

# Scratch

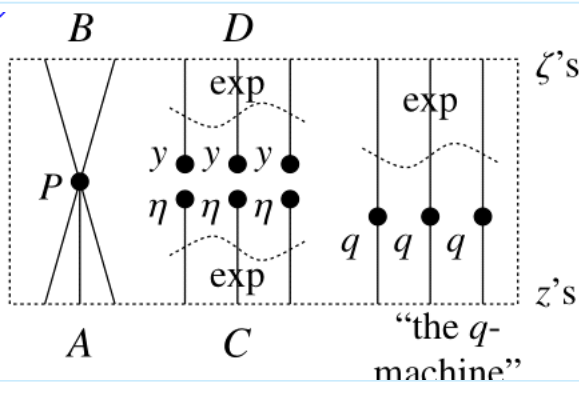
June 2, 2018 6:27 PM

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In[ ]:= SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\SL2Invariant"];
<< SL2Invariant.m
Block[{$k = 3}, {
  am -> ami,j→k, bm -> bmi,j→k, R -> Ri,j, P -> Pi,j, aS -> aSi, CC -> CCi, b2t -> b2ti, t2b -> t2bi
}] // Column

Booted @ $k=0 in 1.953 sec.
Booted @ $k=1 in 3.109 sec.
Booted @ $k=2 in 10.328 sec.
Booted @ $k=3 in 95.453 sec.

am -> E[ak (αi + αj), xk (e-Y αj εi + εj), 1]
bm -> E[bk (βi + βj), yk (ηi + ηj),
  1 - yk βi ηj ε + 1/2 (yk βi2 ηj + yk2 βi2 ηj2) ε2 + 1/6 (-yk βi3 ηj - 3 yk2 βi2 ηj2 - yk3 βi3 ηj3) ε3 + O[ε4]
R -> E[ħ aj bi, ħ xj yi, 1 - 1/4 (Y ħ3 xj2 yi2) ε + (1/9 Y2 ħ5 xj3 yi3 + 1/32 Y2 ħ6 xj4 yi4) ε2 +
  1/1152 (24 Y3 ħ5 xj2 yi2 - 72 Y3 ħ7 xj4 yi4 - 32 Y3 ħ8 xj5 yi5 - 3 Y3 ħ9 xj6 yi6) ε3 + O[ε4]
P -> E[αj βi / ħ, ηi εj / ħ, 1 + Y ηi2 εj2 / 4 ħ + (36 Y2 ħ2 ηi2 εj2 + 40 Y2 ħ ηi3 εj3 + 9 Y2 ηi4 εj4) ε2 / 288 ħ2 +
  1/1152 ħ3 (48 Y3 ħ4 ηi2 εj2 + 192 Y3 ħ3 ηi3 εj3 + 156 Y3 ħ2 ηi4 εj4 + 40 Y3 ħ ηi5 εj5 + 3 Y3 ηi6 εj6) ε3 + O[ε4]
Out[ ]:= aS -> E[-ai αi, -xi Ai εi,
  1 + 1/2 (-2 ħ ai xi Ai εi - Y ħ xi2 Ai2 εi2) ε + 1/8 (-4 ħ2 ai2 xi Ai εi + 2 Y2 ħ2 xi2 Ai2 εi2 - 8 Y ħ2 ai xi2 Ai2 εi2 +
  4 ħ2 ai2 xi2 Ai2 εi2 - 4 Y2 ħ2 xi3 Ai3 εi3 + 4 Y ħ2 ai xi3 Ai3 εi3 + Y2 ħ2 xi4 Ai4 εi4) ε2 +
  1/48 (-8 ħ3 ai3 xi Ai εi - 4 Y3 ħ3 xi2 Ai2 εi2 + 24 Y2 ħ3 ai xi2 Ai2 εi2 - 48 Y ħ3 ai2 xi2 Ai2 εi2 + 24 ħ3 ai3 xi2 Ai2 εi2 +
  32 Y3 ħ3 xi3 Ai3 εi3 - 84 Y2 ħ3 ai xi3 Ai3 εi3 + 60 Y ħ3 ai2 xi3 Ai3 εi3 - 8 ħ3 ai3 xi3 Ai3 εi3 - 38 Y3 ħ3 xi4 Ai4 εi4 + 48 Y2
  ħ3 ai xi4 Ai4 εi4 - 12 Y ħ3 ai2 xi4 Ai4 εi4 + 12 Y3 ħ3 xi5 Ai5 εi5 - 6 Y2 ħ3 ai xi5 Ai5 εi5 - Y3 ħ3 xi6 Ai6 εi6) ε3 + O[ε4]
CC -> E[0, 0, √Bi - 1/2 (ħ ai √Bi) ε + 1/8 ħ2 ai2 √Bi ε2 - 1/48 (ħ3 ai3 √Bi) ε3 + O[ε4]
b2t -> E[ai αi - ti βi / Y, yi ηi + xi εi, 1 + ai βi ε / Y + ai2 βi2 ε2 / 2 Y2 + ai3 βi3 ε3 / 6 Y3 + O[ε4]
t2b -> E[aj αi - Y bj τi, yj ηi + xj εi, 1 + aj τi ε + 1/2 aj2 τi2 ε2 + 1/6 aj3 τi3 ε3 + O[ε4]
  
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ζ's What was zipped cannot be zipped again.  
 I don't understand the "iteration" property of zipping in a local manner.

$$\left\langle P(z_i, \zeta^j) e^{c+\eta^i z_i + y_j \zeta^j + q^j z_i \zeta^j} \right\rangle_{(\zeta^j)} = \det(\tilde{q}) \left\langle P(z_i, \zeta^j) e^{c+\eta^i z_i} \Big|_{z_i \rightarrow \tilde{q}_i^k(z_k + y_k)} \right\rangle_{(\zeta^j)}$$

Possibly  $F(W, Q, P)$  should stand for

$$W^{-1} \exp\left(\frac{Q}{W^2} + \left(P / \begin{matrix} \{z_i \rightarrow W^{-1} z_i \\ \{z_i \rightarrow W^{-1} z_i \end{matrix}\right)\right)\right)$$

I should simply find the general rescaling law that preserves zipping, and then apply that instance thereof that eliminates the denominators.