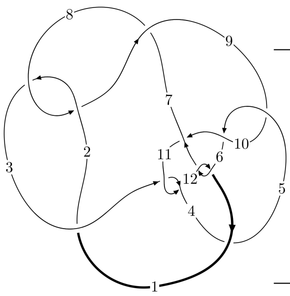
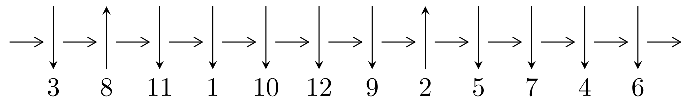
$12a_{0798}$ ($K12a_{0798}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 2.00309\times10^{43}u^{48} - 3.21474\times10^{41}u^{47} + \cdots + 9.90975\times10^{43}b - 9.19958\times10^{43},\\
&\quad - 3.05614\times10^{43}u^{48} - 3.56503\times10^{41}u^{47} + \cdots + 4.95488\times10^{43}a + 3.30827\times10^{44},\ u^{49} + u^{48} + \cdots + 8u +\\
I_2^u &= \langle 2.20369\times10^{113}u^{69} + 5.25148\times10^{112}u^{68} + \cdots + 2.19562\times10^{115}b + 2.18119\times10^{115},\\
&\quad 5.47739\times10^{116}u^{69} + 3.09471\times10^{115}u^{68} + \cdots + 1.16368\times10^{117}a + 1.96706\times10^{118},\\
&\quad u^{70} + u^{69} + \cdots + 434u + 53\rangle\\
I_3^u &= \langle 300a^3 + 95a^2 + 2260b + 654a - 1651,\ 25a^4 - 40a^3 - 98a^2 + 64a + 197,\ u + 1\rangle\\
I_4^u &= \langle b + u,\ 8a^3 + 12a^2u - 4a^2 - 4au - 2a + u,\ u^2 + 1\rangle\\
I_5^u &= \langle -a^2 + 8b + 2a + 3,\ a^3 + 3a^2 + 3a + 1,\ u - 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 132 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.

$$\boldsymbol{I_1^u = \langle 2.00\times 10^{43}u^{48} - 3.21\times 10^{41}u^{47} + \cdots + 9.91\times 10^{43}b - 9.20\times 10^{43},\ -3.06\times 10^{43}u^{48} - 3.57\times 10^{41}u^{47} + \cdots + 4.95\times 10^{43}a + 3.31\times 10^{44},\ u^{49} + u^{48} + \cdots + 8u + 1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.616794u^{48} + 0.00719500u^{47} + \cdots - 24.9481u - 6.67680 \\ -0.202134u^{48} + 0.00324402u^{47} + \cdots + 4.56122u + 0.928336 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 2.44394u^{48} + 2.29985u^{47} + \cdots + 67.1776u + 6.08652 \\ -0.404222u^{48} - 0.323237u^{47} + \cdots - 9.06575u - 0.414661 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0.414661u^{48} + 0.0104390u^{47} + \cdots - 20.3869u - 5.74847 \\ -0.202134u^{48} + 0.00324402u^{47} + \cdots + 4.56122u + 0.928336 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.53794u^{48} - 1.54132u^{47} + \cdots - 47.9985u - 3.48227 \\ 0.344085u^{48} + 0.255951u^{47} + \cdots + 7.86170u + 0.499407 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.51259u^{48} - 1.48491u^{47} + \cdots - 47.1606u - 3.63014 \\ 0.434697u^{48} + 0.337745u^{47} + \cdots + 8.97345u + 0.382603 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.270574u^{48} - 0.255160u^{47} + \cdots - 33.8519u - 8.19241 \\ -0.121149u^{48} + 0.0602775u^{47} + \cdots + 7.38033u + 1.33256 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2.96967u^{48} + 2.72241u^{47} + \cdots + 77.5346u + 6.35709 \\ -0.585648u^{48} - 0.423585u^{47} + \cdots - 11.3675u - 0.535810 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.858872u^{48} + 1.20916u^{47} + \cdots + 51.2976u + 8.24260 \\ -0.477090u^{48} - 0.426611u^{47} + \cdots - 15.0209u - 2.17841 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.15453u^{48} - 2.18463u^{47} + \cdots - 60.6939u - 13.0765$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{49} + 17u^{48} + \cdots - 236u - 100$
c_2, c_8	$u^{49} - 3u^{48} + \cdots + 22u + 10$
c_3, c_5, c_9 c_{11}	$u^{49} + u^{48} + \cdots + 8u + 1$
c_4, c_{10}	$64(64u^{49} - 128u^{48} + \cdots + 20u + 1)$
c_6, c_{12}	$u^{49} + 3u^{48} + \cdots + 186u + 50$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{49} + 33y^{48} + \cdots - 115504y - 10000$
