Pensieve header: Finding the most general R in UU notation.

```
SetDirectory@"C:\\drorbn\\AcademicPensieve\\Projects\\OneCo-1604";
<< Global.m;
Simp = Expand;
ExportButton
```

```
In the U(T)⊗U(H) conventions. Internal use symbols: {rr, pp}
```

Export

Finding R

```
Total[MapIndexed[(#1 /. ff_ :> ff#2[[1]]) &,
  DeleteCases[UUBasis[{j, k}, ff], UU[_β] | UU[_a] | UU[_δβ]]]]
```

```
UU[δa[ff1[bj, bk], ç, j] + δa[ff2[bj, bk], ç, k] + δa[ff3[bj, bk], j, j] +
  δa[ff4[bj, bk], j, k] + δa[ff5[bj, bk], k, j] + δa[ff6[bj, bk], k, k] +
  δaa[ff7[bj, bk], ç, j, j, j] + δaa[ff8[bj, bk], ç, j, j, k] + δaa[ff9[bj, bk], ç, k, j, j] +
  δaa[ff10[bj, bk], ç, k, j, k] + δaa[ff11[bj, bk], ç, j, k, j] +
  δaa[ff12[bj, bk], ç, j, k, k] + δaa[ff13[bj, bk], ç, k, k, j] +
  δaa[ff14[bj, bk], ç, k, k, k] + δaa[ff15[bj, bk], j, j, j, j] +
  δaa[ff16[bj, bk], j, j, j, k] + δaa[ff17[bj, bk], j, k, j, k] +
  δaa[ff18[bj, bk], j, j, k, j] + δaa[ff19[bj, bk], j, j, k, k] +
  δaa[ff20[bj, bk], j, k, k, k] + δaa[ff21[bj, bk], k, j, k, j] +
  δaa[ff22[bj, bk], k, j, k, k] + δaa[ff23[bj, bk], k, k, k, k]]
```

```
ρ0[j_, k_] := UU[δa[ff1[bj, bk], ç, j] +
    δa[ff2[bj, bk], ç, k] + δa[ff3[bj, bk], j, j] + δa[ff4[bj, bk], j, k] +
    δa[ff5[bj, bk], k, j] + δa[ff6[bj, bk], k, k] + δaa[ff7[bj, bk], ç, j, j, j] +
    δaa[ff8[bj, bk], ç, j, j, k] + δaa[ff9[bj, bk], ç, k, j, j] +
    δaa[ff10[bj, bk], ç, k, j, k] + δaa[ff11[bj, bk], ç, j, k, j] +
    δaa[ff12[bj, bk], ç, j, k, k] + δaa[ff13[bj, bk], ç, k, k, j] +
    δaa[ff14[bj, bk], ç, k, k, k] + δaa[ff15[bj, bk], j, j, j, j] +
    δaa[ff16[bj, bk], j, j, j, k] + δaa[ff17[bj, bk], j, k, j, k] +
    δaa[ff18[bj, bk], j, j, k, j] + δaa[ff19[bj, bk], j, j, k, k] +
    δaa[ff20[bj, bk], j, k, k, k] + δaa[ff21[bj, bk], k, j, k, j] +
    δaa[ff22[bj, bk], k, j, k, k] + δaa[ff23[bj, bk], k, k, k, k]]
```

```
R[j_, k_] := R[j, k] = Ea[j, k] ** TSD[{
      j → UU[a[1, j, h∞]] + bb[j, k][ρ0[j, k], UU[a[1, j, h∞]]],
      k → UU[a[1, k, h∞]] + bb[j, k][ρ0[j, k], UU[a[1, k, h∞]]]
     }];
```

```
lhs = R[1, 2] ** R[1, 3] ** R[2, 3];
rhs = R[2, 3] ** R[1, 3] ** R[1, 2];

Simp = Simplify
```

```
Simplify
```

The following were obtained by watching `Dynamic[lhs1 - rhs1]` and repeatedly simplifying it:

```
Coefficient[lhs1 - rhs1, δaa[ç, h∞, 2, 1]]
```

$$-\frac{2\left(-1+e^{2 b_2}\right) b_1 b_3^2 \, ff_{21}[b_1, b_3]}{b_2}$$

```
ff21[__] = 0;

Coefficient[lhs1 - rhs1, δa[3, h∞]]
```

$$-\left(-1+e^{b_2}\right) b_1 \, ff_5[b_1, b_3]$$

```
ff5[__] = 0;

Coefficient[lhs1 - rhs1, δaa[1, 2, 3, h∞]]
```

$$-2\, e^{-b_1}\left(-1+e^{b_1}\right) ff_{11}[b_1, b_3]$$

```
ff11[__] = 0;

Coefficient[lhs1 - rhs1, δaa[3, 3, 3, h∞]]
```

$$-\left(-1+e^{b_2}\right) b_1 \, ff_{22}[b_1, b_3]$$

```
ff22[__] = 0;

Coefficient[lhs1 - rhs1, δaa[1, 1, 3, h∞]]
```

$$-\left(-1+e^{b_2}\right) b_1 \, ff_{18}[b_1, b_3]$$

```
ff18[__] = 0;

Coefficient[lhs1 - rhs1, δaa[2, 3, 3, h∞]] // Simplify
```

$$-\frac{\left(-1+e^{b_2}\right) b_1 \, ff_{13}[b_1, b_3]}{b_2}$$

```
ff13[__] = 0;

Coefficient[lhs1 - rhs1, δaa[1, 3, 1, h∞]] // Simplify
```

$$e^{-b_2}\left(-1+e^{b_2}\right)\left(ff_8[b_1, b_2] - ff_8[b_1, b_3]\right)$$

```
ff8[x_, y_] := gg1[x];
```

The following were obtained by watching `Dynamic[lhs2 - rhs2]` and repeatedly simplifying it:

```
Coefficient[lhs2 - rhs2, δaa[1, 1, 1, h∞]] // Simplify
```

$$-\frac{\left(-1+e^{b_1}\right) b_2 \, ff_7[b_1, b_3]}{b_1}$$

```
ff7[__] = 0;
```

```
Coefficient[lhs2 - rhs2, δa[1, h∞]] // Simplify
```

$$-\frac{\left(-1+e^{b_1}\right) b_2 \left(\text{ff}_1[b_1, b_3]-\text{ff}_1[b_2, b_3]\right)}{b_1}$$

```
ff1[x_, y_] := gg2[y];
```

```
Coefficient[lhs2 - rhs2, δaa[ç, 3, 3, h∞]] // Simplify
```

$$\left(-1+e^{b_1}\right) b_2 \left(\text{ff}_{12}[b_1, b_3]-\text{ff}_{12}[b_2, b_3]\right)$$

```
ff12[x_, y_] := gg3[y];
```

```
Coefficient[lhs2 - rhs2, δaa[2, 3, 2, h∞]] // Simplify
```

$$-\frac{2\, e^{b_1-b_2}\left(-1+e^{b_2}\right) b_1 \left(\text{ff}_{10}[b_1, b_2]+b_1\, \text{ff}_{17}[b_1, b_2]\right)}{b_2}$$

```
ff10[x_, y_] := -x ff17[x, y]
```

```
Coefficient[lhs2 - rhs2, δaa[ç, h∞, 1, 3]] // Simplify
```

$$\frac{\left(-1+e^{b_1}\right) b_2 \left(b_1\, \text{gg}_1[b_1]-b_2\, \text{gg}_1[b_2]\right)}{b_1}$$

```
gg1[x_] = cc1 / x;
```

```
t1 = Coefficient[lhs2 - rhs2, δaa[1, 3, 2, h∞]] // Simplify
```

$$\frac{1}{b_1^2} e^{-b_2}\left(-1+e^{b_2}\right)\left(2-2\, e^{b_1}+b_1\left(1+e^{b_1}+\left(-1+e^{b_1}\right) \text{cc}_1\right)+2\, e^{b_1} b_1^3\, \text{ff}_{17}[b_1, b_2]\right)$$

```
Simplify[ff17[x, y] /. Solve[t1 == 0 /. {b1 → x, b2 → y} , ff17[x, y]]]
```

$$\left\{-\frac{e^{-x}\left(2+e^x\left(-2+x\right)+x+\left(-1+e^x\right) x\, \text{cc}_1\right)}{2\, x^3}\right\}$$

```
ff17[x_, y_] := -(e^-x (2 + e^x (-2 + x) + x + (-1 + e^x) x cc1)) / (2 x^3);
```

The following were obtained by watching `Dynamic[lhs3 - rhs3]` and repeatedly simplifying it:

```
Coefficient[lhs3 - rhs3, δaa[2, 2, 2, h∞]] // Simplify
```

$$\frac{e^{b_1}\left(-1+e^{b_2}\right) b_3 \left(\text{ff}_{14}[b_1, b_2]+b_1\, \text{ff}_{20}[b_1, b_2]\right)}{b_2}$$

```
ff14[x_, y_] := -x ff20[x, y]
```

```
Coefficient[lhs3 - rhs3, δaa[1, 1, 1, h∞]] // Simplify
```

$$e^{b_1}\left(-1+e^{b_2}\right) b_3 \left(-\text{ff}_{16}[b_1, b_2]+\text{ff}_{16}[b_1, b_3]\right)$$

```
ff16[x_, y_] := gg4[x];
```

```
Coefficient[lhs3 - rhs3, δaa[1, 1, 2, h∞]] // Simplify
```

$$\frac{e^{b_1}\left(-1+e^{b_2}\right) b_3\ (ff_9[b_1, b_2] - ff_9[b_1, b_3])}{b_2}$$

```
ff9[x_, y_] := gg5[x];
```

```
Coefficient[lhs3 - rhs3, δaa[1, 3, 3, h∞]] // Simplify
```

$$\frac{1}{b_1} b_3 \left(e^{b_1}\left(-1+e^{b_2}\right) b_1\ ff_{20}[b_1, b_3] - e^{b_2}\left(-1+e^{b_1}\right) b_2\ ff_{20}[b_2, b_3]\right)$$

```
ff20[x_, y_] := gg6[y] (e^x - 1) / (x e^x);
```

```
Coefficient[lhs3 - rhs3, δa[2, h∞]] // Simplify
```

