ADJOINTS AND TRANSPOSES

This note is to clarify use of notation and terminology which differs between books.

Table 1. A denotes a matrix, T a linear transformation

term	notes	411 book	311 book
(hermitian) adjoint	$A^*,\ T^*$	${}^t\overline{A},\ T'$	
transpose	$A^t,\ T^t$	${}^tA,\ T^*$	A^t
(classical) adjoint, adjugate		A^*	$\operatorname{adj} A$

In spite of name and notation similarities, the main ideas are very different. For a linear transformation $T : V \to V$, the adjoint is a linear transformation on V defined with respect to an inner product, the transpose is a linear transformation on the dual space V^* and the classical adjoint of a matrix has the property that $A(\operatorname{adj} A) = (\det A)I$.