c_2, c_8	$y^{49} + 17y^{48} + \cdots - 236y - 100$
c_3, c_5, c_9 c_{11}	$y^{49} - 15y^{48} + \cdots - 16y - 1$
c_4, c_{10}	$4096(4096y^{49} + 73728y^{48} + \cdots - 62y - 1)$
c_6, c_{12}	$y^{49} + 21y^{48} + \cdots - 112004y - 2500$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.981538 + 0.257391I$ $a = 1.55206 - 0.93078I$ $b = -1.23894 + 0.72248I$	$-5.77516 + 2.35068I$	$-11.35180 + 4.63129I$
$u = 0.981538 - 0.257391I$ $a = 1.55206 + 0.93078I$ $b = -1.23894 - 0.72248I$	$-5.77516 - 2.35068I$	$-11.35180 - 4.63129I$
$u = -0.810441 + 0.532063I$ $a = 2.11896 - 0.39965I$ $b = -0.643779 + 0.920170I$	$5.03502 + 0.73563I$	$-5.79688 - 4.57205I$
$u = -0.810441 - 0.532063I$ $a = 2.11896 + 0.39965I$ $b = -0.643779 - 0.920170I$	$5.03502 - 0.73563I$	$-5.79688 + 4.57205I$
$u = 0.877698 + 0.561491I$ $a = -2.08820 - 0.30060I$ $b = 0.653043 + 0.991957I$	$5.31366 - 7.02170I$	$-5.51690 + 9.17495I$
$u = 0.877698 - 0.561491I$ $a = -2.08820 + 0.30060I$ $b = 0.653043 - 0.991957I$	$5.31366 + 7.02170I$	$-5.51690 - 9.17495I$
$u = -0.995699 + 0.372749I$ $a = -1.36330 - 0.86812I$ $b = 1.104890 + 0.550579I$	$-3.06110 + 2.74516I$	$-8.49807 - 6.15151I$
$u = -0.995699 - 0.372749I$ $a = -1.36330 + 0.86812I$ $b = 1.104890 - 0.550579I$	$-3.06110 - 2.74516I$	$-8.49807 + 6.15151I$
$u = 0.875340 + 0.605659I$ $a = 0.219349 + 0.234083I$ $b = 0.214791 - 1.396630I$	$5.30349 - 2.15840I$	$-3.93083 + 3.29725I$
$u = 0.875340 - 0.605659I$ $a = 0.219349 - 0.234083I$ $b = 0.214791 + 1.396630I$	$5.30349 + 2.15840I$	$-3.93083 - 3.29725I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.952373 + 0.520378I$ $a = -0.168176 + 0.392073I$ $b = -0.22875 - 1.47692I$	$4.08293 + 7.70387I$	$-6.80678 - 8.64886I$
$u = -0.952373 - 0.520378I$ $a = -0.168176 - 0.392073I$ $b = -0.22875 + 1.47692I$	$4.08293 - 7.70387I$	$-6.80678 + 8.64886I$
$u = 0.452697 + 0.787769I$ $a = 0.288931 - 0.311418I$ $b = 0.127804 - 1.164260I$	$3.71295 - 0.68830I$	$0.52323 + 2.74701I$
$u = 0.452697 - 0.787769I$ $a = 0.288931 + 0.311418I$ $b = 0.127804 + 1.164260I$	$3.71295 + 0.68830I$	$0.52323 - 2.74701I$
$u = 0.817518 + 0.099039I$ $a = -2.07999 - 0.26336I$ $b = 1.288930 + 0.381664I$	$-4.95390 - 4.13277I$	$-5.04587 + 8.33177I$
$u = 0.817518 - 0.099039I$ $a = -2.07999 + 0.26336I$ $b = 1.288930 - 0.381664I$	$-4.95390 + 4.13277I$	$-5.04587 - 8.33177I$
$u = 1.147530 + 0.376229I$ $a = 1.35388 - 0.64687I$ $b = -1.218000 + 0.378064I$	$-8.08094 - 5.83164I$	$-15.5949 + 6.7506I$
$u = 1.147530 - 0.376229I$ $a = 1.35388 + 0.64687I$ $b = -1.218000 - 0.378064I$	$-8.08094 + 5.83164I$	$-15.5949 - 6.7506I$
$u = -1.137970 + 0.439927I$ $a = 1.72337 - 0.29059I$ $b = -0.79502 + 1.21714I$	$-3.88494 + 4.95670I$	$-12.24760 - 4.43222I$
$u = -1.137970 - 0.439927I$ $a = 1.72337 + 0.29059I$ $b = -0.79502 - 1.21714I$	$-3.88494 - 4.95670I$	$-12.24760 + 4.43222I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.688687+0.308958I$ $a=-0.878871+0.471910I$ $b=0.07117-1.41606I$	$-0.16229+1.40976I$	$-9.53355-4.57288I$
$u=-0.688687-0.308958I$ $a=-0.878871-0.471910I$ $b=0.07117+1.41606I$	$-0.16229-1.40976I$	$-9.53355+4.57288I$
$u=-0.286451+1.239410I$ $a=0.020365-0.390591I$ $b=-0.214987-0.936488I$	$1.83503-0.92197I$	$-13.0094+8.1328I$
$u=-0.286451-1.239410I$ $a=0.020365+0.390591I$ $b=-0.214987+0.936488I$	$1.83503+0.92197I$	$-13.0094-8.1328I$