$$\frac{1}{b_2} e^{b_1}\left(-1+e^{b_2}\right) b_3\ (ff_2[b_1, b_2] - ff_2[b_1, b_3] + b_1\ (ff_4[b_1, b_2] - ff_4[b_1, b_3]))$$

```
(b1 ff4[b1, b2] + ff2[b1, b2] == b1 ff4[b1, b3] + ff2[b1, b3]) /. {b1 → x, b2 → y, b3 → z}
```

$$ff_2[x, y] + x\ ff_4[x, y] == ff_2[x, z] + x\ ff_4[x, z]$$

```
ff2[x_, y_] := gg7[x] - x ff4[x, y]
```

```
t2 = Coefficient[lhs3 - rhs3, δaa[1, 2, 2, h∞]] // Simplify
```

$$\frac{1}{2\, b_1\, b_2^2}\left(-1+e^{b_1}\right) b_3$$
$$\left(2\left(-1+e^{b_2}\right) + \left(1+e^{b_2}\right) b_2\ (-1+cc_1) + 2\, b_2^2\left(gg_3[b_2] + e^{b_2}\, gg_5[b_2] - \left(-1+e^{b_2}\right) gg_6[b_2]\right)\right)$$

```
Simplify[gg3[y] /. Solve[t2 == 0 /. {b1 → x, b2 → y} , gg3[y]]]
```

$$\left\{\frac{1}{2\, y^2}\left(2 - 2\, e^y + y + e^y\, y - (1+e^y)\, y\, cc_1 - 2\, e^y\, y^2\, gg_5[y] - 2\, y^2\, gg_6[y] + 2\, e^y\, y^2\, gg_6[y]\right)\right\}$$

```
gg3[y_] := 1/(2 y^2)
  (2 - 2 e^y + y + e^y y - (1 + e^y) y cc1 - 2 e^y y^2 gg5[y] - 2 y^2 gg6[y] + 2 e^y y^2 gg6[y]);
```

```
t3 = Coefficient[lhs3 - rhs3, δa[1, h∞]]
```

$$\frac{1}{2\, b_1\, b_2} b_3 \left(-2\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right) - 2\left(-1+e^{b_1}\right) b_2^2\left(e^{b_2}\, ff_4[b_2, b_3] + \left(-1+e^{b_2}\right) gg_6[b_2]\right) +\right.$$
$$b_2\left(\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right) cc_1 - 2\, e^{b_1}\left(-1+e^{b_2}\right) b_1\ (ff_4[b_1, b_2] - ff_4[b_1, b_3]) +\right.$$
$$\left.\left.\left(-1+e^{b_1}\right)\left(1+e^{b_2} + 2\, gg_2[b_2] + 2\, e^{b_2}\, gg_7[b_2]\right)\right)\right)$$

```
t4 = (2 b1 b2/b3 t3 /. {b1 → x, b2 → y, b3 → z}) // Simplify
```

$$-2\ (-1+e^x)\ (-1+e^y) -$$
$$2\ (-1+e^x)\ y^2\ (e^y\ ff_4[y, z] + (-1+e^y)\ gg_6[y]) + y\ ((-1+e^x)\ (-1+e^y)\ cc_1 -$$
$$2\ e^x\ (-1+e^y)\ x\ (ff_4[x, y] - ff_4[x, z]) + (-1+e^x)\ (1+e^y + 2\ gg_2[y] + 2\ e^y\ gg_7[y]))$$

```
D[t4, z] / (2 y) // Simplify
```

$$e^x\ (-1+e^y)\ x\ ff_4^{(0,1)}[x,\ z]-e^y\ (-1+e^x)\ y\ ff_4^{(0,1)}[y,\ z]$$

```
ff4[x_, z_] := gg8[x] + (e^x - 1)/(x e^x) gg9[z];
```

```
t5 = Coefficient[lhs3 - rhs3, δa[1, h∞]] /. {b1 → x, b2 → y}
```

$$-\frac{1}{2\,x\,y}\ (-1+e^x)\ b_3\ \Big(2\ (-1+e^y)+2\ y^2\ ((-1+e^y)\ gg_6[y]+e^y\ gg_8[y])-$$
$$y\ (1+e^y+(-1+e^y)\ cc_1+2\ gg_2[y]+2\ e^y\ gg_7[y]+2\ gg_9[y]-2\ e^y\ gg_9[y])\Big)$$

```
Solve[t5 == 0, gg9[y]]
```

$$\Big\{\Big\{gg_9[y]\to\frac{1}{2\ (-1+e^y)\ y}\Big(2-2\ e^y+y+e^y\ y-y\ cc_1+e^y\ y\ cc_1+$$
$$2\ y\ gg_2[y]+2\ y^2\ gg_6[y]-2\ e^y\ y^2\ gg_6[y]+2\ e^y\ y\ gg_7[y]-2\ e^y\ y^2\ gg_8[y]\Big)\Big\}\Big\}$$

```
gg9[y_] := 1/(2 (-1 + e^y) y) (2 - 2 e^y + y + e^y y - y cc1 + e^y y cc1 +
    2 y gg2[y] + 2 y^2 gg6[y] - 2 e^y y^2 gg6[y] + 2 e^y y gg7[y] - 2 e^y y^2 gg8[y]);
```

```
Table[lhsi - rhsi, {i, 3}]
```

```
{UU[0], UU[0], UU[0]}
```

```
UU@β[f[b1, b2, b3]] // R[1, 2] // R[1, 3] // R[2, 3]
```

$$UU\Big[\beta[f[b_1,\ b_2,\ b_3]]+\delta a\Big[-\frac{1}{b_2}e^{-b_2}\ \left(-1+e^{b_2}\right)\ \left(f^{(0,0,1)}[b_1,\ b_2,\ b_3]-f^{(0,1,0)}[b_1,\ b_2,\ b_3]\right),\ 2,\ 3\Big]+$$
$$\delta a\Big[e^{-b_1}\ \left(-1+e^{b_1}\right)\ \left(f^{(0,1,0)}[b_1,\ b_2,\ b_3]-f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ ç,\ 2\Big]+$$
$$\delta a\Big[-\frac{1}{b_1}e^{-b_1}\ \left(-1+e^{b_1}\right)\ \left(f^{(0,1,0)}[b_1,\ b_2,\ b_3]-f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ 1,\ 2\Big]+$$
$$\delta a\Big[-\frac{1}{b_1}e^{-b_1-b_2}\ \left(-1+e^{b_1}\right)$$
$$\left(f^{(0,0,1)}[b_1,\ b_2,\ b_3]+\left(-1+e^{b_2}\right)\ f^{(0,1,0)}[b_1,\ b_2,\ b_3]-e^{b_2}\ f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ 1,\ 3\Big]+$$
$$\delta a\Big[e^{-b_1-b_2}\ \left(\left(-1+e^{b_1+b_2}\right)\ f^{(0,0,1)}[b_1,\ b_2,\ b_3]-\left(-1+e^{b_2}\right)\ f^{(0,1,0)}[b_1,\ b_2,\ b_3]-$$
$$e^{b_2}\ \left(-1+e^{b_1}\right)\ f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ ç,\ 3\Big]\Big]$$

```
UU@β[f[b1, b2, b3]] // R[2, 3] // R[1, 3] // R[1, 2]
```

$$UU\Big[\beta[f[b_1,\ b_2,\ b_3]]+\delta a\Big[-\frac{1}{b_2}e^{-b_2}\ \left(-1+e^{b_2}\right)\ \left(f^{(0,0,1)}[b_1,\ b_2,\ b_3]-f^{(0,1,0)}[b_1,\ b_2,\ b_3]\right),\ 2,\ 3\Big]+$$
$$\delta a\Big[e^{-b_1}\ \left(-1+e^{b_1}\right)\ \left(f^{(0,1,0)}[b_1,\ b_2,\ b_3]-f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ ç,\ 2\Big]+$$
$$\delta a\Big[-\frac{1}{b_1}e^{-b_1}\ \left(-1+e^{b_1}\right)\ \left(f^{(0,1,0)}[b_1,\ b_2,\ b_3]-f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ 1,\ 2\Big]+$$
$$\delta a\Big[-\frac{1}{b_1}e^{-b_1-b_2}\ \left(-1+e^{b_1}\right)$$
$$\left(f^{(0,0,1)}[b_1,\ b_2,\ b_3]+\left(-1+e^{b_2}\right)\ f^{(0,1,0)}[b_1,\ b_2,\ b_3]-e^{b_2}\ f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ 1,\ 3\Big]+$$
$$\delta a\Big[e^{-b_1-b_2}\ \left(\left(-1+e^{b_1+b_2}\right)\ f^{(0,0,1)}[b_1,\ b_2,\ b_3]-\left(-1+e^{b_2}\right)\ f^{(0,1,0)}[b_1,\ b_2,\ b_3]-$$
$$e^{b_2}\ \left(-1+e^{b_1}\right)\ f^{(1,0,0)}[b_1,\ b_2,\ b_3]\right),\ ç,\ 3\Big]\Big]$$

```
(UU@β[f[b1, b2, b3]] // R[1, 2] // R[1, 3] // R[2, 3]) -
 (UU@β[f[b1, b2, b3]] // R[2, 3] // R[1, 3] // R[1, 2])
```

```
UU[0]
```

```
Table[(UU@a[f[b1, b2, b3], i, h∞] // R[1, 2] // R[1, 3] // R[2, 3]) -
  (UU@a[f[b1, b2, b3], i, h∞] // R[2, 3] // R[1, 3] // R[1, 2]), {i, 3}]
```

```
{UU[0], UU[0], UU[0]}
```

```
Table[CF[ÅForm[(R[1, 2] ** R[1, 3])i - (R[1, 3] ** R[1, 2])i]], {i, 3}]
```

