The HOMFLY Braidor Algebra - Braidor Computations

First Load "Programs"!

The "Exponential" Solution:

```
{R3[B[0]], R3[B[1]], R3[Append[B[1], 0]]}
```

$$\left\{\text{ASeries}[3,\,0],\ \text{ASeries}[3,\,0,\,0],\ \text{ASeries}\left[3,\,0,\,0,\,-x^2\,P[\{1,\,3,\,2\}]+x^2\,P[\{2,\,1,\,3\}]\right]\right\}$$

```
d = 2; d2inv[d, Last[R3[Append[B[d - 1], 0]]]]
```

$$\frac{1}{3}\,x\,P[\{1,\,2\},\,1]-\frac{1}{3}\,x\,P[\{1,\,2\},\,2]$$

```
d = 2; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\left[2,\,P[\{2,\,1\}],\,x\,P[\{1,\,2\}],\,\frac{1}{2}\,x^2\,P[\{2,\,1\}]-\frac{1}{3}\,x\,P[\{1,\,2\},\,1]+\frac{1}{3}\,x\,P[\{1,\,2\},\,2]\right]$$

```
d = 2; R3[Append[B[d], 0]]
```

$$\text{ASeries}[3,\,0,\,0,\,0,\,0]$$

```
d = 3; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\left[2,\,P[\{2,\,1\}],\,x\,P[\{1,\,2\}],\,\frac{1}{2}\,x^2\,P[\{2,\,1\}]-\frac{1}{3}\,x\,P[\{1,\,2\},\,1]+\frac{1}{3}\,x\,P[\{1,\,2\},\,2],\,\frac{1}{6}\,x^3\,P[\{1,\,2\}]\right]$$

```
d = 3; R3[Append[B[d], 0]]
```

$$\begin{aligned}\text{ASeries}\Big[3,\,0,\,0,\,0,\,0,\ &\frac{1}{18}\,x^4\,P[\{1,\,3,\,2\}]+\frac{1}{18}\,x^4\,P[\{2,\,1,\,3\}]-\\ &\frac{1}{9}\,x^4\,P[\{3,\,2,\,1\}]-\frac{1}{3}\,x^3\,P[\{1,\,2,\,3\},\,1]+\frac{1}{3}\,x^3\,P[\{1,\,2,\,3\},\,2]+\frac{1}{9}\,x^3\,P[\{2,\,3,\,1\},\,2]-\\ &\frac{1}{9}\,x^3\,P[\{2,\,3,\,1\},\,3]+\frac{2}{9}\,x^3\,P[\{3,\,1,\,2\},\,1]-\frac{2}{9}\,x^3\,P[\{3,\,1,\,2\},\,2]+\\ &\frac{1}{9}\,x^2\,P[\{1,\,3,\,2\},\,1,\,1]-\frac{1}{9}\,x^2\,P[\{1,\,3,\,2\},\,1,\,2]-\frac{1}{9}\,x^2\,P[\{1,\,3,\,2\},\,1,\,3]+\\ &\frac{1}{9}\,x^2\,P[\{1,\,3,\,2\},\,2,\,2]-\frac{1}{9}\,x^2\,P[\{1,\,3,\,2\},\,2,\,3]+\frac{1}{9}\,x^2\,P[\{1,\,3,\,2\},\,3,\,3]-\\ &\frac{1}{9}\,x^2\,P[\{2,\,1,\,3\},\,1,\,1]+\frac{1}{9}\,x^2\,P[\{2,\,1,\,3\},\,1,\,2]+\frac{1}{9}\,x^2\,P[\{2,\,1,\,3\},\,1,\,3]-\\ &\frac{1}{9}\,x^2\,P[\{2,\,1,\,3\},\,2,\,2]+\frac{1}{9}\,x^2\,P[\{2,\,1,\,3\},\,2,\,3]-\frac{1}{9}\,x^2\,P[\{2,\,1,\,3\},\,3,\,3]\Big]\end{aligned}$$

```
d = 3; d3[R3[Append[B[d], 0]] // Last]
```

```
0
```

```
d = 4; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\left[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2], \frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] - \frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] - \frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2]\right]$$

```
d = 4; R3[Append[B[d], 0]]
```

$$\text{ASeries}[3, 0, 0, 0, 0, 0, 0]$$

```
d = 5; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\left[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2], \frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] - \frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] - \frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5 P[\{1,2\}]\right]$$

```
d = 5; R3[Append[B[d], 0]]
```

$$
\begin{aligned}
&\text{ASeries}\Big[3, 0, 0, 0, 0, 0, 0,\\
&-\frac{11}{360}x^6P[\{1,3,2\}]-\frac{1}{40}x^6P[\{2,1,3\}]+\frac{1}{18}x^6P[\{3,2,1\}]+\frac{1}{30}x^5P[\{1,2,3\},1]-\\
&\frac{29}{270}x^5P[\{1,2,3\},2]+\frac{2}{27}x^5P[\{1,2,3\},3]-\frac{2}{45}x^5P[\{2,3,1\},1]+\frac{29}{270}x^5P[\{2,3,1\},2]-\\
&\frac{17}{270}x^5P[\{2,3,1\},3]+\frac{1}{45}x^5P[\{3,1,2\},1]-\frac{1}{45}x^5P[\{3,1,2\},2]-\\
&\frac{1}{18}x^4P[\{1,3,2\},1,1]+\frac{23}{270}x^4P[\{1,3,2\},1,2]+\frac{7}{270}x^4P[\{1,3,2\},1,3]-\\
&\frac{1}{18}x^4P[\{1,3,2\},2,2]+\frac{7}{270}x^4P[\{1,3,2\},2,3]-\frac{7}{270}x^4P[\{1,3,2\},3,3]+\\
&\frac{1}{90}x^4P[\{2,1,3\},1,1]-\frac{11}{270}x^4P[\{2,1,3\},1,2]+\frac{1}{54}x^4P[\{2,1,3\},1,3]+\\
&\frac{11}{270}x^4P[\{2,1,3\},2,2]-\frac{11}{270}x^4P[\{2,1,3\},2,3]+\frac{1}{90}x^4P[\{2,1,3\},3,3]+\\
&\frac{2}{135}x^4P[\{3,2,1\},1,1]-\frac{8}{135}x^4P[\{3,2,1\},1,2]+\frac{4}{135}x^4P[\{3,2,1\},1,3]+\\
&\frac{4}{45}x^4P[\{3,2,1\},2,2]-\frac{16}{135}x^4P[\{3,2,1\},2,3]+\frac{2}{45}x^4P[\{3,2,1\},3,3]+\\
&\frac{8}{135}x^3P[\{1,2,3\},1,1,1]-\frac{16}{135}x^3P[\{1,2,3\},1,1,2]-\frac{8}{135}x^3P[\{1,2,3\},1,1,3]+\\
&\frac{4}{27}x^3P[\{1,2,3\},1,2,2]-\frac{8}{135}x^3P[\{1,2,3\},1,2,3]+\frac{4}{45}x^3P[\{1,2,3\},1,3,3]-\\
&\frac{2}{27}x^3P[\{1,2,3\},2,2,2]+\frac{2}{27}x^3P[\{1,2,3\},2,2,3]-\frac{2}{45}x^3P[\{1,2,3\},2,3,3]-\\
&\frac{2}{135}x^3P[\{1,2,3\},3,3,3]-\frac{2}{135}x^3P[\{2,3,1\},1,1,2]+\frac{2}{135}x^3P[\{2,3,1\},1,1,3]+\\
&\frac{2}{135}x^3P[\{2,3,1\},1,2,2]-\frac{2}{135}x^3P[\{2,3,1\},1,3,3]-\frac{4}{135}x^3P[\{2,3,1\},2,2,2]+\\
&\frac{2}{27}x^3P[\{2,3,1\},2,2,3]-\frac{2}{27}x^3P[\{2,3,1\},2,3,3]+\frac{4}{135}x^3P[\{2,3,1\},3,3,3]-\\
&\frac{2}{45}x^3P[\{3,1,2\},1,1,1]+\frac{2}{27}x^3P[\{3,1,2\},1,1,2]+\frac{8}{135}x^3P[\{3,1,2\},1,1,3]-\\
&\frac{2}{27}x^3P[\{3,1,2\},1,2,2]-\frac{8}{135}x^3P[\{3,1,2\},1,3,3]+\frac{2}{45}x^3P[\{3,1,2\},2,2,2]-\\
&\frac{8}{135}x^3P[\{3,1,2\},2,2,3]+\frac{8}{135}x^3P[\{3,1,2\},2,3,3]-\frac{2}{135}x^2P[\{1,3,2\},1,1,1,1]+\\
&\frac{4}{135}x^2P[\{1,3,2\},1,1,1,2]+\frac{4}{135}x^2P[\{1,3,2\},1,1,1,3]-\\
&\frac{2}{45}x^2P[\{1,3,2\},1,1,2,2]-\frac{2}{45}x^2P[\{1,3,2\},1,1,3,3]+\frac{4}{135}x^2P[\{1,3,2\},1,2,2,2]+\\
&\frac{4}{135}x^2P[\{1,3,2\},1,3,3,3]-\frac{2}{135}x^2P[\{1,3,2\},2,2,2,2]+\\
&\frac{4}{135}x^2P[\{1,3,2\},2,2,2,3]-\frac{2}{45}x^2P[\{1,3,2\},2,2,3,3]+\\
&\frac{4}{135}x^2P[\{1,3,2\},2,3,3,3]-\frac{2}{135}x^2P[\{1,3,2\},3,3,3,3]+\\
&\frac{2}{135}x^2P[\{2,1,3\},1,1,1,1]-\frac{4}{135}x^2P[\{2,1,3\},1,1,1,2]-\\
&\frac{4}{135}x^2P[\{2,1,3\},1,1,1,3]+\frac{2}{45}x^2P[\{2,1,3\},1,1,2,2]+\\
&\frac{2}{45}x^2P[\{2,1,3\},1,1,3,3]-\frac{4}{135}x^2P[\{2,1,3\},1,2,2,2]-\\
&\frac{4}{135}x^2P[\{2,1,3\},1,3,3,3]+\frac{2}{135}x^2P[\{2,1,3\},2,2,2,2]-\\
&\frac{4}{135}x^2P[\{2,1,3\},2,2,2,3]+\frac{2}{45}x^2P[\{2,1,3\},2,2,3,3]-\\
&\frac{4}{135}x^2P[\{2,1,3\},2,3,3,3]+\frac{2}{135}x^2P[\{2,1,3\},3,3,3,3]\Big]
\end{aligned}
$$

```
d = 5; d3[R3[Append[B[d], 0]] // Last]
```

```
0
```

```
d = 6; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],$$
$$\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] -$$
$$\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -$$
$$\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2],$$
$$\frac{1}{120}x^5 P[\{1,2\}], \frac{1}{720}x^6 P[\{2,1\}] - \frac{37x^5 P[\{1,2\},1]}{7560} + \frac{37x^5 P[\{1,2\},2]}{7560} -$$
$$\frac{1}{270}x^4 P[\{2,1\},1,1] + \frac{1}{270}x^4 P[\{2,1\},1,2] + \frac{31x^3 P[\{1,2\},1,1,1]}{1890} -$$
$$\frac{31}{630}x^3 P[\{1,2\},1,1,2] + \frac{31}{630}x^3 P[\{1,2\},1,2,2] - \frac{31x^3 P[\{1,2\},2,2,2]}{1890} +$$
$$\frac{2}{135}x^2 P[\{2,1\},1,1,1,1] - \frac{8}{135}x^2 P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2 P[\{2,1\},1,1,2,2] -$$
$$\frac{2}{945}x\,P[\{1,2\},1,1,1,1,1] + \frac{2}{189}x\,P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x\,P[\{1,2\},1,1,1,2,2] +$$
$$\frac{4}{189}x\,P[\{1,2\},1,1,2,2,2] - \frac{2}{189}x\,P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x\,P[\{1,2\},2,2,2,2,2]\Big]$$

```
d = 7; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],$$
$$\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] -$$
$$\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -$$
$$\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5 P[\{1,2\}],$$
$$\frac{1}{720}x^6 P[\{2,1\}] - \frac{37x^5 P[\{1,2\},1]}{7560} + \frac{37x^5 P[\{1,2\},2]}{7560} - \frac{1}{270}x^4 P[\{2,1\},1,1] +$$
$$\frac{1}{270}x^4 P[\{2,1\},1,2] + \frac{31x^3 P[\{1,2\},1,1,1]}{1890} - \frac{31}{630}x^3 P[\{1,2\},1,1,2] +$$
$$\frac{31}{630}x^3 P[\{1,2\},1,2,2] - \frac{31x^3 P[\{1,2\},2,2,2]}{1890} + \frac{2}{135}x^2 P[\{2,1\},1,1,1,1] -$$
$$\frac{8}{135}x^2 P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2 P[\{2,1\},1,1,2,2] - \frac{2}{945}x\,P[\{1,2\},1,1,1,1,1] +$$
$$\frac{2}{189}x\,P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x\,P[\{1,2\},1,1,1,2,2] + \frac{4}{189}x\,P[\{1,2\},1,1,2,2,2] -$$
$$\frac{2}{189}x\,P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x\,P[\{1,2\},2,2,2,2,2], \frac{x^7 P[\{1,2\}]}{5040}\Big]$$

```
d = 8; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\begin{aligned}
&\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],\\
&\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] -\\
&\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -\\
&\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5 P[\{1,2\}],\\
&\frac{1}{720}x^6 P[\{2,1\}] - \frac{37\,x^5 P[\{1,2\},1]}{7560} + \frac{37\,x^5 P[\{1,2\},2]}{7560} - \frac{1}{270}x^4 P[\{2,1\},1,1] +\\
&\frac{1}{270}x^4 P[\{2,1\},1,2] + \frac{31\,x^3 P[\{1,2\},1,1,1]}{1890} - \frac{31}{630}x^3 P[\{1,2\},1,1,2] +\\
&\frac{31}{630}x^3 P[\{1,2\},1,2,2] - \frac{31\,x^3 P[\{1,2\},2,2,2]}{1890} + \frac{2}{135}x^2 P[\{2,1\},1,1,1,1] -\\
&\frac{8}{135}x^2 P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2 P[\{2,1\},1,1,2,2] - \frac{2}{945}x\,P[\{1,2\},1,1,1,1,1] +\\
&\frac{2}{189}x\,P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x\,P[\{1,2\},1,1,1,2,2] + \frac{4}{189}x\,P[\{1,2\},1,1,2,2,2] -\\
&\frac{2}{189}x\,P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x\,P[\{1,2\},2,2,2,2,2], \frac{x^7 P[\{1,2\}]}{5040},\\
&\frac{x^8 P[\{2,1\}]}{40\,320} - \frac{29\,x^7 P[\{1,2\},1]}{75\,600} + \frac{29\,x^7 P[\{1,2\},2]}{75\,600} - \frac{41\,x^6 P[\{2,1\},1,1]}{113\,400} +\\
&\frac{41\,x^6 P[\{2,1\},1,2]}{113\,400} + \frac{293\,x^5 P[\{1,2\},1,1,1]}{113\,400} + \frac{521\,x^5 P[\{1,2\},1,1,2]}{113\,400} -\\
&\frac{521\,x^5 P[\{1,2\},1,2,2]}{113\,400} - \frac{293\,x^5 P[\{1,2\},2,2,2]}{113\,400} + \frac{4\,x^4 P[\{2,1\},1,1,1,1]}{1575} +\\
&\frac{31\,x^4 P[\{2,1\},1,1,1,2]}{14\,175} - \frac{67\,x^4 P[\{2,1\},1,1,2,2]}{14\,175} - \frac{29\,x^3 P[\{1,2\},1,1,1,1,1]}{14\,175} +\\
&\frac{29\,x^3 P[\{1,2\},1,1,1,1,2]}{2835} - \frac{58\,x^3 P[\{1,2\},1,1,1,2,2]}{2835} +\\
&\frac{58\,x^3 P[\{1,2\},1,1,2,2,2]}{2835} - \frac{29\,x^3 P[\{1,2\},1,2,2,2,2]}{2835} + \frac{29\,x^3 P[\{1,2\},2,2,2,2,2]}{14\,175} -\\
&\frac{1}{525}x^2 P[\{2,1\},1,1,1,1,1,1] + \frac{2}{175}x^2 P[\{2,1\},1,1,1,1,1,2] -\\
&\frac{1}{35}x^2 P[\{2,1\},1,1,1,1,2,2] + \frac{2}{105}x^2 P[\{2,1\},1,1,1,2,2,2] +\\
&\frac{x\,P[\{1,2\},1,1,1,1,1,1,1]}{4725} - \frac{1}{675}x\,P[\{1,2\},1,1,1,1,1,1,2] +\\
&\frac{1}{225}x\,P[\{1,2\},1,1,1,1,1,2,2] - \frac{1}{135}x\,P[\{1,2\},1,1,1,1,2,2,2] +\\
&\frac{1}{135}x\,P[\{1,2\},1,1,1,2,2,2,2] - \frac{1}{225}x\,P[\{1,2\},1,1,2,2,2,2,2] +\\
&\frac{1}{675}x\,P[\{1,2\},1,2,2,2,2,2,2] - \frac{x\,P[\{1,2\},2,2,2,2,2,2,2]}{4725}\Big]
\end{aligned}$$