$u=1.156850+0.550225I$ $a=-1.74873-0.14409I$ $b=0.706757+1.215220I$	$-0.79278-9.29438I$	$-8.00000+7.50073I$
$u=1.156850-0.550225I$ $a=-1.74873+0.14409I$ $b=0.706757-1.215220I$	$-0.79278+9.29438I$	$-8.00000-7.50073I$
$u=-1.163070+0.539405I$ $a=-1.160470-0.653820I$ $b=1.087680+0.283705I$	$-0.80094+6.65775I$	$-8.00000+0.I$
$u=-1.163070-0.539405I$ $a=-1.160470+0.653820I$ $b=1.087680-0.283705I$	$-0.80094-6.65775I$	$-8.00000+0.I$
$u=-0.079925+0.692755I$ $a=-0.057126-1.297370I$ $b=0.053644+0.267090I$	$4.56105+2.90065I$	$-5.11259-3.32387I$
$u=-0.079925-0.692755I$ $a=-0.057126+1.297370I$ $b=0.053644-0.267090I$	$4.56105-2.90065I$	$-5.11259+3.32387I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.021549+1.328260I$ $a=\ \ 0.023794-0.515824I$ $b=-0.058851-0.693519I$	$5.08062+2.68757I$	$-8.00000+0.I$
$u=-0.021549-1.328260I$ $a=\ \ 0.023794+0.515824I$ $b=-0.058851+0.693519I$	$5.08062-2.68757I$	$-8.00000+0.I$
$u=-0.671080$ $a=\ \ 1.79535$ $b=-0.940047$	-1.58789	-4.29000
$u=\ \ 1.220900+0.538472I$ $a=\ \ 1.155260-0.596939I$ $b=-1.115300+0.247129I$	$-2.05345-12.68030I$	0
$u=\ \ 1.220900-0.538472I$ $a=\ \ 1.155260+0.596939I$ $b=-1.115300-0.247129I$	$-2.05345+12.68030I$	0
$u=\ \ 0.627660+1.221110I$ $a=-0.031390-0.235628I$ $b=\ \ 0.331694-1.079920I$	$7.31454-0.58694I$	0
$u=\ \ 0.627660-1.221110I$ $a=-0.031390+0.235628I$ $b=\ \ 0.331694+1.079920I$	$7.31454+0.58694I$	0
$u=-1.260280+0.553994I$ $a=\ \ 1.62317-0.09420I$ $b=-0.69242+1.27875I$	$-5.13578+12.53380I$	0
$u=-1.260280-0.553994I$ $a=\ \ 1.62317+0.09420I$ $b=-0.69242-1.27875I$	$-5.13578-12.53380I$	0
$u=-0.58514+1.29446I$ $a=\ \ 0.057217-0.263592I$ $b=-0.345871-1.041880I$	$6.79396-5.08385I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.58514-1.29446I$ $a=\ \ 0.057217+0.263592I$ $b=-0.345871+1.041880I$	$6.79396+5.08385I$	0
$u=\ \ 1.25870+0.66450I$ $a=-1.66771+0.03866I$ $b=\ \ 0.63511+1.26857I$	$2.30602-12.80540I$	0
$u=\ \ 1.25870-0.66450I$ $a=-1.66771-0.03866I$ $b=\ \ 0.63511-1.26857I$	$2.30602+12.80540I$	0
$u=-1.29293+0.66685I$ $a=\ \ 1.62720+0.05274I$ $b=-0.63273+1.28478I$	$1.2109+18.8792I$	0
$u=-1.29293-0.66685I$ $a=\ \ 1.62720-0.05274I$ $b=-0.63273-1.28478I$	$1.2109-18.8792I$	0
$u=-0.208725+0.263076I$ $a=\ \ 0.636904-0.809965I$ $b=-0.176417+0.283511I$	$-0.386214+0.820546I$	$-8.61529-8.26097I$
$u=-0.208725-0.263076I$ $a=\ \ 0.636904+0.809965I$ $b=-0.176417-0.283511I$	$-0.386214-0.820546I$	$-8.61529+8.26097I$
$u=-0.097656+0.221062I$ $a=-1.55418-4.92473I$ $b=\ \ 0.055569+0.876388I$	$4.71535+2.88833I$	$-6.61461-3.16484I$
$u=-0.097656-0.221062I$ $a=-1.55418+4.92473I$ $b=\ \ 0.055569-0.876388I$	$4.71535-2.88833I$	$-6.61461+3.16484I$

II. $I_2^u = \langle 2.20 \times 10^{113} u^{69} + 5.25 \times 10^{112} u^{68} + \cdots + 2.20 \times 10^{115} b + 2.18 \times 10^{115},\ 5.48 \times 10^{116} u^{69} + 3.09 \times 10^{115} u^{68} + \cdots + 1.16 \times 10^{117} a + 1.97 \times 10^{118},\ u^{70} + u^{69} + \cdots + 434u + 53\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -0.470697u^{69} - 0.0265942u^{68} + \cdots - 149.260u - 16.9039 \\ -0.0100368u^{69} - 0.00239180u^{68} + \cdots - 2.54768u - 0.993431 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -6.01017u^{69} + 0.310008u^{68} + \cdots - 2255.61u - 308.627 \\ -0.226244u^{69} + 0.0311423u^{68} + \cdots - 77.8654u - 11.1406 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.480734u^{69} - 