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Graeco-Latin squares

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Defines	join

Let $A = (a_{ij})$ and $B = (b_{ij})$ be two $n \times n$ matrices. We define their join as the matrix whose (i, j) th entry is the pair (a_{ij}, b_{ij}) .

A *Graeco-Latin square* is then the join of two Latin squares.

The name comes from Euler's use of Greek and Latin letters to differentiate the entries on each array.

An example of Graeco-Latin square:

$$\begin{pmatrix} a\alpha & b\beta & c\gamma & d\delta \\ d\gamma & c\delta & b\alpha & a\beta \\ b\delta & a\gamma & d\beta & c\alpha \\ c\beta & d\alpha & a\delta & b\gamma \end{pmatrix}$$