

Pensieve header: To be run after executing JExperiments-Program.nb.

Testing tm

Testing_tm

```
{u = <"u">, v = <"v">, w = <"w">};
t1 = M[{
  x → MakeLieSeries[u + v + w],
  y → MakeLieSeries[b[u, v] + b[v, w]]
}, MakeCWSeries[CW["uvw"]]]
],
t1 // tm[u, v, u],
t2 = t1 // tm[u, v, u] // tm[u, w, u],
t3 = t1 // tm[v, w, v] // tm[u, v, u],
t2 ≡ t3
} // ColumnForm
```

Testing_tm

```
M[{x → LS[u + v + w, 0, 0], y → LS[0,  $\overline{uv} + \overline{vw}$ , 0]}, CWS[0, 0, CW[uvw]]]
M[{x → LS[2u + w, 0, 0], y → LS[0,  $\overline{uw}$ , 0]}, CWS[0, 0, CW[uuw]]]
M[{x → LS[3u, 0, 0], y → LS[0, 0, 0]}, CWS[0, 0, CW[uuu]]]
M[{x → LS[3u, 0, 0], y → LS[0, 0, 0]}, CWS[0, 0, CW[uuu]]]
True
```

Testing hm

Testing_hm

```
{t1 = R+[u, x] ∪ R+[v, y] ∪ R+[w, z],
t1 // hm[x, y, x],
t2 = t1 // hm[x, y, x] // hm[x, z, x],
t1 // hm[y, z, y],
t3 = t1 // hm[y, z, y] // hm[x, y, x],
t2 ≡ t3
} // ColumnForm
```

Testing_hm

```
M[{x → LS[u, 0, 0], y → LS[v, 0, 0], z → LS[w, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0], <w> → LS[0, 0, 0]}]
M[{x → LS[u + v,  $\frac{\overline{uv}}{2}$ ,  $\frac{1}{12} \overline{uuv} + \frac{1}{12} \overline{uvw}$ ], z → LS[w, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0]}]
M[{x → LS[u + v + w,  $\frac{\overline{uv}}{2} + \frac{\overline{uw}}{2} + \frac{\overline{vw}}{2}$ ,  $\frac{1}{12} \overline{uuv} + \frac{1}{12} \overline{uuv} + \frac{1}{3} \overline{uvw} + \frac{1}{12} \overline{vuv} + \frac{1}{12} \overline{uvw} + \frac{1}{6} \overline{uvw} + \frac{1}{12} \overline{u}$ ]}]
M[{x → LS[u, 0, 0], y → LS[v + w,  $\frac{\overline{vw}}{2}$ ,  $\frac{1}{12} \overline{vuv} + \frac{1}{12} \overline{vuw}$ ], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0]}]
M[{x → LS[u + v + w,  $\frac{\overline{uv}}{2} + \frac{\overline{uw}}{2} + \frac{\overline{vw}}{2}$ ,  $\frac{1}{12} \overline{uuv} + \frac{1}{12} \overline{uuv} + \frac{1}{3} \overline{uvw} + \frac{1}{12} \overline{vuv} + \frac{1}{12} \overline{uvw} + \frac{1}{6} \overline{uvw} + \frac{1}{12} \overline{u}$ ]}]
True
```

Testing C and RC

```

$SeriesShowDegree = 6;
{{u = <"u">, w = <"w">},
  λ0 = MakeLieSeries[u + <"uw">],
  t1 = MakeLieSeries[<"uv">],
  t2 = t1 // LieMorphism[u → Ad[-λ0][u]],
  t3 = t2 // RC[u, λ0],
  t1 ≡ t3
} // ColumnForm

{<u>, <w>}
LS[u,  $\overline{uw}$ , 0, 0, 0, 0]
LS[0,  $\overline{uv}$ , 0, 0, 0, 0]

LS[0,  $\overline{uv}$ , 0,  $\overline{u\overline{uwv}} + \overline{uv\overline{uw}}$ ,  $-\frac{1}{2} \overline{uu\overline{uwv}} - \frac{1}{2} \overline{u\overline{uvuw}} + \frac{1}{2} \overline{u\overline{uw}uv}$ ,  $\frac{1}{6} \overline{uuu\overline{uwv}} + \frac{1}{6} \overline{uu\overline{uvuw}} + \frac{1}{2} \overline{u\overline{uw}uv}$ ]
LS[0,  $\overline{uv}$ , 0, 0, 0, 0]
True

```

Testing the RC “composition property”

```

$SeriesShowDegree = 4;
{{u = <"u">, v = <"v">, w = <"w">},
  λ = MakeLieSeries[u],
  λx = MakeLieSeries[v],
  λy = MakeLieSeries[w],
  BCH[λx, λy],
  t1 = λ // RC[u, BCH[λx, λy]],
  t2 = λ // RC[u, λx] // RC[u, λy // RC[u, λx]],
  t1 ≡ t2
} // ColumnForm

{<u>, <v>, <w>}
LS[u, 0, 0, 0]
LS[v, 0, 0, 0]
LS[w, 0, 0, 0]

LS[v + w,  $\frac{\overline{vw}}{2}$ ,  $\frac{1}{12} \overline{v\overline{vw}} + \frac{1}{12} \overline{v\overline{wv}}$ ,  $\frac{1}{24} \overline{v\overline{vwv}}$ ]

LS[u,  $-\overline{uv} - \overline{uw}$ ,  $\frac{1}{2} \overline{u\overline{v}} + \overline{uwv} + \frac{1}{2} \overline{u\overline{w}}$ ,  $-\frac{1}{6} \overline{u\overline{v}v} - \frac{1}{2} \overline{u\overline{w}v} - \frac{1}{2} \overline{u\overline{w}w} - \frac{1}{6} \overline{u\overline{w}w}$ ]

LS[u,  $-\overline{uv} - \overline{uw}$ ,  $\frac{1}{2} \overline{u\overline{v}} + \overline{uwv} + \frac{1}{2} \overline{u\overline{w}}$ ,  $-\frac{1}{6} \overline{u\overline{v}v} - \frac{1}{2} \overline{u\overline{w}v} - \frac{1}{2} \overline{u\overline{w}w} - \frac{1}{6} \overline{u\overline{w}w}$ ]
True

```

```

$SeriesShowDegree = 4;
$SeriesCompareDegree = 6;
{{u = <"u">, v = <"v">, w = <"w">},
  λ = MakeLieSeries[u],
  λx = MakeLieSeries[v + b[u, v] + b[u, b[u, v]]],
  λy = MakeLieSeries[w + b[u, b[v, w]]],
  BCH[λx, λy],
  t1 = λ // RC[u, BCH[λx, λy]],
  t2 = λ // RC[u, λx] // RC[u, λy // RC[u, λx]],
  t1 ≡ t2
} // ColumnForm

{<u>, <v>, <w>}
LS[u, 0, 0, 0]
LS[v,  $\overline{uv}$ ,  $\overline{u\overline{uv}}$ , 0]
LS[w, 0,  $\overline{v\overline{w}}$ , 0]
LS[v + w,  $\overline{uv} + \frac{\overline{vw}}{2}$ ,  $\overline{u\overline{uv}} + \frac{3}{2}\overline{u\overline{vw}} + \frac{1}{12}\overline{v\overline{vw}} + \frac{1}{2}\overline{u\overline{vw}} + \frac{1}{12}\overline{v\overline{ww}}$ ,  $\frac{1}{2}\overline{u\overline{u\overline{vw}}} + \frac{1}{12}\overline{u\overline{v\overline{vw}}} + \frac{1}{2}\overline{u\overline{u\overline{vw}}} +$ 
LS[u,  $-\overline{uv} - \overline{uw}$ ,  $-\overline{u\overline{uv}} + \frac{1}{2}\overline{u\overline{uv}} + \overline{u\overline{vw}} + \frac{1}{2}\overline{u\overline{ww}}$ ,  $-\overline{u\overline{u\overline{uv}}} - \overline{u\overline{u\overline{vw}}} + \frac{3}{2}\overline{u\overline{u\overline{uv}}} + \overline{u\overline{u\overline{vw}}} - \overline{u\overline{v\overline{uw}}} -$ 
LS[u,  $-\overline{uv} - \overline{uw}$ ,  $-\overline{u\overline{uv}} + \frac{1}{2}\overline{u\overline{uv}} + \overline{u\overline{vw}} + \frac{1}{2}\overline{u\overline{ww}}$ ,  $-\overline{u\overline{u\overline{uv}}} - \overline{u\overline{u\overline{vw}}} + \frac{3}{2}\overline{u\overline{u\overline{uv}}} + \overline{u\overline{u\overline{vw}}} - \overline{u\overline{v\overline{uw}}} -$ 
True

