

$$\mathbb{A} = \begin{pmatrix} \begin{array}{c|c|c} \xleftrightarrow{m_1} & & \xleftrightarrow{m_q} \\ \hline A_{1,1} & \cdots & A_{1,q} \\ \hline \vdots & & \vdots \\ \hline A_{p,1} & \cdots & A_{p,q} \end{array} \end{pmatrix}$$

Diagram illustrating the structure of matrix  $\mathbb{A}$ . The matrix is partitioned into blocks  $A_{i,j}$  where  $i$  ranges from 1 to  $p$  and  $j$  ranges from 1 to  $q$ . The dimensions are indicated by blue arrows: the total number of rows is  $n_1 + n_p$ , the total number of columns is  $m_1 + m_q$ , and the block dimensions are  $m_1$  and  $m_q$  for the columns, and  $n_1$  and  $n_p$  for the rows.

$$\text{et } \mathbb{B} = \begin{pmatrix} \begin{array}{c|c|c} \xleftrightarrow{s_1} & & \xleftrightarrow{s_r} \\ \hline B_{1,1} & \cdots & B_{1,r} \\ \hline \vdots & & \vdots \\ \hline B_{q,1} & \cdots & B_{q,r} \end{array} \end{pmatrix}$$

Diagram illustrating the structure of matrix  $\mathbb{B}$ . The matrix is partitioned into blocks  $B_{i,j}$  where  $i$  ranges from 1 to  $q$  and  $j$  ranges from 1 to  $r$ . The dimensions are indicated by blue arrows: the total number of rows is  $m_1 + m_q$ , the total number of columns is  $s_1 + s_r$ , and the block dimensions are  $s_1$  and  $s_r$  for the columns, and  $m_1$  and  $m_q$  for the rows.