46253I$	$-1.77467 + 0.61424I$	0
$u = -0.923652 + 0.829415I$ $a = -0.726145 - 0.285385I$ $b = -0.224702 - 0.630733I$	$8.70938 + 4.41281I$	0
$u = -0.923652 - 0.829415I$ $a = -0.726145 + 0.285385I$ $b = -0.224702 + 0.630733I$	$8.70938 - 4.41281I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.730137 + 0.191745I$ $a = 0.848146 + 0.745655I$ $b = 2.01940 - 0.38270I$	$-2.75312 - 0.71407I$	$-10.56661 + 9.33379I$
$u = 0.730137 - 0.191745I$ $a = 0.848146 - 0.745655I$ $b = 2.01940 + 0.38270I$	$-2.75312 + 0.71407I$	$-10.56661 - 9.33379I$
$u = -0.976675 + 0.776780I$ $a = -1.35830 + 0.69537I$ $b = -2.55017 - 2.46709I$	$-1.63091 + 6.25511I$	0
$u = -0.976675 - 0.776780I$ $a = -1.35830 - 0.69537I$ $b = -2.55017 + 2.46709I$	$-1.63091 - 6.25511I$	0
$u = -0.944507 + 0.823662I$ $a = 1.48146 + 0.76707I$ $b = 0.86627 + 3.04060I$	$7.53164 + 9.43047I$	0
$u = -0.944507 - 0.823662I$ $a = 1.48146 - 0.76707I$ $b = 0.86627 - 3.04060I$	$7.53164 - 9.43047I$	0
$u = 0.980512 + 0.782944I$ $a = 2.68521 - 0.41044I$ $b = 2.09440 - 4.67862I$	$-1.36386 - 9.14996I$	0
$u = 0.980512 - 0.782944I$ $a = 2.68521 + 0.41044I$ $b = 2.09440 + 4.67862I$	$-1.36386 + 9.14996I$	0
$u = -0.982139 + 0.791682I$ $a = -0.527120 + 0.395419I$ $b = -1.306180 + 0.059161I$	$2.80938 + 10.47360I$	0
$u = -0.982139 - 0.791682I$ $a = -0.527120 - 0.395419I$ $b = -1.306180 - 0.059161I$	$2.80938 - 10.47360I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.992674+0.791962I$ $a=\ 2.52753+0.15259I$ $b=\ 2.39427+4.34125I$	$-0.3915+15.6011I$	0
$u=-0.992674-0.791962I$ $a=\ 2.52753-0.15259I$ $b=\ 2.39427-4.34125I$	$-0.3915-15.6011I$	0
$u=\ 0.473511+0.518700I$ $a=\ 0.569905-0.044011I$ $b=-0.573438-0.122440I$	$2.29195-1.37822I$	$-0.58151+4.13567I$
$u=\ 0.473511-0.518700I$ $a=\ 0.569905+0.044011I$ $b=-0.573438+0.122440I$	$2.29195+1.37822I$	$-0.58151-4.13567I$
$u=\ 0.067050+0.682615I$ $a=-0.17440-2.58690I$ $b=\ 0.05480-1.96512I$	$-4.40078+7.33498I$	$-7.71783-5.68958I$
$u=\ 0.067050-0.682615I$ $a=-0.17440+2.58690I$ $b=\ 0.05480+1.96512I$	$-4.40078-7.33498I$	$-7.71783+5.68958I$
$u=-0.643142$ $a=\ 0.787276$ $b=\ 0.179262$	-0.881194	-11.4850
$u=\ 0.311673+0.555828I$ $a=\ 0.20614-1.83508I$ $b=-0.354502-0.754446I$	$1.74635+2.74612I$	$-2.00357-4.26795I$
$u=\ 0.311673-0.555828I$ $a=\ 0.20614+1.83508I$ $b=-0.354502+0.754446I$	$1.74635-2.74612I$	$-2.00357+4.26795I$
$u=-0.016299+0.632498I$ $a=-0.07873+2.68758I$ $b=\ 0.42918+1.85147I$	$-5.01681-1.39047I$	$-8.94216+0.64791I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.016299-0.632498I$ $a=-0.07873-2.68758I$ $b=\ 0.42918-1.85147I$	$-5.01681+1.39047I$	$-8.94216-0.64791I$
$u=\ 0.064333+0.625670I$ $a=\ 1.135470-0.066066I$ $b=\ 0.327673-0.145405I$	$-1.22393+2.66490I$	$-4.46846-2.68862I$
$u=\ 0.064333-0.625670I$ $a=\ 1.135470+0.066066I$ $b=\ 0.327673+0.145405I$	$-1.22393-2.66490I$	$-4.46846+2.68862I$
$u=-0.363118+0.189476I$ $a=\ 2.22576+0.86434I$ $b=\ 0.348541+0.046158I$	$-1.083860-0.035362I$	$-8.47943-1.04313I$
$u=-0.363118-0.189476I$ $a=\ 2.22576-0.86434I$ $b=\ 0.348541-0.046158I$	$-1.083860+0.035362I$	$-8.47943+1.04313I$

II. $I_2^u = \langle -2u^2 + b + 2u + 1,\ a + u,\ u^3 - u^2 + 1 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -u \\ 2u^2 - 2u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ -u^2 + u + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ u^2 - u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ u^2 - u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ u^2 - u - 1 \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2 + u - 14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_6, c_7 c_8	y^3
c_5, c_{11}	$y^3 - y^2 + 2y - 1$
c_9, c_{10}, c_{12}	$y^3 + 3y^2 + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = -0.877439 - 0.744862I$ $b = -2.32472 + 1.12456I$	$1.37919 - 2.82812I$	$-12.69240 + 3.35914I$
$u = 0.877439 - 0.744862I$ $a = -0.877439 + 0.744862I$ $b = -2.32472 - 1.12456I$	$1.37919 + 2.82812I$	$-12.69240 - 3.35914I$
$u = -0.754878$ $a = 0.754878$ $b = 1.64944$	-2.75839	-13.6150

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{75}+42u^{74}+\cdots+39u+1)$
c_2	$((u-1)^3)(u^{75}-4u^{74}+\cdots-u+1)$
c_3, c_7	$u^3(u^{75}+u^{74}+\cdots+20u+8)$
c_4	$((u+1)^3)(u^{75}-4u^{74}+\cdots-u+1)$
c_5	$(u^3+u^2-1)(u^{75}+2u^{74}+\cdots+2u+1)$
c_6, c_8	$u^3(u^{75}-21u^{74}+\cdots-752u+64)$
c_9, c_{10}	$(u^3-u^2+2u-1)(u^{75}+20u^{74}+\cdots+14u+1)$
c_{11}	$(u^3-u^2+1)(u^{75}+2u^{74}+\cdots+2u+1)$
c_{12}	$(u^3+u^2+2u+1)(u^{75}+20u^{74}+\cdots+14u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^3)(y^{75} - 14y^{74} + \cdots + 943y - 1)$
c_2, c_4	$((y-1)^3)(y^{75} - 42y^{74} + \cdots + 39y - 1)$
c_3, c_7	$y^3(y^{75} + 21y^{74} + \cdots - 752y - 64)$
c_5, c_{11}	$(y^3 - y^2 + 2y - 1)(y^{75} - 20y^{74} + \cdots + 14y - 1)$
c_6, c_8	$y^3(y^{75} + 61y^{74} + \cdots + 232704y - 4096)$
c_9, c_{10}, c_{12}	$(y^3 + 3y^2 + 2y - 1)(y^{75} + 72y^{74} + \cdots - 10y - 1)$