```

Testing the Conjugation Relation

TestingConjugationRelation

```

$SeriesShowDegree = 3;
{
  t1 = R+[u, x] UR+[v, y] UR+[w, z],
  t2 = t1 // tm[v, w, v],
  t3 = t2 // hm[x, y, x],
  t4 = t3 // tha[u, z],
  t5 = R+[v, x] UR+[w, z] UR+[u, y],
  t6 = t5 // tm[v, w, v],
  t7 = t6 // hm[x, y, x],
  t7 ≡ t4
} // ColumnForm

```

TestingConjugationRelation

```

M[{x → LS[u, 0, 0], y → LS[v, 0, 0], z → LS[w, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0], <w> → LS[0, 0, 0]},
M[{x → LS[u, 0, 0], y → LS[v, 0, 0], z → LS[v, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0], <w> → LS[0, 0, 0]},
M[{x → LS[u + v,  $\frac{\overline{uv}}{2}$ ,  $\frac{1}{12}\overline{u\overline{uv}} + \frac{1}{12}\overline{u\overline{vw}}$ ], z → LS[v, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0]},
M[{x → LS[u + v,  $-\frac{\overline{uv}}{2}$ ,  $\frac{1}{12}\overline{u\overline{uv}} + \frac{1}{12}\overline{u\overline{vw}}$ ], z → LS[v, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0]},
M[{x → LS[v, 0, 0], y → LS[u, 0, 0], z → LS[w, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0], <w> → LS[0, 0, 0]},
M[{x → LS[v, 0, 0], y → LS[u, 0, 0], z → LS[v, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0], <w> → LS[0, 0, 0]},
M[{x → LS[u + v,  $-\frac{\overline{uv}}{2}$ ,  $\frac{1}{12}\overline{u\overline{uv}} + \frac{1}{12}\overline{u\overline{vw}}$ ], z → LS[v, 0, 0], <u> → LS[0, 0, 0], <v> → LS[0, 0, 0]},
True

```

Testing JA

```

$SeriesShowDegree = 3;
$SeriesCompareDegree = 6;
{
  {u = <"u">, v = <"v">, λ0 = MakeLieSeries[u + v + b[u, v]]},
  t1 = JA[u, (s + ε) λ0],
  t2 = JA[u, s λ0] // RC[u, ε λ0 // RC[u, s λ0]],
  t3 = JA[u, ε λ0 // RC[u, s λ0]],
  t1 ≡ t2 + t3
} // ColumnForm
{<u>, <v>, LS[u + v,  $\overline{u\overline{v}}$ , 0]}
CWS[s CW[u] + ε CW[u], -s CW[uv] +  $\frac{1}{2}$  s2 CW[uv] - ε CW[uv] + s ε CW[uv] +  $\frac{1}{2}$  ε2 CW[uv],  $\frac{1}{2}$  s2 CW[uuv]
CWS[s CW[u], -s CW[uv] +  $\frac{1}{2}$  s2 CW[uv],  $\frac{1}{2}$  s2 CW[uuv] -  $\frac{1}{6}$  s3 CW[uuv] -  $\frac{1}{2}$  s2 CW[uvv] +  $\frac{1}{6}$  s3 CW[uvv]
CWS[ε CW[u], -ε CW[uv] + s ε CW[uv] +  $\frac{1}{2}$  ε2 CW[uv], s ε CW[uuv] -  $\frac{1}{2}$  s2 ε CW[uuv] +  $\frac{1}{2}$  ε2 CW[uuv] -
True

```

Testing J

```

$SeriesShowDegree = 6;
{{u = <"u">, v = <"v">, w = <"w">},
 λx = MakeLieSeries[v + b[u, v] + b[u, b[u, v]]],
 div[u, λ // RC[u, s λx]] // LieMorphism[u → Ad[-s λx][u]]
}
{ {<u>, <v>, <w>}, LS[v,  $\overline{u\overline{v}}$ ,  $\overline{u\overline{u\overline{v}}}$ , 0, 0, 0], CWS[CW[u], s CW[uv],
s CW[uuv] +  $\frac{1}{2}$  s2 CW[uvv], s CW[uuvv] +  $\frac{1}{2}$  s2 CW[uuvv] + s2 CW[uvuv] +  $\frac{1}{6}$  s3 CW[uvvv],
 $\frac{1}{2}$  s2 CW[uuuvv] + 2 s2 CW[uuvuv] +  $\frac{1}{6}$  s3 CW[uuvvv] + s3 CW[uvuvv] +  $\frac{1}{24}$  s4 CW[uvvvv],
 $\frac{1}{2}$  s2 CW[uuuvuv] +  $\frac{1}{6}$  s3 CW[uuuvvv] +  $\frac{3}{2}$  s2 CW[uuvuuv] +
s3 CW[uuvuvv] +  $\frac{2}{3}$  s3 CW[uuvvuv] +  $\frac{1}{24}$  s4 CW[uuvvvv] +  $\frac{4}{3}$  s3 CW[uvuvuv] +
 $\frac{1}{3}$  s4 CW[uvuvvv] +  $\frac{1}{4}$  s4 CW[uvvuvv] +  $\frac{1}{120}$  s5 CW[uvvvvv]] } }

```

```

SeriesShowDegree = 6;
SeriesCompareDegree = 6;
{t = <"t">, u = <"u">, v = <"v">, w = <"w">, uvw = LieMorphism[u -> w, v -> w]},
  lambda = MakeLieSeries[v + b[u, v] + b[u, b[t, v]]],
  t1 = J[w, lambda // uvw] // RC[w, lambda // uvw],
  t2 = J[u, lambda] // RC[u, lambda] // RC[v, lambda // RC[u, lambda]] // uvw,
  t3 = J[v, lambda // RC[u, lambda]] // RC[v, lambda // RC[u, lambda]] // uvw,
  t1 == t2 + t3
} // ColumnForm

{<t>, <u>, <v>, <w>, LieMorphism[LieMorphism$77999]}
LS[v, u v, -t v u, 0, 0, 0]
CWS[CW[w], 0, CW[t w], -frac{CW[t w w]}{2}, frac{CW[t w w w]}{6}, frac{CW[t t w w w]}{2} - CW[t w t w w] - frac{CW[t w w w w]}{24}]
CWS[0, -CW[w w], -frac{CW[w w w]}{2}, -frac{2 CW[w w w w]}{3}, -frac{13 CW[w w w w w]}{24}, frac{CW[t t w w w]}{2} - CW[t w t w w] + frac{CW[t w t w t w]}{2} - frac{19 CW[w w w w]}{30}]
CWS[CW[w], CW[w w], CW[t w] + frac{CW[w w w]}{2}, -frac{CW[t w w]}{2} + frac{2 CW[w w w]}{3}, frac{CW[t w w w]}{6} + frac{13 CW[w w w w]}{24}, -frac{CW[t w t w]}{2} - frac{C]}
True

```

```

SeriesShowDegree = 3;
SeriesCompareDegree = 6;
{u = <"u">, v = <"v">, w = <"w">},
  lambda = MakeLieSeries[v + b[u, v] + b[u, b[u, v]]],
  lambda_y = MakeLieSeries[w + b[u, b[v, w]]],
  t1 = J[u, BCH[lambda, lambda_y]] // RC[u, lambda],
  t2 = J[u, lambda] // RC[u, lambda],
  t3 = J[u, lambda_y // RC[u, lambda]],
  t1 == t2 + t3
} // ColumnForm

{<u>, <v>, <w>}
LS[v, u v, u u v]
LS[w, 0, u v w]
CWS[0, -CW[u v], -CW[u u v] - frac{CW[u v v]}{2} - CW[u v w] + CW[u w v]]
CWS[0, -CW[u v], -CW[u u v] - frac{CW[u v v]}{2}]
CWS[0, 0, -CW[u v w] + CW[u w v]]
True

```

Testing the relationship between J and JA

```

SeriesShowDegree = 3;
SeriesCompareDegree = 7;
{{u = <"u">, v = <"v">},
  λ0 = MakeLieSeries[v + b[u, v] + b[u, b[u, v]]],
  t1 = J[u, λ0],
  t2 = JA[u, λ0] // LieMorphism[u → Ad[-λ0][u]],
  t1 == t2
} // ColumnForm

{<u>, <v>}
LS[v, u v, u u v]
CWS[0, -CW[uv], -CW[uuv] -  $\frac{CW[uvv]}{2}$ ]
CWS[0, -CW[uv], -CW[uuv] -  $\frac{CW[uvv]}{2}$ ]
True