```
d = 9; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],$$
$$\frac{1}{6}x^3P[\{1,2\}], \frac{1}{24}x^4P[\{2,1\}] - \frac{13}{90}x^3P[\{1,2\},1] + \frac{13}{90}x^3P[\{1,2\},2] -$$
$$\frac{1}{9}x^2P[\{2,1\},1,1] + \frac{1}{9}x^2P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -$$
$$\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5P[\{1,2\}],$$
$$\frac{1}{720}x^6P[\{2,1\}] - \frac{37x^5P[\{1,2\},1]}{7560} + \frac{37x^5P[\{1,2\},2]}{7560} - \frac{1}{270}x^4P[\{2,1\},1,1] +$$
$$\frac{1}{270}x^4P[\{2,1\},1,2] + \frac{31x^3P[\{1,2\},1,1,1]}{1890} - \frac{31}{630}x^3P[\{1,2\},1,1,2] +$$
$$\frac{31}{630}x^3P[\{1,2\},1,2,2] - \frac{31x^3P[\{1,2\},2,2,2]}{1890} + \frac{2}{135}x^2P[\{2,1\},1,1,1,1] -$$
$$\frac{8}{135}x^2P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2P[\{2,1\},1,1,2,2] - \frac{2}{945}x\,P[\{1,2\},1,1,1,1,1] +$$
$$\frac{2}{189}x\,P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x\,P[\{1,2\},1,1,1,2,2] + \frac{4}{189}x\,P[\{1,2\},1,1,2,2,2] -$$
$$\frac{2}{189}x\,P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x\,P[\{1,2\},2,2,2,2,2], \frac{x^7P[\{1,2\}]}{5040},$$
$$\frac{x^8P[\{2,1\}]}{40\,320} - \frac{29x^7P[\{1,2\},1]}{75\,600} + \frac{29x^7P[\{1,2\},2]}{75\,600} - \frac{41x^6P[\{2,1\},1,1]}{113\,400} +$$
$$\frac{41x^6P[\{2,1\},1,2]}{113\,400} + \frac{293x^5P[\{1,2\},1,1,1]}{113\,400} + \frac{521x^5P[\{1,2\},1,1,2]}{113\,400} -$$
$$\frac{521x^5P[\{1,2\},1,2,2]}{113\,400} - \frac{293x^5P[\{1,2\},2,2,2]}{113\,400} + \frac{4x^4P[\{2,1\},1,1,1,1]}{1575} +$$
$$\frac{31x^4P[\{2,1\},1,1,1,2]}{14\,175} - \frac{67x^4P[\{2,1\},1,1,2,2]}{14\,175} - \frac{29x^3P[\{1,2\},1,1,1,1,1]}{14\,175} +$$
$$\frac{29x^3P[\{1,2\},1,1,1,1,2]}{2835} - \frac{58x^3P[\{1,2\},1,1,1,2,2]}{2835} +$$
$$\frac{58x^3P[\{1,2\},1,1,2,2,2]}{2835} - \frac{29x^3P[\{1,2\},1,2,2,2,2]}{2835} + \frac{29x^3P[\{1,2\},2,2,2,2,2]}{14\,175} -$$
$$\frac{1}{525}x^2P[\{2,1\},1,1,1,1,1,1] + \frac{2}{175}x^2P[\{2,1\},1,1,1,1,1,2] -$$
$$\frac{1}{35}x^2P[\{2,1\},1,1,1,1,2,2] + \frac{2}{105}x^2P[\{2,1\},1,1,1,2,2,2] +$$
$$\frac{x\,P[\{1,2\},1,1,1,1,1,1,1]}{4725} - \frac{1}{675}x\,P[\{1,2\},1,1,1,1,1,1,2] +$$
$$\frac{1}{225}x\,P[\{1,2\},1,1,1,1,1,2,2] - \frac{1}{135}x\,P[\{1,2\},1,1,1,1,2,2,2] +$$
$$\frac{1}{135}x\,P[\{1,2\},1,1,1,2,2,2,2] - \frac{1}{225}x\,P[\{1,2\},1,1,2,2,2,2,2] +$$
$$\frac{1}{675}x\,P[\{1,2\},1,2,2,2,2,2,2] - \frac{x\,P[\{1,2\},2,2,2,2,2,2,2]}{4725}, \frac{x^9P[\{1,2\}]}{362\,880}\Big]$$

```
d = 10; B[d] = Append[B[d - 1],
  x^d P[RotateLeft[{2, 1}, d]] / d! - d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],$$
$$\frac{1}{6}x^3P[\{1,2\}], \frac{1}{24}x^4P[\{2,1\}] - \frac{13}{90}x^3P[\{1,2\},1] + \frac{13}{90}x^3P[\{1,2\},2] -$$
$$\frac{1}{9}x^2P[\{2,1\},1,1] + \frac{1}{9}x^2P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -$$
$$\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5P[\{1,2\}],$$

$$\frac{1}{720}x^6P[\{2,1\}]-\frac{37x^5P[\{1,2\},1]}{7560}+\frac{37x^5P[\{1,2\},2]}{7560}-\frac{1}{270}x^4P[\{2,1\},1,1]+$$
$$\frac{1}{270}x^4P[\{2,1\},1,2]+\frac{31x^3P[\{1,2\},1,1,1]}{1890}-\frac{31}{630}x^3P[\{1,2\},1,1,2]+$$
$$\frac{31}{630}x^3P[\{1,2\},1,2,2]-\frac{31x^3P[\{1,2\},2,2,2]}{1890}+\frac{2}{135}x^2P[\{2,1\},1,1,1,1]-$$
$$\frac{8}{135}x^2P[\{2,1\},1,1,1,2]+\frac{2}{45}x^2P[\{2,1\},1,1,2,2]-\frac{2}{945}xP[\{1,2\},1,1,1,1,1]+$$
$$\frac{2}{189}xP[\{1,2\},1,1,1,1,2]-\frac{4}{189}xP[\{1,2\},1,1,1,2,2]+\frac{4}{189}xP[\{1,2\},1,1,2,2,2]-$$
$$\frac{2}{189}xP[\{1,2\},1,2,2,2,2]+\frac{2}{945}xP[\{1,2\},2,2,2,2,2],\ \frac{x^7P[\{1,2\}]}{5040},$$
$$\frac{x^8P[\{2,1\}]}{40320}-\frac{29x^7P[\{1,2\},1]}{75600}+\frac{29x^7P[\{1,2\},2]}{75600}-\frac{41x^6P[\{2,1\},1,1]}{113400}+$$
$$\frac{41x^6P[\{2,1\},1,2]}{113400}+\frac{293x^5P[\{1,2\},1,1,1]}{113400}+\frac{521x^5P[\{1,2\},1,1,2]}{113400}-$$
$$\frac{521x^5P[\{1,2\},1,2,2]}{113400}-\frac{293x^5P[\{1,2\},2,2,2]}{113400}+\frac{4x^4P[\{2,1\},1,1,1,1]}{1575}+$$
$$\frac{31x^4P[\{2,1\},1,1,1,2]}{14175}-\frac{67x^4P[\{2,1\},1,1,2,2]}{14175}-\frac{29x^3P[\{1,2\},1,1,1,1,1]}{14175}+$$
$$\frac{29x^3P[\{1,2\},1,1,1,1,2]}{2835}-\frac{58x^3P[\{1,2\},1,1,1,2,2]}{2835}+$$
$$\frac{58x^3P[\{1,2\},1,1,2,2,2]}{2835}-\frac{29x^3P[\{1,2\},1,2,2,2,2]}{2835}+\frac{29x^3P[\{1,2\},2,2,2,2,2]}{14175}-$$
$$\frac{1}{525}x^2P[\{2,1\},1,1,1,1,1,1]+\frac{2}{175}x^2P[\{2,1\},1,1,1,1,1,2]-$$
$$\frac{1}{35}x^2P[\{2,1\},1,1,1,1,2,2]+\frac{2}{105}x^2P[\{2,1\},1,1,1,2,2,2]+$$
$$\frac{xP[\{1,2\},1,1,1,1,1,1,1]}{4725}-\frac{1}{675}xP[\{1,2\},1,1,1,1,1,1,2]+$$
$$\frac{1}{225}xP[\{1,2\},1,1,1,1,1,2,2]-\frac{1}{135}xP[\{1,2\},1,1,1,1,2,2,2]+$$
$$\frac{1}{135}xP[\{1,2\},1,1,1,2,2,2,2]-\frac{1}{225}xP[\{1,2\},1,1,2,2,2,2,2]+$$
$$\frac{1}{675}xP[\{1,2\},1,2,2,2,2,2,2]-\frac{xP[\{1,2\},2,2,2,2,2,2,2]}{4725},\ \frac{x^9P[\{1,2\}]}{362880},$$
$$\frac{x^{10}P[\{2,1\}]}{3628800}+\frac{1129x^9P[\{1,2\},1]}{59875200}-\frac{1129x^9P[\{1,2\},2]}{59875200}+\frac{13x^8P[\{2,1\},1,1]}{680400}-$$
$$\frac{13x^8P[\{2,1\},1,2]}{680400}-\frac{743x^7P[\{1,2\},1,1,1]}{7484400}-\frac{779x^7P[\{1,2\},1,1,2]}{831600}+$$
$$\frac{779x^7P[\{1,2\},1,2,2]}{831600}+\frac{743x^7P[\{1,2\},2,2,2]}{7484400}-\frac{17x^6P[\{2,1\},1,1,1,1]}{170100}-$$
$$\frac{71x^6P[\{2,1\},1,1,1,2]}{85050}+\frac{53x^6P[\{2,1\},1,1,2,2]}{56700}-\frac{347x^5P[\{1,2\},1,1,1,1,1]}{623700}+$$
$$\frac{85x^5P[\{1,2\},1,1,1,1,2]}{74844}+\frac{223x^5P[\{1,2\},1,1,1,2,2]}{37422}-$$
$$\frac{223x^5P[\{1,2\},1,1,2,2,2]}{37422}-\frac{85x^5P[\{1,2\},1,2,2,2,2]}{74844}+$$
$$\frac{347x^5P[\{1,2\},2,2,2,2,2]}{623700}-\frac{47x^4P[\{2,1\},1,1,1,1,1,1]}{85050}+$$
$$\frac{71x^4P[\{2,1\},1,1,1,1,1,2]}{42525}+\frac{83x^4P[\{2,1\},1,1,1,1,2,2]}{17010}-$$
$$\frac{17x^4P[\{2,1\},1,1,1,2,2,2]}{2835}+\frac{233x^3P[\{1,2\},1,1,1,1,1,1,1]}{935550}-$$
$$\frac{233x^3P[\{1,2\},1,1,1,1,1,1,2]}{133650}+\frac{233x^3P[\{1,2\},1,1,1,1,1,2,2]}{44550}-$$
$$\frac{233x^3P[\{1,2\},1,1,1,1,2,2,2]}{26730}+\frac{233x^3P[\{1,2\},1,1,1,2,2,2,2]}{26730}-$$

$$\frac{233\,x^3\,P[\{1,2\},1,1,2,2,2,2,2]}{44\,550}+\frac{233\,x^3\,P[\{1,2\},1,2,2,2,2,2,2]}{133\,650}-$$
$$\frac{233\,x^3\,P[\{1,2\},2,2,2,2,2,2,2]}{935\,550}+\frac{2\,x^2\,P[\{2,1\},1,1,1,1,1,1,1,1]}{8505}-$$
$$\frac{16\,x^2\,P[\{2,1\},1,1,1,1,1,1,1,2]}{8505}+\frac{8\,x^2\,P[\{2,1\},1,1,1,1,1,1,2,2]}{1215}-$$
$$\frac{16\,x^2\,P[\{2,1\},1,1,1,1,1,2,2,2]}{1215}+\frac{2}{243}x^2\,P[\{2,1\},1,1,1,1,2,2,2,2]-$$
$$\frac{2\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,1]}{93\,555}+\frac{2\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,2]}{10\,395}-$$
$$\frac{8\,x\,P[\{1,2\},1,1,1,1,1,1,1,2,2]}{10\,395}+\frac{8\,x\,P[\{1,2\},1,1,1,1,1,1,2,2,2]}{4455}-$$
$$\frac{4\,x\,P[\{1,2\},1,1,1,1,1,2,2,2,2]}{1485}+\frac{4\,x\,P[\{1,2\},1,1,1,1,2,2,2,2,2]}{1485}-$$
$$\frac{8\,x\,P[\{1,2\},1,1,1,2,2,2,2,2,2]}{4455}+\frac{8\,x\,P[\{1,2\},1,1,2,2,2,2,2,2,2]}{10\,395}-$$
$$\frac{2\,x\,P[\{1,2\},1,2,2,2,2,2,2,2,2]}{10\,395}+\frac{2\,x\,P[\{1,2\},2,2,2,2,2,2,2,2,2]}{93\,555}\Big]$$