0.0289860u^{68} + \cdots - 151.807u - 17.8973 \\ -0.0100368u^{69} - 0.00239180u^{68} + \cdots - 2.54768u - 0.993431 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.155671u^{69} - 0.0389813u^{68} + \cdots + 43.7618u + 4.64741 \\ -0.0580571u^{69} - 0.00135076u^{68} + \cdots - 19.8965u - 2.18136 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.143997u^{69} - 0.0275353u^{68} + \cdots + 38.2166u + 3.85369 \\ -0.0460225u^{69} + 0.0000400031u^{68} + \cdots - 16.0263u - 1.74972 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -6.43551u^{69} + 0.0646646u^{68} + \cdots - 2338.34u - 323.669 \\ -0.222739u^{69} + 0.0292459u^{68} + \cdots - 71.9426u - 10.0199 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.120256u^{69} - 0.0236167u^{68} + \cdots + 41.4888u + 9.39135 \\ -0.0209187u^{69} + 0.000811014u^{68} + \cdots - 9.03896u - 1.96341 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.363436u^{69} + 0.0187985u^{68} + \cdots + 118.612u + 19.4997 \\ 0.00913425u^{69} - 0.000942294u^{68} + \cdots + 1.20552u - 0.169703 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0239601u^{69} - 0.00841492u^{68} + \cdots + 18.6490u - 3.90520$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^{35} + 11u^{34} + \cdots - 2u - 1)^2$
c_2, c_8	$(u^{35} + u^{34} + \cdots + 2u + 1)^2$
c_3, c_5, c_9 c_{11}	$u^{70} + u^{69} + \cdots + 434u + 53$
c_4, c_{10}	$u^{70} + 19u^{69} + \cdots + 60600u - 5375$
c_6, c_{12}	$(u^{35} - u^{34} + \cdots - 2u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^{35} + 27y^{34} + \cdots - 22y - 1)^2$
c_2, c_8	$(y^{35} + 11y^{34} + \cdots - 2y - 1)^2$
c_3, c_5, c_9 c_{11}	$y^{70} - 41y^{69} + \cdots - 86596y + 2809$
c_4, c_{10}	$y^{70} - 21y^{69} + \cdots - 1096015000y + 28890625$
c_6, c_{12}	$(y^{35} + 19y^{34} + \cdots - 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.119514 + 1.003680I$ $a = -0.124946 + 0.339745I$ $b = 0.491471 + 1.162520I$	$-1.63653 - 7.02473I$	$-10.39842 + 6.93954I$
$u = -0.119514 - 1.003680I$ $a = -0.124946 - 0.339745I$ $b = 0.491471 - 1.162520I$	$-1.63653 + 7.02473I$	$-10.39842 - 6.93954I$
$u = 0.967240 + 0.057432I$ $a = 2.54114 - 12.61520I$ $b = 0.030366 - 1.049680I$	$1.36125 + 2.79178I$	$-2.56555 - 3.12849I$
$u = 0.967240 - 0.057432I$ $a = 2.54114 + 12.61520I$ $b = 0.030366 + 1.049680I$	$1.36125 - 2.79178I$	$-2.56555 + 3.12849I$
$u = -1.037220 + 0.046542I$ $a = -11.49130 - 3.57082I$ $b = 0.030366 - 1.049680I$	$1.36125 + 2.79178I$	$-2.56555 - 3.12849I$
$u = -1.037220 - 0.046542I$ $a = -11.49130 + 3.57082I$ $b = 0.030366 + 1.049680I$	$1.36125 - 2.79178I$	$-2.56555 + 3.12849I$
$u = 0.992816 + 0.307203I$ $a = -1.86835 + 0.59825I$ $b = 0.274169 + 0.754223I$	$-2.90212 - 1.21814I$	$-7.56786 + 5.43737I$
$u = 0.992816 - 0.307203I$ $a = -1.86835 - 0.59825I$ $b = 0.274169 - 0.754223I$	$-2.90212 + 1.21814I$	$-7.56786 - 5.43737I$
$u = 0.812668 + 0.700215I$ $a = -0.796936 + 1.003470I$ $b = 0.475306 + 0.917107I$	$-1.67002 - 2.07827I$	$-8.00000 + 3.40333I$
$u = 0.812668 - 0.700215I$ $a = -0.796936 - 1.003470I$ $b = 0.475306 - 0.917107I$	$-1.67002 + 2.07827I$	$-8.00000 - 3.40333I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.041410 + 0.270926I$ $a = -1.52455 + 0.29351I$ $b = 0.407102 - 1.144230I$	$-1.01725 + 1.14078I$	$-8.93962 + 0.35223I$
$u = -1.041410 - 0.270926I$ $a = -1.52455 - 0.29351I$ $b = 0.407102 + 1.144230I$	$-1.01725 - 1.14078I$	$-8.93962 - 0.35223I$