```

Computing 8₁₇.

```

μ0 = R-[12, 1] ∪ R-[2, 7] ∪ R-[8, 3] ∪
  R-[4, 11] ∪ R+[16, 5] ∪ R+[6, 13] ∪ R+[14, 9] ∪ R+[10, 15]
M[{1 → LS[-b, 0, 0], 2 → LS[0, 0, 0], 3 → LS[-8, 0, 0], 4 → LS[0, 0, 0],
  5 → LS[f, 0, 0], 6 → LS[0, 0, 0], 7 → LS[-2, 0, 0], 8 → LS[0, 0, 0], 9 → LS[d, 0, 0],
  10 → LS[0, 0, 0], 11 → LS[-4, 0, 0], 12 → LS[0, 0, 0], 13 → LS[6, 0, 0],
  14 → LS[0, 0, 0], 15 → LS[0, 0, 0], 16 → LS[0, 0, 0]}, CWS[0, 0, 0]]

μ0 // dm[1, 2, 1]
M[{1 → LS[-b, 0, 0], 3 → LS[-8, 0, 0], 4 → LS[0, 0, 0], 5 → LS[f, 0, 0],
  6 → LS[0, 0, 0], 7 → LS[-1, 0, 0], 8 → LS[0, 0, 0], 9 → LS[d, 0, 0],
  10 → LS[0, 0, 0], 11 → LS[-4, 0, 0], 12 → LS[0, 0, 0], 13 → LS[6, 0, 0],
  14 → LS[0, 0, 0], 15 → LS[0, 0, 0], 16 → LS[0, 0, 0]}, CWS[0, 0, 0]]

{
  μ0 = R-[12, 1] ∪ R-[2, 7] ∪ R-[8, 3] ∪
    R-[4, 11] ∪ R+[16, 5] ∪ R+[6, 13] ∪ R+[14, 9] ∪ R+[10, 15],
  Do[μ0 = μ0 // dm[1, k, 1], {k, 2, 16}]; μ0
} // ColumnForm

M[{1 → LS[-b, 0, 0], 2 → LS[0, 0, 0], 3 → LS[-8, 0, 0], 4 → LS[0, 0, 0], 5 → LS[f, 0, 0], 6 →
M[{1 → LS[0, 0, 0]}, CWS[0, -CW[11], 0]]

μ0[[2]][{6}]
CWS[0, -CW[11], 0, - $\frac{31 CW[1111]}{12}$ , 0, - $\frac{1351 CW[111111]}{360}$ ]

```

```
Print /@ {β = -  $\frac{1 - 4 X + 8 X^2 - 11 X^3 + 8 X^4 - 4 X^5 + X^6}{X^3}$  /. X → ex,
  Series[β, {x, 0, 8}],
  Series[Log[β], {x, 0, 9}]
};
-e-3x (1 - 4 ex + 8 e2x - 11 e3x + 8 e4x - 4 e5x + e6x)
1 - x2 -  $\frac{25 x^4}{12}$  -  $\frac{481 x^6}{360}$  -  $\frac{1109 x^8}{4032}$  + O[x]9
-x2 -  $\frac{31 x^4}{12}$  -  $\frac{1351 x^6}{360}$  -  $\frac{123271 x^8}{20160}$  + O[x]10
```

The Borromean Link

```
(* {r=<r>, g=<g>, b=<b>}; *)
μ0 = R-[r, 6] ∪ R+[2, 4] ∪ R-[g, 9] ∪ R+[5, 7] ∪ R-[b, 3] ∪ R+[8, 1]
M[{1 → LS[8, 0, 0], 2 → LS[0, 0, 0], 3 → LS[-b, 0, 0], 4 → LS[2, 0, 0],
  5 → LS[0, 0, 0], 6 → LS[-r, 0, 0], 7 → LS[5, 0, 0], 8 → LS[0, 0, 0],
  9 → LS[-g, 0, 0], b → LS[0, 0, 0], g → LS[0, 0, 0], r → LS[0, 0, 0]}, CWS[0, 0, 0]]
```

```
(1 /. μ0[[1]])[1] // FullForm
LW["8"]
```

```
μ0 // dm[r, 1, r]
M[{2 → LS[0, 0, 0], 3 → LS[-b, 0, 0], 4 → LS[2, 0, 0], 5 → LS[0, 0, 0],
  6 → LS[-r, - $\overline{8r}$ , - $\frac{1}{2} \overline{88r}$ ], 7 → LS[5, 0, 0], 8 → LS[0, 0, 0], 9 → LS[-g, 0, 0],
  b → LS[0, 0, 0], g → LS[0, 0, 0], r → LS[8, 0, 0]}, CWS[0, 0, 0]]
```

```
Do[μ0 = μ0 // dm[r, k, r], {k, 1, 3}];
Do[μ0 = μ0 // dm[g, k, g], {k, 4, 6}];
Do[μ0 = μ0 // dm[b, k, b], {k, 7, 9}];
μ0
```

```
M[{b → LS[0,  $\overline{gr}$ ,  $\frac{1}{2} \overline{ggr} + \overline{brg} + \frac{1}{2} \overline{grr}$ ], g → LS[0, - $\overline{br}$ ,  $\frac{1}{2} \overline{bbr} - \overline{bgr} - \overline{brg} + \frac{1}{2} \overline{brr}$ ],
  r → LS[0,  $\overline{bg}$ ,  $\frac{1}{2} \overline{bbg} + \overline{bgr} + \frac{1}{2} \overline{bgg}$ ]}, CWS[0, 0, 2 CW[bgr]]]
```

```
μ1 = Sort /@ ((LieMorphism[<r> → <g>, <g> → <b>, <b> → <r>] /@ μ0) /.
  Thread[{r, g, b} → {g, b, r}])
```

```
M[{b → LS[0,  $\overline{gr}$ ,  $\frac{1}{2} \overline{ggr} + \overline{brg} + \frac{1}{2} \overline{grr}$ ], g → LS[0, - $\overline{br}$ ,  $\frac{1}{2} \overline{bbr} - \overline{bgr} - \overline{brg} + \frac{1}{2} \overline{brr}$ ],
  r → LS[0,  $\overline{bg}$ ,  $\frac{1}{2} \overline{bbg} + \overline{bgr} + \frac{1}{2} \overline{bgg}$ ]}, CWS[0, 0, 2 CW[bgr]]]
```

$\mu_2 = \text{Sort} /@ ((\text{LieMorphism}[\langle r \rangle \rightarrow \langle g \rangle, \langle g \rangle \rightarrow \langle r \rangle] /@ \mu_0) /. \text{Thread}[\{r, g\} \rightarrow \{g, r\}])$

$$M\left[\left\{b \rightarrow \text{LS}\left[0, -\overline{gr}, \overline{bgr} + \frac{1}{2}\overline{ggr} + \overline{brg} + \frac{1}{2}\overline{grr}, g \rightarrow \text{LS}\left[0, \overline{br}, \frac{1}{2}\overline{bbr} - \overline{bgr} + \frac{1}{2}\overline{brr}\right],\right.\right.$$

$$\left.\left.r \rightarrow \text{LS}\left[0, -\overline{bg}, \frac{1}{2}\overline{bbg} + \frac{1}{2}\overline{bgg} - \overline{brg}\right]\right\}, \text{CWS}[0, 0, 2 \text{CW}[\text{brg}]]\right]$$

$\$SeriesShowDegree = 4; \mu_0$

$$M\left[\left\{b \rightarrow \text{LS}\left[0, \overline{gr}, \frac{1}{2}\overline{ggr} + \overline{brg} + \frac{1}{2}\overline{grr},\right.\right.$$

$$\left.\left.-\frac{1}{2}\overline{bbrg} + \frac{1}{6}\overline{ggr} + \frac{1}{4}\overline{grr} - \frac{1}{2}\overline{bgbr} - \frac{1}{2}\overline{brgg} - \frac{1}{2}\overline{brrg} + \frac{1}{6}\overline{grrr}\right], g \rightarrow\right.$$

$$\left.\text{LS}\left[0, -\overline{br}, \frac{1}{2}\overline{bbr} - \overline{bgr} - \overline{brg} + \frac{1}{2}\overline{brr}, -\frac{1}{6}\overline{bbbr} - \frac{1}{2}\overline{bbgr} - \frac{1}{2}\overline{bggr} - \frac{1}{2}\overline{bbrg} -\right.\right.$$

$$\left.\frac{1}{4}\overline{brrr} + \frac{1}{2}\overline{bgr} + \frac{1}{2}\overline{bgbr} + \overline{brgr} - \overline{bgrg} - \frac{1}{2}\overline{brgg} + \frac{1}{2}\overline{brrg} - \frac{1}{6}\overline{brrr}\right],$$

$$r \rightarrow \text{LS}\left[0, \overline{bg}, \frac{1}{2}\overline{bbg} + \overline{bgr} + \frac{1}{2}\overline{bgg}, \frac{1}{6}\overline{bbbg} + \frac{1}{2}\overline{bbgr} +\right.$$

$$\left.\frac{1}{2}\overline{bggr} + \frac{1}{4}\overline{bbgg} + \frac{1}{2}\overline{bgr} + \frac{1}{6}\overline{bggg}\right]\right\},$$

$$\text{CWS}[0, 0, 2 \text{CW}[\text{bgr}], \text{CW}[\text{bbgr}] - \text{CW}[\text{bgbr}] + \text{CW}[\text{bggr}] - \text{CW}[\text{bgrg}] + \text{CW}[\text{bgrr}] - \text{CW}[\text{brgr}]]\right]$$

