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Θ[K_] := Module[{Cs, φ, n, A, Δ, G, ev, θ},
  {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];
  ev[ε_] := Factor[ε /. gv,α,β := (G[[α, β]] /. T → Tv)]];
  θ = ev[∑k=1n F1[Cs[[k]]]];
  θ += ev[∑k1=1n ∑k2=1n F2[Cs[[k1]], Cs[[k2]]]];

  θ += ev[∑k=12n F3[φ[[k]], k]];
  Factor@{Δ, (Δ /. T → T1) (Δ /. T → T2) (Δ /. T → T3) θ}];

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