

hb[y\_][UU[L\_], UU[R\_]] :=

CF[UU[Expand[Distribute[pp[L, R]] /. {

pp[0, \_] → 0, pp[\_, 0] → 0,

pp[\_β | \_δβ, \_] → 0,

pp[\_, \_β | \_δβ] → 0,

pp[\_δa | \_δaa, \_δa | \_δaa] → 0,

pp[u\_δa | u\_δaa, v\_a] := -pp[v, u]

} /. {

pp[a[f\_, i\_, y], u\_] := (u /. {

a[g\_, j\_, k\_] := Kδ<sub>yk</sub> hb[f g, i, j, k],

δa[g\_, j\_, k\_] := Kδ<sub>yk</sub> δhb[f g, i, j, k],

δaa[g\_, j\_, k\_, l\_, m\_] :=

Kδ<sub>yk</sub> (δaa[b<sub>j</sub> f g, i, y, l, m] -

δaa[b<sub>i</sub> f g, j, k, l, m]) +

Kδ<sub>ym</sub> (δaa[b<sub>l</sub> f g, j, k, i, y] -

δaa[b<sub>i</sub> f g, j, k, l, m])

)),

\_pp → 0

]]]];