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Rebecca L. Jayne* (rjayne@hsc.edu). *Multiplicities of some maximal dominant weights of the $\widehat{sl}(n)$ -modules $V(k\Lambda_0)$.*

For $n, k \geq 2$, we consider the irreducible highest weight $\widehat{sl}(n)$ -module $V(k\Lambda_0)$ and examine the multiplicities of a set of maximal dominant weights of the form $k\Lambda_0 - \lambda_{a,b}^\ell$ where $\lambda_{a,b}^\ell = \ell\alpha_0 + (\ell - b)\alpha_1 + (\ell - (b + 1))\alpha_2 + \cdots + \alpha_{\ell-b} + \alpha_{n-\ell+a} + 2\alpha_{n-\ell+a+1} + \cdots + (\ell - a)\alpha_{n-1}$, and $k \geq a + b$, $a, b \in \mathbb{Z}_{\geq 1}$, $\max\{a, b\} \leq \ell \leq \lfloor \frac{n+a+b}{2} \rfloor - 1$. We obtain two formulas to determine these weight multiplicities, one in terms of certain standard Young tableaux and the other in terms of certain pattern-avoiding permutations. This is a joint work with Kailash C. Misra. (Received September 07, 2021)