```
(*Working Casimir, not unique!*)
Define[
  ω_i = 𝔼_{}→{i}[0, 0, Series[y e^(ϵ a) x + (e^(ϵ (a+1)) + e^(-ϵ a) T)/(e^ϵ - 1) - (T + 1) ϵ^-1, {ϵ, 0, 3}] /.
      {a → a_i, T → T_i, x → x_i, y → y_i}]
]
ωsq = ω_1 ω_2 // tm_{1,2→1};
ωcub = ωsq ω_2 // tm_{1,2→1};
ω4 = ωcub ω_2 // tm_{1,2→1};
(*Cleaned versions*)
ωc = ω_1[[3]] /. {T_1 → T, a_1 → a, x_1 → x, y_1 → y} // Normal;
ωsqc = ωsq[[3]] /. {T_1 → T, a_1 → a, x_1 → x, y_1 → y} // Normal;
ωcubc = ωcub[[3]] /. {T_1 → T, a_1 → a, x_1 → x, y_1 → y} // Normal;
ω4c = ω4[[3]] /. {T_1 → T, a_1 → a, x_1 → x, y_1 → y} // Normal;
```