```
f12 = GeneratingSeries[{1, 2}, B[10]] /. {t[i_] → h t_i, x → h x}
```

$$\text{ASeries}\Big[2,\,0,\,h\,x,\,-\frac{1}{3}h^2\,x\,t_1+\frac{1}{3}h^2\,x\,t_2,\,\frac{h^3\,x^3}{6},$$
$$-\frac{13}{90}h^4\,x^3\,t_1+\frac{1}{45}h^4\,x\,t_1^3+\frac{13}{90}h^4\,x^3\,t_2-\frac{1}{15}h^4\,x\,t_1^2\,t_2+\frac{1}{15}h^4\,x\,t_1\,t_2^2-\frac{1}{45}h^4\,x\,t_2^3,\,\frac{h^5\,x^5}{120},$$
$$-\frac{37\,h^6\,x^5\,t_1}{7560}+\frac{31\,h^6\,x^3\,t_1^3}{1890}-\frac{2}{945}h^6\,x\,t_1^5+\frac{37\,h^6\,x^5\,t_2}{7560}-\frac{31}{630}h^6\,x^3\,t_1^2\,t_2+\frac{2}{189}h^6\,x\,t_1^4\,t_2+$$
$$\frac{31}{630}h^6\,x^3\,t_1\,t_2^2-\frac{4}{189}h^6\,x\,t_1^3\,t_2^2-\frac{31\,h^6\,x^3\,t_2^3}{1890}+\frac{4}{189}h^6\,x\,t_1^2\,t_2^3-\frac{2}{189}h^6\,x\,t_1\,t_2^4+\frac{2}{945}h^6\,x\,t_2^5,\,\frac{h^7\,x^7}{5040},$$
$$-\frac{29\,h^8\,x^7\,t_1}{75\,600}+\frac{293\,h^8\,x^5\,t_1^3}{113\,400}-\frac{29\,h^8\,x^3\,t_1^5}{14\,175}+\frac{h^8\,x\,t_1^7}{4725}+\frac{29\,h^8\,x^7\,t_2}{75\,600}+\frac{521\,h^8\,x^5\,t_1^2\,t_2}{113\,400}+\frac{29\,h^8\,x^3\,t_1^4\,t_2}{2835}-$$
$$\frac{1}{675}h^8\,x\,t_1^6\,t_2-\frac{521\,h^8\,x^5\,t_1\,t_2^2}{113\,400}-\frac{58\,h^8\,x^3\,t_1^3\,t_2^2}{2835}+\frac{1}{225}h^8\,x\,t_1^5\,t_2^2-\frac{293\,h^8\,x^5\,t_2^3}{113\,400}+\frac{58\,h^8\,x^3\,t_1^2\,t_2^3}{2835}-$$
$$\frac{1}{135}h^8\,x\,t_1^4\,t_2^3-\frac{29\,h^8\,x^3\,t_1\,t_2^4}{2835}+\frac{1}{135}h^8\,x\,t_1^3\,t_2^4+\frac{29\,h^8\,x^3\,t_2^5}{14\,175}-\frac{1}{225}h^8\,x\,t_1^2\,t_2^5+\frac{1}{675}h^8\,x\,t_1\,t_2^6-\frac{h^8\,x\,t_2^7}{4725},$$
$$\frac{h^9\,x^9}{362\,880},\,\frac{1129\,h^{10}\,x^9\,t_1}{59\,875\,200}-\frac{743\,h^{10}\,x^7\,t_1^3}{7\,484\,400}-\frac{347\,h^{10}\,x^5\,t_1^5}{623\,700}+\frac{233\,h^{10}\,x^3\,t_1^7}{935\,550}-\frac{2\,h^{10}\,x\,t_1^9}{93\,555}-\frac{1129\,h^{10}\,x^9\,t_2}{59\,875\,200}-$$
$$\frac{779\,h^{10}\,x^7\,t_1^2\,t_2}{831\,600}+\frac{85\,h^{10}\,x^5\,t_1^4\,t_2}{74\,844}-\frac{233\,h^{10}\,x^3\,t_1^6\,t_2}{133\,650}+\frac{2\,h^{10}\,x\,t_1^8\,t_2}{10\,395}+\frac{779\,h^{10}\,x^7\,t_1\,t_2^2}{831\,600}+\frac{223\,h^{10}\,x^5\,t_1^3\,t_2^2}{37\,422}+$$
$$\frac{233\,h^{10}\,x^3\,t_1^5\,t_2^2}{44\,550}-\frac{8\,h^{10}\,x\,t_1^7\,t_2^2}{10\,395}+\frac{743\,h^{10}\,x^7\,t_2^3}{7\,484\,400}-\frac{223\,h^{10}\,x^5\,t_1^2\,t_2^3}{37\,422}-\frac{233\,h^{10}\,x^3\,t_1^4\,t_2^3}{26\,730}+\frac{8\,h^{10}\,x\,t_1^6\,t_2^3}{4455}-$$
$$\frac{85\,h^{10}\,x^5\,t_1\,t_2^4}{74\,844}+\frac{233\,h^{10}\,x^3\,t_1^3\,t_2^4}{26\,730}-\frac{4\,h^{10}\,x\,t_1^5\,t_2^4}{1485}+\frac{347\,h^{10}\,x^5\,t_2^5}{623\,700}-\frac{233\,h^{10}\,x^3\,t_1^2\,t_2^5}{44\,550}+\frac{4\,h^{10}\,x\,t_1^4\,t_2^5}{1485}+$$
$$\frac{233\,h^{10}\,x^3\,t_1\,t_2^6}{133\,650}-\frac{8\,h^{10}\,x\,t_1^3\,t_2^6}{4455}-\frac{233\,h^{10}\,x^3\,t_2^7}{935\,550}+\frac{8\,h^{10}\,x\,t_1^2\,t_2^7}{10\,395}-\frac{2\,h^{10}\,x\,t_1\,t_2^8}{10\,395}+\frac{2\,h^{10}\,x\,t_2^9}{93\,555}\Big]$$

```
f21 = GeneratingSeries[{2, 1}, B[10]] /. {t[i_] → h t_i, x → h x}
```

$$\text{ASeries}\left[2,\ 1,\ 0,\ \frac{h^2\,x^2}{2},\ 0,\ \frac{h^4\,x^4}{24}-\frac{1}{9}\,h^4\,x^2\,t_1^2+\frac{1}{9}\,h^4\,x^2\,t_1\,t_2,\ 0,\right.$$
$$\frac{h^6\,x^6}{720}-\frac{1}{270}\,h^6\,x^4\,t_1^2+\frac{2}{135}\,h^6\,x^2\,t_1^4+\frac{1}{270}\,h^6\,x^4\,t_1\,t_2-\frac{8}{135}\,h^6\,x^2\,t_1^3\,t_2+\frac{2}{45}\,h^6\,x^2\,t_1^2\,t_2^2,$$
$$0,\ \frac{h^8\,x^8}{40\,320}-\frac{41\,h^8\,x^6\,t_1^2}{113\,400}+\frac{4\,h^8\,x^4\,t_1^4}{1575}-\frac{1}{525}\,h^8\,x^2\,t_1^6+\frac{41\,h^8\,x^6\,t_1\,t_2}{113\,400}+$$
$$\frac{31\,h^8\,x^4\,t_1^3\,t_2}{14\,175}+\frac{2}{175}\,h^8\,x^2\,t_1^5\,t_2-\frac{67\,h^8\,x^4\,t_1^2\,t_2^2}{14\,175}-\frac{1}{35}\,h^8\,x^2\,t_1^4\,t_2^2+\frac{2}{105}\,h^8\,x^2\,t_1^3\,t_2^3,$$
$$0,\ \frac{h^{10}\,x^{10}}{3\,628\,800}+\frac{13\,h^{10}\,x^8\,t_1^2}{680\,400}-\frac{17\,h^{10}\,x^6\,t_1^4}{170\,100}-\frac{47\,h^{10}\,x^4\,t_1^6}{85\,050}+\frac{2\,h^{10}\,x^2\,t_1^8}{8505}-\frac{13\,h^{10}\,x^8\,t_1\,t_2}{680\,400}-$$
$$\frac{71\,h^{10}\,x^6\,t_1^3\,t_2}{85\,050}+\frac{71\,h^{10}\,x^4\,t_1^5\,t_2}{42\,525}-\frac{16\,h^{10}\,x^2\,t_1^7\,t_2}{8505}+\frac{53\,h^{10}\,x^6\,t_1^2\,t_2^2}{56\,700}+$$
$$\left.\frac{83\,h^{10}\,x^4\,t_1^4\,t_2^2}{17\,010}+\frac{8\,h^{10}\,x^2\,t_1^6\,t_2^2}{1215}-\frac{17\,h^{10}\,x^4\,t_1^3\,t_2^3}{2835}-\frac{16\,h^{10}\,x^2\,t_1^5\,t_2^3}{1215}+\frac{2}{243}\,h^{10}\,x^2\,t_1^4\,t_2^4\right]$$

```
f12 /. h → 1 // TeXForm
```

```
\text{ASeries}\left(2,0,x,\frac{x t_2}{3}-\frac{x t_1}{3},\frac{x^3}{6},-\frac{13}{90} t_
   x}{45}-\frac{t_2^3 x}{45}+\frac{1}{15} t_1 t_2^2 x-\frac{1}{15} t_1^2 t_2 x,\frac{x^5}
   x^5}{7560}+\frac{31 t_1^3 x^3}{1890}-\frac{31 t_2^3 x^3}{1890}+\frac{31}{630} t_1 t_2^
   x}{945}+\frac{2 t_2^5 x}{945}-\frac{2}{189} t_1 t_2^4 x+\frac{4}{189} t_1^2 t_2^3 x-\f
   x,\frac{x^7}{5040},-\frac{29 t_1 x^7}{75600}+\frac{29 t_2 x^7}{75600}+\frac{293 t_1^3 x
   t_1 t_2^2 x^5}{113400}+\frac{521 t_1^2 t_2 x^5}{113400}-\frac{29 t_1^5 x^3}{14175}+\fra
   x^3}{2835}+\frac{58 t_1^2 t_2^3 x^3}{2835}-\frac{58 t_1^3 t_2^2 x^3}{2835}+\frac{29 t_
   x}{4725}+\frac{1}{675} t_1 t_2^6 x-\frac{1}{225} t_1^2 t_2^5 x+\frac{1}{135} t_1^3 t_2
   t_2^2 x-\frac{1}{675} t_1^6 t_2 x,\frac{x^9}{362880},\frac{1129 t_1 x^9}{59875200}-\fra
   x^7}{7484400}+\frac{743 t_2^3 x^7}{7484400}+\frac{779 t_1 t_2^2 x^7}{831600}-\frac{779
   x^5}{623700}+\frac{347 t_2^5 x^5}{623700}-\frac{85 t_1 t_2^4 x^5}{74844}-\frac{223 t_1
   x^5}{37422}+\frac{85 t_1^4 t_2 x^5}{74844}+\frac{233 t_1^7 x^3}{935550}-\frac{233 t_2^
   x^3}{133650}-\frac{233 t_1^2 t_2^5 x^3}{44550}+\frac{233 t_1^3 t_2^4 x^3}{26730}-\frac
   x^3}{44550}-\frac{233 t_1^6 t_2 x^3}{133650}-\frac{2 t_1^9 x}{93555}+\frac{2 t_2^9 x}{
   x}{10395}-\frac{8 t_1^3 t_2^6 x}{4455}+\frac{4 t_1^4 t_2^5 x}{1485}-\frac{4 t_1^5 t_2^
   t_2^2 x}{10395}+\frac{2 t_1^8 t_2 x}{10395}\right)
```

```
f21 /. h → 1 // TeXForm
```

```
\text{ASeries}\left(2,1,0,\frac{x^2}{2},0,\frac{x^4}{24}-\frac{1}{9} t_1^2 x^2+\frac{1}{9
   x^4+\frac{1}{270} t_1 t_2 x^4+\frac{2}{135} t_1^4 x^2+\frac{2}{45} t_1^2 t_2^2 x^2-\fr
   t_1^2 x^6}{113400}+\frac{41 t_1 t_2 x^6}{113400}+\frac{4 t_1^4 x^4}{1575}-\frac{67 t_1
   x^4}{14175}-\frac{1}{525} t_1^6 x^2+\frac{2}{105} t_1^3 t_2^3 x^2-\frac{1}{35} t_1^4 t
   x^2,0,\frac{x^{10}}{3628800}+\frac{13 t_1^2 x^8}{680400}-\frac{13 t_1 t_2 x^8}{680400}-
   x^6}{56700}-\frac{71 t_1^3 t_2 x^6}{85050}-\frac{47 t_1^6 x^4}{85050}-\frac{17 t_1^3 t_
   x^4}{17010}+\frac{71 t_1^5 t_2 x^4}{42525}+\frac{2 t_1^8 x^2}{8505}+\frac{2}{243} t_1^
   t_1^6 t_2^2 x^2}{1215}-\frac{16 t_1^7 t_2 x^2}{8505}\right)
```

The "Non-Exponential" Solution:

```
{R3[B[0]], R3[B[1]], R3[Append[B[1], 0]]}
```

$$\left\{\text{ASeries}[3,\ 0],\ \text{ASeries}[3,\ 0,\ 0],\ \text{ASeries}\left[3,\ 0,\ 0,\ -x^2\,P[\{1,\ 3,\ 2\}]+x^2\,P[\{2,\ 1,\ 3\}]\right]\right\}$$

```
d = 2; d2inv[d, Last[R3[Append[B[d - 1], 0]]]]
```

$$\frac{1}{3}\,x\,P[\{1,\ 2\},\ 1]-\frac{1}{3}\,x\,P[\{1,\ 2\},\ 2]$$

```
d = 2; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\left[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2]\right]$$

```
d = 2; R3[Append[B[d], 0]]
```

```
ASeries[3, 0, 0, 0, 0]
```

```
d = 3; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\left[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2], \frac{1}{6}x^3 P[\{1,2\}]\right]$$

```
d = 3; R3[Append[B[d], 0]]
```

$$\begin{aligned}\text{ASeries}\Big[3, 0, 0, 0, 0, &\frac{1}{18}x^4 P[\{1,3,2\}] + \frac{1}{18}x^4 P[\{2,1,3\}] - \\ &\frac{1}{9}x^4 P[\{3,2,1\}] - \frac{1}{3}x^3 P[\{1,2,3\},1] + \frac{1}{3}x^3 P[\{1,2,3\},2] + \frac{1}{9}x^3 P[\{2,3,1\},2] - \\ &\frac{1}{9}x^3 P[\{2,3,1\},3] + \frac{2}{9}x^3 P[\{3,1,2\},1] - \frac{2}{9}x^3 P[\{3,1,2\},2] + \\ &\frac{1}{9}x^2 P[\{1,3,2\},1,1] - \frac{1}{9}x^2 P[\{1,3,2\},1,2] - \frac{1}{9}x^2 P[\{1,3,2\},1,3] + \\ &\frac{1}{9}x^2 P[\{1,3,2\},2,2] - \frac{1}{9}x^2 P[\{1,3,2\},2,3] + \frac{1}{9}x^2 P[\{1,3,2\},3,3] - \\ &\frac{1}{9}x^2 P[\{2,1,3\},1,1] + \frac{1}{9}x^2 P[\{2,1,3\},1,2] + \frac{1}{9}x^2 P[\{2,1,3\},1,3] - \\ &\frac{1}{9}x^2 P[\{2,1,3\},2,2] + \frac{1}{9}x^2 P[\{2,1,3\},2,3] - \frac{1}{9}x^2 P[\{2,1,3\},3,3]\Big]\end{aligned}$$

