```
Define[

 R_{i,j} =
  CF@

    𝔼_{}→{i,j}[ħ a_j b_i, ħ x_j y_i, e^(Sum_{k=2}^{$k+1} (1 - e^(γ ∈ ħ))^k (ħ y_i x_j)^k / (k (1 - e^(k γ ∈ ħ))))]_$k,

 R̄_{i,j} = CF@𝔼_{}→{i,j}[-ħ a_j b_i, -ħ x_j y_i / B_i,
     1 + If[$k == 0, 0, (R̄_{{i,j},$k-1})_$k[3] -
         (((R̄_{{i,j},0})_$k R_{1,2} (R̄_{{3,4},$k-1})_$k) // (bm_{i,1→i} am_{j,2→j}) //
             (bm_{i,3→i} am_{j,4→j}))[3]]],

 P_{i,j} = 𝔼_{i,j}→{}[β_i α_j / ħ, η_i ξ_j / ħ,
    1 + If[$k == 0, 0, (P_{{i,j},$k-1})_$k[3] -
        (R_{1,2} // ((P_{{1,j},0})_$k (P_{{i,2},$k-1})_$k))[3]]]
```