$u = 0.133172 + 0.888260I$ $a = -0.513616 + 0.654211I$ $b = 0.817305 + 0.125028I$	$1.19431 + 7.52211I$	$-8.37393 - 5.45189I$
$u = 0.133172 - 0.888260I$ $a = -0.513616 - 0.654211I$ $b = 0.817305 - 0.125028I$	$1.19431 - 7.52211I$	$-8.37393 + 5.45189I$
$u = -0.977207 + 0.510227I$ $a = 0.223970 - 0.121731I$ $b = 0.510838 + 0.446804I$	$-2.91461 - 1.90476I$	$-11.61760 + 3.26312I$
$u = -0.977207 - 0.510227I$ $a = 0.223970 + 0.121731I$ $b = 0.510838 - 0.446804I$	$-2.91461 + 1.90476I$	$-11.61760 - 3.26312I$
$u = -0.895460$ $a = 1.21237$ $b = -0.714433$	-1.48735	-6.22320
$u = -0.744917 + 0.469702I$ $a = -0.771318 - 0.328880I$ $b = 0.386425 + 1.221160I$	$5.25248 + 3.42594I$	$-3.89028 - 2.22817I$
$u = -0.744917 - 0.469702I$ $a = -0.771318 + 0.328880I$ $b = 0.386425 - 1.221160I$	$5.25248 - 3.42594I$	$-3.89028 + 2.22817I$
$u = 0.672202 + 0.568802I$ $a = 0.588099 - 0.277287I$ $b = -0.402291 + 1.220240I$	$5.91946 + 2.50696I$	$-2.73890 - 2.94934I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.672202 - 0.568802I$ $a = 0.588099 + 0.277287I$ $b = -0.402291 - 1.220240I$	$5.91946 - 2.50696I$	$-2.73890 + 2.94934I$
$u = 0.657413 + 0.573036I$ $a = 1.95056 - 0.17929I$ $b = -0.402291 - 1.220240I$	$5.91946 - 2.50696I$	$-2.73890 + 2.94934I$
$u = 0.657413 - 0.573036I$ $a = 1.95056 + 0.17929I$ $b = -0.402291 + 1.220240I$	$5.91946 + 2.50696I$	$-2.73890 - 2.94934I$
$u = 0.276214 + 0.810444I$ $a = 0.0549455 + 0.0810153I$ $b = -0.453184 + 1.179210I$	$1.83551 + 4.24996I$	$-3.13542 - 3.77353I$
$u = 0.276214 - 0.810444I$ $a = 0.0549455 - 0.0810153I$ $b = -0.453184 - 1.179210I$	$1.83551 - 4.24996I$	$-3.13542 + 3.77353I$
$u = -0.223135 + 0.814237I$ $a = 0.614394 + 0.692076I$ $b = -0.812555 + 0.099238I$	$1.97019 - 1.67857I$	$-6.82266 + 0.36674I$
$u = -0.223135 - 0.814237I$ $a = 0.614394 - 0.692076I$ $b = -0.812555 - 0.099238I$	$1.97019 + 1.67857I$	$-6.82266 - 0.36674I$
$u = 0.337448 + 1.122360I$ $a = 0.279152 + 0.257589I$ $b = -0.498606 + 1.204550I$	$5.23403 + 6.46046I$	0
$u = 0.337448 - 1.122360I$ $a = 0.279152 - 0.257589I$ $b = -0.498606 - 1.204550I$	$5.23403 - 6.46046I$	0
$u = -1.165920 + 0.188060I$ $a = 0.066157 - 1.277360I$ $b = 0.274169 + 0.754223I$	$-2.90212 - 1.21814I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.165920 - 0.188060I$ $a = 0.066157 + 1.277360I$ $b = 0.274169 - 0.754223I$	$-2.90212 + 1.21814I$	0
$u = 1.068030 + 0.544420I$ $a = 1.46092 + 0.01825I$ $b = -0.453184 - 1.179210I$	$1.83551 - 4.24996I$	0
$u = 1.068030 - 0.544420I$ $a = 1.46092 - 0.01825I$ $b = -0.453184 + 1.179210I$	$1.83551 + 4.24996I$	0
$u = -0.298459 + 1.176530I$ $a = -0.284974 + 0.293575I$ $b = 0.509525 + 1.201690I$	$4.37931 - 12.37660I$	0
$u = -0.298459 - 1.176530I$ $a = -0.284974 - 0.293575I$ $b = 0.509525 - 1.201690I$	$4.37931 + 12.37660I$	0
$u = -1.101900 + 0.519411I$ $a = 0.959687 + 0.178430I$ $b = -0.812555 - 0.099238I$	$1.97019 + 1.67857I$	0
$u = -1.101900 - 0.519411I$ $a = 0.959687 - 0.178430I$ $b = -0.812555 + 0.099238I$	$1.97019 - 1.67857I$	0
$u = 1.205300 + 0.207889I$ $a = -1.031590 + 0.049162I$ $b = 0.703066 - 0.147767I$	$-4.55305 - 2.51214I$	0
$u = 1.205300 - 0.207889I$ $a = -1.031590 - 0.049162I$ $b = 0.703066 + 0.147767I$	$-4.55305 + 2.51214I$	0