```
d = 3; d3[R3[Append[B[d], 0]] // Last]
```

```
0
```

```
d = 4; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\begin{aligned}\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], &\frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2], \\ &\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] - \\ &\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] - \\ &\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2]\Big]\end{aligned}$$

```
d = 4; R3[Append[B[d], 0]]
```

```
ASeries[3, 0, 0, 0, 0, 0, 0]
```

```
d = 5; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\begin{aligned}\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], &\frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2], \\ &\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] - \\ &\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] - \\ &\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5 P[\{1,2\}]\Big]\end{aligned}$$

```
d = 5; R3[Append[B[d], 0]]
```

$$
\begin{aligned}
&\text{ASeries}\Big[3, 0, 0, 0, 0, 0, 0,\\
&-\frac{11}{360}x^6P[\{1,3,2\}]-\frac{1}{40}x^6P[\{2,1,3\}]+\frac{1}{18}x^6P[\{3,2,1\}]+\frac{1}{30}x^5P[\{1,2,3\},1]-\\
&\frac{29}{270}x^5P[\{1,2,3\},2]+\frac{2}{27}x^5P[\{1,2,3\},3]-\frac{2}{45}x^5P[\{2,3,1\},1]+\frac{29}{270}x^5P[\{2,3,1\},2]-\\
&\frac{17}{270}x^5P[\{2,3,1\},3]+\frac{1}{45}x^5P[\{3,1,2\},1]-\frac{1}{45}x^5P[\{3,1,2\},2]-\\
&\frac{1}{18}x^4P[\{1,3,2\},1,1]+\frac{23}{270}x^4P[\{1,3,2\},1,2]+\frac{7}{270}x^4P[\{1,3,2\},1,3]-\\
&\frac{1}{18}x^4P[\{1,3,2\},2,2]+\frac{7}{270}x^4P[\{1,3,2\},2,3]-\frac{7}{270}x^4P[\{1,3,2\},3,3]+\\
&\frac{1}{90}x^4P[\{2,1,3\},1,1]-\frac{11}{270}x^4P[\{2,1,3\},1,2]+\frac{1}{54}x^4P[\{2,1,3\},1,3]+\\
&\frac{11}{270}x^4P[\{2,1,3\},2,2]-\frac{11}{270}x^4P[\{2,1,3\},2,3]+\frac{1}{90}x^4P[\{2,1,3\},3,3]+\\
&\frac{2}{135}x^4P[\{3,2,1\},1,1]-\frac{8}{135}x^4P[\{3,2,1\},1,2]+\frac{4}{135}x^4P[\{3,2,1\},1,3]+\\
&\frac{4}{45}x^4P[\{3,2,1\},2,2]-\frac{16}{135}x^4P[\{3,2,1\},2,3]+\frac{2}{45}x^4P[\{3,2,1\},3,3]+\\
&\frac{8}{135}x^3P[\{1,2,3\},1,1,1]-\frac{16}{135}x^3P[\{1,2,3\},1,1,2]-\frac{8}{135}x^3P[\{1,2,3\},1,1,3]+\\
&\frac{4}{27}x^3P[\{1,2,3\},1,2,2]-\frac{8}{135}x^3P[\{1,2,3\},1,2,3]+\frac{4}{45}x^3P[\{1,2,3\},1,3,3]-\\
&\frac{2}{27}x^3P[\{1,2,3\},2,2,2]+\frac{2}{27}x^3P[\{1,2,3\},2,2,3]-\frac{2}{45}x^3P[\{1,2,3\},2,3,3]-\\
&\frac{2}{135}x^3P[\{1,2,3\},3,3,3]-\frac{2}{135}x^3P[\{2,3,1\},1,1,2]+\frac{2}{135}x^3P[\{2,3,1\},1,1,3]+\\
&\frac{2}{135}x^3P[\{2,3,1\},1,2,2]-\frac{2}{135}x^3P[\{2,3,1\},1,3,3]-\frac{4}{135}x^3P[\{2,3,1\},2,2,2]+\\
&\frac{2}{27}x^3P[\{2,3,1\},2,2,3]-\frac{2}{27}x^3P[\{2,3,1\},2,3,3]+\frac{4}{135}x^3P[\{2,3,1\},3,3,3]-\\
&\frac{2}{45}x^3P[\{3,1,2\},1,1,1]+\frac{2}{27}x^3P[\{3,1,2\},1,1,2]+\frac{8}{135}x^3P[\{3,1,2\},1,1,3]-\\
&\frac{2}{27}x^3P[\{3,1,2\},1,2,2]-\frac{8}{135}x^3P[\{3,1,2\},1,3,3]+\frac{2}{45}x^3P[\{3,1,2\},2,2,2]-\\
&\frac{8}{135}x^3P[\{3,1,2\},2,2,3]+\frac{8}{135}x^3P[\{3,1,2\},2,3,3]-\frac{2}{135}x^2P[\{1,3,2\},1,1,1,1]+\\
&\frac{4}{135}x^2P[\{1,3,2\},1,1,1,2]+\frac{4}{135}x^2P[\{1,3,2\},1,1,1,3]-\\
&\frac{2}{45}x^2P[\{1,3,2\},1,1,2,2]-\frac{2}{45}x^2P[\{1,3,2\},1,1,3,3]+\frac{4}{135}x^2P[\{1,3,2\},1,2,2,2]+\\
&\frac{4}{135}x^2P[\{1,3,2\},1,3,3,3]-\frac{2}{135}x^2P[\{1,3,2\},2,2,2,2]+\\
&\frac{4}{135}x^2P[\{1,3,2\},2,2,2,3]-\frac{2}{45}x^2P[\{1,3,2\},2,2,3,3]+\\
&\frac{4}{135}x^2P[\{1,3,2\},2,3,3,3]-\frac{2}{135}x^2P[\{1,3,2\},3,3,3,3]+\\
&\frac{2}{135}x^2P[\{2,1,3\},1,1,1,1]-\frac{4}{135}x^2P[\{2,1,3\},1,1,1,2]-\\
&\frac{4}{135}x^2P[\{2,1,3\},1,1,1,3]+\frac{2}{45}x^2P[\{2,1,3\},1,1,2,2]+\\
&\frac{2}{45}x^2P[\{2,1,3\},1,1,3,3]-\frac{4}{135}x^2P[\{2,1,3\},1,2,2,2]-\\
&\frac{4}{135}x^2P[\{2,1,3\},1,3,3,3]+\frac{2}{135}x^2P[\{2,1,3\},2,2,2,2]-\\
&\frac{4}{135}x^2P[\{2,1,3\},2,2,2,3]+\frac{2}{45}x^2P[\{2,1,3\},2,2,3,3]-\\
&\frac{4}{135}x^2P[\{2,1,3\},2,3,3,3]+\frac{2}{135}x^2P[\{2,1,3\},3,3,3,3]\Big]
\end{aligned}
$$

```
d = 5; d3[R3[Append[B[d], 0]] // Last]
```

```
0
```

```
d = 6; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x P[\{1,2\},1] + \frac{1}{3}x P[\{1,2\},2],$$
$$\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] -$$
$$\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x P[\{1,2\},1,1,1] -$$
$$\frac{1}{15}x P[\{1,2\},1,1,2] + \frac{1}{15}x P[\{1,2\},1,2,2] - \frac{1}{45}x P[\{1,2\},2,2,2],$$
$$\frac{1}{120}x^5 P[\{1,2\}], \frac{1}{720}x^6 P[\{2,1\}] - \frac{37x^5 P[\{1,2\},1]}{7560} + \frac{37x^5 P[\{1,2\},2]}{7560} -$$
$$\frac{1}{270}x^4 P[\{2,1\},1,1] + \frac{1}{270}x^4 P[\{2,1\},1,2] + \frac{31x^3 P[\{1,2\},1,1,1]}{1890} -$$
$$\frac{31}{630}x^3 P[\{1,2\},1,1,2] + \frac{31}{630}x^3 P[\{1,2\},1,2,2] - \frac{31x^3 P[\{1,2\},2,2,2]}{1890} +$$
$$\frac{2}{135}x^2 P[\{2,1\},1,1,1,1] - \frac{8}{135}x^2 P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2 P[\{2,1\},1,1,2,2] -$$
$$\frac{2}{945}x P[\{1,2\},1,1,1,1,1] + \frac{2}{189}x P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x P[\{1,2\},1,1,1,2,2] +$$
$$\frac{4}{189}x P[\{1,2\},1,1,2,2,2] - \frac{2}{189}x P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x P[\{1,2\},2,2,2,2,2]\Big]$$

```
d = 7; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x P[\{1,2\}], \frac{1}{2}x^2 P[\{2,1\}] - \frac{1}{3}x P[\{1,2\},1] + \frac{1}{3}x P[\{1,2\},2],$$
$$\frac{1}{6}x^3 P[\{1,2\}], \frac{1}{24}x^4 P[\{2,1\}] - \frac{13}{90}x^3 P[\{1,2\},1] + \frac{13}{90}x^3 P[\{1,2\},2] -$$
$$\frac{1}{9}x^2 P[\{2,1\},1,1] + \frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x P[\{1,2\},1,1,1] -$$
$$\frac{1}{15}x P[\{1,2\},1,1,2] + \frac{1}{15}x P[\{1,2\},1,2,2] - \frac{1}{45}x P[\{1,2\},2,2,2], \frac{1}{120}x^5 P[\{1,2\}],$$
$$\frac{1}{720}x^6 P[\{2,1\}] - \frac{37x^5 P[\{1,2\},1]}{7560} + \frac{37x^5 P[\{1,2\},2]}{7560} - \frac{1}{270}x^4 P[\{2,1\},1,1] +$$
$$\frac{1}{270}x^4 P[\{2,1\},1,2] + \frac{31x^3 P[\{1,2\},1,1,1]}{1890} - \frac{31}{630}x^3 P[\{1,2\},1,1,2] +$$
$$\frac{31}{630}x^3 P[\{1,2\},1,2,2] - \frac{31x^3 P[\{1,2\},2,2,2]}{1890} + \frac{2}{135}x^2 P[\{2,1\},1,1,1,1] -$$
$$\frac{8}{135}x^2 P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2 P[\{2,1\},1,1,2,2] - \frac{2}{945}x P[\{1,2\},1,1,1,1,1] +$$
$$\frac{2}{189}x P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x P[\{1,2\},1,1,1,2,2] + \frac{4}{189}x P[\{1,2\},1,1,2,2,2] -$$
$$\frac{2}{189}x P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x P[\{1,2\},2,2,2,2,2], \frac{x^7 P[\{1,2\}]}{5040}\Big]$$

