

Pensieve header: The linearized tree-level KV and twist equations.

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SetDirectory["C:/drorbn/AcademicPensieve/Projects/WKO4"];
<< FreeLie.m;
{A1 = LS[{x, y}, A1s], B1 = LS[{x, y}, B1s]};
msgs1 = SeriesSolve[{A1, B1},
   $\hbar^{-1} (b[LW@x, A1] + b[LW@y, B1] \equiv LS[0]) \bigwedge$ 
  (A1  $\equiv$  (B1 // LieMorphism[x  $\rightarrow$  y, y  $\rightarrow$  x]))];
Do[A1[k]; Print[{k, msgs1 // Read // Last // Last // Length,
  TimeUsed[], MaxMemoryUsed[]}], {k, 12}]
A1@12; Length[Last[#]] & /@ Read[msgs1]

FreeLie` implements / extends
{*, +, **, $SeriesShowDegree, <>,  $\int$ ,  $\equiv$ , ad, Ad, adSeries, AllCyclicWords, AllLyndonWords,
  AllWords, Arbitrator, ASeries, AW, b, BCH, BooleanSequence, BracketForm, BS, CC, Crop,
  CW, CWS, CWSeries, D, Deg, DegreeScale, DerivationSeries, div, DK, DKS, EulerE, Exp,
  Inverse, j, J, JA, LieDerivation, LieMorphism, LieSeries, LS, LW, LyndonFactorization,
  Morphism, New, RandomCWSeries, Randomizer, RandomLieSeries, RC, SeriesSolve,
  Support, t, tb, TopBracketForm, tr, UndeterminedCoefficients,  $\Gamma$ ,  $\iota$ ,  $\Lambda$ ,  $\sigma$ ,  $\hbar$ ,  $\neg$ ,  $\neg$ }.

FreeLie` is in the public domain. Dror Bar-Natan
  is committed to support it within reason until July 15, 2022.

SeriesSolve::ArbitrarilySetting: In degree 1 arbitrarily setting {A1s[x]  $\rightarrow$  0, A1s[y]  $\rightarrow$  0}.
{1, 2, 0.577, 29597376}
{2, 0, 0.577, 29597376}

SeriesSolve::ArbitrarilySetting: In degree 3 arbitrarily setting {A1s[x, y]  $\rightarrow$  0}.
{3, 1, 0.78, 29597376}
{4, 0, 0.78, 29597376}

SeriesSolve::ArbitrarilySetting: In degree 5 arbitrarily setting {A1s[x, x, x, y]  $\rightarrow$  0, A1s[x, x, y, y]  $\rightarrow$  0}.
General::stop: Further output of SeriesSolve::ArbitrarilySetting will be suppressed during this calculation. >>
{5, 2, 1.014, 29597376}
{6, 0, 1.045, 29597376}
{7, 4, 1.076, 29597376}
{8, 2, 1.185, 29597376}
{9, 8, 1.716, 34995072}
{10, 6, 2.745, 42239544}
{11, 21, 6.567, 66337304}
{12, 20, 21.45, 139080120}
{2, 0, 1, 0, 2, 0, 4, 2, 8, 6, 21, 20}

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