



## Submatrices

### 1 Why

TODO. I wanted principal submatrix.

### 2 Definition

An *index set* of  $\{1, 2, \dots, n\}$  is a subset of  $\{1, 2, \dots, n\}$ . A *submatrix* of an  $m \times n$  matrix is a matrix whose are selected according to (TODO) an index set of  $\{1, 2, \dots, m\}$  and index set of  $\{1, 2, \dots, n\}$ ; we call the first index set the *row index set* and the second index set the *column index set*. A *principal submatrix* is the submatrix selected when the row and column index sets are identical.

A *sequential partition* of  $\{1, 2, \dots, n\}$  is a sequence of index sets such that all elements of a later piece of the partition are larger (in the natural order) than all elements in all previous pieces.