```
d = 8; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\begin{aligned}
&\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],\\
&\frac{1}{6}x^3P[\{1,2\}], \frac{1}{24}x^4P[\{2,1\}] - \frac{13}{90}x^3P[\{1,2\},1] + \frac{13}{90}x^3P[\{1,2\},2] -\\
&\frac{1}{9}x^2P[\{2,1\},1,1] + \frac{1}{9}x^2P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -\\
&\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5P[\{1,2\}],\\
&\frac{1}{720}x^6P[\{2,1\}] - \frac{37\,x^5\,P[\{1,2\},1]}{7560} + \frac{37\,x^5\,P[\{1,2\},2]}{7560} - \frac{1}{270}x^4P[\{2,1\},1,1] +\\
&\frac{1}{270}x^4P[\{2,1\},1,2] + \frac{31\,x^3\,P[\{1,2\},1,1,1]}{1890} - \frac{31}{630}x^3P[\{1,2\},1,1,2] +\\
&\frac{31}{630}x^3P[\{1,2\},1,2,2] - \frac{31\,x^3\,P[\{1,2\},2,2,2]}{1890} + \frac{2}{135}x^2P[\{2,1\},1,1,1,1] -\\
&\frac{8}{135}x^2P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2P[\{2,1\},1,1,2,2] - \frac{2}{945}x\,P[\{1,2\},1,1,1,1,1] +\\
&\frac{2}{189}x\,P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x\,P[\{1,2\},1,1,1,2,2] + \frac{4}{189}x\,P[\{1,2\},1,1,2,2,2] -\\
&\frac{2}{189}x\,P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x\,P[\{1,2\},2,2,2,2,2], \frac{x^7\,P[\{1,2\}]}{5040},\\
&\frac{x^8\,P[\{2,1\}]}{40\,320} - \frac{29\,x^7\,P[\{1,2\},1]}{75\,600} + \frac{29\,x^7\,P[\{1,2\},2]}{75\,600} - \frac{41\,x^6\,P[\{2,1\},1,1]}{113\,400} +\\
&\frac{41\,x^6\,P[\{2,1\},1,2]}{113\,400} + \frac{293\,x^5\,P[\{1,2\},1,1,1]}{113\,400} + \frac{521\,x^5\,P[\{1,2\},1,1,2]}{113\,400} -\\
&\frac{521\,x^5\,P[\{1,2\},1,2,2]}{113\,400} - \frac{293\,x^5\,P[\{1,2\},2,2,2]}{113\,400} + \frac{4\,x^4\,P[\{2,1\},1,1,1,1]}{1575} +\\
&\frac{31\,x^4\,P[\{2,1\},1,1,1,2]}{14\,175} - \frac{67\,x^4\,P[\{2,1\},1,1,2,2]}{14\,175} - \frac{29\,x^3\,P[\{1,2\},1,1,1,1,1]}{14\,175} +\\
&\frac{29\,x^3\,P[\{1,2\},1,1,1,1,2]}{2835} - \frac{58\,x^3\,P[\{1,2\},1,1,1,2,2]}{2835} +\\
&\frac{58\,x^3\,P[\{1,2\},1,1,2,2,2]}{2835} - \frac{29\,x^3\,P[\{1,2\},1,2,2,2,2]}{2835} + \frac{29\,x^3\,P[\{1,2\},2,2,2,2,2]}{14\,175} -\\
&\frac{1}{525}x^2P[\{2,1\},1,1,1,1,1,1] + \frac{2}{175}x^2P[\{2,1\},1,1,1,1,1,2] -\\
&\frac{1}{35}x^2P[\{2,1\},1,1,1,1,2,2] + \frac{2}{105}x^2P[\{2,1\},1,1,1,2,2,2] +\\
&\frac{x\,P[\{1,2\},1,1,1,1,1,1,1]}{4725} - \frac{1}{675}x\,P[\{1,2\},1,1,1,1,1,1,2] +\\
&\frac{1}{225}x\,P[\{1,2\},1,1,1,1,1,2,2] - \frac{1}{135}x\,P[\{1,2\},1,1,1,1,2,2,2] +\\
&\frac{1}{135}x\,P[\{1,2\},1,1,1,2,2,2,2] - \frac{1}{225}x\,P[\{1,2\},1,1,2,2,2,2,2] +\\
&\frac{1}{675}x\,P[\{1,2\},1,2,2,2,2,2,2] - \frac{x\,P[\{1,2\},2,2,2,2,2,2,2]}{4725}\Big]
\end{aligned}$$

```
d = 9; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\begin{aligned}
&\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], \frac{1}{2}x^2P[\{2,1\}] - \frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],\\
&\frac{1}{6}x^3P[\{1,2\}], \frac{1}{24}x^4P[\{2,1\}] - \frac{13}{90}x^3P[\{1,2\},1] + \frac{13}{90}x^3P[\{1,2\},2] -\\
&\frac{1}{9}x^2P[\{2,1\},1,1] + \frac{1}{9}x^2P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] -\\
&\frac{1}{15}x\,P[\{1,2\},1,1,2] + \frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], \frac{1}{120}x^5P[\{1,2\}],\\
&\frac{1}{720}x^6P[\{2,1\}] - \frac{37\,x^5\,P[\{1,2\},1]}{7560} + \frac{37\,x^5\,P[\{1,2\},2]}{7560} - \frac{1}{270}x^4P[\{2,1\},1,1] +\\
&\frac{1}{270}x^4P[\{2,1\},1,2] + \frac{31\,x^3\,P[\{1,2\},1,1,1]}{1890} - \frac{31}{630}x^3P[\{1,2\},1,1,2] +\\
&\frac{31}{630}x^3P[\{1,2\},1,2,2] - \frac{31\,x^3\,P[\{1,2\},2,2,2]}{1890} + \frac{2}{135}x^2P[\{2,1\},1,1,1,1] -\\
&\frac{8}{135}x^2P[\{2,1\},1,1,1,2] + \frac{2}{45}x^2P[\{2,1\},1,1,2,2] - \frac{2}{945}x\,P[\{1,2\},1,1,1,1,1] +\\
&\frac{2}{189}x\,P[\{1,2\},1,1,1,1,2] - \frac{4}{189}x\,P[\{1,2\},1,1,1,2,2] + \frac{4}{189}x\,P[\{1,2\},1,1,2,2,2] -\\
&\frac{2}{189}x\,P[\{1,2\},1,2,2,2,2] + \frac{2}{945}x\,P[\{1,2\},2,2,2,2,2], \frac{x^7\,P[\{1,2\}]}{5040},\\
&\frac{x^8\,P[\{2,1\}]}{40\,320} - \frac{29\,x^7\,P[\{1,2\},1]}{75\,600} + \frac{29\,x^7\,P[\{1,2\},2]}{75\,600} - \frac{41\,x^6\,P[\{2,1\},1,1]}{113\,400} +\\
&\frac{41\,x^6\,P[\{2,1\},1,2]}{113\,400} + \frac{293\,x^5\,P[\{1,2\},1,1,1]}{113\,400} + \frac{521\,x^5\,P[\{1,2\},1,1,2]}{113\,400} -\\
&\frac{521\,x^5\,P[\{1,2\},1,2,2]}{113\,400} - \frac{293\,x^5\,P[\{1,2\},2,2,2]}{113\,400} + \frac{4\,x^4\,P[\{2,1\},1,1,1,1]}{1575} +\\
&\frac{31\,x^4\,P[\{2,1\},1,1,1,2]}{14\,175} - \frac{67\,x^4\,P[\{2,1\},1,1,2,2]}{14\,175} - \frac{29\,x^3\,P[\{1,2\},1,1,1,1,1]}{14\,175} +\\
&\frac{29\,x^3\,P[\{1,2\},1,1,1,1,2]}{2835} - \frac{58\,x^3\,P[\{1,2\},1,1,1,2,2]}{2835} +\\
&\frac{58\,x^3\,P[\{1,2\},1,1,2,2,2]}{2835} - \frac{29\,x^3\,P[\{1,2\},1,2,2,2,2]}{2835} + \frac{29\,x^3\,P[\{1,2\},2,2,2,2,2]}{14\,175} -\\
&\frac{1}{525}x^2P[\{2,1\},1,1,1,1,1,1] + \frac{2}{175}x^2P[\{2,1\},1,1,1,1,1,2] -\\
&\frac{1}{35}x^2P[\{2,1\},1,1,1,1,2,2] + \frac{2}{105}x^2P[\{2,1\},1,1,1,2,2,2] +\\
&\frac{x\,P[\{1,2\},1,1,1,1,1,1,1]}{4725} - \frac{1}{675}x\,P[\{1,2\},1,1,1,1,1,1,2] +\\
&\frac{1}{225}x\,P[\{1,2\},1,1,1,1,1,2,2] - \frac{1}{135}x\,P[\{1,2\},1,1,1,1,2,2,2] +\\
&\frac{1}{135}x\,P[\{1,2\},1,1,1,2,2,2,2] - \frac{1}{225}x\,P[\{1,2\},1,1,2,2,2,2,2] +\\
&\frac{1}{675}x\,P[\{1,2\},1,2,2,2,2,2,2] - \frac{x\,P[\{1,2\},2,2,2,2,2,2,2]}{4725}, \frac{x^9\,P[\{1,2\}]}{362\,880}\Big]
\end{aligned}$$

```
d = 10; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\begin{aligned}
&\text{ASeries}\Big[2, P[\{2,1\}], x\,P[\{1,2\}], -\frac{1}{3}x\,P[\{1,2\},1] + \frac{1}{3}x\,P[\{1,2\},2],\\
&0, -\frac{1}{5}x^3P[\{1,2\},1] + \frac{1}{5}x^3P[\{1,2\},2] - \frac{1}{9}x^2P[\{2,1\},1,1] +\\
&\frac{1}{9}x^2P[\{2,1\},1,2] + \frac{1}{45}x\,P[\{1,2\},1,1,1] - \frac{1}{15}x\,P[\{1,2\},1,1,2] +\\
&\frac{1}{15}x\,P[\{1,2\},1,2,2] - \frac{1}{45}x\,P[\{1,2\},2,2,2], 0,\\
&-\frac{1}{7}x^5P[\{1,2\},1] + \frac{1}{7}x^5P[\{1,2\},2] - \frac{13}{135}x^4P[\{2,1\},1,1] + \frac{13}{135}x^4P[\{2,1\},1,2] +\\
&\frac{11}{315}x^3P[\{1,2\},1,1,1] - \frac{11}{105}x^3P[\{1,2\},1,1,2] + \frac{11}{105}x^3P[\{1,2\},1,2,2] -
\end{aligned}$$

$$\frac{11}{315}x^3P[\{1,2\},2,2,2]+\frac{2}{135}x^2P[\{2,1\},1,1,1,1]-\frac{8}{135}x^2P[\{2,1\},1,1,1,2]+$$
$$\frac{2}{45}x^2P[\{2,1\},1,1,2,2]-\frac{2}{945}xP[\{1,2\},1,1,1,1,1]+\frac{2}{189}xP[\{1,2\},1,1,1,1,2]-$$
$$\frac{4}{189}xP[\{1,2\},1,1,1,2,2]+\frac{4}{189}xP[\{1,2\},1,1,2,2,2]-$$
$$\frac{2}{189}xP[\{1,2\},1,2,2,2,2]+\frac{2}{945}xP[\{1,2\},2,2,2,2,2],0,$$
$$-\frac{1}{9}x^7P[\{1,2\},1]+\frac{1}{9}x^7P[\{1,2\},2]-\frac{1147x^6P[\{2,1\},1,1]}{14175}+\frac{1147x^6P[\{2,1\},1,2]}{14175}+$$
$$\frac{598x^5P[\{1,2\},1,1,1]}{14175}-\frac{1619x^5P[\{1,2\},1,1,2]}{14175}+\frac{1619x^5P[\{1,2\},1,2,2]}{14175}-$$
$$\frac{598x^5P[\{1,2\},2,2,2]}{14175}+\frac{13}{525}x^4P[\{2,1\},1,1,1,1]-\frac{1229x^4P[\{2,1\},1,1,1,2]}{14175}+$$
$$\frac{878x^4P[\{2,1\},1,1,2,2]}{14175}-\frac{74x^3P[\{1,2\},1,1,1,1,1]}{14175}+\frac{74x^3P[\{1,2\},1,1,1,1,2]}{2835}-$$
$$\frac{148x^3P[\{1,2\},1,1,1,2,2]}{2835}+\frac{148x^3P[\{1,2\},1,1,2,2,2]}{2835}-$$
$$\frac{74x^3P[\{1,2\},1,2,2,2,2]}{2835}+\frac{74x^3P[\{1,2\},2,2,2,2,2]}{14175}-$$
$$\frac{1}{525}x^2P[\{2,1\},1,1,1,1,1,1]+\frac{2}{175}x^2P[\{2,1\},1,1,1,1,1,2]-$$
$$\frac{1}{35}x^2P[\{2,1\},1,1,1,1,2,2]+\frac{2}{105}x^2P[\{2,1\},1,1,1,2,2,2]+$$
$$\frac{xP[\{1,2\},1,1,1,1,1,1,1]}{4725}-\frac{1}{675}xP[\{1,2\},1,1,1,1,1,1,2]+$$
$$\frac{1}{225}xP[\{1,2\},1,1,1,1,1,2,2]-\frac{1}{135}xP[\{1,2\},1,1,1,1,2,2,2]+$$
$$\frac{1}{135}xP[\{1,2\},1,1,1,2,2,2,2]-\frac{1}{225}xP[\{1,2\},1,1,2,2,2,2,2]+$$
$$\frac{1}{675}xP[\{1,2\},1,2,2,2,2,2,2]-\frac{xP[\{1,2\},2,2,2,2,2,2,2]}{4725},$$
$$0,-\frac{1}{11}x^9P[\{1,2\},1]+\frac{1}{11}x^9P[\{1,2\},2]-\frac{2939x^8P[\{2,1\},1,1]}{42525}+$$
$$\frac{2939x^8P[\{2,1\},1,2]}{42525}+\frac{2414x^7P[\{1,2\},1,1,1]}{51975}-\frac{53243x^7P[\{1,2\},1,1,2]}{467775}+$$
$$\frac{53243x^7P[\{1,2\},1,2,2]}{467775}-\frac{2414x^7P[\{1,2\},2,2,2]}{51975}+\frac{1327x^6P[\{2,1\},1,1,1,1]}{42525}-$$
$$\frac{4223x^6P[\{2,1\},1,1,1,2]}{42525}+\frac{2896x^6P[\{2,1\},1,1,2,2]}{42525}-\frac{4058x^5P[\{1,2\},1,1,1,1,1]}{467775}+$$
$$\frac{3904x^5P[\{1,2\},1,1,1,1,2]}{93555}-\frac{782x^5P[\{1,2\},1,1,1,2,2]}{10395}+$$
$$\frac{782x^5P[\{1,2\},1,1,2,2,2]}{10395}-\frac{3904x^5P[\{1,2\},1,2,2,2,2]}{93555}+$$
$$\frac{4058x^5P[\{1,2\},2,2,2,2,2]}{467775}-\frac{199x^4P[\{2,1\},1,1,1,1,1,1]}{42525}+$$
$$\frac{1124x^4P[\{2,1\},1,1,1,1,1,2]}{42525}-\frac{97x^4P[\{2,1\},1,1,1,1,2,2]}{1701}+$$
$$\frac{20}{567}x^4P[\{2,1\},1,1,1,2,2,2]+\frac{331x^3P[\{1,2\},1,1,1,1,1,1,1]}{467775}-$$
$$\frac{331x^3P[\{1,2\},1,1,1,1,1,1,2]}{66825}+\frac{331x^3P[\{1,2\},1,1,1,1,1,2,2]}{22275}-$$
$$\frac{331x^3P[\{1,2\},1,1,1,1,2,2,2]}{13365}+\frac{331x^3P[\{1,2\},1,1,1,2,2,2,2]}{13365}-$$
$$\frac{331x^3P[\{1,2\},1,1,2,2,2,2,2]}{22275}+\frac{331x^3P[\{1,2\},1,2,2,2,2,2,2]}{66825}-$$
$$\frac{331x^3P[\{1,2\},2,2,2,2,2,2,2]}{467775}+\frac{2x^2P[\{2,1\},1,1,1,1,1,1,1]}{8505}-$$