$$\{UU[0],\ UU\Big[aao\Big[-\frac{\left(-1+e^{b_1}\right)\ (-1+cc_1)}{b_1},\ 1,\ 3,\ 2,\ h\infty\Big]+aao\Big[\frac{1}{2\,b_1\,b_3^2}$$
$$\left(-1+e^{b_1}\right)\,b_2\,\left(2\,\left(-1+e^{b_3}\right)+\left(1+e^{b_3}\right)\,b_3\,(-1+cc_1)+2\,b_3^2\,\left(e^{b_3}\,gg_5[b_3]-\left(-1+e^{b_3}\right)\,gg_6[b_3]\right)\right),$$
$$1,\ 3,\ 3,\ h\infty\Big]+ao\Big[-\frac{\left(-1+e^{b_1}\right)\,b_2\,gg_2[b_3]}{b_1},\ 1,\ h\infty\Big]+$$
$$ca\Big[\frac{1}{2\,b_1\,b_3}\left(-1+e^{b_1}\right)\,b_2\,\left(2\,\left(-1+e^{b_3}\right)+\left(-1+e^{b_3}\right)\,b_3\,(-1+cc_1)+$$
$$2\,b_3^2\,\left(e^{b_3}\,gg_5[b_3]-\left(-1+e^{b_3}\right)\,gg_6[b_3]\right)\right),\ 3,\ 1,\ h\infty\Big]\Big],$$
$$UU\Big[aao\Big[\frac{\left(-1+e^{b_1}\right)\ (-1+cc_1)}{b_1},\ 1,\ 2,\ 3,\ h\infty\Big]+aao\Big[-\frac{1}{2\,b_1\,b_2^2}\left(-1+e^{b_1}\right)\,b_3$$
$$\left(2\,\left(-1+e^{b_2}\right)+\left(1+e^{b_2}\right)\,b_2\,(-1+cc_1)+2\,b_2^2\,\left(e^{b_2}\,gg_5[b_2]-\left(-1+e^{b_2}\right)\,gg_6[b_2]\right)\right),$$
$$1,\ 2,\ 2,\ h\infty\Big]+ao\Big[\frac{\left(-1+e^{b_1}\right)\,b_3\,gg_2[b_2]}{b_1},\ 1,\ h\infty\Big]+$$
$$ca\Big[-\frac{1}{2\,b_1\,b_2}\left(-1+e^{b_1}\right)\,b_3\,\left(2\,\left(-1+e^{b_2}\right)+\left(-1+e^{b_2}\right)\,b_2\,(-1+cc_1)+$$
$$2\,b_2^2\,\left(e^{b_2}\,gg_5[b_2]-\left(-1+e^{b_2}\right)\,gg_6[b_2]\right)\right),\ 2,\ 1,\ h\infty\Big]\Big]\}$$

```
Table[CF[ÅForm[(R[1, 2] ** R[1, 3])i - (R[1, 3] ** R[1, 2])i /.
     {gg2|4|5|7[_] → 0, gg6[x_] :→ (2 - x)/(2 x^2), gg8[x_] :→ 1/x, cc1 → 0}]], {i, 3}]
```

$$\{UU[0],\ UU\Big[aao\Big[\frac{-1+e^{b_1}}{b_1},\ 1,\ 3,\ 2,\ h\infty\Big]+aao\Big[-\frac{\left(-1+e^{b_1}\right)\,b_2}{b_1\,b_3},\ 1,\ 3,\ 3,\ h\infty\Big]\Big],$$
$$UU\Big[aao\Big[\frac{1-e^{b_1}}{b_1},\ 1,\ 2,\ 3,\ h\infty\Big]+aao\Big[\frac{\left(-1+e^{b_1}\right)\,b_3}{b_1\,b_2},\ 1,\ 2,\ 2,\ h\infty\Big]\Big]\}$$

$$\rho 0[1,2]$$

$$\begin{aligned}
&UU\Big[\delta a[ff_3[b_1,b_2],1,1]+\delta a[ff_6[b_1,b_2],2,2]+\\
&\quad\delta a[gg_2[b_2],ç,1]+\delta a\Big[gg_8[b_1]+\frac{1}{2\left(-1+e^{b_2}\right)b_1 b_2}\\
&\qquad e^{-b_1}\left(-1+e^{b_1}\right)\left(2-2e^{b_2}+b_2+e^{b_2}b_2-b_2\,cc_1+e^{b_2}b_2\,cc_1+2b_2\,gg_2[b_2]+2b_2^2\,gg_6[b_2]-\right.\\
&\qquad\left.2e^{b_2}b_2^2\,gg_6[b_2]+2e^{b_2}b_2\,gg_7[b_2]-2e^{b_2}b_2^2\,gg_8[b_2]\right),1,2\Big]+\delta a\Big[gg_7[b_1]-\\
&\quad b_1\left(gg_8[b_1]+\frac{1}{2\left(-1+e^{b_2}\right)b_1 b_2}e^{-b_1}\left(-1+e^{b_1}\right)\left(2-2e^{b_2}+b_2+e^{b_2}b_2-b_2\,cc_1+e^{b_2}b_2\,cc_1+\right.\right.\\
&\qquad\left.\left.2b_2\,gg_2[b_2]+2b_2^2\,gg_6[b_2]-2e^{b_2}b_2^2\,gg_6[b_2]+2e^{b_2}b_2\,gg_7[b_2]-2e^{b_2}b_2^2\,gg_8[b_2]\right)\right),\\
&\quad ç,2\Big]+\delta aa\Big[\frac{cc_1}{b_1},ç,1,1,2\Big]+\delta aa\Big[-\frac{e^{-b_1}\left(2+e^{b_1}\,(-2+b_1)+b_1+\left(-1+e^{b_1}\right)b_1\,cc_1\right)}{2b_1^3},\\
&\quad 1,2,1,2\Big]+\\
&\quad\delta aa\Big[\frac{e^{-b_1}\left(2+e^{b_1}\,(-2+b_1)+b_1+\left(-1+e^{b_1}\right)b_1\,cc_1\right)}{2b_1^2},ç,2,1,2\Big]+\\
&\quad\delta aa[ff_{15}[b_1,b_2],1,1,1,1]+\\
&\quad\delta aa[ff_{19}[b_1,b_2],1,1,2,2]+\\
&\quad\delta aa[ff_{23}[b_1,b_2],2,2,2,2]+\\
&\quad\delta aa[gg_4[b_1],1,1,1,2]+\\
&\quad\delta aa[gg_5[b_1],ç,2,1,1]+\\
&\quad\delta aa\Big[-e^{-b_1}\left(-1+e^{b_1}\right)gg_6[b_2],ç,2,2,2\Big]+\\
&\quad\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)gg_6[b_2]}{b_1},1,2,2,2\Big]+\delta aa\Big[\frac{1}{2b_2^2}\\
&\quad\left(2-2e^{b_2}+b_2+e^{b_2}b_2-\left(1+e^{b_2}\right)b_2\,cc_1-2e^{b_2}b_2^2\,gg_5[b_2]-2b_2^2\,gg_6[b_2]+2e^{b_2}b_2^2\,gg_6[b_2]\right),\\
&\quad ç,1,2,2\Big]\Big]
\end{aligned}$$

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Table[CF@R[1, 2]ᵢ, {i, 2}]
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$$\Big\{UU\Big[a[1,\,1,\,h\infty] + \delta a[gg_2[b_2],\,1,\,h\infty] + \delta a[-b_1\,gg_2[b_2],\,ç,\,h\infty] + \delta aa\Big[\frac{1-e^{-b_1}+b_1\,(-1+cc_1)}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] + \delta aa\Big[\frac{1}{2\,b_2}\Big(2\left(-1+e^{b_2}\right)+\left(-1+e^{b_2}\right)b_2\,(-1+cc_1)+2\,b_2^2\left(e^{b_2}\,gg_5[b_2]-\left(-1+e^{b_2}\right)gg_6[b_2]\right)\Big),\,ç,\,h\infty,\,1,\,2\Big] + \delta aa\Big[-\frac{1}{2\,b_2^2}\Big(-2+2\,e^{b_2}+\left(1+e^{b_2}\right)b_2\,(-1+cc_1)+2\,b_2^2\left(e^{b_2}\,gg_5[b_2]-\left(-1+e^{b_2}\right)gg_6[b_2]\right)\Big),\,1,\,2,\,2,\,h\infty\Big] + \delta aa\Big[\frac{1}{2\,b_2^2}b_1\left(2\left(-1+e^{b_2}\right)+\left(1+e^{b_2}\right)b_2\,(-1+cc_1)+2\,b_2^2\left(e^{b_2}\,gg_5[b_2]-\left(-1+e^{b_2}\right)gg_6[b_2]\right)\right),\,ç,\,2,\,2,\,h\infty\Big] + \delta aa\Big[\frac{1}{2\,b_1\,b_2}e^{-b_1}\Big(-2\left(-1+e^{b_1}\right)b_2 - e^{b_1}\,b_1\left(2\left(-1+e^{b_2}\right)+\left(1+e^{b_2}\right)b_2\,(-1+cc_1)+2\,b_2^2\left(e^{b_2}\,gg_5[b_2]-\left(-1+e^{b_2}\right)gg_6[b_2]\right)\right)\Big),\,ç,\,2,\,1,\,h\infty\Big]\Big],\; UU\Big[a\left[e^{b_1},\,2,\,h\infty\right] + a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big] + \delta a\left[e^{b_1}\,gg_7[b_1],\,2,\,h\infty\right] + \delta a\Big[\frac{1}{-1+e^{b_2}}\Big(-\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right) + b_2\Big(-e^{b_2}+e^{b_1+b_2}+e^{b_2}\left(-1+e^{b_1}\right)gg_2[b_2]-e^{b_1}\left(-1+e^{b_2}\right)gg_7[b_1]-e^{b_2}\,gg_7[b_2]+e^{b_1+b_2}\,gg_7[b_2]-e^{b_1}\,b_1\,gg_8[b_1]+e^{b_1+b_2}\,b_1\,gg_8[b_1]\Big)-e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,ç,\,h\infty\Big] + \delta a\Big[\frac{1}{\left(-1+e^{b_2}\right)b_1}\Big(\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\Big(e^{b_2}-e^{b_1+b_2}-e^{b_2}\left(-1+e^{b_1}\right)gg_2[b_2]-e^{b_2}\left(-1+e^{b_1}\right)gg_7[b_2]+e^{b_1}\,b_1\,gg_8[b_1]-e^{b_1+b_2}\,b_1\,gg_8[b_1]\Big)+e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,1,\,h\infty\Big] + \delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] + \delta aa\left[e^{b_1}\,cc_1,\,ç,\,1,\,2,\,h\infty\right] + \delta aa\Big[-\frac{e^{b_1}\,b_2\,cc_1}{b_1},\,ç,\,1,\,1,\,h\infty\Big] + \delta aa\left[-e^{b_1}\,b_2\,gg_4[b_1],\,1,\,1,\,1,\,h\infty\right] + \delta aa\left[-e^{b_1}\,b_2\,gg_5[b_1],\,ç,\,h\infty,\,1,\,1\right] + \delta aa\left[e^{b_1}\,(b_1\,gg_4[b_1]+gg_5[b_1]),\,1,\,1,\,2,\,h\infty\right] + \delta aa\Big[-\frac{1}{2\,b_1}e^{b_2}\left(-1+e^{b_1}\right)\left(2+b_2\,(-1+cc_1)+2\,b_2^2\,(gg_5[b_2]-gg_6[b_2])\right),\,ç,\,h\infty,\,1,\,2\Big] + \delta aa\Big[-\frac{1}{2\,b_2}\left(-1+e^{b_1}\right)\left(2\left(-1+e^{b_2}\right)+e^{b_2}\,b_2\,(-1+cc_1)+2\,e^{b_2}\,b_2^2\,(gg_5[b_2]-gg_6[b_2])\right),\,ç,\,2,\,2,\,h\infty\Big] + \delta aa\Big[\frac{1}{2\,b_1\,b_2}\left(-1+e^{b_1}\right)\left(2\left(-1+e^{b_2}\right)+e^{b_2}\,b_2\,(-1+cc_1)+2\,e^{b_2}\,b_2^2\,(gg_5[b_2]-gg_6[b_2])\right),\,1,\,2,\,2,\,h\infty\Big] + \delta aa\Big[\frac{1}{2\,b_1}e^{-b_1}\left(-1+e^{b_1}\right)\left(2\left(1-e^{b_1}+e^{b_1+b_2}\right)+e^{b_1+b_2}\,b_2\,(-1+cc_1)+2\,e^{b_1+b_2}\,b_2^2\,(gg_5[b_2]-gg_6[b_2])\right),\,ç,\,2,\,1,\,h\infty\Big]\Big]\Big\}$$

