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Define[aΔti→j,k = PP"aΔt"[$k,$n]@Module[{(*TTL, *)},
ES[s_][ε_] := (EchoLabel[s][Short[ε, 2]]]; ε);
TTL = TTλ@Table[UCF[If[τ[g] == "x", λ, 1] (g*)i Δi→j,k[Ui[g]]], {g, $PBWGens}];
mons[-1] = {};
mons[p_] :=
mons[p-1] ∪ Union@Cases[Coefficient[TTL, ε, p], c_. Uj[x____] Uk[y____] ⇒ Uj[x] Uk[y], ∞];
ffj = Table[
Sum[εp fp,uj[λ], {p, 0, $k}],
{u, $PBWGens}
] /. fp,uj[λ] /. τ[u] == "a" ⇒ If[p == 0, (u*)i, 0];
ffk = ffj /. j → k;
fs = Flatten[Table[
fp,ℙj,k[m],
{p, 0, $k}, {m, mons[p]}
]];
gg = Sum[
εp fp,ℙj,k[u][λ] ℙj,k[u],
{p, 0, $k}, {u, Complement[mons[p], Uj[] (Uk /@ $PBWGens) ∪ Uk[] (Uj /@ $PBWGens)]}
];
G = Series[egg, {ε, 0, $k}];
S[B_] := UCF[0j,k[Seepagej,k[ffj, ffk, UCF@B]]];
SG = PP"SG"@S[G];
BB = PP"BB"[∂λ (ffj. (#j & /@ $PBWGens) + ffk. (#k & /@ $PBWGens)) G + ∂λ G];
SBB = PP"SBB"@S[BB];
TTR = PP"TTR"@UCF[Invertj,k[SG] ⊗ SBB];
diff = UCF[TTL - TTR];
eqns = Flatten[Table[
Coefficient[Coefficient[diff, m], ε, p] == 0,
{p, 0, $k}, {m, mons[p]}
]];
inits = (#[0] == 0) & /@ fs;
ss = TriangularDSolve[eqns, inits, fs, λ, CF];
E{i}→{j,k} @@ Table[As[p, 0, $k], Plus[
If[p == 0, Sum[As[m, 1, $n-1], α[m]i (a[m]j + a[m]k)], 0],
Total[Cases[fs, fp,-] /. fp,u ⇒ u (fp,u /. ss)[λ] /. λ | ħ | γ → 1]
]
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