$u = -0.931544 + 0.800142I$ $a = 0.795980 + 0.807318I$ $b = -0.528952 + 0.892872I$	$-2.47115 + 7.33485I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.931544 - 0.800142I$ $a = 0.795980 - 0.807318I$ $b = -0.528952 - 0.892872I$	$-2.47115 - 7.33485I$	0
$u = -0.539710 + 0.522535I$ $a = -2.20446 - 0.19474I$ $b = 0.386425 - 1.221160I$	$5.25248 - 3.42594I$	$-3.89028 + 2.22817I$
$u = -0.539710 - 0.522535I$ $a = -2.20446 + 0.19474I$ $b = 0.386425 + 1.221160I$	$5.25248 + 3.42594I$	$-3.89028 - 2.22817I$
$u = -1.138700 + 0.596407I$ $a = 1.054870 + 0.623315I$ $b = -0.511218 + 0.765398I$	$-6.72846 + 2.09817I$	0
$u = -1.138700 - 0.596407I$ $a = 1.054870 - 0.623315I$ $b = -0.511218 - 0.765398I$	$-6.72846 - 2.09817I$	0
$u = 1.191760 + 0.514634I$ $a = -0.940468 + 0.144170I$ $b = 0.817305 - 0.125028I$	$1.19431 - 7.52211I$	0
$u = 1.191760 - 0.514634I$ $a = -0.940468 - 0.144170I$ $b = 0.817305 + 0.125028I$	$1.19431 + 7.52211I$	0
$u = 1.187310 + 0.528355I$ $a = 0.012010 - 0.274266I$ $b = -0.541549 + 0.582168I$	$-3.33212 - 3.00440I$	0
$u = 1.187310 - 0.528355I$ $a = 0.012010 + 0.274266I$ $b = -0.541549 - 0.582168I$	$-3.33212 + 3.00440I$	0
$u = 1.315410 + 0.197168I$ $a = -1.112060 + 0.162330I$ $b = 0.510838 + 0.446804I$	$-2.91461 - 1.90476I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.315410 - 0.197168I$ $a = -1.112060 - 0.162330I$ $b = 0.510838 - 0.446804I$	$-2.91461 + 1.90476I$	0
$u = -1.262910 + 0.569858I$ $a = -1.279310 + 0.022571I$ $b = 0.491471 - 1.162520I$	$-1.63653 + 7.02473I$	0
$u = -1.262910 - 0.569858I$ $a = -1.279310 - 0.022571I$ $b = 0.491471 + 1.162520I$	$-1.63653 - 7.02473I$	0
$u = -1.337050 + 0.368711I$ $a = 1.090190 + 0.311119I$ $b = -0.541549 + 0.582168I$	$-3.33212 - 3.00440I$	0
$u = -1.337050 - 0.368711I$ $a = 1.090190 - 0.311119I$ $b = -0.541549 - 0.582168I$	$-3.33212 + 3.00440I$	0
$u = -0.200762 + 0.571555I$ $a = 0.028580 + 0.953330I$ $b = 0.703066 + 0.147767I$	$-4.55305 + 2.51214I$	$-14.0397 - 3.8785I$
$u = -0.200762 - 0.571555I$ $a = 0.028580 - 0.953330I$ $b = 0.703066 - 0.147767I$	$-4.55305 - 2.51214I$	$-14.0397 + 3.8785I$
$u = 1.39235 + 0.32069I$ $a = 0.337466 - 0.509570I$ $b = -0.511218 + 0.765398I$	$-6.72846 + 2.09817I$	0
$u = 1.39235 - 0.32069I$ $a = 0.337466 + 0.509570I$ $b = -0.511218 - 0.765398I$	$-6.72846 - 2.09817I$	0
$u = -1.42930 + 0.06709I$ $a = -0.754539 - 0.588624I$ $b = 0.475306 + 0.917107I$	$-1.67002 - 2.07827I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.42930-0.06709I$ $a=-0.754539+0.588624I$ $b=\ \ 0.475306-0.917107I$	$-1.67002+2.07827I$	0
$u=\ \ 1.21033+0.76716I$ $a=\ \ 1.289950-0.141681I$ $b=-0.498606-1.204550I$	$5.23403-6.46046I$	0
$u=\ \ 1.21033-0.76716I$ $a=\ \ 1.289950+0.141681I$ $b=-0.498606+1.204550I$	$5.23403+6.46046I$	0
$u=-1.26708+0.77421I$ $a=-1.247750-0.134733I$ $b=\ \ 0.509525-1.201690I$	$4.37931+12.37660I$	0
$u=-1.26708-0.77421I$ $a=-1.247750+0.134733I$ $b=\ \ 0.509525+1.201690I$	$4.37931-12.37660I$	0
$u=-0.083030+0.485962I$ $a=\ \ 0.907222-0.069478I$ $b=\ \ 0.407102+1.144230I$	$-1.01725-1.14078I$	$-8.93962-0.35223I$
$u=-0.083030-0.485962I$ $a=\ \ 0.907222+0.069478I$ $b=\ \ 0.407102-1.144230I$	$-1.01725+1.14078I$	$-8.93962+0.35223I$
$u=\ \ 1.51967+0.13036I$ $a=\ \ 0.649262-0.463270I$ $b=-0.528952+0.892872I$	$-2.47115+7.33485I$	0
$u=\ \ 1.51967-0.13036I$ $a=\ \ 0.649262+0.463270I$ $b=-0.528952-0.892872I$	$-2.47115-7.33485I$	0
$u=-0.183629$ $a=\ \ 4.07848$ $b=-0.714433$	-1.48735	-6.22320

III.

