

Conjecture 0.1. *If $x_1 \geq \dots \geq x_n$ and $y_1 \geq \dots \geq y_n$, then*

$$\det(\{e^{x_j y_k}\}_{j,k=1}^n) \leq \prod_{j=1}^n e^{x_j y_j} \prod_{j < k} (1 - e^{-(x_j - x_k)(y_j - y_k)}).$$

For $n = 2$, the inequality is an equality.

For $n = 3$, the inequality can be proven directly.