$\$SeriesShowDegree = 4; \mu_1$

$$M\left[\left\{b \rightarrow \text{LS}\left[0, \overline{gr}, \frac{1}{2}\overline{ggr} + \overline{brg} + \frac{1}{2}\overline{grr},\right.\right.$$

$$\left.\left.-\frac{1}{2}\overline{bbrg} + \frac{1}{6}\overline{ggr} + \frac{1}{4}\overline{grr} - \frac{1}{2}\overline{bgbr} - \frac{1}{2}\overline{brgg} - \frac{1}{2}\overline{brrg} + \frac{1}{6}\overline{grrr}\right], g \rightarrow\right.$$

$$\left.\text{LS}\left[0, -\overline{br}, \frac{1}{2}\overline{bbr} - \overline{bgr} - \overline{brg} + \frac{1}{2}\overline{brr}, -\frac{1}{6}\overline{bbbr} - \frac{1}{2}\overline{bbgr} - \frac{1}{2}\overline{bggr} - \frac{1}{2}\overline{bbrg} -\right.\right.$$

$$\left.\frac{1}{4}\overline{brrr} + \frac{1}{2}\overline{bgr} + \frac{1}{2}\overline{bgbr} + \overline{brgr} - \overline{bgrg} - \frac{1}{2}\overline{brgg} + \frac{1}{2}\overline{brrg} - \frac{1}{6}\overline{brrr}\right],$$

$$r \rightarrow \text{LS}\left[0, \overline{bg}, \frac{1}{2}\overline{bbg} + \overline{bgr} + \frac{1}{2}\overline{bgg}, \frac{1}{6}\overline{bbbg} + \frac{1}{2}\overline{bbgr} +\right.$$

$$\left.\frac{1}{2}\overline{bggr} + \frac{1}{4}\overline{bbgg} + \frac{1}{2}\overline{bgr} + \frac{1}{6}\overline{bggg}\right]\right\},$$

$$\text{CWS}[0, 0, 2 \text{CW}[\text{bgr}], \text{CW}[\text{bbgr}] - \text{CW}[\text{bgbr}] + \text{CW}[\text{bggr}] - \text{CW}[\text{bgrg}] + \text{CW}[\text{bgrr}] - \text{CW}[\text{brgr}]]\right]$$

SeriesShowDegree = 4; μ_2

$$\begin{aligned}
 &M\left\{b \rightarrow \right. \\
 &\quad LS\left[0, -\overline{gr}, \overline{bgr} + \frac{1}{2}\overline{ggr} + \overline{brg} + \frac{1}{2}\overline{grr}, -\frac{1}{2}\overline{bbgr} - \frac{1}{2}\overline{bggr} - \frac{1}{2}\overline{bbrg} - \frac{1}{2}\overline{bgrr} - \right. \\
 &\quad \left. \frac{1}{6}\overline{gggr} - \frac{1}{4}\overline{ggr} + \frac{1}{2}\overline{bgbr} - \overline{brgr} - \overline{bgr}g - \frac{1}{2}\overline{brgg} - \frac{1}{2}\overline{brrg} - \frac{1}{6}\overline{grrr}\right], \\
 &\quad g \rightarrow LS\left[0, \overline{br}, \frac{1}{2}\overline{bbr} - \overline{bgr} + \frac{1}{2}\overline{brr}, \frac{1}{6}\overline{bbbr} - \frac{1}{2}\overline{bbgr} + \frac{1}{2}\overline{bggr} + \right. \\
 &\quad \left. \frac{1}{4}\overline{bbr} + \frac{1}{2}\overline{bgr} + \frac{1}{6}\overline{brr}\right], r \rightarrow LS\left[0, -\overline{bg}, \frac{1}{2}\overline{bbg} + \frac{1}{2}\overline{bgg} - \overline{brg}, \right. \\
 &\quad \left. -\frac{1}{6}\overline{bbbg} - \frac{1}{4}\overline{bbgg} - \frac{1}{2}\overline{bbrg} - \frac{1}{2}\overline{bgbr} - \frac{1}{6}\overline{bggg} + \frac{1}{2}\overline{brgg} - \frac{1}{2}\overline{brrg}\right]\}, \\
 &\quad CWS[0, 0, 2 CW[brg], CW[bbrg] - CW[bgbr] - CW[bgrg] + CW[brgg] - CW[brgr] + CW[brrg]]
 \end{aligned}$$

SeriesShowDegree = 5; μ_0

$$\begin{aligned}
 &M\left\{b \rightarrow LS\left[0, \overline{gr}, \frac{1}{2}\overline{ggr} + \overline{brg} + \frac{1}{2}\overline{grr}, \right. \right. \\
 &\quad -\frac{1}{2}\overline{bbrg} + \frac{1}{6}\overline{gggr} + \frac{1}{4}\overline{ggr} - \frac{1}{2}\overline{bgbr} - \frac{1}{2}\overline{brgg} - \frac{1}{2}\overline{brrg} + \frac{1}{6}\overline{grrr}, \\
 &\quad \frac{1}{6}\overline{bbbrg} + \frac{1}{6}\overline{bbgbr} + \frac{1}{4}\overline{bbrgg} + \frac{1}{4}\overline{bbrrg} + \frac{1}{24}\overline{ggggr} + \\
 &\quad \frac{1}{12}\overline{gggr} + \frac{1}{12}\overline{ggr} + \frac{1}{2}\overline{bgbrg} + \frac{1}{4}\overline{bgbr} - \frac{3}{2}\overline{brggr} - \\
 &\quad \frac{1}{2}\overline{brbrg} - \frac{1}{6}\overline{bbrbg} - \overline{bgrgr} - 2\overline{bgr}g - \frac{1}{12}\overline{ggrgr} + \frac{1}{4}\overline{bggbr} - \\
 &\quad \left. \frac{9}{2}\overline{brgrg} + \frac{1}{6}\overline{brggg} - \frac{3}{4}\overline{brrgg} + \frac{1}{6}\overline{brrrg} + \frac{1}{24}\overline{grrrr}\right], g \rightarrow \\
 &\quad LS\left[0, -\overline{br}, \frac{1}{2}\overline{bbr} - \overline{bgr} - \overline{brg} + \frac{1}{2}\overline{brr}, -\frac{1}{6}\overline{bbbr} - \frac{1}{2}\overline{bbgr} - \frac{1}{2}\overline{bggr} - \frac{1}{2}\overline{bbrg} - \right. \\
 &\quad \left. \frac{1}{4}\overline{bbr} + \frac{1}{2}\overline{bgr} + \frac{1}{2}\overline{bgbr} + \overline{brgr} - \overline{bgr}g - \frac{1}{2}\overline{brgg} + \frac{1}{2}\overline{brrg} - \frac{1}{6}\overline{brrr}, \right. \\
 &\quad \frac{1}{24}\overline{bbbb} - \frac{1}{6}\overline{bbbr} - \frac{1}{4}\overline{bbggr} - \frac{1}{6}\overline{bbbrg} + \frac{1}{12}\overline{bbbr} - \frac{3}{4}\overline{bbgr} - \frac{1}{6}\overline{bgggr} + \\
 &\quad \frac{1}{4}\overline{bggr} + \frac{1}{3}\overline{bbgbr} + \frac{1}{2}\overline{bbrgr} - \frac{1}{2}\overline{bbgrg} - \frac{1}{4}\overline{bbrgg} + \frac{5}{4}\overline{bbrrg} + \frac{1}{12}\overline{bbrrr} - \\
 &\quad \frac{1}{6}\overline{bgrrr} - \frac{1}{2}\overline{bgbgr} - \frac{1}{2}\overline{bgbrg} - \frac{1}{4}\overline{bgbr} + \frac{1}{2}\overline{brggr} + 2\overline{brbrg} - \frac{1}{2}\overline{brgr} + \\
 &\quad \frac{1}{6}\overline{bbrbg} - \frac{1}{12}\overline{bbrbr} - \overline{bgrbr} + \frac{1}{2}\overline{bgrgr} - \frac{1}{2}\overline{bggrg} + \frac{1}{2}\overline{bgr}g + \frac{1}{4}\overline{bggbr} - \\
 &\quad \left. \frac{1}{2}\overline{brrgr} + \overline{brgrg} - \frac{1}{2}\overline{bgrgg} - \frac{1}{6}\overline{brggg} + \frac{1}{4}\overline{brrgg} - \frac{1}{6}\overline{brrrg} + \frac{1}{24}\overline{brrrr}\right],
 \end{aligned}$$