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Table[CF[R[1, 2]_i /. {gg_{2|4|5|6|7|8}[_] → 0}], {i, 2}]
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$$\Big\{UU\Big[a[1,\,1,\,h\infty] + \delta aa\Big[\frac{-1+e^{-b_1}}{b_1} - \frac{-2+2\,e^{b_2}+\left(1+e^{b_2}\right)b_2\,(-1+cc_1)}{2\,b_2},\,ç,\,2,\,1,\,h\infty\Big] +$$

$$\delta aa\Big[\frac{1-e^{-b_1}+b_1\,(-1+cc_1)}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] + \delta aa\Big[\frac{\left(-1+e^{b_2}\right)\,(2+b_2\,(-1+cc_1))}{2\,b_2},$$

$$ç,\,h\infty,\,1,\,2\Big] + \delta aa\Big[-\frac{-2+2\,e^{b_2}+\left(1+e^{b_2}\right)b_2\,(-1+cc_1)}{2\,b_2^2},\,1,\,2,\,2,\,h\infty\Big] +$$

$$\delta aa\Big[\frac{b_1\left(2\left(-1+e^{b_2}\right)+\left(1+e^{b_2}\right)b_2\,(-1+cc_1)\right)}{2\,b_2^2},\,ç,\,2,\,2,\,h\infty\Big]\Big],$$

$$UU\Big[a\left[e^{b_1},\,2,\,h\infty\right] + a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big] + \delta a\Big[\frac{\left(-1+e^{b_1}\right)\left(1-e^{b_2}+e^{b_2}\,b_2\right)}{-1+e^{b_2}},\,ç,\,h\infty\Big] +$$

$$\delta a\Big[-\frac{\left(-1+e^{b_1}\right)\left(1-e^{b_2}+e^{b_2}\,b_2\right)}{\left(-1+e^{b_2}\right)b_1},\,1,\,h\infty\Big] + \delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] +$$

$$\delta aa\Big[-\frac{e^{b_2}\left(-1+e^{b_1}\right)\,(2+b_2\,(-1+cc_1))}{2\,b_1},\,ç,\,h\infty,\,1,\,2\Big] +$$

$$\delta aa\Big[-\frac{\left(-1+e^{b_1}\right)\left(2\left(-1+e^{b_2}\right)+e^{b_2}\,b_2\,(-1+cc_1)\right)}{2\,b_2},\,ç,\,2,\,2,\,h\infty\Big] +$$

$$\delta aa\Big[\frac{\left(-1+e^{b_1}\right)\left(2\left(-1+e^{b_2}\right)+e^{b_2}\,b_2\,(-1+cc_1)\right)}{2\,b_1\,b_2},\,1,\,2,\,2,\,h\infty\Big] +$$

$$\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)\left(2\left(1-e^{b_1}+e^{b_1+b_2}\right)+e^{b_1+b_2}\,b_2\,(-1+cc_1)\right)}{2\,b_1},\,ç,\,2,\,1,\,h\infty\Big] +$$

$$\delta aa\left[e^{b_1}\,cc_1,\,ç,\,1,\,2,\,h\infty\right] + \delta aa\Big[-\frac{e^{b_1}\,b_2\,cc_1}{b_1},\,ç,\,1,\,1,\,h\infty\Big]\Big]\Big\}$$

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Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₆|₇|₈[_] → 0}], {i, 2}] // ÅForm
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$$\Big\{UU\Big[a[1,\ 1,\ h\infty] + aao\Big[\frac{1 - e^{-b_1} + b_1\ (-1 + cc_1)}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\Big] +$$
$$aao\Big[-\frac{-2 + 2\,e^{b_2} + \left(1 + e^{b_2}\right)\,b_2\ (-1 + cc_1)}{2\,b_2^2},\ 1,\ 2,\ 2,\ h\infty\Big] +$$
$$ca\Big[\frac{1 - e^{-b_1}}{b_1},\ h\infty,\ 1,\ 2\Big] + ca\Big[-\frac{\left(-1 + e^{b_2}\right)\ (2 + b_2\ (-1 + cc_1))}{2\,b_2},\ 2,\ 1,\ h\infty\Big]\Big],$$
$$UU\Big[a\left[e^{b_1},\ 2,\ h\infty\right] + a\Big[-\frac{\left(-1 + e^{b_1}\right)\,b_2}{b_1},\ 1,\ h\infty\Big] + aao\Big[\frac{e^{-b_1}\ \left(-1 + e^{b_1}\right)^2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\Big] +$$
$$aao\Big[\frac{\left(-1 + e^{b_1}\right)\ \left(2\ \left(-1 + e^{b_2}\right) + e^{b_2}\,b_2\ (-1 + cc_1)\right)}{2\,b_1\,b_2},\ 1,\ 2,\ 2,\ h\infty\Big] +$$
$$ao\Big[-\frac{\left(-1 + e^{b_1}\right)\ \left(1 - e^{b_2} + e^{b_2}\,b_2\right)}{\left(-1 + e^{b_2}\right)\,b_1},\ 1,\ h\infty\Big] + ca\Big[-\frac{1 - e^{-b_1}}{b_1},\ h\infty,\ 1,\ 2\Big] +$$
$$ca\Big[\frac{e^{b_2}\ \left(-1 + e^{b_1}\right)\ (2 + b_2\ (-1 + cc_1))}{2\,b_1},\ 2,\ 1,\ h\infty\Big] +$$
$$ca\Big[e^{b_1}\,cc_1,\ 1,\ 2,\ h\infty\Big] + ca\Big[-\frac{e^{b_1}\,b_2\,cc_1}{b_1},\ 1,\ 1,\ h\infty\Big]\Big]\Big\}$$

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Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₆|₇|₈[_] → 0, cc₁ → 1}], {i, 2}]
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$$\Big\{UU\Big[a[1,\ 1,\ h\infty] + \delta aa\Big[\frac{1 - e^{-b_1}}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\Big] + \delta aa\Big[\frac{-1 + e^{-b_1}}{b_1} + \frac{1 - e^{b_2}}{b_2},\ ç,\ 2,\ 1,\ h\infty\Big] +$$
$$\delta aa\Big[\frac{1 - e^{b_2}}{b_2^2},\ 1,\ 2,\ 2,\ h\infty\Big] + \delta aa\Big[\frac{\left(-1 + e^{b_2}\right)\,b_1}{b_2^2},\ ç,\ 2,\ 2,\ h\infty\Big] + \delta aa\Big[\frac{-1 + e^{b_2}}{b_2},\ ç,\ h\infty,\ 1,\ 2\Big]\Big],$$
$$UU\Big[a\left[e^{b_1},\ 2,\ h\infty\right] + a\Big[-\frac{\left(-1 + e^{b_1}\right)\,b_2}{b_1},\ 1,\ h\infty\Big] + \delta a\Big[\frac{\left(-1 + e^{b_1}\right)\ \left(1 - e^{b_2} + e^{b_2}\,b_2\right)}{-1 + e^{b_2}},\ ç,\ h\infty\Big] +$$
$$\delta a\Big[-\frac{\left(-1 + e^{b_1}\right)\ \left(1 - e^{b_2} + e^{b_2}\,b_2\right)}{\left(-1 + e^{b_2}\right)\,b_1},\ 1,\ h\infty\Big] + \delta aa\left[e^{b_1},\ ç,\ 1,\ 2,\ h\infty\right] +$$
$$\delta aa\Big[\frac{e^{-b_1}\ \left(-1 + e^{b_1}\right)^2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\Big] + \delta aa\Big[-\frac{e^{b_2}\ \left(-1 + e^{b_1}\right)}{b_1},\ ç,\ h\infty,\ 1,\ 2\Big] +$$
$$\delta aa\Big[\frac{e^{-b_1}\ \left(-1 + e^{b_1}\right)\ \left(1 - e^{b_1} + e^{b_1 + b_2}\right)}{b_1},\ ç,\ 2,\ 1,\ h\infty\Big] + \delta aa\Big[-\frac{\left(-1 + e^{b_1}\right)\ \left(-1 + e^{b_2}\right)}{b_2},\ ç,$$
$$2,\ 2,\ h\infty\Big] + \delta aa\Big[\frac{\left(-1 + e^{b_1}\right)\ \left(-1 + e^{b_2}\right)}{b_1\,b_2},\ 1,\ 2,\ 2,\ h\infty\Big] + \delta aa\Big[-\frac{e^{b_1}\,b_2}{b_1},\ ç,\ 1,\ 1,\ h\infty\Big]\Big]\Big\}$$

