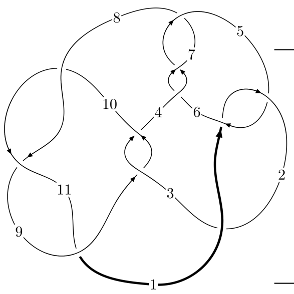
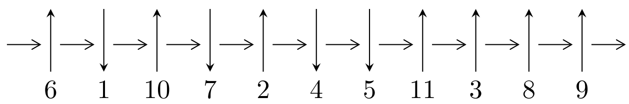
$11a_{156}$ $(K11a_{156})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.35866 \times 10^{48} u^{51} - 1.57104 \times 10^{48} u^{50} + \cdots + 3.08851 \times 10^{48} b + 4.21202 \times 10^{48}, \\
& - 1.52481 \times 10^{49} u^{51} + 2.17161 \times 10^{49} u^{50} + \cdots + 6.17703 \times 10^{48} a - 1.53352 \times 10^{50}, \\
& u^{52} - 2u^{51} + \cdots + 28u - 4 \rangle \\
I_2^u = \langle & b - 1,\ u^4 + u^2 + a + u + 1,\ u^5 - u^4 + 2u^3 - u^2 + u - 1 \rangle
\end{aligned}$$

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

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 59 representations.

[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. $\boldsymbol{I_1^u = \langle 1.36 \times 10^{48} u^{51} - 1.57 \times 10^{48} u^{50} + \cdots + 3.09 \times 10^{48} b + 4.21 \times 10^{48},\ -1.52 \times 10^{49} u^{51} + 2.17 \times 10^{49} u^{50} + \cdots + 6.18 \times 10^{48} a - 1.53 \times 10^{50},\ u^{52} - 2u^{51} + \cdots + 28u - 4\rangle}$

