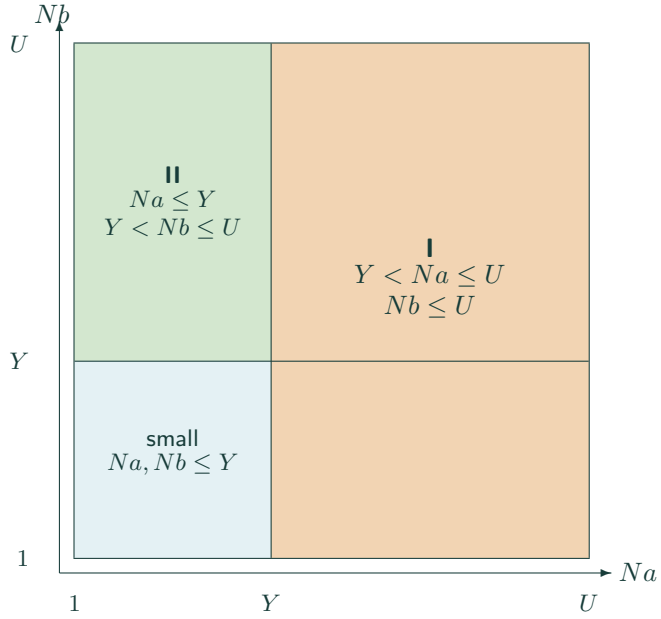
TWO REGIONS, ONE CUBIC INTERACTION

Good squarefree assignment factors; schematic norms, not ideal counts.



Fold II by swapping a and b

$$z = bc, \qquad Y < Na \le U$$

$$T_L(z) = \sum_{\substack{b \mid z \\ Nb \le L}} \mu(z/b)$$

Both disjoint regions give $T_U(z) + T_Y(z)$.

Actual physical cubic matrix

$$\chi_{3,a}(\alpha_z), \quad Na \asymp A, \quad Nz \asymp D/A$$

Shared prime: the matrix entry is exactly zero.

$$\overline{G_{az}} = \overline{G_a}\,\overline{G_z}\,\chi_{3,a}(\alpha_z), \quad (a,z) = 1$$

$$\|K\|_{\mathrm{op}}^2 \ll D^{\epsilon}(A + D/A + D^{2/3})$$

Gauss-moment tail $\ll B\,\mathcal{M}(W)D^{\epsilon}\big(Y^{-1/2} + D^{-1/6}\big)$

$$Y = D^{1/8}, \quad X = D^{3/8}, \quad A_1 \asymp H = D^{3/4}$$

$\mathcal{L}_0[A_Y, A_Y]$ **remains open.**

With $A_1 X^{1/6}$: this part fits the target budget.

No whole signed or GRH conclusion.