Andoni's Algorithm

- Max stability $\Longrightarrow \max(\mathbf{e}_1^{-1/p} | x_1 |, \ldots, \mathbf{e}_n^{-1/p} | x_n |) \equiv \mathbf{e}^{-1/p} F_p(x)^{1/p}$

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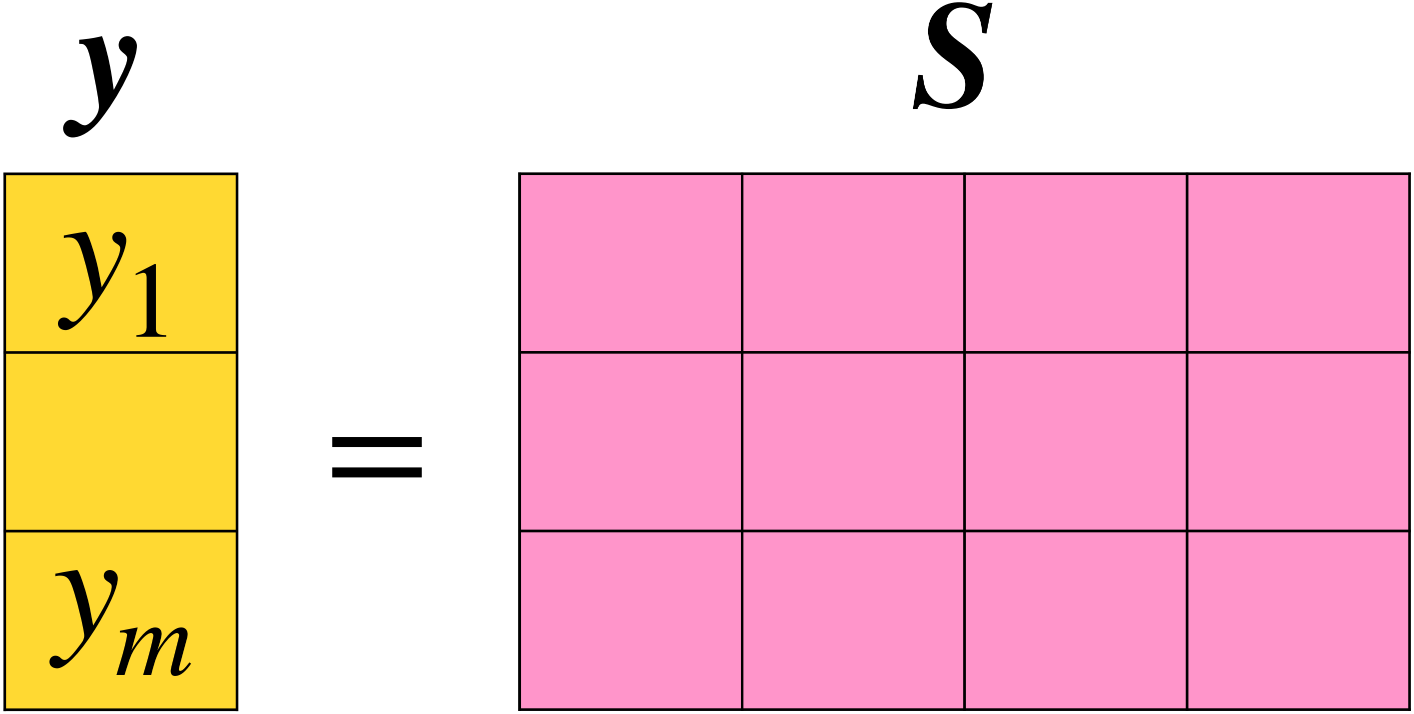
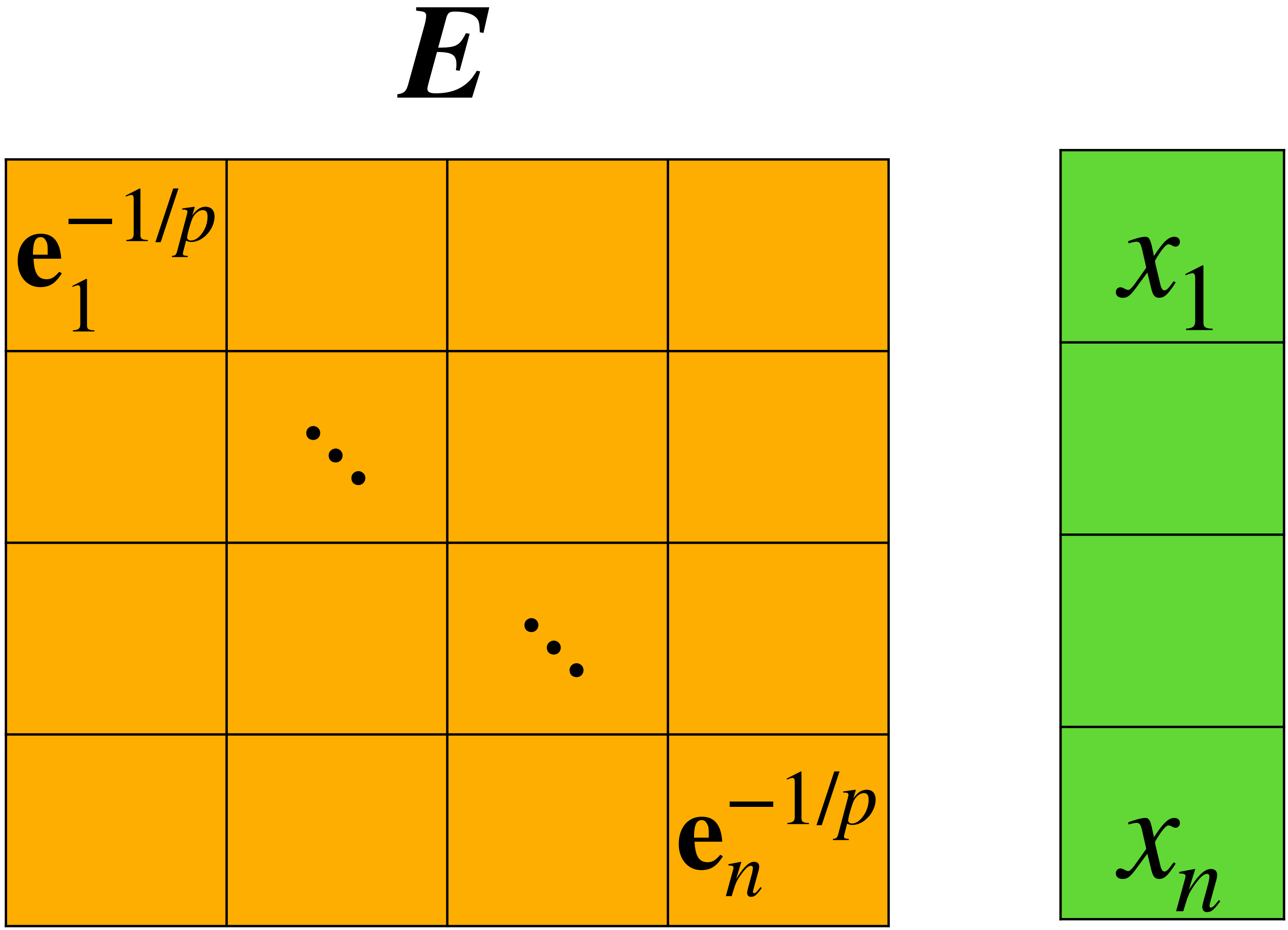