(i) Arc colorings

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

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

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

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

$$a_9 = \begin{pmatrix} 2.46852u^{51} - 3.51562u^{50} + \cdots - 104.235u + 24.8262 \\ -0.439906u^{51} + 0.508672u^{50} + \cdots + 10.8322u - 1.36377 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2.84368u^{51} - 4.05858u^{50} + \cdots - 117.062u + 28.1494 \\ -0.556181u^{51} + 0.655346u^{50} + \cdots + 13.1982u - 1.84971 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.770801u^{51} - 0.938728u^{50} + \cdots - 26.6783u + 6.61543 \\ -0.576000u^{51} + 0.735448u^{50} + \cdots + 12.0720u - 2.35162 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.96321u^{51} - 3.05211u^{50} + \cdots - 93.6559u + 23.1027 \\ 0.0420101u^{51} + 0.0759082u^{50} + \cdots + 7.19593u - 1.40746 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.194801u^{51} - 0.203280u^{50} + \cdots - 14.6063u + 4.26381 \\ 0.243803u^{51} - 0.393136u^{50} + \cdots - 7.63417u + 1.60634 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.685271u^{51} - 0.920162u^{50} + \cdots - 28.4036u + 6.67530 \\ -0.226462u^{51} + 0.539033u^{50} + \cdots + 11.5948u - 1.86138 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.685271u^{51} - 0.920162u^{50} + \cdots - 28.4036u + 6.67530 \\ -0.226462u^{51} + 0.539033u^{50} + \cdots + 11.5948u - 1.86138 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6.29255u^{51} + 9.41983u^{50} + \cdots + 269.288u - 54.6478$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{52} - 2u^{51} + \cdots + 28u - 4$
c_2	$u^{52} + 18u^{51} + \cdots - 72u + 16$
c_3, c_9	$u^{52} - 2u^{51} + \cdots + 64u - 32$
c_4, c_6, c_7	$u^{52} - 4u^{51} + \cdots - 4u + 1$
c_8, c_{10}, c_{11}	$u^{52} + 7u^{51} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{52} + 18y^{51} + \cdots - 72y + 16$
c_2	$y^{52} + 30y^{51} + \cdots - 41760y + 256$
c_3, c_9	$y^{52} - 36y^{51} + \cdots - 10752y + 1024$
c_4, c_6, c_7	$y^{52} - 44y^{51} + \cdots - 116y + 1$
c_8, c_{10}, c_{11}	$y^{52} - 53y^{51} + \cdots + 13y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.075327 + 1.008500I$ $a = -1.022790 + 0.774917I$ $b = 1.190360 + 0.416488I$	$-3.66540 + 1.40599I$	$-0.611498 - 0.934044I$
$u = 0.075327 - 1.008500I$ $a = -1.022790 - 0.774917I$ $b = 1.190360 - 0.416488I$	$-3.66540 - 1.40599I$	$-0.611498 + 0.934044I$
$u = 0.613736 + 0.753703I$ $a = -1.05975 + 1.15611I$ $b = 0.527758 + 0.653505I$	$0.194027 + 1.037730I$	$3.66549 - 3.70521I$
$u = 0.613736 - 0.753703I$ $a = -1.05975 - 1.15611I$ $b = 0.527758 - 0.653505I$	$0.194027 - 1.037730I$	$3.66549 + 3.70521I$
$u = -0.772235 + 0.690068I$ $a = -2.53064 - 1.27133I$ $b = 1.378930 + 0.036041I$	$2.12355 + 1.28202I$	$4.52218 - 0.37137I$
$u = -0.772235 - 0.690068I$ $a = -2.53064 + 1.27133I$ $b = 1.378930 - 0.036041I$	$2.12355 - 1.28202I$	$4.52218 + 0.37137I$
$u = 0.455162 + 0.835894I$ $a = 0.863304 - 0.362503I$ $b = -0.263353 - 0.185170I$	$-0.04711 + 1.88095I$	$-0.11775 - 4.20113I$
$u = 0.455162 - 0.835894I$ $a = 0.863304 + 0.362503I$ $b = -0.263353 + 0.185170I$	$-0.04711 - 1.88095I$	$-0.11775 + 4.20113I$
$u = -0.729350 + 0.773257I$ $a = -0.108923 - 0.214082I$ $b = 0.639530 + 0.722525I$	$3.67881 - 0.13440I$	$8.39486 + 0.I$
$u = -0.729350 - 0.773257I$ $a = -0.108923 + 0.214082I$ $b = 0.639530 - 0.722525I$	$3.67881 + 0.13440I$	$8.39486 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.886765 + 0.619894I$ $a = 0.076581 + 0.354456I$ $b = 0.461865 - 0.742040I$	$-0.14154 - 3.59160I$	$3.36417 + 4.10455I$
$u = 0.886765 - 0.619894I$ $a = 0.076581 - 0.354456I$ $b = 0.461865 + 0.742040I$	$-0.14154 + 3.59160I$	$3.36417 - 4.10455I$
$u = 0.619534 + 0.655112I$ $a = 1.82077 - 0.13795I$ $b = -1.62890 + 0.13929I$	$7.94427 + 0.70276I$	$6.08078 - 4.95980I$
$u = 0.619534 - 0.655112I$ $a = 1.82077 + 0.13795I$ $b = -1.62890 - 0.13929I$	$7.94427 - 0.70276I$	$6.08078 + 4.95980I$
$u = -0.906927 + 0.670128I$ $a = 1.75190 + 0.21463I$ $b = -1.55769 - 0.21556I$	$10.93850 + 3.24486I$	$10.33648 - 1.31467I$
