

## Staring at the Logos

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**Lemma 3<sub>k</sub>.**  $\mathcal{O}(e^{\xi x + \eta y + \delta xy} \mid xy) = \mathcal{O}(v e^{v(\delta xy - \xi \eta t + \xi x + \eta y)} \Lambda_k(\epsilon, y, a, x, \eta, \xi, \delta) \mid y a x)$ ,  
 with  $v = (1 + t \delta)^{-1}$  and where for any fixed  $k$ ,  $\Lambda_k(\epsilon, y, a, x, \eta, \xi, \delta)$  is a fixed polynomial of degree  
 at most  $4k$  in  $y, \sqrt{a}, x, \eta, \xi, \delta$ , with scalar coefficients.

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Λk := Collect [
  e-v(δxy - ξηt + ξx + ηy)
  DPη→Dy, ξ→Dx [Normal@Series [e-ξx - ηy + ξηt + tηθ y + aθ x /. sol, {ε, θ, k}]]
  [ev(δxy - ξηt + ξx + ηy)],
  ε, Simplify];
  
```