$$r \rightarrow \text{LS} \left[0, \overline{bg}, \frac{1}{2} \overline{bbg} + \overline{bgr} + \frac{1}{2} \overline{bgg}, \frac{1}{6} \overline{bbb} + \frac{1}{2} \overline{bbg} + \frac{1}{2} \overline{bgr} + \frac{1}{4} \overline{bgg} + \frac{1}{2} \overline{bgr} + \frac{1}{6} \overline{bggg}, \frac{1}{24} \overline{bbbb} + \frac{1}{6} \overline{bbbg} + \frac{1}{4} \overline{bbgr} + \frac{1}{12} \overline{bbgg} + \frac{1}{4} \overline{bbgrr} + \frac{1}{6} \overline{bggr} + \frac{1}{4} \overline{bgr} - \overline{bgrg} + \frac{1}{12} \overline{bggg} - 2 \overline{bbrg} + \frac{1}{6} \overline{bgr} + \frac{1}{2} \overline{bg} - \overline{bgr} - \frac{1}{12} \overline{bbg} - \frac{1}{2} \overline{bgr} + \frac{1}{24} \overline{bggg} \right],$$

$$\text{CWS} \left[0, 0, 2 \text{CW}[bgr], \text{CW}[bbgr] - \text{CW}[bgbr] + \text{CW}[bggr] - \text{CW}[bgrg] + \text{CW}[bgrr] - \text{CW}[brgr], \frac{\text{CW}[bbbgr]}{3} - \frac{\text{CW}[bbgr]}{2} + \frac{\text{CW}[bbggr]}{2} + \frac{\text{CW}[bbgrg]}{2} + \frac{\text{CW}[bbgrr]}{2} + \frac{\text{CW}[bbrbg]}{2} - \frac{3 \text{CW}[bbrgr]}{2} + \frac{\text{CW}[bgrr]}{2} - \frac{3 \text{CW}[bggr]}{2} + \frac{\text{CW}[bggr]}{3} - \frac{\text{CW}[bggrg]}{2} + \frac{\text{CW}[bgrr]}{2} + \frac{\text{CW}[bgrgg]}{2} - \frac{3 \text{CW}[bgrrg]}{2} + \frac{\text{CW}[bgrrr]}{3} + \frac{\text{CW}[brggr]}{2} - \frac{\text{CW}[brgrr]}{2} + \frac{\text{CW}[brrgr]}{2} \right]$$

(r /. First[μ0])[{5}]

$$\text{LS} \left[0, \langle bg \rangle, \frac{\langle bbg \rangle}{2} + \frac{\langle bgg \rangle}{2} + \langle bgr \rangle, \frac{\langle bbbg \rangle}{6} + \frac{\langle bbgg \rangle}{4} + \frac{\langle bbgr \rangle}{2} + \frac{\langle bggg \rangle}{6} + \frac{\langle bggr \rangle}{2} + \frac{\langle bgrr \rangle}{2}, \frac{\langle bbbbg \rangle}{24} + \frac{\langle bbbgg \rangle}{12} + \frac{\langle bbbgr \rangle}{6} - \frac{\langle bbgbg \rangle}{12} + \frac{\langle bbggg \rangle}{12} + \frac{\langle bbggr \rangle}{4} - \langle bbgrg \rangle + \frac{\langle bbgrr \rangle}{4} - 2 \langle bbrgg \rangle + \frac{\langle bgbgr \rangle}{2} - \langle bgrg \rangle + \frac{\langle bgggg \rangle}{24} + \frac{\langle bgggr \rangle}{6} + \frac{\langle bggrr \rangle}{4} - \frac{\langle bgrgr \rangle}{2} + \frac{\langle bgrrr \rangle}{6} \right]$$

\$SeriesShowDegree = 6; Last[μ0]

$$\begin{aligned}
 & CWS \left[0, 0, 2 CW[bgr], CW[bbgr] - CW[bgbr] + CW[bggr] - CW[bgrg] + CW[bgrr] - CW[brgr], \right. \\
 & \frac{CW[bbbgr]}{3} - \frac{CW[bbgbr]}{2} + \frac{CW[bbggr]}{2} + \frac{CW[bbgrg]}{2} + \frac{CW[bbgrr]}{2} + \frac{CW[bbrbg]}{2} - \\
 & \frac{3 CW[bbrgr]}{2} + \frac{CW[bgrrr]}{2} - \frac{3 CW[bggbr]}{2} + \frac{CW[bgggr]}{3} - \frac{CW[bggrg]}{2} + \frac{CW[bggrr]}{2} + \\
 & \frac{CW[bgrgg]}{2} - \frac{3 CW[bgrrg]}{2} + \frac{CW[bgrrr]}{3} + \frac{CW[brggr]}{2} - \frac{CW[brgrr]}{2} + \frac{CW[brrgr]}{2}, \\
 & \left. \frac{CW[bbbbgr]}{12} - \frac{CW[bbbgbgr]}{6} + \frac{CW[bbbgrg]}{6} - \frac{CW[bbbgrg]}{6} + \frac{CW[bbbgrr]}{6} - \frac{CW[bbbrbg]}{6} - \right. \\
 & \frac{CW[bbbrgr]}{6} + \frac{CW[bbgbbgr]}{4} + \frac{CW[bbgbrg]}{4} - \frac{3 CW[bbggbr]}{4} + \frac{CW[bbgggr]}{6} + \frac{CW[bbggrr]}{4} + \\
 & \frac{CW[bbggrr]}{4} + CW[bbgrbg] - \frac{CW[bbgrgg]}{4} + CW[bbgrgr] - \frac{5 CW[bbgrrg]}{4} + \frac{CW[bbgrrr]}{6} + \\
 & \frac{3 CW[bbrbgr]}{4} + CW[bbrgbr] - \frac{5 CW[bbrggr]}{4} + CW[bbrgrg] - \frac{3 CW[bbrgrr]}{4} - \\
 & \frac{CW[bbrrbg]}{4} + \frac{3 CW[bbrrrg]}{4} - CW[bgbgbr] - CW[bgbgrg] + CW[bgbgrr] - CW[bgbrbr] + \\
 & CW[bgbrrg] - \frac{CW[bgbrrr]}{6} + CW[bggbrg] - \frac{5 CW[bggbrg]}{4} - \frac{CW[bgggbr]}{6} + \frac{CW[bggggr]}{12} - \\
 & \frac{CW[bgggrg]}{6} + \frac{CW[bgggrr]}{6} + CW[bggrbr] + \frac{CW[bggrrg]}{4} - \frac{3 CW[bggrrg]}{4} + \frac{CW[bggrrr]}{6} - \\
 & 4 CW[bgrbgr] + CW[bgrbrg] - \frac{CW[bgrggg]}{6} + CW[bgrggr] - CW[bgrgrg] + \frac{3 CW[bgrrrg]}{4} - \\
 & \frac{CW[bgrrrg]}{6} + \frac{CW[bgrrrr]}{12} + CW[brbrgg] - CW[brbrgr] - \frac{CW[brgggr]}{6} + \frac{CW[brgrrr]}{4} - \\
 & \left. CW[brrgrg] + CW[brrrgg] - \frac{CW[brrrrr]}{6} - \frac{CW[brrggr]}{4} + \frac{CW[brrgrr]}{4} - \frac{CW[brrrrg]}{6} \right]
 \end{aligned}$$

\$SeriesShowDegree = 7; r /. First[μ0]