$u = -0.906927 - 0.670128I$ $a = 1.75190 - 0.21463I$ $b = -1.55769 + 0.21556I$	$10.93850 - 3.24486I$	$10.33648 + 1.31467I$
$u = 0.732657 + 0.866743I$ $a = -2.26559 + 1.11526I$ $b = 1.43928 + 0.05940I$	$5.55338 + 2.78570I$	$8.09999 - 3.02309I$
$u = 0.732657 - 0.866743I$ $a = -2.26559 - 1.11526I$ $b = 1.43928 - 0.05940I$	$5.55338 - 2.78570I$	$8.09999 + 3.02309I$
$u = 0.635920 + 0.950705I$ $a = -0.338552 + 0.157448I$ $b = 0.792480 - 0.758107I$	$-0.43994 + 3.90031I$	$3.00000 - 3.18847I$
$u = 0.635920 - 0.950705I$ $a = -0.338552 - 0.157448I$ $b = 0.792480 + 0.758107I$	$-0.43994 - 3.90031I$	$3.00000 + 3.18847I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.134179 + 1.161340I$ $a = -0.384531 - 0.483430I$ $b = -1.389650 - 0.050928I$	$3.59908 + 2.53417I$	$6.05449 - 3.57963I$
$u = 0.134179 - 1.161340I$ $a = -0.384531 + 0.483430I$ $b = -1.389650 + 0.050928I$	$3.59908 - 2.53417I$	$6.05449 + 3.57963I$
$u = -0.699619 + 0.940497I$ $a = -0.928509 - 0.600285I$ $b = 0.486038 - 0.816981I$	$3.16600 - 5.32735I$	$0. + 6.25644I$
$u = -0.699619 - 0.940497I$ $a = -0.928509 + 0.600285I$ $b = 0.486038 + 0.816981I$	$3.16600 + 5.32735I$	$0. - 6.25644I$
$u = -0.155548 + 1.164430I$ $a = 0.234739 - 0.432223I$ $b = 0.000043 - 0.701161I$	$-7.29497 - 2.64942I$	$-4.44338 + 3.34527I$
$u = -0.155548 - 1.164430I$ $a = 0.234739 + 0.432223I$ $b = 0.000043 + 0.701161I$	$-7.29497 + 2.64942I$	$-4.44338 - 3.34527I$
$u = -0.785903 + 0.215104I$ $a = 0.746081 + 0.304165I$ $b = -0.093921 - 0.253947I$	$-2.53454 + 0.36656I$	$-2.03786 + 0.85265I$
$u = -0.785903 - 0.215104I$ $a = 0.746081 - 0.304165I$ $b = -0.093921 + 0.253947I$	$-2.53454 - 0.36656I$	$-2.03786 - 0.85265I$
$u = -1.19620$ $a = 1.56251$ $b = -1.37476$	1.56846	5.85290
$u = 0.638094 + 1.019660I$ $a = 1.08345 - 1.78360I$ $b = -1.50936 - 0.23396I$	$6.79512 + 4.31192I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.638094 - 1.019660I$ $a = 1.08345 + 1.78360I$ $b = -1.50936 + 0.23396I$	$6.79512 - 4.31192I$	0
$u = 0.056951 + 0.784785I$ $a = 0.767881 + 0.964864I$ $b = 0.115114 + 0.367824I$	$-1.14630 + 1.33765I$	$-2.67722 - 5.83204I$
$u = 0.056951 - 0.784785I$ $a = 0.767881 - 0.964864I$ $b = 0.115114 - 0.367824I$	$-1.14630 - 1.33765I$	$-2.67722 + 5.83204I$
$u = -0.702251 + 0.998907I$ $a = -2.13606 - 0.96284I$ $b = 1.48399 - 0.13222I$	$1.19040 - 6.87281I$	0
$u = -0.702251 - 0.998907I$ $a = -2.13606 + 0.96284I$ $b = 1.48399 + 0.13222I$	$1.19040 + 6.87281I$	0
$u = -0.513163 + 1.119450I$ $a = 0.818574 + 0.287487I$ $b = -0.443701 + 0.321088I$	$-5.16137 - 5.07594I$	0
$u = -0.513163 - 1.119450I$ $a = 0.818574 - 0.287487I$ $b = -0.443701 - 0.321088I$	$-5.16137 + 5.07594I$	0
$u = 1.064470 + 0.691714I$ $a = 1.70299 - 0.26759I$ $b = -1.50643 + 0.26773I$	$6.26071 - 7.29271I$	0
$u = 1.064470 - 0.691714I$ $a = 1.70299 + 0.26759I$ $b = -1.50643 - 0.26773I$	$6.26071 + 7.29271I$	0
$u = 0.722743 + 1.064410I$ $a = -0.814403 + 0.358577I$ $b = 0.440375 + 0.908105I$	$-1.50501 + 9.54274I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.722743 - 1.064410I$ $a = -0.814403 - 0.358577I$ $b = 0.440375 - 0.908105I$	$-1.50501 - 9.54274I$	0
$u = -0.753203 + 1.063150I$ $a = 1.45173 + 1.51990I$ $b = -1.52645 + 0.29210I$	$9.71492 - 9.38312I$	0
$u = -0.753203 - 1.063150I$ $a = 1.45173 - 1.51990I$ $b = -1.52645 - 0.29210I$	$9.71492 + 9.38312I$	0
$u = 0.620392$ $a = 1.74300$ $b = -1.55182$	7.82641	14.3530
$u = 0.813568 + 1.125730I$ $a = 1.56036 - 1.27231I$ $b = -1.52286 - 0.33951I$	$4.8388 + 14.0856I$	0
$u = 0.813568 - 1.125730I$ $a = 1.56036 + 1.27231I$ $b = -1.52286 + 0.33951I$	$4.8388 - 14.0856I$	0
$u = -0.34754 + 1.37165I$ $a = 0.417284 + 0.592951I$ $b = -1.303780 + 0.146210I$	$-3.43276 - 5.51955I$	0
$u = -0.34754 - 1.37165I$ $a = 0.417284 - 0.592951I$ $b = -1.303780 - 0.146210I$	$-3.43276 + 5.51955I$	0
$u = -0.145020 + 0.564037I$ $a = -0.17797 - 2.25336I$ $b = 1.043790 - 0.148422I$	$1.28226 - 0.71509I$	$4.69271 - 2.87667I$
$u = -0.145020 - 0.564037I$ $a = -0.17797 + 2.25336I$ $b = 1.043790 + 0.148422I$	$1.28226 + 0.71509I$	$4.69271 + 2.87667I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.390440$ $a = -9.46557$ $b = 0.911724$	-0.325570	41.4780
$u = 0.308678$ $a = 0.604187$ $b = 0.507949$	0.870137	11.8930

