

Pensieve header: Failed $\$G\$$ - $\$G-I\$$ experiments.

```
In[*]:= SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\APAI"];
```

```
In[*]:= Once[<< KnotTheory` ; << Rot.m];
```

```
In[*]:= R1[s_, i_, j_] := s (g_{j,i} (g_{j*,j} + g_{j,j*} - g_{ij}) - g_{ii} (g_{j,j*} - 1) - 1 / 2);
ρ[K_] := ρ[K] = Module[{Cs, φ, n, A, s, i, j, k, Δ, G, ρ1},
  {Cs, φ} = Rot[K]; n = Length[Cs];
  A = IdentityMatrix[2 n + 1];
  Cases[Cs, {s_, i_, j_} >=> (A[[{i, j}, {i + 1, j + 1}]] += (

$$\begin{pmatrix} -T^s & T^s - 1 \\ \theta & -1 \end{pmatrix}$$

))]];
  Δ = T^{(-Total[φ] - Total[Cs[[All, 1]])} / 2 Det[A];
  G = Inverse[A];
  ρ1 = ∑_{k=1}^n R1 @@ Cs[[k]] - ∑_{k=1}^{2^n} φ[[k]] (g_{kk} - 1 / 2);
  Factor@{Δ, Δ^2 ρ1 /. α_+ >=> α + 1 /. g_{α,β_} >=> G[[α, β]]}];
```

```
In[*]:= CompareMatrices[A_, B_] := Grid[
  MapThread[Column@*List, {A, B} /. 0 -> "", 2],
  Frame -> All, ItemSize -> All
]
```

```
In[*]:= GGI[K_] := Module[{Cs, φ, n, A, α, β, k, s, i, j, G},
  {Cs, φ} = Rot[K]; n = Length[Cs];
  A = IdentityMatrix[2 n + 1];
  For[k = 1, k ≤ n, k++,
    {s, i, j} = Cs[[k]];
    A[[{i, j}, {i + 1, j + 1}]] += (

$$\begin{pmatrix} -T^s & T^s - 1 \\ \theta & -1 \end{pmatrix}$$

)];
  G = Inverse[A];
  CompareMatrices[A, Factor@Inverse[G - IdentityMatrix[2 n + 1]]]
]
```

In[*]:= **GGI**[**Knot**[3, 1]]

Inverse: Matrix

$$\left\{ \left\{ 0, T, 1, T, 1, T, 1 \right\}, \left\{ 0, -1 + T, 1, T, 1, T, 1 \right\}, \left\{ 0, \frac{T(-T + T^2)}{1 - T + T^2}, -1 + \frac{1 - 2T + 2T^2}{1 - T + T^2}, \frac{T^3}{1 - T + T^2}, \frac{T^2}{1 - T + T^2}, T, 1 \right\}, \left\{ 0, \frac{T(-T + T^2)}{1 - T + T^2}, \frac{-T + T^2}{1 - T + T^2}, -1 + \ll 1 \gg, \frac{T^2}{1 - \ll 1 \gg \ll 1 \gg \ll 1 \gg}, T, 1 \right\}, \left\{ 0, \frac{T(1 - 2T + T^2)}{1 - T + T^2}, \frac{1 - 2T + T^2}{1 - T + T^2}, \frac{T(-T + T^2)}{1 - T + T^2}, -1 + \frac{1 - 2T + 2T^2}{1 - T + T^2}, T, 1 \right\}, \left\{ 0, \frac{T(1 - 2T + T^2)}{1 - T + T^2}, \frac{1 - 2T + T^2}{1 - T + T^2}, \frac{T(-T + T^2)}{1 - T + T^2}, \frac{-T + T^2}{1 - T + T^2}, -1 + T, 1 \right\}, \{0, 0, 0, 0, 0, 0\} \right\} \text{ is singular.}$$

Out[*]=

... 1 ...

Full expression not available (original memory size: 0.9 MB) ⚙