$$\frac{16\,x^2\,P[\{2,1\},1,1,1,1,1,1,1,2]}{8505}+\frac{8\,x^2\,P[\{2,1\},1,1,1,1,1,1,2,2]}{1215}-$$
$$\frac{16\,x^2\,P[\{2,1\},1,1,1,1,1,2,2,2]}{1215}+\frac{2}{243}x^2\,P[\{2,1\},1,1,1,1,2,2,2,2]-$$
$$\frac{2\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,1]}{93\,555}+\frac{2\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,2]}{10\,395}-$$
$$\frac{8\,x\,P[\{1,2\},1,1,1,1,1,1,1,2,2]}{10\,395}+\frac{8\,x\,P[\{1,2\},1,1,1,1,1,1,2,2,2]}{4455}-$$
$$\frac{4\,x\,P[\{1,2\},1,1,1,1,1,2,2,2,2]}{1485}+\frac{4\,x\,P[\{1,2\},1,1,1,1,2,2,2,2,2]}{1485}-$$
$$\frac{8\,x\,P[\{1,2\},1,1,1,2,2,2,2,2,2]}{4455}+\frac{8\,x\,P[\{1,2\},1,1,2,2,2,2,2,2,2]}{10\,395}-$$
$$\frac{2\,x\,P[\{1,2\},1,2,2,2,2,2,2,2,2]}{10\,395}+\frac{2\,x\,P[\{1,2\},2,2,2,2,2,2,2,2,2]}{93\,555}\Big]$$

```
d = 11; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2,\,P[\{2,1\}],\,x\,P[\{1,2\}],\,-\frac{1}{3}x\,P[\{1,2\},1]+\frac{1}{3}x\,P[\{1,2\},2],$$
$$0,\,-\frac{1}{5}x^3\,P[\{1,2\},1]+\frac{1}{5}x^3\,P[\{1,2\},2]-\frac{1}{9}x^2\,P[\{2,1\},1,1]+$$
$$\frac{1}{9}x^2\,P[\{2,1\},1,2]+\frac{1}{45}x\,P[\{1,2\},1,1,1]-\frac{1}{15}x\,P[\{1,2\},1,1,2]+$$
$$\frac{1}{15}x\,P[\{1,2\},1,2,2]-\frac{1}{45}x\,P[\{1,2\},2,2,2],\,0,$$
$$-\frac{1}{7}x^5\,P[\{1,2\},1]+\frac{1}{7}x^5\,P[\{1,2\},2]-\frac{13}{135}x^4\,P[\{2,1\},1,1]+\frac{13}{135}x^4\,P[\{2,1\},1,2]+$$
$$\frac{11}{315}x^3\,P[\{1,2\},1,1,1]-\frac{11}{105}x^3\,P[\{1,2\},1,1,2]+\frac{11}{105}x^3\,P[\{1,2\},1,2,2]-$$
$$\frac{11}{315}x^3\,P[\{1,2\},2,2,2]+\frac{2}{135}x^2\,P[\{2,1\},1,1,1,1]-\frac{8}{135}x^2\,P[\{2,1\},1,1,1,2]+$$
$$\frac{2}{45}x^2\,P[\{2,1\},1,1,2,2]-\frac{2}{945}x\,P[\{1,2\},1,1,1,1,1]+\frac{2}{189}x\,P[\{1,2\},1,1,1,1,2]-$$
$$\frac{4}{189}x\,P[\{1,2\},1,1,1,2,2]+\frac{4}{189}x\,P[\{1,2\},1,1,2,2,2]-$$
$$\frac{2}{189}x\,P[\{1,2\},1,2,2,2,2]+\frac{2}{945}x\,P[\{1,2\},2,2,2,2,2],\,0,$$
$$-\frac{1}{9}x^7\,P[\{1,2\},1]+\frac{1}{9}x^7\,P[\{1,2\},2]-\frac{1147\,x^6\,P[\{2,1\},1,1]}{14\,175}+\frac{1147\,x^6\,P[\{2,1\},1,2]}{14\,175}+$$
$$\frac{598\,x^5\,P[\{1,2\},1,1,1]}{14\,175}-\frac{1619\,x^5\,P[\{1,2\},1,1,2]}{14\,175}+\frac{1619\,x^5\,P[\{1,2\},1,2,2]}{14\,175}-$$
$$\frac{598\,x^5\,P[\{1,2\},2,2,2]}{14\,175}+\frac{13}{525}x^4\,P[\{2,1\},1,1,1,1]-\frac{1229\,x^4\,P[\{2,1\},1,1,1,2]}{14\,175}+$$
$$\frac{878\,x^4\,P[\{2,1\},1,1,2,2]}{14\,175}-\frac{74\,x^3\,P[\{1,2\},1,1,1,1,1]}{14\,175}+\frac{74\,x^3\,P[\{1,2\},1,1,1,1,2]}{2835}-$$
$$\frac{148\,x^3\,P[\{1,2\},1,1,1,2,2]}{2835}+\frac{148\,x^3\,P[\{1,2\},1,1,2,2,2]}{2835}-$$
$$\frac{74\,x^3\,P[\{1,2\},1,2,2,2,2]}{2835}+\frac{74\,x^3\,P[\{1,2\},2,2,2,2,2]}{14\,175}-$$
$$\frac{1}{525}x^2\,P[\{2,1\},1,1,1,1,1,1]+\frac{2}{175}x^2\,P[\{2,1\},1,1,1,1,1,2]-$$
$$\frac{1}{35}x^2\,P[\{2,1\},1,1,1,1,2,2]+\frac{2}{105}x^2\,P[\{2,1\},1,1,1,2,2,2]+$$
$$\frac{x\,P[\{1,2\},1,1,1,1,1,1,1]}{4725}-\frac{1}{675}x\,P[\{1,2\},1,1,1,1,1,1,2]+$$
$$\frac{1}{225}x\,P[\{1,2\},1,1,1,1,1,2,2]-\frac{1}{135}x\,P[\{1,2\},1,1,1,1,2,2,2]+$$
$$\frac{1}{135}x\,P[\{1,2\},1,1,1,2,2,2,2]-\frac{1}{225}x\,P[\{1,2\},1,1,2,2,2,2,2]+$$
$$\frac{1}{675}x\,P[\{1,2\},1,2,2,2,2,2,2]-\frac{x\,P[\{1,2\},2,2,2,2,2,2,2]}{4725},$$

$$0, -\frac{1}{11}x^9 P[\{1,2\},1] + \frac{1}{11}x^9 P[\{1,2\},2] - \frac{2939 x^8 P[\{2,1\},1,1]}{42525} +$$
$$\frac{2939 x^8 P[\{2,1\},1,2]}{42525} + \frac{2414 x^7 P[\{1,2\},1,1,1]}{51975} - \frac{53243 x^7 P[\{1,2\},1,1,2]}{467775} +$$
$$\frac{53243 x^7 P[\{1,2\},1,2,2]}{467775} - \frac{2414 x^7 P[\{1,2\},2,2,2]}{51975} + \frac{1327 x^6 P[\{2,1\},1,1,1,1]}{42525} -$$
$$\frac{4223 x^6 P[\{2,1\},1,1,1,2]}{42525} + \frac{2896 x^6 P[\{2,1\},1,1,2,2]}{42525} - \frac{4058 x^5 P[\{1,2\},1,1,1,1,1]}{467775} +$$
$$\frac{3904 x^5 P[\{1,2\},1,1,1,1,2]}{93555} - \frac{782 x^5 P[\{1,2\},1,1,1,2,2]}{10395} +$$
$$\frac{782 x^5 P[\{1,2\},1,1,2,2,2]}{10395} - \frac{3904 x^5 P[\{1,2\},1,2,2,2,2]}{93555} +$$
$$\frac{4058 x^5 P[\{1,2\},2,2,2,2,2]}{467775} - \frac{199 x^4 P[\{2,1\},1,1,1,1,1,1]}{42525} +$$
$$\frac{1124 x^4 P[\{2,1\},1,1,1,1,1,2]}{42525} - \frac{97 x^4 P[\{2,1\},1,1,1,1,2,2]}{1701} +$$
$$\frac{20}{567}x^4 P[\{2,1\},1,1,1,2,2,2] + \frac{331 x^3 P[\{1,2\},1,1,1,1,1,1,1]}{467775} -$$
$$\frac{331 x^3 P[\{1,2\},1,1,1,1,1,1,2]}{66825} + \frac{331 x^3 P[\{1,2\},1,1,1,1,1,2,2]}{22275} -$$
$$\frac{331 x^3 P[\{1,2\},1,1,1,1,2,2,2]}{13365} + \frac{331 x^3 P[\{1,2\},1,1,1,2,2,2,2]}{13365} -$$
$$\frac{331 x^3 P[\{1,2\},1,1,2,2,2,2,2]}{22275} + \frac{331 x^3 P[\{1,2\},1,2,2,2,2,2,2]}{66825} -$$
$$\frac{331 x^3 P[\{1,2\},2,2,2,2,2,2,2]}{467775} + \frac{2 x^2 P[\{2,1\},1,1,1,1,1,1,1,1]}{8505} -$$
$$\frac{16 x^2 P[\{2,1\},1,1,1,1,1,1,1,2]}{8505} + \frac{8 x^2 P[\{2,1\},1,1,1,1,1,1,2,2]}{1215} -$$
$$\frac{16 x^2 P[\{2,1\},1,1,1,1,1,2,2,2]}{1215} + \frac{2}{243}x^2 P[\{2,1\},1,1,1,1,2,2,2,2] -$$
$$\frac{2 x P[\{1,2\},1,1,1,1,1,1,1,1,1]}{93555} + \frac{2 x P[\{1,2\},1,1,1,1,1,1,1,1,2]}{10395} -$$
$$\frac{8 x P[\{1,2\},1,1,1,1,1,1,1,2,2]}{10395} + \frac{8 x P[\{1,2\},1,1,1,1,1,1,2,2,2]}{4455} -$$
$$\frac{4 x P[\{1,2\},1,1,1,1,1,2,2,2,2]}{1485} + \frac{4 x P[\{1,2\},1,1,1,1,2,2,2,2,2]}{1485} -$$
$$\frac{8 x P[\{1,2\},1,1,1,2,2,2,2,2,2]}{4455} + \frac{8 x P[\{1,2\},1,1,2,2,2,2,2,2,2]}{10395} -$$
$$\frac{2 x P[\{1,2\},1,2,2,2,2,2,2,2,2]}{10395} + \frac{2 x P[\{1,2\},2,2,2,2,2,2,2,2,2]}{93555}, 0\Big]$$