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^4+5u^3-7u^2+5u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.339110 + 0.822375I$ $a = -0.103562 - 0.890762I$ $b = 1.00000$	$1.31583 - 1.53058I$	$5.47076 + 5.40154I$
$u = -0.339110 - 0.822375I$ $a = -0.103562 + 0.890762I$ $b = 1.00000$	$1.31583 + 1.53058I$	$5.47076 - 5.40154I$
$u = 0.766826$ $a = -2.70062$ $b = 1.00000$	-0.756147	1.28100
$u = 0.455697 + 1.200150I$ $a = -0.546130 + 0.402731I$ $b = 1.00000$	$-4.22763 + 4.40083I$	$0.88874 - 1.16747I$
$u = 0.455697 - 1.200150I$ $a = -0.546130 - 0.402731I$ $b = 1.00000$	$-4.22763 - 4.40083I$	$0.88874 + 1.16747I$

III. $I_1^v = \langle a,\ b - v + 2,\ v^2 - 3v + 1\rangle$

(i) Arc colorings

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

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

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

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

$$a_9 = \begin{pmatrix} 0 \\ v-2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} v-2 \\ v-2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} v-2 \\ v-3 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ -v+3 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -v+2 \\ -v+3 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2 \\ -v+3 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2 \\ -v+3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.381966$ $a = 0$ $b = -1.61803$	7.23771	−1.00000
$v = 2.61803$ $a = 0$ $b = 0.618034$	−0.657974	−1.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u^5 - u^4 + \cdots + u - 1)(u^{52} - 2u^{51} + \cdots + 28u - 4)$
c_2	$u^2(u^5 + 3u^4 + \cdots - u - 1)(u^{52} + 18u^{51} + \cdots - 72u + 16)$
c_3	$u^5(u^2 + u - 1)(u^{52} - 2u^{51} + \cdots + 64u - 32)$
c_4	$((u-1)^2)(u^5 + u^4 + \cdots + u - 1)(u^{52} - 4u^{51} + \cdots - 4u + 1)$
c_5	$u^2(u^5 + u^4 + \cdots + u + 1)(u^{52} - 2u^{51} + \cdots + 28u - 4)$
c_6, c_7	$((u+1)^2)(u^5 - u^4 + \cdots + u + 1)(u^{52} - 4u^{51} + \cdots - 4u + 1)$
c_8	$((u+1)^5)(u^2 - u - 1)(u^{52} + 7u^{51} + \cdots + 3u + 1)$
c_9	$u^5(u^2 - u - 1)(u^{52} - 2u^{51} + \cdots + 64u - 32)$
c_{10}, c_{11}	$((u-1)^5)(u^2 + u - 1)(u^{52} + 7u^{51} + \cdots + 3u + 1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^2(y^5+3y^4+\cdots-y-1)(y^{52}+18y^{51}+\cdots-72y+16)$
c_2	$y^2(y^5-y^4+\cdots+3y-1)(y^{52}+30y^{51}+\cdots-41760y+256)$
c_3, c_9	$y^5(y^2-3y+1)(y^{52}-36y^{51}+\cdots-10752y+1024)$
c_4, c_6, c_7	$((y-1)^2)(y^5-5y^4+\cdots-y-1)(y^{52}-44y^{51}+\cdots-116y+1)$
c_8, c_{10}, c_{11}	$((y-1)^5)(y^2-3y+1)(y^{52}-53y^{51}+\cdots+13y+1)$