MATH423 HONORS HOMEWORK DUE TUES. 2/28/23

Let V_j be a collection of vector spaces, $1 \leq j \leq f$, and $T_j : V_j \to V_{j+1}$ linear maps. We write $V_1 \to V_2 \to \cdots \to V_f$. We say such a diagram is a *complex* if $T_{i+1}T_i = 0$ for $1 \leq i \leq f-1$, and we say it is *exact* if $null(T_i) = \operatorname{Im}(T_{i-1})$. Give an example of a complex that is not exact when $f = 3$. (This is the beginning of what is called *homology*.)

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