1105-05-199 **Vivek Dhand*** (vivek.dhand@gmail.com). *Boxed plane partitions: combinatorial unimodality and enumeration of matchings of* $L(3, n)$.

The lattice of boxed plane partitions $L(a, b, c)$ is unimodal, but no purely combinatorial proof of this fact is known. An application of Stanley's fundamental lemma for P-partitions reduces the problem to rectangular standard Young tableaux with s descents, and Early used this method to deal with the case where $a = 2$. We extend this result to $a = 3$ and $s = 2$. In particular, we obtain a new positive summation formula for the q-analogue of the higher-dimensional Narayana number $N_2(3, n)$. In another direction, Kuperberg has shown that $L(a, b, c)$ and related objects correspond naturally to matchings of certain planar hexagonal systems. We present a recursive procedure for generating matchings of $L(3, n)$, whose enumeration involves cyclically symmetric transpose complement plane partitions (CSTCPPs) and vertically symmetric alternating sign matrices (VSASMs). (Received September 19, 2014)