$$\begin{aligned}
 & LS \left[0, \overline{bg}, \frac{1}{2} \overline{bbg} + \overline{bgr} + \frac{1}{2} \overline{bgr}, \right. \\
 & \frac{1}{6} \overline{bbbgr} + \frac{1}{2} \overline{bbgrr} + \frac{1}{2} \overline{bgrgr} + \frac{1}{4} \overline{bbgg} + \frac{1}{2} \overline{bgrrr} + \frac{1}{6} \overline{bgrgg}, \\
 & \frac{1}{24} \overline{bbbbrg} + \frac{1}{6} \overline{bbbgr} + \frac{1}{4} \overline{bbggr} + \frac{1}{12} \overline{bbbg} + \frac{1}{4} \overline{bbgrr} + \\
 & \frac{1}{6} \overline{bgrgg} + \frac{1}{4} \overline{bgrrr} - \overline{bbgrg} + \frac{1}{12} \overline{bbggg} - 2 \overline{bbrgg} + \frac{1}{6} \overline{bgrrrr} + \\
 & \frac{1}{2} \overline{bgbrg} - \overline{bgrrg} - \frac{1}{12} \overline{bbgbrg} - \frac{1}{2} \overline{bgrgr} + \frac{1}{24} \overline{bgrgg}, \\
 & \left. \frac{1}{120} \overline{bbbbrg} + \frac{1}{24} \overline{bbbgr} + \frac{1}{12} \overline{bbbgr} + \frac{1}{48} \overline{bbbbrg} + \frac{1}{12} \overline{bbbgr} + \right.
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{12} \overline{\text{bbg ggr}} + \frac{1}{8} \overline{\text{bbg grr}} - \overline{\text{bb bgr g}} + \frac{1}{36} \overline{\text{bb bgg g}} - \overline{\text{bb brg g}} + \frac{1}{12} \overline{\text{bb grr r}} + \\
 & \frac{1}{24} \overline{\text{bgg ggr}} + \frac{1}{12} \overline{\text{bgg grr}} + \frac{1}{12} \overline{\text{bg grr r}} - \frac{1}{4} \overline{\text{bbg bgr}} - \frac{1}{24} \overline{\text{bbg bgg}} + \\
 & \frac{1}{2} \overline{\text{bbg brg}} - 2 \overline{\text{bbr ggr}} - \frac{1}{24} \overline{\text{b bbg bg}} - \frac{5}{4} \overline{\text{b bgr gr}} - \frac{1}{2} \overline{\text{bb ggr g}} - \\
 & \frac{3}{2} \overline{\text{bb grr g}} - \frac{1}{4} \overline{\text{bgr grr}} - \frac{1}{3} \overline{\text{b ggr gr}} + \overline{\text{b bgg br}} - 4 \overline{\text{bbr grg}} - \frac{3}{2} \overline{\text{b bgr gg}} + \\
 & \frac{1}{48} \overline{\text{b bgg gg}} - \overline{\text{b brg gg}} + \frac{1}{24} \overline{\text{b grr rr}} + \frac{1}{4} \overline{\text{bgb ggr}} + \frac{1}{4} \overline{\text{bgb grr}} + \frac{1}{2} \overline{\text{bgbgbr}} - \\
 & \overline{\text{bg bgr g}} - \frac{3}{2} \overline{\text{bg brg g}} + \frac{1}{2} \overline{\text{bg brr g}} - \frac{1}{2} \overline{\text{bgr ggr}} - \overline{\text{bgr brg}} - \frac{1}{12} \overline{\text{b bgg bg}} - \\
 & \overline{\text{b brg bg}} - \frac{1}{2} \overline{\text{b grr gr}} + \frac{1}{4} \overline{\text{bgg bgr}} - \frac{1}{2} \overline{\text{bgg brg}} + \frac{1}{120} \overline{\text{bgg ggg}}, \\
 & \frac{1}{720} \overline{\text{bbbb bbg}} + \frac{1}{120} \overline{\text{bbbb bgr}} + \frac{1}{48} \overline{\text{bbbb ggr}} + \frac{1}{240} \overline{\text{bbbb bgg}} + \frac{1}{48} \overline{\text{bbbb grr}} + \\
 & \frac{1}{36} \overline{\text{bbbg ggr}} + \frac{1}{24} \overline{\text{bbbg grr}} - \frac{7}{12} \overline{\text{bbb bgr g}} + \frac{1}{144} \overline{\text{bbb bgg g}} - \frac{2}{3} \overline{\text{bbb brg g}} + \\
 & \frac{1}{36} \overline{\text{bbb grr r}} + \frac{1}{48} \overline{\text{bbgg ggr}} + \frac{1}{24} \overline{\text{bbgg grr}} + \frac{1}{24} \overline{\text{bbg grr r}} - \frac{1}{3} \overline{\text{bbbg bgr}} - \\
 & \frac{1}{48} \overline{\text{bbbg bgg}} + \frac{1}{6} \overline{\text{bbbg brg}} - \overline{\text{bbr ggr}} - \frac{1}{80} \overline{\text{bb bbg bg}} - \frac{13}{12} \overline{\text{bb bgr gr}} - \\
 & \frac{1}{2} \overline{\text{bbb ggr g}} - \frac{3}{2} \overline{\text{bbb grr g}} - \frac{5}{8} \overline{\text{bbgr grr}} - \frac{2}{3} \overline{\text{bb ggr gr}} + \frac{2}{3} \overline{\text{bb bgg br}} - 3 \overline{\text{bbr grg}} - \\
 & \frac{3}{2} \overline{\text{bb bgr gg}} + \frac{1}{144} \overline{\text{bb bgg gg}} - \overline{\text{bb brg gg}} - \frac{1}{2} \overline{\text{bb brr gg}} + \frac{1}{48} \overline{\text{bb grr rr}} + \\
 & \frac{1}{120} \overline{\text{bggg ggr}} + \frac{1}{48} \overline{\text{bggg grr}} + \frac{1}{36} \overline{\text{bgg grr r}} - \frac{1}{6} \overline{\text{bggr grr}} - \frac{1}{8} \overline{\text{bggr gr}} + \\
 & \frac{1}{48} \overline{\text{bg grr rr}} - \frac{1}{8} \overline{\text{bgb ggr}} - \frac{5}{8} \overline{\text{bgb grr}} + \frac{1}{12} \overline{\text{bgbgbr}} - 2 \overline{\text{bbg bgr g}} - \\
 & \frac{1}{72} \overline{\text{bbg bgg g}} - \frac{7}{4} \overline{\text{bbg brg g}} - \frac{1}{4} \overline{\text{bbg brr g}} - \overline{\text{bbrg ggr}} - \overline{\text{bbrg grr}} + \frac{1}{3} \overline{\text{b bbr bgg}} + \\
 & \frac{1}{6} \overline{\text{bb bgr bg}} - \frac{9}{4} \overline{\text{b bgr ggr}} + \frac{1}{2} \overline{\text{b bgr brg}} + \overline{\text{bb ggr br}} - \frac{1}{6} \overline{\text{bbg ggr g}} - \frac{3}{4} \overline{\text{bbg grr g}} -
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{24} \overline{\overline{bb\ bgg\ bg}} + \frac{2}{3} \overline{\overline{bb\ brg\ bg}} - \frac{9}{4} \overline{\overline{bb\ grr\ gr}} - \frac{7}{6} \overline{\overline{bb\ grr\ rg}} - \frac{1}{12} \overline{\overline{bgr\ grr\ r}} - \\
 & \frac{1}{3} \overline{\overline{bg\ grr\ gr}} - \frac{5}{8} \overline{\overline{b\ bgg\ bgr}} - \frac{1}{4} \overline{\overline{b\ bgg\ brg}} - 2 \overline{\overline{bbr\ grr\ gr}} - 2 \overline{\overline{bbr\ ggr\ g}} - 3 \overline{\overline{bbr\ grr\ g}} + \\
 & 2 \overline{\overline{b\ bgr\ gbr}} - \frac{3}{2} \overline{\overline{b\ bgr\ grg}} - \frac{3}{4} \overline{\overline{bb\ ggr\ gg}} + \frac{3}{4} \overline{\overline{bb\ grr\ gg}} + \frac{1}{2} \overline{\overline{b\ bgg\ gbr}} - \overline{\overline{b\ brr\ grr\ g}} + \\
 & \overline{\overline{bbr\ grr\ gg}} - \frac{7}{6} \overline{\overline{b\ bgr\ ggg}} + \frac{1}{240} \overline{\overline{b\ bgg\ ggg}} - \frac{2}{3} \overline{\overline{b\ brg\ ggg}} + \frac{1}{2} \overline{\overline{b\ brr\ ggg}} - \frac{1}{3} \overline{\overline{b\ brr\ rgg}} + \\
 & \frac{1}{120} \overline{\overline{b\ grr\ rrr}} + \frac{1}{12} \overline{\overline{bg\ bg\ ggr}} + \frac{1}{8} \overline{\overline{bg\ bg\ grr}} + \frac{1}{12} \overline{\overline{bg\ b\ grr\ r}} - \frac{5}{12} \overline{\overline{bg\ bg\ bgr}} + \\
 & \frac{1}{2} \overline{\overline{bg\ bg\ brg}} - \frac{1}{4} \overline{\overline{bg\ bg\ brr}} + \frac{1}{2} \overline{\overline{bg\ br\ brg}} - \frac{1}{4} \overline{\overline{bg\ bgr\ gr}} - \frac{1}{2} \overline{\overline{bg\ b\ ggr\ g}} + \\
 & \frac{1}{2} \overline{\overline{bg\ b\ grr\ g}} + \frac{3}{4} \overline{\overline{bg\ b\ ggr\ br}} + \overline{\overline{bg\ br\ grr\ g}} - \frac{3}{2} \overline{\overline{bg\ b\ grr\ gg}} - \frac{7}{6} \overline{\overline{bg\ br\ ggg}} + \frac{3}{4} \overline{\overline{bg\ brr\ ggg}} - \\
 & \frac{1}{6} \overline{\overline{bg\ brr\ rg}} - \frac{1}{24} \overline{\overline{bbg\ b\ bgr}} + \frac{7}{12} \overline{\overline{bbg\ b\ brg}} + \frac{1}{240} \overline{\overline{bbg\ b\ bbg}} + \frac{1}{12} \overline{\overline{b\ bgr\ bgr}} - \\
 & \frac{1}{6} \overline{\overline{bgr\ g\ ggr}} - \frac{1}{4} \overline{\overline{bgr\ g\ grr}} + \frac{1}{2} \overline{\overline{bgr\ brg\ g}} + \frac{1}{2} \overline{\overline{bgr\ brr\ g}} - \frac{1}{8} \overline{\overline{b\ ggr\ ggr}} - \\
 & \frac{1}{2} \overline{\overline{b\ ggr\ brg}} - \frac{1}{48} \overline{\overline{b\ bgg\ bgg}} + \frac{5}{12} \overline{\overline{bbg\ brbg}} - \overline{\overline{b\ brg\ bgr}} - \frac{1}{2} \overline{\overline{b\ brg\ bgg}} + \\
 & \frac{1}{2} \overline{\overline{b\ bgr\ gbg}} - \frac{1}{4} \overline{\overline{b\ grr\ ggr}} - \frac{1}{2} \overline{\overline{b\ grr\ brg}} - \frac{1}{8} \overline{\overline{b\ grr\ grr}} - \frac{1}{36} \overline{\overline{b\ bgg\ gbg}} + \\
 & \frac{1}{2} \overline{\overline{b\ brr\ gbg}} + \frac{1}{2} \overline{\overline{b\ brr\ gbg}} - \frac{1}{6} \overline{\overline{b\ grr\ rgr}} + \frac{1}{8} \overline{\overline{bgg\ b\ ggr}} + \frac{1}{8} \overline{\overline{bgg\ b\ grr}} - \\
 & \frac{1}{2} \overline{\overline{b\ ggr\ bgr}} - \frac{3}{4} \overline{\overline{b\ ggr\ brg}} + \frac{1}{4} \overline{\overline{b\ ggr\ brr}} - \frac{1}{2} \overline{\overline{bgbr\ bgr}} - \frac{1}{4} \overline{\overline{bgbr\ bgg}} - \\
 & \left. \frac{1}{6} \overline{\overline{bbr\ b\ bg}} + \frac{1}{6} \overline{\overline{bgr\ grr\ gr}} + \frac{1}{12} \overline{\overline{b\ ggg\ bgr}} - \frac{1}{6} \overline{\overline{b\ ggg\ brg}} + \frac{1}{720} \overline{\overline{b\ ggg\ ggg}} \right]
 \end{aligned}$$

