Chapter 68 Parentheses versus brackets

Old news	New news
Ch15.1 (Amy) If V is an n-dimensional vector space with basis $\{x_i\}_{i=1}^n$ and if $\{\alpha_i\}_{i=1}^n$ are any set of scalars, then there is a unique linear functional y on V such that $[x_i, y] = \alpha_i$ for $i=1,\dots,n$.	If V is an n-dimensional vector space with basis $\{x_i\}_{i=1}^n$ and if $\{\alpha_i\}_{i=1}^n$ are any set of scalars, then there is a unique $y \in V$ such that $(x_i, y) = \alpha_i$ for $i=1,\dots,n$.
Ch15.2 (Amy) Let V be an n-dimensional vector space with basis $\mathcal{X}=\{x_i\}_{i=1}^n$. Then there is a uniquely determined basis $\mathcal{X}'=\{y_i\}_{i=1}^n$ for V' where $[x_i, y_j] = \delta_{ij}$.	Let V be an n-dimensional vector space with basis $\mathcal{X}=\{x_i\}_{i=1}^n$. Then there is a uniquely determined basis $y = \{y_i\}_{i=1}^n$ of V where $(x_i, y_j) = \delta_{ij}$.

Ch15.3 (Amy) Let V be an n-dimensional vector space. Let $x \in V$ be non-zero. Then there exists a $y \in V'$ such that $[x, y] \neq 0$.	Let V be an n-dimensional vector space. Let $x \in V$ be non-zero. Then there exists a $y \in V$ such that $(x, y) = 0$.
Ch17 (Olivia) **Annihilator** M^0	$M^\perp$
Ch44 (Sappha) **Adjoints** [Ax, y] = [x, A'y] $(A+B)' = A' + B'$ $(\alpha A)' = \alpha A'$ $(AB)' = (B'A')$ $(A^{-1})' = (A')^{-1}$ $A'' = A$	* note: A^* is a linear transformation on V. $(Ax, y) = (x, A^* y)$ $(A+B)^* = A^* + B^*$ $(\alpha A)^* = \bar{\alpha} A^*$ $(AB)^* = B^* A^*$ $(A^{-1})^* = (A^*)^{-1}$ $A^{**} = A$.

Ch45 (Olivia) **Matrix of Adjoint** If $\mathcal{X}=\{x_1,\dots,x_n\}$ is any basis in the n-dimensional vector space $\mathcal{V}$, if $\mathcal{X}'$ is the dual basis in $\mathcal{V}'$: If $[A;\mathcal{X}]=(\alpha_{ij})$, then $[A';\mathcal{X}']=(\alpha_{ji})$.	If $\mathcal{X}=\{x_1,\dots,x_n\}$ is any basis in the n-dimensional vector space $\mathcal{V}$, if $\mathcal{Y}$ is another basis in $\mathcal{V}$: If $[A;\mathcal{X}]=(\alpha_{ij})$, then $[A^*;\mathcal{Y}]=(\overline{\alpha_{ji}})$.
Ch53 (Laura) **Determinants** $\det A' = \det A$	$\det A^* = \overline{\det A}$
Ch54 (Carla) **Proper values** Proper values of A' are the same as those of A.	Proper values of A^* are the conjugates of proper values of A.