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Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₆|₇|₈[_] → 0, cc₁ → 1}], {i, 2}] // ÅForm
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$$\Big\{UU\Big[a[1,\ 1,\ h\infty] + aao\Big[\frac{1-e^{-b_1}}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\Big] +$$
$$aao\Big[\frac{1-e^{b_2}}{b_2^2},\ 1,\ 2,\ 2,\ h\infty\Big] + ca\Big[\frac{1-e^{-b_1}}{b_1},\ h\infty,\ 1,\ 2\Big] + ca\Big[\frac{1-e^{b_2}}{b_2},\ 2,\ 1,\ h\infty\Big]\Big],$$
$$UU\Big[a\Big[e^{b_1},\ 2,\ h\infty\Big] + a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\ 1,\ h\infty\Big] + aao\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\Big] +$$
$$aao\Big[\frac{\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)}{b_1 b_2},\ 1,\ 2,\ 2,\ h\infty\Big] + ao\Big[-\frac{\left(-1+e^{b_1}\right)\left(1-e^{b_2}+e^{b_2}b_2\right)}{\left(-1+e^{b_2}\right)b_1},\ 1,\ h\infty\Big] +$$
$$ca\Big[e^{b_1},\ 1,\ 2,\ h\infty\Big] + ca\Big[-\frac{1-e^{-b_1}}{b_1},\ h\infty,\ 1,\ 2\Big] +$$
$$ca\Big[\frac{e^{b_2}\left(-1+e^{b_1}\right)}{b_1},\ 2,\ 1,\ h\infty\Big] + ca\Big[-\frac{e^{b_1}b_2}{b_1},\ 1,\ 1,\ h\infty\Big]\Big]\Big\}$$

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Table[CF[R[1, 2]ᵢ /. {gg_{2|4|5|7}[_] → 0}], {i, 2}]
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$$\Big\{UU\Big[a[1,\,1,\,h\infty]+\delta aa\Big[\frac{1-e^{-b_1}+b_1\,(-1+cc_1)}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+$$

$$\delta aa\Big[-\frac{\left(-1+e^{b_2}\right)\left(-2-b_2\,(-1+cc_1)+2\,b_2^2\,gg_6[b_2]\right)}{2\,b_2},\,ç,\,h\infty,\,1,\,2\Big]+$$

$$\delta aa\Big[\frac{2-2\,e^{b_2}-\left(1+e^{b_2}\right)b_2\,(-1+cc_1)+2\left(-1+e^{b_2}\right)b_2^2\,gg_6[b_2]}{2\,b_2^2},\,1,\,2,\,2,\,h\infty\Big]+$$

$$\delta aa\Big[-\frac{1}{2\,b_2^2}b_1\left(2-2\,e^{b_2}-\left(1+e^{b_2}\right)b_2\,(-1+cc_1)+2\left(-1+e^{b_2}\right)b_2^2\,gg_6[b_2]\right),\,ç,\,2,\,2,\,h\infty\Big]+$$

$$\delta aa\Big[\frac{1}{2\,b_1\,b_2}$$

$$e^{-b_1}\left(-2\left(-1+e^{b_1}\right)b_2+e^{b_1}\,b_1\left(2-2\,e^{b_2}-\left(1+e^{b_2}\right)b_2\,(-1+cc_1)+2\left(-1+e^{b_2}\right)b_2^2\,gg_6[b_2]\right)\right),$$

$$ç,\,2,\,1,\,h\infty\Big]\Big],$$

$$UU\Big[a\left[e^{b_1},\,2,\,h\infty\right]+a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big]+\delta a\Big[\frac{1}{-1+e^{b_2}}\Big(-\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+$$

$$b_2\left(e^{b_2}\left(-1+e^{b_1}\right)+e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)-e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,ç,\,h\infty\Big]+$$

$$\delta a\Big[\frac{1}{\left(-1+e^{b_2}\right)b_1}\Big(\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\left(-e^{b_2}\left(-1+e^{b_1}\right)-e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)+$$

$$e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,1,\,h\infty\Big]+\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+$$

$$\delta aa\left[e^{b_1}\,cc_1,\,ç,\,1,\,2,\,h\infty\right]+\delta aa\Big[-\frac{e^{b_1}\,b_2\,cc_1}{b_1},\,ç,\,1,\,1,\,h\infty\Big]+$$

$$\delta aa\Big[\frac{e^{b_2}\left(-1+e^{b_1}\right)\left(-2-b_2\,(-1+cc_1)+2\,b_2^2\,gg_6[b_2]\right)}{2\,b_1},\,ç,\,h\infty,\,1,\,2\Big]+$$

$$\delta aa\Big[\frac{1}{2\,b_2}\left(-1+e^{b_1}\right)\left(2-2\,e^{b_2}-e^{b_2}\,b_2\,(-1+cc_1)+2\,e^{b_2}\,b_2^2\,gg_6[b_2]\right),\,ç,\,2,\,2,\,h\infty\Big]+$$

$$\delta aa\Big[-\frac{1}{2\,b_1\,b_2}\left(-1+e^{b_1}\right)\left(2-2\,e^{b_2}-e^{b_2}\,b_2\,(-1+cc_1)+2\,e^{b_2}\,b_2^2\,gg_6[b_2]\right),\,1,\,2,\,2,\,h\infty\Big]+$$

$$\delta aa\Big[-\frac{1}{2\,b_1}e^{-b_1}\left(-1+e^{b_1}\right)\left(-2\left(1-e^{b_1}+e^{b_1+b_2}\right)-e^{b_1+b_2}\,b_2\,(-1+cc_1)+2\,e^{b_1+b_2}\,b_2^2\,gg_6[b_2]\right),$$

$$ç,\,2,\,1,\,h\infty\Big]\Big]\Big\}$$

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Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₇[_] → 0, cc₁ → 1}], {i, 2}]
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$$\Big\{UU\Big[a[1,\,1,\,h\infty]+\delta aa\Big[\frac{1-e^{-b_1}}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+\delta aa\Big[\frac{\left(-1+e^{b_2}\right)\left(-1+b_2^2\,gg_6[b_2]\right)}{b_2^2},\,1,\,2,\,2,\,h\infty\Big]+$$
$$\delta aa\Big[-\frac{\left(-1+e^{b_2}\right)b_1\left(-1+b_2^2\,gg_6[b_2]\right)}{b_2^2},\,ç,\,2,\,2,\,h\infty\Big]+$$
$$\delta aa\Big[-\frac{\left(-1+e^{b_2}\right)\left(-1+b_2^2\,gg_6[b_2]\right)}{b_2},\,ç,\,h\infty,\,1,\,2\Big]+$$
$$\delta aa\Big[\frac{e^{-b_1}\left(-\left(-1+e^{b_1}\right)b_2+e^{b_1}\left(-1+e^{b_2}\right)b_1\left(-1+b_2^2\,gg_6[b_2]\right)\right)}{b_1\,b_2},\,ç,\,2,\,1,\,h\infty\Big]\Big],$$
$$UU\Big[a\left[e^{b_1},\,2,\,h\infty\right]+a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big]+\delta a\Big[\frac{1}{-1+e^{b_2}}\Big(-\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+$$
$$b_2\left(e^{b_2}\left(-1+e^{b_1}\right)+e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)-e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,ç,\,h\infty\Big]+$$
$$\delta a\Big[\frac{1}{\left(-1+e^{b_2}\right)b_1}\Big(\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\left(-e^{b_2}\left(-1+e^{b_1}\right)-e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)+$$
$$e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,1,\,h\infty\Big]+\delta aa\left[e^{b_1},\,ç,\,1,\,2,\,h\infty\right]+$$
$$\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+\delta aa\Big[-\frac{e^{b_1}\,b_2}{b_1},\,ç,\,1,\,1,\,h\infty\Big]+$$
$$\delta aa\Big[\frac{e^{b_2}\left(-1+e^{b_1}\right)\left(-1+b_2^2\,gg_6[b_2]\right)}{b_1},\,ç,\,h\infty,\,1,\,2\Big]+$$
$$\delta aa\Big[\frac{\left(-1+e^{b_1}\right)\left(1-e^{b_2}+e^{b_2}\,b_2^2\,gg_6[b_2]\right)}{b_2},\,ç,\,2,\,2,\,h\infty\Big]+$$
$$\delta aa\Big[-\frac{\left(-1+e^{b_1}\right)\left(1-e^{b_2}+e^{b_2}\,b_2^2\,gg_6[b_2]\right)}{b_1\,b_2},\,1,\,2,\,2,\,h\infty\Big]+$$
$$\delta aa\Big[-\frac{e^{-b_1}\left(-1+e^{b_1}\right)\left(-1+e^{b_1}-e^{b_1+b_2}+e^{b_1+b_2}\,b_2^2\,gg_6[b_2]\right)}{b_1},\,ç,\,2,\,1,\,h\infty\Big]\Big]\Big\}$$

```
Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₇[_] → 0, cc₁ → 1, gg₆[x_] :→ 1/(2 x²)}], {i, 2}]
```

$$\Big\{UU\Big[a[1,\,1,\,h\infty]+\delta aa\Big[\frac{1-e^{-b_1}}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+\delta aa\Big[\frac{1}{2}\Big(\frac{-2+2\,e^{-b_1}}{b_1}+\frac{1-e^{b_2}}{b_2}\Big),\,ç,\,2,\,1,\,h\infty\Big]+\delta aa\Big[-\frac{-1+e^{b_2}}{2\,b_2^2},\,1,\,2,\,2,\,h\infty\Big]+\delta aa\Big[\frac{\left(-1+e^{b_2}\right)b_1}{2\,b_2^2},\,ç,\,2,\,2,\,h\infty\Big]+\delta aa\Big[\frac{-1+e^{b_2}}{2\,b_2},\,ç,\,h\infty,\,1,\,2\Big]\Big],$$