\$SeriesShowDegree = 7 ; Last[μ0]

$$\begin{aligned}
 & \text{CWS} \left[0, 0, 2 \text{CW}[\text{bgr}], \text{CW}[\text{bbgr}] - \text{CW}[\text{bgbr}] + \text{CW}[\text{bggr}] - \text{CW}[\text{bgrg}] + \text{CW}[\text{bgrr}] - \text{CW}[\text{brgr}], \right. \\
 & \frac{\text{CW}[\text{bbbgr}]}{3} - \frac{\text{CW}[\text{bbgbr}]}{2} + \frac{\text{CW}[\text{bbggr}]}{2} + \frac{\text{CW}[\text{bbgrg}]}{2} + \frac{\text{CW}[\text{bbgrr}]}{2} + \frac{\text{CW}[\text{bbrbg}]}{2} - \\
 & \left. \frac{3 \text{CW}[\text{bbrgr}]}{2} + \frac{\text{CW}[\text{bgrrr}]}{2} - \frac{3 \text{CW}[\text{bggbr}]}{2} + \frac{\text{CW}[\text{bgggr}]}{3} - \frac{\text{CW}[\text{bggrg}]}{2} + \frac{\text{CW}[\text{bggrr}]}{2} + \right.
 \end{aligned}$$

$$\begin{aligned}
 & \frac{CW[bgrgg]}{2} - \frac{3 CW[bgrrg]}{2} + \frac{CW[bgrrr]}{3} + \frac{CW[brggr]}{2} - \frac{CW[bgrrr]}{2} + \frac{CW[brrrg]}{2}, \\
 & \frac{CW[bbbbgr]}{12} - \frac{CW[bbbgbr]}{6} + \frac{CW[bbbqgr]}{6} - \frac{CW[bbbqrg]}{6} + \frac{CW[bbbqrr]}{6} - \frac{CW[bbbrbg]}{6} - \\
 & \frac{CW[bbbrgr]}{6} + \frac{CW[bbgbb]}{4} + \frac{CW[bbgbr]}{4} - \frac{3 CW[bbggbr]}{4} + \frac{CW[bbggrr]}{6} + \frac{CW[bbggrr]}{4} + \\
 & \frac{CW[bbggrr]}{4} + CW[bbgrbg] - \frac{CW[bbgrgg]}{4} + CW[bbgrgr] - \frac{5 CW[bbgrrg]}{4} + \frac{CW[bbgrrr]}{6} + \\
 & \frac{3 CW[bbbrbg]}{4} + CW[bbgrbr] - \frac{5 CW[bbgrgr]}{4} + CW[bbgrrg] - \frac{3 CW[bbgrrr]}{4} - \\
 & \frac{CW[bbrrbg]}{4} + \frac{3 CW[bbrrgr]}{4} - CW[bgbgbr] - CW[bgbgrg] + CW[bgbgrr] - CW[bgbrbr] + \\
 & CW[bgrrrg] - \frac{CW[bgrrrr]}{6} + CW[bggbrg] - \frac{5 CW[bggbr]}{4} - \frac{CW[bgggbr]}{6} + \frac{CW[bgggrr]}{12} - \\
 & \frac{CW[bgggrg]}{6} + \frac{CW[bgggrr]}{6} + CW[bggrbr] + \frac{CW[bggrrg]}{4} - \frac{3 CW[bggrrg]}{4} + \frac{CW[bgrrrr]}{6} - \\
 & 4 CW[bgrbgr] + CW[bgrbrr] - \frac{CW[bgrggg]}{6} + CW[bgrggr] - CW[bgrgrg] + \frac{3 CW[bgrrgg]}{4} - \\
 & \frac{CW[bgrrrg]}{6} + \frac{CW[bgrrrr]}{12} + CW[brbrgg] - CW[brbrgr] - \frac{CW[brgggr]}{6} + \frac{CW[brgrrr]}{4} - \\
 & CW[brrgrg] + CW[brrrg] - \frac{CW[brrrr]}{6} - \frac{CW[brrgrr]}{4} + \frac{CW[brrrrr]}{4} - \frac{CW[brrrrg]}{6}, \\
 & \frac{CW[bbbbbbgr]}{60} - \frac{CW[bbbbbgbr]}{24} + \frac{CW[bbbbbbqgr]}{24} + \frac{CW[bbbbbbqrg]}{24} + \frac{CW[bbbbbbqrr]}{24} + \frac{CW[bbbbbrbg]}{24} - \\
 & \frac{CW[bbbbbrgr]}{8} + \frac{CW[bbbbgbb]}{12} + \frac{CW[bbbbgbr]}{12} - \frac{CW[bbbbggbr]}{4} + \frac{CW[bbbbggrr]}{18} - \frac{CW[bbbbggrr]}{12} + \\
 & \frac{CW[bbbbgrr]}{12} + \frac{CW[bbbbgrg]}{12} - \frac{CW[bbbbgrrg]}{4} + \frac{CW[bbbbgrrr]}{18} - \frac{CW[bbbrbbg]}{12} - \frac{CW[bbbrbg]}{4} + \\
 & \frac{CW[bbbbgrg]}{12} - CW[bbbrgrg] - \frac{CW[bbbrgrrr]}{12} + \frac{CW[bbbrrbg]}{12} + \frac{CW[bbbrrrg]}{12} + \frac{CW[bbgbbg]}{2} - \\
 & \frac{CW[bbgbbrr]}{8} - \frac{CW[bbgbgbr]}{2} + \frac{CW[bbgbgrg]}{2} + \frac{CW[bbgbgrr]}{2} - \frac{CW[bbgbrbg]}{2} - \frac{CW[bbgbrbr]}{2} + \\
 & CW[bbgbrgr] + \frac{CW[bbgbrrg]}{2} - \frac{CW[bbgbrrr]}{12} + \frac{3 CW[bbggbb]}{8} - \frac{CW[bbggbrg]}{2} - \\
 & \frac{5 CW[bbggbr]}{8} - \frac{CW[bbgggbr]}{12} + \frac{CW[bbgggrr]}{24} + \frac{CW[bbgggrg]}{12} + \frac{CW[bbgggrr]}{12} + \\
 & \frac{CW[bbggrrg]}{2} + \frac{CW[bbgrrbr]}{2} - \frac{CW[bbggrrg]}{8} + \frac{CW[bbgrrg]}{2} - \frac{5 CW[bbgrrg]}{8} + \\
 & \frac{CW[bbggrrr]}{12} - \frac{CW[bbgrbg]}{2} - 3 CW[bbgrbgr] + CW[bbgrbrg] + \frac{CW[bbgrbr]}{2} - \frac{CW[bbgrbg]}{2} - \\
 & CW[bbgrgbr] + \frac{CW[bbgrgg]}{12} - \frac{3 CW[bbgrgrg]}{2} + \frac{CW[bbgrgrr]}{2} + \frac{5 CW[bbgrrg]}{8} + \\
 & \frac{CW[bbgrrgr]}{2} + \frac{CW[bbgrrrg]}{12} + \frac{CW[bbgrrrr]}{24} - \frac{CW[brrbbg]}{2} + \frac{CW[brrbgg]}{2} + \frac{CW[brrbgbr]}{2} + \\
 & \frac{CW[brrbgg]}{12} + \frac{CW[brrbggr]}{2} + \frac{CW[brrbrbg]}{2} - \frac{CW[brrbrgg]}{2} + \frac{CW[brrbrgr]}{2} - \frac{CW[brrbgg]}{2} -
 \end{aligned}$$