$\boldsymbol{y}$
$\boldsymbol{S}$
y_1
$=$
y_m



$$\|Ex\|_\infty \approx F_p(x)^{1/p}$$

If $m = \Theta(n^{1-2/p} \log n)$, then $\|\boldsymbol{SE}x\|_\infty \approx F_p(x)^{1/p}$

Andoni's Algorithm

- Max stability $\Longrightarrow \max(\mathbf{e}_1^{-1/p}|x_1|, \ldots, \mathbf{e}_n^{-1/p}|x_n|) \equiv \mathbf{e}^{-1/p} F_p(x)^{1/p}$

$$\underset{\boldsymbol{y}}{\begin{bmatrix} y_1 \\ \\ y_m \end{bmatrix}} = \underset{\boldsymbol{S}}{\begin{bmatrix} & & & \\ & & & \\ & & & \end{bmatrix}} \underset{\boldsymbol{E}}{\begin{bmatrix} \mathbf{e}_1^{-1/p} & & & \\ & \ddots & & \\ & & \ddots & \\ & & & \mathbf{e}_n^{-1/p} \end{bmatrix}} \begin{bmatrix} x_1 \\ \\ \\ x_n \end{bmatrix}$$

$$\|\boldsymbol{E}x\|_\infty \approx F_p(x)^{1/p}$$

If $m = \Theta(n^{1-2/p} \log n)$, then $\|\boldsymbol{S}\boldsymbol{E}x\|_\infty \approx F_p(x)^{1/p}$

Implementing in a Stream