$$UU\Big[a\left[e^{b_1},\,2,\,h\infty\right]+a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big]+\delta a\Big[\frac{1}{-1+e^{b_2}}\Big(-\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\left(e^{b_2}\left(-1+e^{b_1}\right)+e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)-e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,ç,\,h\infty\Big]+\delta a\Big[\frac{1}{\left(-1+e^{b_2}\right)b_1}\Big(\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\left(-e^{b_2}\left(-1+e^{b_1}\right)-e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)+e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,1,\,h\infty\Big]+\delta aa\Big[e^{b_1},\,ç,\,1,\,2,\,h\infty\Big]+\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+\delta aa\Big[-\frac{e^{b_2}\left(-1+e^{b_1}\right)}{2\,b_1},\,ç,\,h\infty,\,1,\,2\Big]+\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)\left(2-2\,e^{b_1}+e^{b_1+b_2}\right)}{2\,b_1},\,ç,\,2,\,1,\,h\infty\Big]+\delta aa\Big[-\frac{\left(-1+e^{b_1}\right)\left(-2+e^{b_2}\right)}{2\,b_2},\,ç,\,2,\,2,\,h\infty\Big]+\delta aa\Big[\frac{\left(-1+e^{b_1}\right)\left(-2+e^{b_2}\right)}{2\,b_1\,b_2},\,1,\,2,\,2,\,h\infty\Big]+\delta aa\Big[-\frac{e^{b_1}\,b_2}{b_1},\,ç,\,1,\,1,\,h\infty\Big]\Big]\Big\}$$

```
Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₇[_] → 0, gg₆[x_] :→ (2 - x)/(2 x²), cc₁ → 0}], {i, 2}]
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$$\Big\{UU\Big[a[1,\,1,\,h\infty]+\delta aa\Big[1+\frac{-1+e^{-b_1}}{b_1},\,ç,\,2,\,1,\,h\infty\Big]+\delta aa\Big[-\frac{-1+e^{-b_1}+b_1}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+\delta aa\Big[\frac{1}{b_2},\,1,\,2,\,2,\,h\infty\Big]+\delta aa\Big[-\frac{b_1}{b_2},\,ç,\,2,\,2,\,h\infty\Big]\Big],$$

$$UU\Big[a\left[e^{b_1},\,2,\,h\infty\right]+a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big]+\delta a\Big[\frac{1}{-1+e^{b_2}}\Big(-\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\left(e^{b_2}\left(-1+e^{b_1}\right)+e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)-e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,ç,\,h\infty\Big]+\delta a\Big[\frac{1}{\left(-1+e^{b_2}\right)b_1}\Big(\left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)+b_2\left(-e^{b_2}\left(-1+e^{b_1}\right)-e^{b_1}\left(-1+e^{b_2}\right)b_1\,gg_8[b_1]\right)+e^{b_2}\left(-1+e^{b_1}\right)b_2^2\,gg_8[b_2]\Big),\,1,\,h\infty\Big]+\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big]+\delta aa\Big[-\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1},\,ç,\,2,\,1,\,h\infty\Big]+\delta aa\Big[\frac{-1+e^{b_1}}{b_2},\,ç,\,2,\,2,\,h\infty\Big]+\delta aa\Big[\frac{1-e^{b_1}}{b_1\,b_2},\,1,\,2,\,2,\,h\infty\Big]\Big]\Big\}$$

BestR

```
Table[CF[R[1,2]_i /. {gg_{2|4|5|7}[_] → 0, gg_6[x_] :→ (2-x)/(2 x^2), gg_8[x_] :→ 1/x, cc_1 → 0}],
  {i,2}] // ÅForm
```

BestR

$$\Big\{UU\Big[a[1,1,h\infty]+aao\Big[-\frac{-1+e^{-b_1}+b_1}{b_1^2},1,2,1,h\infty\Big]+aao\Big[\frac{1}{b_2},1,2,2,h\infty\Big]+ca\Big[\frac{1-e^{-b_1}}{b_1},h\infty,1,2\Big]\Big],$$

$$UU\Big[a\big[e^{b_1},2,h\infty\big]+a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},1,h\infty\Big]+aao\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},1,2,1,h\infty\Big]+aao\Big[\frac{1-e^{b_1}}{b_1 b_2},1,2,2,h\infty\Big]+ao\Big[\frac{-1+e^{b_1}-e^{b_1}b_2}{b_1},1,h\infty\Big]+ca\Big[-\frac{1-e^{-b_1}}{b_1},h\infty,1,2\Big]\Big]\Big\}$$

```
Table[
 CF[R[1,2]_i /. {gg_{2|4|5|7}[_] → 0, gg_6[x_] :→ 1/(2 x^2), gg_8[x_] :→ 1/x, cc_1 → 1}], {i,2}]
```

$$\Big\{UU\Big[a[1,1,h\infty]+\delta aa\Big[\frac{1-e^{-b_1}}{b_1^2},1,2,1,h\infty\Big]+\delta aa\Big[\frac{1}{2}\left(\frac{-2+2e^{-b_1}}{b_1}+\frac{1-e^{b_2}}{b_2}\right),ç,2,1,h\infty\Big]+\delta aa\Big[-\frac{-1+e^{b_2}}{2b_2^2},1,2,2,h\infty\Big]+\delta aa\Big[\frac{\left(-1+e^{b_2}\right)b_1}{2b_2^2},ç,2,2,h\infty\Big]+\delta aa\Big[\frac{-1+e^{b_2}}{2b_2},ç,h\infty,1,2\Big]\Big],$$

$$UU\Big[a\big[e^{b_1},2,h\infty\big]+a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},1,h\infty\Big]+\delta a\Big[\frac{-1+e^{b_1}-e^{b_1}b_2}{b_1},1,h\infty\Big]+\delta a\big[1-e^{b_1}+e^{b_1}b_2,ç,h\infty\big]+\delta aa\big[e^{b_1},ç,1,2,h\infty\big]+\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},1,2,1,h\infty\Big]+\delta aa\Big[-\frac{e^{b_2}\left(-1+e^{b_1}\right)}{2b_1},ç,h\infty,1,2\Big]+\delta aa\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)\left(2-2e^{b_1}+e^{b_1+b_2}\right)}{2b_1},ç,2,1,h\infty\Big]+\delta aa\Big[-\frac{\left(-1+e^{b_1}\right)\left(-2+e^{b_2}\right)}{2b_2},ç,2,2,h\infty\Big]+\delta aa\Big[\frac{\left(-1+e^{b_1}\right)\left(-2+e^{b_2}\right)}{2b_1b_2},1,2,2,h\infty\Big]+\delta aa\Big[-\frac{e^{b_1}b_2}{b_1},ç,1,1,h\infty\Big]\Big]\Big\}$$

```
Table[CF[R[1, 2]ᵢ /. {gg₂|₄|₅|₇[_] → 0, gg₆[x_] :> 1/(2 x^2), gg₈[x_] :> 1/x, cc₁ → 1}],
  {i, 2}] // ÅForm
```

$$\Big\{UU\Big[a[1,\,1,\,h\infty] + aao\Big[\frac{1-e^{-b_1}}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] +$$
$$aao\Big[-\frac{-1+e^{b_2}}{2\,b_2^2},\,1,\,2,\,2,\,h\infty\Big] + ca\Big[\frac{1-e^{-b_1}}{b_1},\,h\infty,\,1,\,2\Big] + ca\Big[-\frac{-1+e^{b_2}}{2\,b_2},\,2,\,1,\,h\infty\Big]\Big],$$
$$UU\Big[a\big[e^{b_1},\,2,\,h\infty\big] + a\Big[-\frac{\left(-1+e^{b_1}\right)b_2}{b_1},\,1,\,h\infty\Big] + aao\Big[\frac{e^{-b_1}\left(-1+e^{b_1}\right)^2}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] +$$
$$aao\Big[\frac{\left(-1+e^{b_1}\right)\left(-2+e^{b_2}\right)}{2\,b_1\,b_2},\,1,\,2,\,2,\,h\infty\Big] + ao\Big[\frac{-1+e^{b_1}-e^{b_1}\,b_2}{b_1},\,1,\,h\infty\Big] + ca\big[e^{b_1},\,1,\,2,\,h\infty\big] +$$
$$ca\Big[-\frac{1-e^{-b_1}}{b_1},\,h\infty,\,1,\,2\Big] + ca\Big[\frac{e^{b_2}\left(-1+e^{b_1}\right)}{2\,b_1},\,2,\,1,\,h\infty\Big] + ca\Big[-\frac{e^{b_1}\,b_2}{b_1},\,1,\,1,\,h\infty\Big]\Big\}$$