$\boldsymbol{I^u_3 = \langle 300a^3+95a^2+2260b+654a-1651,\ 25a^4-40a^3-98a^2+64a+197,\ u+1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} a \\ -0.132743a^3 - 0.0420354a^2 - 0.289381a + 0.730531 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.254425a^3 - 0.190265a^2 - 1.07035a - 0.0460177 \\ -0.0221239a^3 + 0.201327a^2 + 0.201770a - 0.919912 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.132743a^3 - 0.0420354a^2 + 0.710619a + 0.730531 \\ -0.132743a^3 - 0.0420354a^2 - 0.289381a + 0.730531 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0221239a^3 - 0.201327a^2 - 0.201770a + 0.919912 \\ 0.276549a^3 + 0.608407a^2 - 1.27212a - 1.12611 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.254425a^3 - 0.809735a^2 + 1.07035a + 2.04602 \\ 0.276549a^3 + 0.608407a^2 - 1.27212a - 1.12611 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.121681a^3 - 0.232301a^2 - 0.359735a + 0.684513 \\ -0.154867a^3 + 0.159292a^2 - 0.0876106a - 0.189381 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.132743a^3 + 0.0420354a^2 - 0.710619a - 0.730531 \\ 0.132743a^3 + 0.0420354a^2 + 0.289381a - 0.730531 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.265487a^3 - 0.0840708a^2 + 1.42124a + 0.461062 \\ 0.652655a^3 - 0.314159a^2 - 1.70221a - 0.987611 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{125}{113}a^3 + \frac{275}{113}a^2 - \frac{575}{113}a - \frac{2769}{113}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^2 - 2u + 2)^2$
c_2, c_8	$u^4 + 2u^2 + 2$
c_3, c_9	$(u - 1)^4$
c_4, c_{10}	$25(25u^4 - 40u^3 + 12u^2 + 4u + 1)$
c_5, c_{11}	$(u + 1)^4$
c_6, c_{12}	$u^4 - 2u^2 + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^2+4)^2$
c_2, c_8	$(y^2+2y+2)^2$
c_3, c_5, c_9 c_{11}	$(y-1)^4$
c_4, c_{10}	$625(625y^4-1000y^3+514y^2+8y+1)$
c_6, c_{12}	$(y^2-2y+2)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=-1.229180+0.617389I$ $b=1.098680-0.455090I$	$-5.75727+3.66386I$	$-16.0000-4.0000I$
$u=-1.00000$ $a=-1.229180-0.617389I$ $b=1.098680+0.455090I$	$-5.75727-3.66386I$	$-16.0000+4.0000I$
$u=-1.00000$ $a=2.02918+0.21739I$ $b=-1.098680-0.455090I$	$-5.75727-3.66386I$	$-16.0000+4.0000I$
$u=-1.00000$ $a=2.02918-0.21739I$ $b=-1.098680+0.455090I$	$-5.75727+3.66386I$	$-16.0000-4.0000I$

IV. $\boldsymbol{I_4^u = \langle b+u,\ 8a^3+12a^2u-4a^2-4au-2a+u,\ u^2+1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} a \\ -u \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} u \\ 2u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} a-u \\ -u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -au \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} au-1 \\ 4au-3 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 2a^2+au+1 \\ -2au+3 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2a^2u+2a^2+2au+3a+\frac{1}{2}u \\ -4a^2u+8a+2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16a^2-16au+8a+4u-4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^3 - u^2 + 2u - 1)^2$
c_2, c_8	$u^6 + u^4 + 2u^2 + 1$
c_3, c_5, c_6 c_9, c_{11}, c_{12}	$(u^2 + 1)^3$
c_4, c_{10}	$64(64u^6 + 64u^5 + 128u^4 + 80u^3 + 44u^2 + 8u + 1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^3 + 3y^2 + 2y - 1)^2$
c_2, c_8	$(y^3 + y^2 + 2y + 1)^2$
c_3, c_5, c_6 c_9, c_{11}, c_{12}	$(y + 1)^6$
c_4, c_{10}	$4096(4096y^6 + 12288y^5 + 11776y^4 + 3968y^3 + 912y^2 + 24y + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u		$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.000000I$		