```
d = 12; B[d] = Append[B[d - 1], -d2inv[d, Last[R3[Append[B[d - 1], 0]]]]]
```

$$\text{ASeries}\Big[2, P[\{2,1\}], x P[\{1,2\}], -\frac{1}{3}x P[\{1,2\},1] + \frac{1}{3}x P[\{1,2\},2],$$
$$0, -\frac{1}{5}x^3 P[\{1,2\},1] + \frac{1}{5}x^3 P[\{1,2\},2] - \frac{1}{9}x^2 P[\{2,1\},1,1] +$$
$$\frac{1}{9}x^2 P[\{2,1\},1,2] + \frac{1}{45}x P[\{1,2\},1,1,1] - \frac{1}{15}x P[\{1,2\},1,1,2] +$$
$$\frac{1}{15}x P[\{1,2\},1,2,2] - \frac{1}{45}x P[\{1,2\},2,2,2], 0,$$
$$-\frac{1}{7}x^5 P[\{1,2\},1] + \frac{1}{7}x^5 P[\{1,2\},2] - \frac{13}{135}x^4 P[\{2,1\},1,1] + \frac{13}{135}x^4 P[\{2,1\},1,2] +$$
$$\frac{11}{315}x^3 P[\{1,2\},1,1,1] - \frac{11}{105}x^3 P[\{1,2\},1,1,2] + \frac{11}{105}x^3 P[\{1,2\},1,2,2] -$$
$$\frac{11}{315}x^3 P[\{1,2\},2,2,2] + \frac{2}{135}x^2 P[\{2,1\},1,1,1,1] - \frac{8}{135}x^2 P[\{2,1\},1,1,1,2] +$$
$$\frac{2}{45}x^2 P[\{2,1\},1,1,2,2] - \frac{2}{945}x P[\{1,2\},1,1,1,1,1] + \frac{2}{189}x P[\{1,2\},1,1,1,1,2] -$$

$$\frac{4}{189}\,x\,P[\{1,2\},1,1,1,2,2]+\frac{4}{189}\,x\,P[\{1,2\},1,1,2,2,2]-\frac{2}{189}\,x\,P[\{1,2\},1,2,2,2,2]+\frac{2}{945}\,x\,P[\{1,2\},2,2,2,2,2],0,-\frac{1}{9}\,x^7\,P[\{1,2\},1]+\frac{1}{9}\,x^7\,P[\{1,2\},2]-\frac{1147\,x^6\,P[\{2,1\},1,1]}{14\,175}+\frac{1147\,x^6\,P[\{2,1\},1,2]}{14\,175}+\frac{598\,x^5\,P[\{1,2\},1,1,1]}{14\,175}-\frac{1619\,x^5\,P[\{1,2\},1,1,2]}{14\,175}+\frac{1619\,x^5\,P[\{1,2\},1,2,2]}{14\,175}-\frac{598\,x^5\,P[\{1,2\},2,2,2]}{14\,175}+\frac{13}{525}\,x^4\,P[\{2,1\},1,1,1,1]-\frac{1229\,x^4\,P[\{2,1\},1,1,1,2]}{14\,175}+\frac{878\,x^4\,P[\{2,1\},1,1,2,2]}{14\,175}-\frac{74\,x^3\,P[\{1,2\},1,1,1,1,1]}{14\,175}+\frac{74\,x^3\,P[\{1,2\},1,1,1,1,2]}{2835}-\frac{148\,x^3\,P[\{1,2\},1,1,1,2,2]}{2835}+\frac{148\,x^3\,P[\{1,2\},1,1,2,2,2]}{2835}-\frac{74\,x^3\,P[\{1,2\},1,2,2,2,2]}{2835}+\frac{74\,x^3\,P[\{1,2\},2,2,2,2,2]}{14\,175}-\frac{1}{525}\,x^2\,P[\{2,1\},1,1,1,1,1,1]+\frac{2}{175}\,x^2\,P[\{2,1\},1,1,1,1,1,2]-\frac{1}{35}\,x^2\,P[\{2,1\},1,1,1,1,2,2]+\frac{2}{105}\,x^2\,P[\{2,1\},1,1,1,2,2,2]+\frac{x\,P[\{1,2\},1,1,1,1,1,1,1]}{4725}-\frac{1}{675}\,x\,P[\{1,2\},1,1,1,1,1,1,2]+\frac{1}{225}\,x\,P[\{1,2\},1,1,1,1,1,2,2]-\frac{1}{135}\,x\,P[\{1,2\},1,1,1,1,2,2,2]+\frac{1}{135}\,x\,P[\{1,2\},1,1,1,2,2,2,2]-\frac{1}{225}\,x\,P[\{1,2\},1,1,2,2,2,2,2]+\frac{1}{675}\,x\,P[\{1,2\},1,2,2,2,2,2,2]-\frac{x\,P[\{1,2\},2,2,2,2,2,2,2]}{4725},0,-\frac{1}{11}\,x^9\,P[\{1,2\},1]+\frac{1}{11}\,x^9\,P[\{1,2\},2]-\frac{2939\,x^8\,P[\{2,1\},1,1]}{42\,525}+\frac{2939\,x^8\,P[\{2,1\},1,2]}{42\,525}+\frac{2414\,x^7\,P[\{1,2\},1,1,1]}{51\,975}-\frac{53\,243\,x^7\,P[\{1,2\},1,1,2]}{467\,775}+\frac{53\,243\,x^7\,P[\{1,2\},1,2,2]}{467\,775}-\frac{2414\,x^7\,P[\{1,2\},2,2,2]}{51\,975}+\frac{1327\,x^6\,P[\{2,1\},1,1,1,1]}{42\,525}-\frac{4223\,x^6\,P[\{2,1\},1,1,1,2]}{42\,525}+\frac{2896\,x^6\,P[\{2,1\},1,1,2,2]}{42\,525}-\frac{4058\,x^5\,P[\{1,2\},1,1,1,1,1]}{467\,775}+\frac{3904\,x^5\,P[\{1,2\},1,1,1,1,2]}{93\,555}-\frac{782\,x^5\,P[\{1,2\},1,1,1,2,2]}{10\,395}+\frac{782\,x^5\,P[\{1,2\},1,1,2,2,2]}{10\,395}-\frac{3904\,x^5\,P[\{1,2\},1,2,2,2,2]}{93\,555}+\frac{4058\,x^5\,P[\{1,2\},2,2,2,2,2]}{467\,775}-\frac{199\,x^4\,P[\{2,1\},1,1,1,1,1,1]}{42\,525}+\frac{1124\,x^4\,P[\{2,1\},1,1,1,1,1,2]}{42\,525}-\frac{97\,x^4\,P[\{2,1\},1,1,1,1,2,2]}{1701}+\frac{20}{567}\,x^4\,P[\{2,1\},1,1,1,2,2,2]+\frac{331\,x^3\,P[\{1,2\},1,1,1,1,1,1,1]}{467\,775}-\frac{331\,x^3\,P[\{1,2\},1,1,1,1,1,1,2]}{66\,825}+\frac{331\,x^3\,P[\{1,2\},1,1,1,1,1,2,2]}{22\,275}-\frac{331\,x^3\,P[\{1,2\},1,1,1,1,2,2,2]}{13\,365}+\frac{331\,x^3\,P[\{1,2\},1,1,1,2,2,2,2]}{13\,365}-\frac{331\,x^3\,P[\{1,2\},1,1,2,2,2,2,2]}{22\,275}+\frac{331\,x^3\,P[\{1,2\},1,2,2,2,2,2,2]}{66\,825}-\frac{331\,x^3\,P[\{1,2\},2,2,2,2,2,2,2]}{467\,775}+\frac{2\,x^2\,P[\{2,1\},1,1,1,1,1,1,1,1]}{8505}-\frac{16\,x^2\,P[\{2,1\},1,1,1,1,1,1,1,2]}{8505}+\frac{8\,x^2\,P[\{2,1\},1,1,1,1,1,1,2,2]}{1215}-\frac{16\,x^2\,P[\{2,1\},1,1,1,1,1,2,2,2]}{1215}+\frac{2}{243}\,x^2\,P[\{2,1\},1,1,1,1,2,2,2,2]-$$

$$\frac{2\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,1]}{93\,555}+\frac{2\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,2]}{10\,395}-$$
$$\frac{8\,x\,P[\{1,2\},1,1,1,1,1,1,1,2,2]}{10\,395}+\frac{8\,x\,P[\{1,2\},1,1,1,1,1,1,2,2,2]}{4455}-$$
$$\frac{4\,x\,P[\{1,2\},1,1,1,1,1,2,2,2,2]}{1485}+\frac{4\,x\,P[\{1,2\},1,1,1,1,2,2,2,2,2]}{1485}-$$
$$\frac{8\,x\,P[\{1,2\},1,1,1,2,2,2,2,2,2]}{4455}+\frac{8\,x\,P[\{1,2\},1,1,2,2,2,2,2,2,2]}{10\,395}-$$
$$\frac{2\,x\,P[\{1,2\},1,2,2,2,2,2,2,2,2]}{10\,395}+\frac{2\,x\,P[\{1,2\},2,2,2,2,2,2,2,2,2]}{93\,555},$$

$$0,\ -\frac{1}{13}x^{11}P[\{1,2\},1]+\frac{1}{13}x^{11}P[\{1,2\},2]-\frac{2\,953\,639\,x^{10}\,P[\{2,1\},1,1]}{49\,116\,375}+$$
$$\frac{2\,953\,639\,x^{10}\,P[\{2,1\},1,2]}{49\,116\,375}+\frac{231\,523\,x^{9}\,P[\{1,2\},1,1,1]}{4\,729\,725}-$$
$$\frac{14\,046\,661\,x^{9}\,P[\{1,2\},1,1,2]}{127\,702\,575}+\frac{14\,046\,661\,x^{9}\,P[\{1,2\},1,2,2]}{127\,702\,575}-$$
$$\frac{231\,523\,x^{9}\,P[\{1,2\},2,2,2]}{4\,729\,725}+\frac{1\,740\,446\,x^{8}\,P[\{2,1\},1,1,1,1]}{49\,116\,375}-$$
$$\frac{5\,151\,514\,x^{8}\,P[\{2,1\},1,1,1,2]}{49\,116\,375}+\frac{3\,411\,068\,x^{8}\,P[\{2,1\},1,1,2,2]}{49\,116\,375}-$$
$$\frac{2\,589\,746\,x^{7}\,P[\{1,2\},1,1,1,1,1]}{212\,837\,625}+\frac{285\,224\,x^{7}\,P[\{1,2\},1,1,1,1,2]}{5\,108\,103}-$$
$$\frac{462\,340\,x^{7}\,P[\{1,2\},1,1,1,2,2]}{5\,108\,103}+\frac{462\,340\,x^{7}\,P[\{1,2\},1,1,2,2,2]}{5\,108\,103}-$$
$$\frac{285\,224\,x^{7}\,P[\{1,2\},1,2,2,2,2]}{5\,108\,103}+\frac{2\,589\,746\,x^{7}\,P[\{1,2\},2,2,2,2,2]}{212\,837\,625}-$$
$$\frac{382\,048\,x^{6}\,P[\{2,1\},1,1,1,1,1,1]}{49\,116\,375}+\frac{2\,046\,658\,x^{6}\,P[\{2,1\},1,1,1,1,1,2]}{49\,116\,375}-$$
$$\frac{87\,874\,x^{6}\,P[\{2,1\},1,1,1,1,2,2]}{1\,091\,475}+\frac{152\,648\,x^{6}\,P[\{2,1\},1,1,1,2,2,2]}{3\,274\,425}+$$
$$\frac{1304\,x^{5}\,P[\{1,2\},1,1,1,1,1,1,1]}{875\,875}-\frac{34\,493\,x^{5}\,P[\{1,2\},1,1,1,1,1,1,2]}{3\,378\,375}+$$
$$\frac{891\,986\,x^{5}\,P[\{1,2\},1,1,1,1,1,2,2]}{30\,405\,375}-\frac{114\,577\,x^{5}\,P[\{1,2\},1,1,1,1,2,2,2]}{2\,606\,175}+$$
$$\frac{114\,577\,x^{5}\,P[\{1,2\},1,1,1,2,2,2,2]}{2\,606\,175}-\frac{891\,986\,x^{5}\,P[\{1,2\},1,1,2,2,2,2,2]}{30\,405\,375}+$$
$$\frac{34\,493\,x^{5}\,P[\{1,2\},1,2,2,2,2,2,2]}{3\,378\,375}-\frac{1304\,x^{5}\,P[\{1,2\},2,2,2,2,2,2,2]}{875\,875}+$$
$$\frac{7472\,x^{4}\,P[\{2,1\},1,1,1,1,1,1,1,1]}{9\,823\,275}-\frac{57\,697\,x^{4}\,P[\{2,1\},1,1,1,1,1,1,1,2]}{9\,823\,275}+$$
$$\frac{5377\,x^{4}\,P[\{2,1\},1,1,1,1,1,1,2,2]}{280\,665}-\frac{45\,641\,x^{4}\,P[\{2,1\},1,1,1,1,1,2,2,2]}{1\,403\,325}+$$
$$\frac{25\,931\,x^{4}\,P[\{2,1\},1,1,1,1,2,2,2,2]}{1\,403\,325}-\frac{19\,178\,x^{3}\,P[\{1,2\},1,1,1,1,1,1,1,1,1]}{212\,837\,625}+$$
$$\frac{19\,178\,x^{3}\,P[\{1,2\},1,1,1,1,1,1,1,1,2]}{23\,648\,625}-\frac{76\,712\,x^{3}\,P[\{1,2\},1,1,1,1,1,1,1,2,2]}{23\,648\,625}+$$
$$\frac{76\,712\,x^{3}\,P[\{1,2\},1,1,1,1,1,1,2,2,2]}{10\,135\,125}-\frac{38\,356\,x^{3}\,P[\{1,2\},1,1,1,1,1,2,2,2,2]}{3\,378\,375}+$$
$$\frac{38\,356\,x^{3}\,P[\{1,2\},1,1,1,1,2,2,2,2,2]}{3\,378\,375}-\frac{76\,712\,x^{3}\,P[\{1,2\},1,1,1,2,2,2,2,2,2]}{10\,135\,125}+$$
$$\frac{76\,712\,x^{3}\,P[\{1,2\},1,1,2,2,2,2,2,2,2]}{23\,648\,625}-\frac{19\,178\,x^{3}\,P[\{1,2\},1,2,2,2,2,2,2,2,2]}{23\,648\,625}+$$
$$\frac{19\,178\,x^{3}\,P[\{1,2\},2,2,2,2,2,2,2,2,2]}{212\,837\,625}-\frac{1382\,x^{2}\,P[\{2,1\},1,1,1,1,1,1,1,1,1,1]}{49\,116\,375}+$$
$$\frac{2764\,x^{2}\,P[\{2,1\},1,1,1,1,1,1,1,1,1,2]}{9\,823\,275}-\frac{1382\,x^{2}\,P[\{2,1\},1,1,1,1,1,1,1,1,2,2]}{1\,091\,475}+$$
$$\frac{11\,056\,x^{2}\,P[\{2,1\},1,1,1,1,1,1,1,2,2,2]}{3\,274\,425}-$$

$$\frac{2764\,x^2\,P[\{2,1\},1,1,1,1,1,1,2,2,2,2]}{467\,775}+\frac{2764\,x^2\,P[\{2,1\},1,1,1,1,1,2,2,2,2,2]}{779\,625}+$$
$$\frac{1382\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,1,1,1]}{638\,512\,875}-$$
$$\frac{1382\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,1,1,2]}{58\,046\,625}+$$
$$\frac{1382\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,1,2,2]}{11\,609\,325}-$$
$$\frac{1382\,x\,P[\{1,2\},1,1,1,1,1,1,1,1,2,2,2]}{3\,869\,775}+$$
$$\frac{2764\,x\,P[\{1,2\},1,1,1,1,1,1,1,2,2,2,2]}{3\,869\,775}-$$
$$\frac{2764\,x\,P[\{1,2\},1,1,1,1,1,1,2,2,2,2,2]}{2\,764\,125}+$$
$$\frac{2764\,x\,P[\{1,2\},1,1,1,1,1,2,2,2,2,2,2]}{2\,764\,125}-$$
$$\frac{2764\,x\,P[\{1,2\},1,1,1,1,2,2,2,2,2,2,2]}{3\,869\,775}+$$
$$\frac{1382\,x\,P[\{1,2\},1,1,1,2,2,2,2,2,2,2,2]}{3\,869\,775}-$$
$$\frac{1382\,x\,P[\{1,2\},1,1,2,2,2,2,2,2,2,2,2]}{11\,609\,325}+$$
$$\frac{1382\,x\,P[\{1,2\},1,2,2,2,2,2,2,2,2,2,2]}{58\,046\,625}-$$
$$\frac{1382\,x\,P[\{1,2\},2,2,2,2,2,2,2,2,2,2,2]}{638\,512\,875}\Big]$$

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f12 = GeneratingSeries[{1, 2}, B[12]] /. {t[i_] → h t_i, x → h x}
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$$h\,x-\frac{1}{3}h^2\,x\,t_1-\frac{1}{5}h^4\,x^3\,t_1-\frac{1}{7}h^6\,x^5\,t_1-\frac{1}{9}h^8\,x^7\,t_1-\frac{1}{11}h^{10}\,x^9\,t_1-\frac{1}{13}h^{12}\,x^{11}\,t_1+$$
$$\frac{1}{45}h^4\,x\,t_1^3+\frac{11}{315}h^6\,x^3\,t_1^3+\frac{598\,h^8\,x^5\,t_1^3}{14\,175}+\frac{2414\,h^{10}\,x^7\,t_1^3}{51\,975}+\frac{231\,523\,h^{12}\,x^9\,t_1^3}{4\,729\,725}-\frac{2}{945}h^6\,x\,t_1^5-$$
$$\frac{74\,h^8\,x^3\,t_1^5}{14\,175}-\frac{4058\,h^{10}\,x^5\,t_1^5}{467\,775}-\frac{2\,589\,746\,h^{12}\,x^7\,t_1^5}{212\,837\,625}+\frac{h^8\,x\,t_1^7}{4725}+\frac{331\,h^{10}\,x^3\,t_1^7}{467\,775}+\frac{1304\,h^{12}\,x^5\,t_1^7}{875\,875}-$$
$$\frac{2\,h^{10}\,x\,t_1^9}{93\,555}-\frac{19\,178\,h^{12}\,x^3\,t_1^9}{212\,837\,625}+\frac{1382\,h^{12}\,x\,t_1^{11}}{638\,512\,875}+\frac{1}{3}h^2\,x\,t_2+\frac{1}{5}h^4\,x^3\,t_2+\frac{1}{7}h^6\,x^5\,t_2+$$
$$\frac{1}{9}h^8\,x^7\,t_2+\frac{1}{11}h^{10}\,x^9\,t_2+\frac{1}{13}h^{12}\,x^{11}\,t_2-\frac{1}{15}h^4\,x\,t_1^2\,t_2-\frac{11}{105}h^6\,x^3\,t_1^2\,t_2-\frac{1619\,h^8\,x^5\,t_1^2\,t_2}{14\,175}-$$
$$\frac{53\,243\,h^{10}\,x^7\,t_1^2\,t_2}{467\,775}-\frac{14\,046\,661\,h^{12}\,x^9\,t_1^2\,t_2}{127\,702\,575}+\frac{2}{189}h^6\,x\,t_1^4\,t_2+\frac{74\,h^8\,x^3\,t_1^4\,t_2}{2835}+\frac{3904\,h^{10}\,x^5\,t_1^4\,t_2}{93\,555}+$$
$$\frac{285\,224\,h^{12}\,x^7\,t_1^4\,t_2}{5\,108\,103}-\frac{1}{675}h^8\,x\,t_1^6\,t_2-\frac{331\,h^{10}\,x^3\,t_1^6\,t_2}{66\,825}-\frac{34\,493\,h^{12}\,x^5\,t_1^6\,t_2}{3\,378\,375}+\frac{2\,h^{10}\,x\,t_1^8\,t_2}{10\,395}+$$
$$\frac{19\,178\,h^{12}\,x^3\,t_1^8\,t_2}{23\,648\,625}-\frac{1382\,h^{12}\,x\,t_1^{10}\,t_2}{58\,046\,625}+\frac{1}{15}h^4\,x\,t_1\,t_2^2+\frac{11}{105}h^6\,x^3\,t_1\,t_2^2+\frac{1619\,h^8\,x^5\,t_1\,t_2^2}{14\,175}+$$
$$\frac{53\,243\,h^{10}\,x^7\,t_1\,t_2^2}{467\,775}+\frac{14\,046\,661\,h^{12}\,x^9\,t_1\,t_2^2}{127\,702\,575}-\frac{4}{189}h^6\,x\,t_1^3\,t_2^2-\frac{148\,h^8\,x^3\,t_1^3\,t_2^2}{2835}-\frac{782\,h^{10}\,x^5\,t_1^3\,t_2^2}{10\,395}-$$
$$\frac{462\,340\,h^{12}\,x^7\,t_1^3\,t_2^2}{5\,108\,103}+\frac{1}{225}h^8\,x\,t_1^5\,t_2^2+\frac{331\,h^{10}\,x^3\,t_1^5\,t_2^2}{22\,275}+\frac{891\,986\,h^{12}\,x^5\,t_1^5\,t_2^2}{30\,405\,375}-\frac{8\,h^{10}\,x\,t_1^7\,t_2^2}{10\,395}-$$
$$\frac{76\,712\,h^{12}\,x^3\,t_1^7\,t_2^2}{23\,648\,625}+\frac{1382\,h^{12}\,x\,t_1^9\,t_2^2}{11\,609\,325}-\frac{1}{45}h^4\,x\,t_2^3-\frac{11}{315}h^6\,x^3\,t_2^3-\frac{598\,h^8\,x^5\,t_2^3}{14\,175}-\frac{2414\,h^{10}\,x^7\,t_2^3}{51\,975}-$$
$$\frac{231\,523\,h^{12}\,x^9\,t_2^3}{4\,729\,725}+\frac{4}{189}h^6\,x\,t_1^2\,t_2^3+\frac{148\,h^8\,x^3\,t_1^2\,t_2^3}{2835}+\frac{782\,h^{10}\,x^5\,t_1^2\,t_2^3}{10\,395}+\frac{462\,340\,h^{12}\,x^7\,t_1^2\,t_2^3}{5\,108\,103}-$$
$$\frac{1}{135}h^8\,x\,t_1^4\,t_2^3-\frac{331\,h^{10}\,x^3\,t_1^4\,t_2^3}{13\,365}-\frac{114\,577\,h^{12}\,x^5\,t_1^4\,t_2^3}{2\,606\,175}+\frac{8\,h^{10}\,x\,t_1^6\,t_2^3}{4455}+\frac{76\,712\,h^{12}\,x^3\,t_1^6\,t_2^3}{10\,135\,125}-$$
$$\frac{1382\,h^{12}\,x\,t_1^8\,t_2^3}{3\,869\,775}-\frac{2}{189}h^6\,x\,t_1\,t_2^4-\frac{74\,h^8\,x^3\,t_1\,t_2^4}{2835}-\frac{3904\,h^{10}\,x^5\,t_1\,t_2^4}{93\,555}-\frac{285\,224\,h^{12}\,x^7\,t_1\,t_2^4}{5\,108\,103}+$$
$$\frac{1}{135}h^8\,x\,t_1^3\,t_2^4+\frac{331\,h^{10}\,x^3\,t_1^3\,t_2^4}{13\,365}+\frac{114\,577\,h^{12}\,x^5\,t_1^3\,t_2^4}{2\,606\,175}-\frac{4\,h^{10}\,x\,t_1^5\,t_2^4}{1485}-\frac{38\,356\,h^{12}\,x^3\,t_1^5\,t_2^4}{3\,378\,375}+$$
$$\frac{2764\,h^{12}\,x\,t_1^7\,t_2^4}{3\,869\,775}+\frac{2}{945}h^6\,x\,t_2^5+\frac{74\,h^8\,x^3\,t_2^5}{14\,175}+\frac{4058\,h^{10}\,x^5\,t_2^5}{467\,775}+\frac{2\,589\,746\,h^{12}\,x^7\,t_2^5}{212\,837\,625}-$$
$$\frac{1}{225}h^8\,x\,t_1^2\,t_2^5-\frac{331\,h^{10}\,x^3\,t_1^2\,t_2^5}{22\,275}-\frac{891\,986\,h^{12}\,x^5\,t_1^2\,t_2^5}{30\,405\,375}+\frac{4\,h^{10}\,x\,t_1^4\,t_2^5}{1485}+\frac{38\,356\,h^{12}\,x^3\,t_1^4\,t_2^5}{3\,378\,375}-$$
$$\frac{2764\,h^{12}\,x\,t_1^6\,t_2^5}{2\,764\,125}+\frac{1}{675}h^8\,x\,t_1\,t_2^6+\frac{331\,h^{10}\,x^3\,t_1\,t_2^6}{66\,825}+\frac{34\,493\,h^{12}\,x^5\,t_1\,t_2^6}{3\,378\,375}-\frac{8\,h^{10}\,x\,t_1^3\,t_2^6}{4455}-$$
$$\frac{76\,712\,h^{12}\,x^3\,t_1^3\,t_2^6}{10\,135\,125}+\frac{2764\,h^{12}\,x\,t_1^5\,t_2^6}{2\,764\,125}-\frac{h^8\,x\,t_2^7}{4725}-\frac{331\,h^{10}\,x^3\,t_2^7}{467\,775}-\frac{1304\,h^{12}\,x^5\,t_2^7}{875\,875}+\frac{8\,h^{10}\,x\,t_1^2\,t_2^7}{10\,395}+$$
$$\frac{76\,712\,h^{12}\,x^3\,t_1^2\,t_2^7}{23\,648\,625}-\frac{2764\,h^{12}\,x\,t_1^4\,t_2^7}{3\,869\,775}-\frac{2\,h^{10}\,x\,t_1\,t_2^8}{10\,395}-\frac{19\,178\,h^{12}\,x^3\,t_1\,t_2^8}{23\,648\,625}+\frac{1382\,h^{12}\,x\,t_1^3\,t_2^8}{3\,869\,775}+$$
$$\frac{2\,h^{10}\,x\,t_2^9}{93\,555}+\frac{19\,178\,h^{12}\,x^3\,t_2^9}{212\,837\,625}-\frac{1382\,h^{12}\,x\,t_1^2\,t_2^9}{11\,609\,325}+\frac{1382\,h^{12}\,x\,t_1\,t_2^{10}}{58\,046\,625}-\frac{1382\,h^{12}\,x\,t_2^{11}}{638\,512\,875}$$