```
Column@Table[x → CF[ÅForm[(δaForm@UU@x) // R[1, 2] // R[2, 3] // R[2, 1]] /.
      {gg₂|₄|₅|₇[_] → 0, gg₆[x_] :> (2 - x)/(2 x^2), gg₈[x_] :> 1/x, cc₁ → 0}],
  {x, {β[f[b₁, b₂]], a[1, 1, h∞], a[1, 2, h∞], ao[1, 1, h∞],
    ao[1, 2, h∞], ca[1, h∞, 1, 3], ca[1, h∞, 2, 3], ca[1, h∞, 0, 1],
    ca[1, h∞, 0, 2], aao[1, 1, 3, 1, h∞], aao[1, 3, 4, 2, h∞]}}]
```

$$\beta[f[b_1,\,b_2]] \to$$
$$UU\Big[ao\Big[-\frac{e^{-b_1+b_2}\,(-1+e^{b_1})\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_1},\,1,\,2\Big] + ao\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_1},$$
$$1,\,1\Big] + ao\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_1},\,1,\,3\Big] +$$
$$ao\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_2},\,2,\,2\Big] +$$
$$ao\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_2},\,2,\,1\Big] +$$
$$ao\Big[\frac{1}{b_2}e^{-b_1-b_2}\left(-1+e^{b_2}\right)\left(\left(1-e^{b_2}+e^{b_1+b_2}\right)f^{(0,1)}[b_1,\,b_2] - \left(-1+e^{b_1}\right)\left(-1+e^{b_2}\right)f^{(1,0)}[b_1,\,b_2]\right),$$
$$2,\,3\Big] + \beta[f[b_1,\,b_2]]\Big]$$
$$a[1,\,1,\,h\infty] \to UU\Big[a\big[e^{b_2},\,1,\,h\infty\big] + a\Big[-\frac{(-1+e^{b_2})\,b_1}{b_2},\,2,\,h\infty\Big] + aao\Big[\frac{e^{2\,b_2}\,(1-e^{-b_1}-b_1)}{b_1^2},\,1,\,2,\,1,\,h\infty\Big] +$$
$$aao\Big[\frac{e^{-b_1+b_2}\,(-1+e^{b_2})\,(-1+e^{b_1}-e^{b_1}\,b_1)}{b_1^2},\,1,\,1,\,1,\,h\infty\Big] + aao\Big[\frac{e^{-b_1+b_2}\,(-1+e^{b_2})\,(-1+e^{b_1}-e^{b_1}\,b_1)}{b_1^2},\,1,\,3,\,1,\,h\infty\Big] +$$
$$aao\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_2})^2\,(1-e^{b_2}+e^{b_1+b_2}-e^{b_1+b_2}\,b_1)}{b_2^2},\,2,\,1,\,2,\,h\infty\Big] +$$
$$aao\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_2})^2\,((-1+e^{b_1})\,(-1+e^{b_2})-e^{b_1+b_2}\,b_1)}{b_2^2},\,2,\,3,\,2,\,h\infty\Big] +$$
$$aao\Big[-\frac{e^{-b_1}\,(-1+e^{b_2})\,(-(-1+e^{b_1})\,(-1+e^{b_2})+e^{b_1+b_2}\,b_1)}{b_2^2},\,2,\,2,\,2,\,h\infty\Big] +$$
$$aao\Big[\frac{e^{-b_1}\,(-1+e^{b_2})\,(-2+e^{b_1}+2\,e^{b_2}-2\,e^{b_1+b_2}+e^{b_1}\,(-1+2\,e^{b_2})\,b_1)}{b_1\,b_2},\,1,\,1,\,2,\,h\infty\Big] +$$
$$aao\Big[\frac{e^{-b_1+b_2}\,(-2\,(-1+e^{b_1})\,(-1+e^{b_2})+e^{b_1}\,(-1+2\,e^{b_2})\,b_1)}{b_1\,b_2},\,1,\,2,\,2,\,h\infty\Big] +$$
$$aao\Big[\frac{e^{-b_1}\,(-1+e^{b_2})\,(-2\,(-1+e^{b_1})\,(-1+e^{b_2})+e^{b_1}\,(-1+2\,e^{b_2})\,b_1)}{b_1\,b_2},\,1,\,3,\,2,\,h\infty\Big] + ao\Big[\frac{-1+e^{b_2}-e^{b_2}\,b_1}{b_2},\,2,\,h\infty\Big] +$$
$$ca\Big[\frac{e^{-b_1+b_2}\,(-1+e^{b_1})}{b_1},\,h\infty,\,1,\,2\Big] + ca\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})}{b_1},\,h\infty,\,1,\,1\Big] +$$
$$ca\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})}{b_1},\,h\infty,\,1,\,3\Big] + ca\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})}{b_2},\,h\infty,\,2,\,2\Big] +$$
$$ca\Big[-\frac{e^{-b_1-b_2}\,(-1+e^{b_1})\,(-1+e^{b_2})^2}{b_2},\,h\infty,\,2,\,3\Big] + ca\Big[-\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})}{b_2},\,h\infty,\,2,\,1\Big]\Big]$$

$$a[1,2,h\infty]\to UU\Big[a\Big[1-e^{b_2}+e^{b_1+b_2},2,h\infty\Big]+a\Big[-\frac{e^{b_2}\,(-1+e^{b_1})\,b_2}{b_1},1,h\infty\Big]+aao\Big[\frac{e^{-b_1+2\,b_2}\,(-1+e^{b_1})^2}{b_1^2},1,2,1,h\infty\Big]+aao\Big[\frac{e^{-b_1+b_2}\,(-1+e^{b_1})^2\,(-1+e^{b_2})}{b_1^2},1,1,1,h\infty\Big]+aao\Big[\frac{e^{-b_1+b_2}\,(-1+e^{b_1})^2\,(-1+e^{b_2})}{b_1^2},1,3,1,h\infty\Big]+aao\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})}{b_2^2},2,2,2,h\infty\Big]+aao\Big[-\frac{2\,e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})}{b_1\,b_2},1,3,2,h\infty\Big]+aao\Big[-\frac{e^{-b_1+b_2}\,(-1+e^{b_1})\,(2-e^{b_1}-2\,e^{b_2}+2\,e^{b_1+b_2})}{b_1\,b_2},1,2,2,h\infty\Big]+aao\Big[\frac{e^{-b_1-b_2}\,\big((-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})^2-e^{2\,(b_1+b_2)}\,b_2\big)}{b_2^2},2,1,2,h\infty\Big]+aao\Big[\frac{e^{-b_1-b_2}\,\big((-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})^2-e^{2\,b_1+b_2}\,b_2\big)}{b_2^2},2,3,2,h\infty\Big]+aao\Big[\frac{e^{-b_1}\,(-2\,(-1+e^{b_1})\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})+e^{2\,b_1+b_2}\,b_2)}{b_1\,b_2},1,1,2,h\infty\Big]+aao\Big[\frac{e^{b_1}}{b_3},2,3,3,h\infty\Big]+ao\Big[e^{b_2}\,\big(-1+e^{b_1}\big),2,h\infty\Big]+ao\Big[\frac{e^{b_2}\,(-1+e^{b_1}-e^{b_1}\,b_2)}{b_1},1,h\infty\Big]+ca\Big[-\frac{e^{-b_1+b_2}\,(-1+e^{b_1})}{b_1},h\infty,1,2\Big]+ca\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})}{b_1},h\infty,1,1\Big]+ca\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})}{b_1},h\infty,1,3\Big]+ca\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})}{b_2},h\infty,2,2\Big]+ca\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})}{b_2},h\infty,2,1\Big]+ca\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})}{b_2},h\infty,2,3\Big]\Big]$$

$$ao[1,1,h\infty]\to UU\Big[ao\Big[e^{b_2},1,h\infty\Big]+ao\Big[-\frac{(-1+e^{b_2})\,b_1}{b_2},2,h\infty\Big]\Big]$$

$$ao[1,2,h\infty]\to UU\Big[ao\Big[1-e^{b_2}+e^{b_1+b_2},2,h\infty\Big]+ao\Big[-\frac{e^{b_2}\,(-1+e^{b_1})\,b_2}{b_1},1,h\infty\Big]\Big]$$

$$ca[1,h\infty,1,3]\to UU[ca[1,h\infty,1,3]]$$

$$ca[1,h\infty,2,3]\to UU\Big[ca\Big[e^{b_1},h\infty,2,3\Big]+ca\Big[-\frac{(-1+e^{b_1})\,b_2}{b_1},h\infty,1,3\Big]\Big]$$

$$ca[1,h\infty,0,1]\to UU\Big[ca\Big[1-e^{-b_1},h\infty,0,2\Big]+ca\Big[1-e^{-b_1}+e^{-b_1-b_2},h\infty,0,1\Big]+ca\Big[\big(1-e^{-b_1}\big)\,\big(1-e^{-b_2}\big),h\infty,0,3\Big]+ca\Big[-\frac{e^{b_2}\,(1-e^{-b_1})\,b_0}{b_1},h\infty,1,2\Big]+ca\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,b_0}{b_1},h\infty,1,1\Big]+ca\Big[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,b_0}{b_1},h\infty,1,3\Big]+ca\Big[\frac{(1-e^{-b_1})\,(-1+e^{b_2})\,b_0}{b_2},h\infty,2,2\Big]+ca\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_1})\,(-1+e^{b_2})^2\,b_0}{b_2},h\infty,2,3\Big]+ca\Big[\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})\,b_0}{b_2},h\infty,2,1\Big]\Big]$$

$$ca[1,h\infty,0,2]\to UU\Big[ca\Big[e^{-b_1},h\infty,0,2\Big]+ca\Big[e^{-b_1}\,\big(1-e^{-b_2}\big),h\infty,0,1\Big]+ca\Big[e^{-b_1}\,\big(1-e^{-b_2}\big),h\infty,0,3\Big]+ca\Big[\frac{e^{b_2}\,(1-e^{-b_1})\,b_0}{b_1},h\infty,1,2\Big]+ca\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,b_0}{b_1},h\infty,1,1\Big]+ca\Big[\frac{e^{-b_1}\,(-1+e^{b_1})\,(-1+e^{b_2})\,b_0}{b_1},h\infty,1,3\Big]+ca\Big[-\frac{(1-e^{-b_1})\,(-1+e^{b_2})\,b_0}{b_2},h\infty,2,2\Big]+ca\Big[-\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})\,b_0}{b_2},h\infty,2,1\Big]+ca\Big[-\frac{e^{-b_1-b_2}\,(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})\,b_0}{b_2},h\infty,2,3\Big]\Big]$$

$$aao[1,1,3,1,h\infty]\to UU\Big[aao\Big[e^{b_2},1,3,1,h\infty\Big]+aao\Big[\frac{e^{-b_2}\,(-1+e^{b_2})^2\,b_1^2}{b_2^2},2,3,2,h\infty\Big]+aao\Big[-\frac{2\,(-1+e^{b_2})\,b_1}{b_2},1,3,2,h\infty\Big]+ca\Big[-\frac{e^{-b_2}\,(-1+e^{b_2})\,b_1^2}{b_2},h\infty,2,3\Big]\Big]$$