$a=$	$0.107540-1.153570I$	$6.31400+2.82812I$	$-0.49024-2.97945I$
$b=$	$-1.000000I$		
$u=$	$1.000000I$		
$a=$	$0.284920-0.500000I$	2.17641	$-7.01951+0.I$
$b=$	$-1.000000I$		
$u=$	$1.000000I$		
$a=$	$0.107540+0.153571I$	$6.31400-2.82812I$	$-0.49024+2.97945I$
$b=$	$-1.000000I$		
$u=$	$-1.000000I$		
$a=$	$0.107540+1.153570I$	$6.31400-2.82812I$	$-0.49024+2.97945I$
$b=$	$1.000000I$		
$u=$	$-1.000000I$		
$a=$	$0.284920+0.500000I$	2.17641	$-7.01951+0.I$
$b=$	$1.000000I$		
$u=$	$-1.000000I$		
$a=$	$0.107540-0.153571I$	$6.31400+2.82812I$	$-0.49024-2.97945I$
$b=$	$1.000000I$		

V. $I_5^u = \langle -a^2 + 8b + 2a + 3,\ a^3 + 3a^2 + 3a + 1,\ u - 1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ \frac{1}{8}a^2 - \frac{1}{4}a - \frac{3}{8} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{3}{8}a^2 + \frac{3}{4}a + \frac{9}{8} \\ \frac{3}{8}a^2 + \frac{1}{4}a - \frac{9}{8} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{8}a^2 + \frac{3}{4}a - \frac{3}{8} \\ \frac{1}{8}a^2 - \frac{1}{4}a - \frac{3}{8} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{3}{8}a^2 - \frac{1}{4}a + \frac{9}{8} \\ \frac{1}{4}a^2 + \frac{1}{2}a + \frac{1}{4} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{5}{8}a^2 - \frac{3}{4}a + \frac{7}{8} \\ \frac{1}{4}a^2 + \frac{1}{2}a + \frac{1}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}a^2 - \frac{3}{2} \\ -\frac{1}{4}a^2 - \frac{1}{2}a + \frac{3}{4} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{1}{8}a^2 + \frac{3}{4}a - \frac{3}{8} \\ \frac{1}{8}a^2 - \frac{1}{4}a - \frac{3}{8} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{4}a^2 + \frac{3}{2}a + \frac{1}{4} \\ \frac{1}{8}a^2 - \frac{1}{4}a - \frac{3}{8} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= a^2 + 2a - 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000
$u = 1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000
$u = 1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^3(u^2-2u+2)^2(u^3-u^2+2u-1)^2(u^{35}+11u^{34}+\cdots-2u-1)^2$ $\cdot(u^{49}+17u^{48}+\cdots-236u-100)$
c_2, c_8	$u^3(u^4+2u^2+2)(u^6+u^4+2u^2+1)(u^{35}+u^{34}+\cdots+2u+1)^2$ $\cdot(u^{49}-3u^{48}+\cdots+22u+10)$
c_3, c_9	$((u-1)^4)(u+1)^3(u^2+1)^3(u^{49}+u^{48}+\cdots+8u+1)$ $\cdot(u^{70}+u^{69}+\cdots+434u+53)$
c_4, c_{10}	$102400(u+1)^3(25u^4-40u^3+12u^2+4u+1)$ $\cdot(64u^6+64u^5+128u^4+80u^3+44u^2+8u+1)$ $\cdot(64u^{49}-128u^{48}+\cdots+20u+1)(u^{70}+19u^{69}+\cdots+60600u-5375)$
c_5, c_{11}	$((u-1)^3)(u+1)^4(u^2+1)^3(u^{49}+u^{48}+\cdots+8u+1)$ $\cdot(u^{70}+u^{69}+\cdots+434u+53)$
c_6, c_{12}	$u^3(u^2+1)^3(u^4-2u^2+2)(u^{35}-u^{34}+\cdots-2u+1)^2$ $\cdot(u^{49}+3u^{48}+\cdots+186u+50)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^3(y^2+4)^2(y^3+3y^2+2y-1)^2(y^{35}+27y^{34}+\cdots-22y-1)^2$ $\cdot(y^{49}+33y^{48}+\cdots-115504y-10000)$
c_2, c_8	$y^3(y^2+2y+2)^2(y^3+y^2+2y+1)^2(y^{35}+11y^{34}+\cdots-2y-1)^2$ $\cdot(y^{49}+17y^{48}+\cdots-236y-100)$
c_3, c_5, c_9 c_{11}	$((y-1)^7)(y+1)^6(y^{49}-15y^{48}+\cdots-16y-1)$ $\cdot(y^{70}-41y^{69}+\cdots-86596y+2809)$
c_4, c_{10}	$10485760000(y-1)^3(625y^4-1000y^3+514y^2+8y+1)$ $\cdot(4096y^6+12288y^5+11776y^4+3968y^3+912y^2+24y+1)$ $\cdot(4096y^{49}+73728y^{48}+\cdots-62y-1)$ $\cdot(y^{70}-21y^{69}+\cdots-1096015000y+28890625)$
c_6, c_{12}	$y^3(y+1)^6(y^2-2y+2)^2(y^{35}+19y^{34}+\cdots-2y-1)^2$ $\cdot(y^{49}+21y^{48}+\cdots-112004y-2500)$