$$\begin{aligned}
 & 2 \text{ CW}[\text{bbrgbgr}] - \frac{\text{CW}[\text{bbrgbrr}]}{2} + \text{CW}[\text{bbrggbr}] - \frac{\text{CW}[\text{bbrgggr}]}{4} + \frac{\text{CW}[\text{bbrggrg}]}{2} - \\
 & \frac{5 \text{ CW}[\text{bbrggrr}]}{8} + \text{CW}[\text{bbrgrbg}] + \frac{\text{CW}[\text{bbrgrbr}]}{2} - \frac{\text{CW}[\text{bbrgrgg}]}{2} + \frac{\text{CW}[\text{bbrgrgr}]}{2} + \text{CW}[\text{bbrgrrg}] - \\
 & \frac{\text{CW}[\text{bbrgrrr}]}{4} + \frac{5 \text{ CW}[\text{bbrrbgg}]}{8} - \frac{\text{CW}[\text{bbrrbgr}]}{2} - \frac{\text{CW}[\text{bbrrbgg}]}{2} - \frac{\text{CW}[\text{bbrrbgr}]}{2} + \\
 & \frac{5 \text{ CW}[\text{bbrrggr}]}{8} - \frac{\text{CW}[\text{bbrrgrg}]}{2} + \frac{3 \text{ CW}[\text{bbrrgrr}]}{8} + \frac{\text{CW}[\text{bbrrrbg}]}{12} - \frac{\text{CW}[\text{bbrrrgr}]}{4} - \\
 & \text{CW}[\text{bgbgbgr}] + \text{CW}[\text{bgbgbrg}] - \frac{3 \text{ CW}[\text{bgbgbrr}]}{2} + \frac{\text{CW}[\text{bgbggbr}]}{2} - \frac{\text{CW}[\text{bgbggrg}]}{2} + \\
 & \frac{\text{CW}[\text{bgbggrr}]}{2} - \text{CW}[\text{bgbgrbr}] + \frac{\text{CW}[\text{bgbgrgg}]}{2} - \text{CW}[\text{bgbgrgr}] + \frac{\text{CW}[\text{bgbgrrg}]}{2} + \frac{\text{CW}[\text{bgbrbgg}]}{2} + \\
 & 3 \text{ CW}[\text{bgbrbgr}] + \text{CW}[\text{bgbrbrg}] - \frac{\text{CW}[\text{bgbrrrr}]}{2} + \text{CW}[\text{bgbrrgr}] + \text{CW}[\text{bgbrrrg}] - \text{CW}[\text{bgbrrgr}] + \\
 & \frac{\text{CW}[\text{bgbrrbr}]}{2} - \frac{\text{CW}[\text{bgbrrgg}]}{2} - \text{CW}[\text{bgbrrrg}] + \frac{\text{CW}[\text{bgbrrrr}]}{24} + \frac{\text{CW}[\text{bgbgbrg}]}{2} + \frac{\text{CW}[\text{bgbgbrr}]}{2} + \\
 & \frac{\text{CW}[\text{bgbgrbr}]}{2} - \frac{\text{CW}[\text{bgbgrgg}]}{2} - 2 \text{ CW}[\text{bgbgrgr}] + \text{CW}[\text{bgbgrrg}] - \frac{\text{CW}[\text{bgbgrrr}]}{4} + \\
 & \frac{\text{CW}[\text{bgggbr}]}{12} - \frac{\text{CW}[\text{bgggbr}]}{8} + \frac{\text{CW}[\text{bgggggr}]}{60} - \frac{\text{CW}[\text{bggggrg}]}{24} + \frac{\text{CW}[\text{bgggrr}]}{24} + \frac{\text{CW}[\text{bgggrgg}]}{12} - \\
 & \frac{\text{CW}[\text{bgggrrg}]}{4} + \frac{\text{CW}[\text{bgggrrr}]}{18} - 3 \text{ CW}[\text{bgggrbr}] - \text{CW}[\text{bgggrbrg}] + \text{CW}[\text{bgggrgr}] - \frac{\text{CW}[\text{bgggrgg}]}{12} + \\
 & \frac{\text{CW}[\text{bgggrgr}]}{2} - \frac{\text{CW}[\text{bgggrrg}]}{2} + \frac{\text{CW}[\text{bggrrbr}]}{2} + \frac{3 \text{ CW}[\text{bggrrgg}]}{8} - \frac{\text{CW}[\text{bggrrrg}]}{12} + \\
 & \frac{\text{CW}[\text{bggrrrr}]}{24} + 3 \text{ CW}[\text{bgrbgrg}] - 3 \text{ CW}[\text{bgrbgr}r] - \text{CW}[\text{bgrbrbr}] + 3 \text{ CW}[\text{bgrbrgr}] + \\
 & \text{CW}[\text{bgrbrrg}] + \text{CW}[\text{bgrgbrr}] + \text{CW}[\text{bgrggbr}] + \frac{\text{CW}[\text{bgrgggg}]}{24} - \frac{\text{CW}[\text{bgrggrg}]}{2} + \frac{\text{CW}[\text{bgrggrr}]}{2} - \\
 & \text{CW}[\text{bgrgrbr}] + \frac{\text{CW}[\text{bgrgrgg}]}{2} - \text{CW}[\text{bgrgrgr}] + \frac{\text{CW}[\text{bgrgrrg}]}{2} + \text{CW}[\text{bgrrbgr}] + \frac{\text{CW}[\text{bgrrrbr}]}{2} - \\
 & 2 \text{ CW}[\text{bgrrgbr}] - \frac{\text{CW}[\text{bgrrggg}]}{4} - \frac{\text{CW}[\text{bgrrggr}]}{2} + \frac{\text{CW}[\text{bgrrgrg}]}{2} + \frac{\text{CW}[\text{bgrrrgg}]}{12} - \\
 & \frac{\text{CW}[\text{bgrrrrg}]}{8} + \frac{\text{CW}[\text{bgrrrrr}]}{60} + \text{CW}[\text{brbrbrg}] - \text{CW}[\text{brbrggg}] - \frac{3 \text{ CW}[\text{brbrggr}]}{2} + \text{CW}[\text{brbrgrg}] - \\
 & \frac{\text{CW}[\text{brbrgr}r]}{2} - \frac{\text{CW}[\text{brbrrgg}]}{2} + \frac{\text{CW}[\text{brbrrrg}]}{2} + \frac{\text{CW}[\text{brggbr}]}{2} + \frac{\text{CW}[\text{brgggg}]}{24} - \frac{\text{CW}[\text{brgggr}]}{12} + \\
 & \frac{\text{CW}[\text{brgggr}]}{2} - \frac{\text{CW}[\text{brggrrg}]}{2} + \frac{\text{CW}[\text{brggrrr}]}{12} - \frac{\text{CW}[\text{brgrbr}]}{2} - \frac{\text{CW}[\text{brgrgg}]}{2} + \text{CW}[\text{brgrgrg}] - \\
 & \frac{\text{CW}[\text{brgrgr}r]}{2} - \frac{\text{CW}[\text{brgrrgg}]}{2} + \frac{\text{CW}[\text{brgrrrg}]}{2} - \frac{\text{CW}[\text{brgrrrr}]}{24} + \frac{\text{CW}[\text{brrggg}]}{12} - \frac{\text{CW}[\text{brrggr}]}{8} + \\
 & \left. \frac{\text{CW}[\text{brrrgr}]}{2} - \frac{\text{CW}[\text{brrrrg}]}{2} + \frac{\text{CW}[\text{brrrrr}]}{12} + \frac{\text{CW}[\text{brrrrg}]}{12} - \frac{\text{CW}[\text{brrrgr}]}{12} + \frac{\text{CW}[\text{brrrrr}]}{24} \right]
 \end{aligned}$$