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About Linear Spaces of Matrices

If L is an m-dimensional linear subspace of $M_{n\times p}$, the space of $n \times p$ matrices, then we can identify the embedding $k^m \xrightarrow{\simeq} L \subseteq M_{n\times p}$ with a bilinear map $k^m \times k^n \to k^p$ or with a linear map $k^m \otimes k^n \to k^p$. If we "switch" k^m and k^n then we get an embedding $k^n \to M_{m\times o}$, and hence an n-dimensional linear subspace L' of $M_{m\times o}$. We study the relationship between L and L' and give examples of situations where this duality can be exploited.