$$aao[1,3,4,2,h\infty]\to UU\Big[aao\Big[e^{b_2}\,\big(1-e^{b_2}+e^{b_1+b_2}\big),2,4,3,h\infty\Big]+aao\Big[-\frac{e^{2\,b_2}\,(-1+e^{b_1})\,b_2}{b_1},1,4,3,h\infty\Big]+aao\Big[\frac{e^{b_2}\,(-1+e^{b_1})\,(-1+e^{b_2})\,b_3}{b_1},1,4,2,h\infty\Big]+aao\Big[-\frac{(-1+e^{b_2})\,(1-e^{b_2}+e^{b_1+b_2})\,b_3}{b_2},2,4,2,h\infty\Big]\Big]$$

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Column@Table[x → CF[ÅForm[(δaForm@UU@x) // R[1, 2]] /.
      {gg2|4|5|7[_] → 0, gg6[x_] :→ (2 - x)/(2 x^2), gg8[x_] :→ 1/x, cc1 → 0}],
  {x, {β[f[b1, b2]], a[1, 1, h∞], a[1, 2, h∞], a[f[b1, b2], 1, h∞],
    a[f[b1, b2], 2, h∞], c[1, h∞], ao[1, 1, h∞], ao[1, 2, h∞], ca[1, 1, 1, h∞],
    ca[1, 2, 1, h∞], ca[1, h∞, 1, 1], ca[1, h∞, 1, 2], ca[1, 1, 2, h∞], ca[1, 2, 2, h∞],
    ca[1, h∞, 2, 1], ca[1, h∞, 2, 2], aao[1, 1, 1, 1, h∞], aao[1, 1, 2, 1, h∞],
    aao[1, 1, 1, 2, h∞], aao[1, 1, 2, 2, h∞], aao[1, 2, 1, 2, h∞], aao[1, 2, 2, 2, h∞]}}]
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$$\beta[f[b_1, b_2]] \to UU\left[ao\left[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_1},\ 1,\ 2\right]+\beta[f[b_1, b_2]]\right]$$

$$a[1, 1, h\infty] \to UU\left[a[1, 1, h\infty]+aao\left[-\frac{-1+e^{-b_1}+b_1}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+aao\left[\frac{1}{b_2},\ 1,\ 2,\ 2,\ h\infty\right]+ca\left[\frac{1-e^{-b_1}}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$a[1, 2, h\infty] \to UU\left[a\left[e^{b_1},\ 2,\ h\infty\right]+a\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ 1,\ h\infty\right]+aao\left[\frac{e^{-b_1}\,(-1+e^{b_1})^2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+aao\left[\frac{1-e^{b_1}}{b_1\,b_2},\ 1,\ 2,\ 2,\ h\infty\right]+ao\left[\frac{-1+e^{b_1}-e^{b_1}\,b_2}{b_1},\ 1,\ h\infty\right]+ca\left[-\frac{1-e^{-b_1}}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$a[f[b_1, b_2], 1, h\infty] \to UU\left[a[f[b_1, b_2], 1, h\infty]+aao\left[\frac{f[b_1,b_2]}{b_2},\ 1,\ 2,\ 2,\ h\infty\right]+aao\left[\frac{e^{-b_1}\,(f[b_1,b_2]\,(-1+e^{b_1}-e^{b_1}\,b_1)-(-1+e^{b_1})\,b_1\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2]))}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[\frac{e^{-b_1}\,(-1+e^{b_1})\,(f[b_1,b_2]+b_1\,(-f^{(0,1)}[b_1,b_2]+f^{(1,0)}[b_1,b_2]))}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$a[f[b_1, b_2], 2, h\infty] \to UU\left[a\left[e^{b_1}\,f[b_1, b_2],\ 2,\ h\infty\right]+a\left[-\frac{(-1+e^{b_1})\,f[b_1,b_2]\,b_2}{b_1},\ 1,\ h\infty\right]+aao\left[\frac{e^{-b_1}\,(-1+e^{b_1})^2\,(f[b_1,b_2]+b_2\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2]))}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+aao\left[-\frac{(-1+e^{b_1})\,(f[b_1,b_2]+b_2\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2]))}{b_1\,b_2},\ 1,\ 2,\ 2,\ h\infty\right]+ao\left[\frac{f[b_1,b_2]\,(-1+e^{b_1}-e^{b_1}\,b_2)+(-1+e^{b_1})\,b_2\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2])}{b_1},\ 1,\ h\infty\right]+ca\left[-\frac{e^{-b_1}\,(-1+e^{b_1})\,(f[b_1,b_2]+b_2\,(f^{(0,1)}[b_1,b_2]-f^{(1,0)}[b_1,b_2]))}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$c[1, h\infty] \to UU[c[1, h\infty]]$$

$$ao[1, 1, h\infty] \to UU[ao[1, 1, h\infty]]$$

$$ao[1, 2, h\infty] \to UU\left[ao\left[e^{b_1},\ 2,\ h\infty\right]+ao\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ 1,\ h\infty\right]\right]$$

$$ca[1, 1, 1, h\infty] \to UU\left[aao\left[-\frac{1-e^{-b_1}}{b_1},\ 1,\ 2,\ 1,\ h\infty\right]+ca[1, 1, 1, h\infty]+ca\left[-1+e^{-b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$ca[1, 2, 1, h\infty] \to UU\left[aao\left[\frac{1-e^{-b_1}}{b_1},\ 1,\ 2,\ 1,\ h\infty\right]+ca[1, 2, 1, h\infty]+ca\left[1-e^{-b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$ca[1, h\infty, 1, 1] \to UU[ca[1, h\infty, 1, 1]]$$

$$ca[1, h\infty, 1, 2] \to UU[ca[1, h\infty, 1, 2]]$$

$$ca[1, 1, 2, h\infty] \to UU\left[aao\left[\frac{1-e^{b_1}}{b_1},\ 1,\ 2,\ 2,\ h\infty\right]+aao\left[\frac{e^{-b_1}\,(-1+e^{b_1})^2\,b_2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[e^{b_1},\ 1,\ 2,\ h\infty\right]+ca\left[-\frac{(1-e^{-b_1})\,b_2}{b_1},\ h\infty,\ 1,\ 2\right]+ca\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ 1,\ 1,\ h\infty\right]\right]$$

$$ca[1, 2, 2, h\infty] \to UU\left[aao\left[\frac{-1+e^{b_1}}{b_1},\ 1,\ 2,\ 2,\ h\infty\right]+aao\left[-\frac{e^{-b_1}\,(-1+e^{b_1})^2\,b_2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[e^{b_1},\ 2,\ 2,\ h\infty\right]+ca\left[\frac{(1-e^{-b_1})\,b_2}{b_1},\ h\infty,\ 1,\ 2\right]+ca\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ 2,\ 1,\ h\infty\right]\right]$$

$$ca[1, h\infty, 2, 1] \to UU\left[ca\left[e^{b_1},\ h\infty,\ 2,\ 1\right]+ca\left[-1+e^{b_1},\ h\infty,\ 2,\ 2\right]+ca\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ h\infty,\ 1,\ 1\right]+ca\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$ca[1, h\infty, 2, 2] \to UU[ca[1, h\infty, 2, 2]]$$

$$aao[1, 1, 1, 1, h\infty] \to UU\left[aao[1, 1, 1, 1, h\infty]+aao\left[1-e^{-b_1},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[\left(1-e^{-b_1}\right)b_1,\ h\infty,\ 1,\ 2\right]\right]$$

$$aao[1, 1, 2, 1, h\infty] \to UU\left[aao\left[e^{-b_1},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[\left(-1+e^{-b_1}\right)b_1,\ h\infty,\ 1,\ 2\right]\right]$$

$$aao[1, 1, 1, 2, h\infty] \to UU\left[aao\left[e^{b_1},\ 1,\ 1,\ 2,\ h\infty\right]+aao\left[-1+e^{b_1},\ 1,\ 2,\ 2,\ h\infty\right]+aao\left[-\frac{(-1+e^{b_1})\,b_2}{b_1},\ 1,\ 1,\ 1,\ h\infty\right]+aao\left[-\frac{e^{-b_1}\,(-1+e^{b_1})^2\,b_2}{b_1},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[\left(1-e^{-b_1}\right)b_2,\ h\infty,\ 1,\ 2\right]\right]$$

$$aao[1, 1, 2, 2, h\infty] \to UU\left[aao[1, 1, 2, 2, h\infty]+aao\left[-\frac{(1-e^{-b_1})\,b_2}{b_1},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[-\left(1-e^{-b_1}\right)b_2,\ h\infty,\ 1,\ 2\right]\right]$$

$$aao[1, 2, 1, 2, h\infty] \to UU\left[aao\left[e^{2\,b_1},\ 2,\ 1,\ 2,\ h\infty\right]+aao\left[e^{b_1}\,\left(-1+e^{b_1}\right),\ 2,\ 2,\ 2,\ h\infty\right]+aao\left[-\frac{2\,e^{b_1}\,(-1+e^{b_1})\,b_2}{b_1},\ 1,\ 1,\ 2,\ h\infty\right]+aao\left[-\frac{2\,(-1+e^{b_1})^2\,b_2}{b_1},\ 1,\ 2,\ 2,\ h\infty\right]+aao\left[\frac{(-1+e^{b_1})^2\,b_2^2}{b_1^2},\ 1,\ 1,\ 1,\ h\infty\right]+aao\left[\frac{e^{-b_1}\,(-1+e^{b_1})^3\,b_2^2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[\frac{e^{-b_1}\,(-1+e^{b_1})\,b_2^2}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$

$$aao[1, 2, 2, 2, h\infty] \to UU\left[aao\left[e^{b_1},\ 2,\ 2,\ 2,\ h\infty\right]+aao\left[-\frac{2\,(-1+e^{b_1})\,b_2}{b_1},\ 1,\ 2,\ 2,\ h\infty\right]+aao\left[\frac{e^{-b_1}\,(-1+e^{b_1})^2\,b_2^2}{b_1^2},\ 1,\ 2,\ 1,\ h\infty\right]+ca\left[-\frac{e^{-b_1}\,(-1+e^{b_1})\,b_2^2}{b_1},\ h\infty,\ 1,\ 2\right]\right]$$