

1096-VN-1882 **Mitch A Phillipson*** (phillipson@math.tamu.edu) and **Catherine Yan**. *Non-restricted fillings of layer polyominoes.*

Over unrestricted fillings of moon polyominoes counter examples show that the distribution of northeast and southeast chains is not symmetric. However it is true that $\text{Av}(\text{ne}_k) = \text{Av}(\text{se}_k)$, or the number of fillings that avoid a northeast k -chain is the same as avoid a southeast k -chain. Over general polyominoes - convex but not intersection-free - there is no symmetry of the joint distribution and $\text{Av}(\text{ne}_2) \neq \text{Av}(\text{se}_2)$. Our work deals with layer polyominoes - intersection-free and row-convex. We've shown that for restricted fillings of layer polyominoes the joint distribution is symmetric and for unrestricted fillings $\text{Av}(\text{ne}_2) = \text{Av}(\text{se}_2)$. We will describe two new bijections to demonstrate these. (Received September 16, 2013)