```
f21 = GeneratingSeries[{2, 1}, B[12]] /. {t[i_] → h t_i, x → h x}
```

$$1-\frac{1}{9}h^4x^2t_1^2-\frac{13}{135}h^6x^4t_1^2-\frac{1147\,h^8x^6t_1^2}{14\,175}-\frac{2939\,h^{10}x^8t_1^2}{42\,525}-\frac{2\,953\,639\,h^{12}x^{10}t_1^2}{49\,116\,375}+$$
$$\frac{2}{135}h^6x^2t_1^4+\frac{13}{525}h^8x^4t_1^4+\frac{1327\,h^{10}x^6t_1^4}{42\,525}+\frac{1\,740\,446\,h^{12}x^8t_1^4}{49\,116\,375}-\frac{1}{525}h^8x^2t_1^6-$$
$$\frac{199\,h^{10}x^4t_1^6}{42\,525}-\frac{382\,048\,h^{12}x^6t_1^6}{49\,116\,375}+\frac{2\,h^{10}x^2t_1^8}{8505}+\frac{7472\,h^{12}x^4t_1^8}{9\,823\,275}-\frac{1382\,h^{12}x^2t_1^{10}}{49\,116\,375}+$$
$$\frac{1}{9}h^4x^2t_1t_2+\frac{13}{135}h^6x^4t_1t_2+\frac{1147\,h^8x^6t_1t_2}{14\,175}+\frac{2939\,h^{10}x^8t_1t_2}{42\,525}+\frac{2\,953\,639\,h^{12}x^{10}t_1t_2}{49\,116\,375}-$$
$$\frac{8}{135}h^6x^2t_1^3t_2-\frac{1229\,h^8x^4t_1^3t_2}{14\,175}-\frac{4223\,h^{10}x^6t_1^3t_2}{42\,525}-\frac{5\,151\,514\,h^{12}x^8t_1^3t_2}{49\,116\,375}+\frac{2}{175}h^8x^2t_1^5t_2+$$
$$\frac{1124\,h^{10}x^4t_1^5t_2}{42\,525}+\frac{2\,046\,658\,h^{12}x^6t_1^5t_2}{49\,116\,375}-\frac{16\,h^{10}x^2t_1^7t_2}{8505}-\frac{57\,697\,h^{12}x^4t_1^7t_2}{9\,823\,275}+\frac{2764\,h^{12}x^2t_1^9t_2}{9\,823\,275}+$$
$$\frac{2}{45}h^6x^2t_1^2t_2^2+\frac{878\,h^8x^4t_1^2t_2^2}{14\,175}+\frac{2896\,h^{10}x^6t_1^2t_2^2}{42\,525}+\frac{3\,411\,068\,h^{12}x^8t_1^2t_2^2}{49\,116\,375}-\frac{1}{35}h^8x^2t_1^4t_2^2-$$
$$\frac{97\,h^{10}x^4t_1^4t_2^2}{1701}-\frac{87\,874\,h^{12}x^6t_1^4t_2^2}{1\,091\,475}+\frac{8\,h^{10}x^2t_1^6t_2^2}{1215}+\frac{5377\,h^{12}x^4t_1^6t_2^2}{280\,665}-\frac{1382\,h^{12}x^2t_1^8t_2^2}{1\,091\,475}+$$
$$\frac{2}{105}h^8x^2t_1^3t_2^3+\frac{20}{567}h^{10}x^4t_1^3t_2^3+\frac{152\,648\,h^{12}x^6t_1^3t_2^3}{3\,274\,425}-\frac{16\,h^{10}x^2t_1^5t_2^3}{1215}-\frac{45\,641\,h^{12}x^4t_1^5t_2^3}{1\,403\,325}+$$
$$\frac{11\,056\,h^{12}x^2t_1^7t_2^3}{3\,274\,425}+\frac{2}{243}h^{10}x^2t_1^4t_2^4+\frac{25\,931\,h^{12}x^4t_1^4t_2^4}{1\,403\,325}-\frac{2764\,h^{12}x^2t_1^6t_2^4}{467\,775}+\frac{2764\,h^{12}x^2t_1^5t_2^5}{779\,625}$$

```
CoefficientList[f12, h] // TeXForm
```

```
\left\{0,x,\frac{x t_2}{3}-\frac{x t_1}{3},0,-\frac{1}{5} t_1 x^3+\frac{t_2 x^3}{5}+\frac
   t_2^2 x-\frac{1}{15} t_1^2 t_2 x,0,-\frac{1}{7} t_1 x^5+\frac{t_2 x^5}{7}+\frac{11}{{31
   x^3+\frac{11}{105} t_1 t_2^2 x^3-\frac{11}{105} t_1^2 t_2 x^3-\frac{2 t_1^5 x}{945}+\fr
   x+\frac{4}{189} t_1^2 t_2^3 x-\frac{4}{189} t_1^3 t_2^2 x+\frac{2}{189} t_1^4 t_2 x,0,
   t_1^3 x^5}{14175}-\frac{598 t_2^3 x^5}{14175}+\frac{1619 t_1 t_2^2 x^5}{14175}-\frac{16
   x^3}{14175}+\frac{74 t_2^5 x^3}{14175}-\frac{74 t_1 t_2^4 x^3}{2835}+\frac{148 t_1^2 t_
   x^3}{2835}+\frac{74 t_1^4 t_2 x^3}{2835}+\frac{t_1^7 x}{4725}-\frac{t_2^7 x}{4725}+\fr
   x+\frac{1}{135} t_1^3 t_2^4 x-\frac{1}{135} t_1^4 t_2^3 x+\frac{1}{225} t_1^5 t_2^2 x-
   x^9+\frac{t_2 x^9}{11}+\frac{2414 t_1^3 x^7}{51975}-\frac{2414 t_2^3 x^7}{51975}+\frac
   t_2 x^7}{467775}-\frac{4058 t_1^5 x^5}{467775}+\frac{4058 t_2^5 x^5}{467775}-\frac{3904
   x^5}{10395}-\frac{782 t_1^3 t_2^2 x^5}{10395}+\frac{3904 t_1^4 t_2 x^5}{93555}+\frac{3
   x^3}{467775}+\frac{331 t_1 t_2^6 x^3}{66825}-\frac{331 t_1^2 t_2^5 x^3}{22275}+\frac{3
   x^3}{13365}+\frac{331 t_1^5 t_2^2 x^3}{22275}-\frac{331 t_1^6 t_2 x^3}{66825}-\frac{2 t
   t_1 t_2^8 x}{10395}+\frac{8 t_1^2 t_2^7 x}{10395}-\frac{8 t_1^3 t_2^6 x}{4455}+\frac{4
   x}{1485}+\frac{8 t_1^6 t_2^3 x}{4455}-\frac{8 t_1^7 t_2^2 x}{10395}+\frac{2 t_1^8 t_2
   x^{11}}{13}+\frac{231523 t_1^3 x^9}{4729725}-\frac{231523 t_2^3 x^9}{4729725}+\frac{146
   t_1^2 t_2 x^9}{127702575}-\frac{2589746 t_1^5 x^7}{212837625}+\frac{2589746 t_2^5 x^7}{
   x^7}{5108103}+\frac{462340 t_1^2 t_2^3 x^7}{5108103}-\frac{462340 t_1^3 t_2^2 x^7}{5108
   x^7}{5108103}+\frac{1304 t_1^7 x^5}{875875}-\frac{1304 t_2^7 x^5}{875875}+\frac{34493 t
   x^5}{30405375}+\frac{114577 t_1^3 t_2^4 x^5}{2606175}-\frac{114577 t_1^4 t_2^3 x^5}{260
   x^5}{30405375}-\frac{34493 t_1^6 t_2 x^5}{3378375}-\frac{19178 t_1^9 x^3}{212837625}+\f
   t_2^8 x^3}{23648625}+\frac{76712 t_1^2 t_2^7 x^3}{23648625}-\frac{76712 t_1^3 t_2^6 x^3
   x^3}{3378375}-\frac{38356 t_1^5 t_2^4 x^3}{3378375}+\frac{76712 t_1^6 t_2^3 x^3}{101351
   x^3}{23648625}+\frac{19178 t_1^8 t_2 x^3}{23648625}+\frac{1382 t_1^{11} x}{638512875}-
   t_2^{10} x}{58046625}-\frac{1382 t_1^2 t_2^9 x}{11609325}+\frac{1382 t_1^3 t_2^8 x}{386
   x}{3869775}+\frac{2764 t_1^5 t_2^6 x}{2764125}-\frac{2764 t_1^6 t_2^5 x}{2764125}+\frac
   t_2^3 x}{3869775}+\frac{1382 t_1^9 t_2^2 x}{11609325}-\frac{1382 t_1^{10} t_2 x}{58046
```

```
CoefficientList[f21, h] // TeXForm
```

```
\left\{1,0,0,0,\frac{1}{9} x^2 t_1 t_2-\frac{1}{9} x^2 t_1^2,0,-\frac{13}{135} t_1^2 x^4+
   x^2+\frac{2}{45} t_1^2 t_2^2 x^2-\frac{8}{135} t_1^3 t_2 x^2,0,-\frac{1147 t_1^2 x^6}{
   x^6}{14175}+\frac{13}{525} t_1^4 x^4+\frac{878 t_1^2 t_2^2 x^4}{14175}-\frac{1229 t_1^
   x^2+\frac{2}{105} t_1^3 t_2^3 x^2-\frac{1}{35} t_1^4 t_2^2 x^2+\frac{2}{175} t_1^5 t_2
   t_1 t_2 x^8}{42525}+\frac{1327 t_1^4 x^6}{42525}+\frac{2896 t_1^2 t_2^2 x^6}{42525}-\fr
   x^4}{42525}+\frac{20}{567} t_1^3 t_2^3 x^4-\frac{97 t_1^4 t_2^2 x^4}{1701}+\frac{1124
   x^2}{8505}+\frac{2}{243} t_1^4 t_2^4 x^2-\frac{16 t_1^5 t_2^3 x^2}{1215}+\frac{8 t_1^6
   x^2}{8505},0,-\frac{2953639 t_1^2 x^{10}}{49116375}+\frac{2953639 t_1 t_2 x^{10}}{4911
   x^8}{49116375}+\frac{3411068 t_1^2 t_2^2 x^8}{49116375}-\frac{5151514 t_1^3 t_2 x^8}{49
   x^6}{49116375}+\frac{152648 t_1^3 t_2^3 x^6}{3274425}-\frac{87874 t_1^4 t_2^2 x^6}{1091
   x^6}{49116375}+\frac{7472 t_1^8 x^4}{9823275}+\frac{25931 t_1^4 t_2^4 x^4}{1403325}-\fr
   t_1^6 t_2^2 x^4}{280665}-\frac{57697 t_1^7 t_2 x^4}{9823275}-\frac{1382 t_1^{10} x^2}{
   x^2}{779625}-\frac{2764 t_1^6 t_2^4 x^2}{467775}+\frac{11056 t_1^7 t_2^3 x^2}{3274425}-
   t_1^9 t_2 x^2}{9823275}\right\}
```