1056-05-441 **Daniel Cranston*** (dcranston@vcu.edu), **Bill Kinnersley**, **Kevin Milans**, **Greg Puleo** and **Douglas West**. *Maker-Breaker Games: Building a Big Chain in a Poset.*

In a *maker-breaker game*, we fix a base set X and a collection of winning subsets F. The players Maker and Breaker alternate choosing elements from X and Maker wins if he eventually chooses all the elements in some subset in F. Otherwise Breaker wins. We consider the problem when X is the elements of a poset P and F is the collection of chains in P of a given length. When the poset P is a product of chains, we determine precisely the maximum length chain in P that Maker can attain.

We also study the problem when the poset is the d-dimensional k-wedge, $W_k^d = \{(x_1, x_2, \ldots, x_d) : 0 \leq x_i \text{ and } \sum_{i=1}^d x_i < k\}$, where $y \leq_{W_k^d} z$ if $y_i \leq z_i$ for all i. In this case, we add the restriction that Maker must choose the elements of W_k^d in the order in which they appear in his winning chain. We show that for W_k^2, Maker can attain a chain of size $\lceil 2k/3 \rceil$, but no larger. In contrast, we use connections with Conway's Angel/Devil game to show that when $d \geq 14$, Maker can attain a chain of maximum size. (Received September 07, 2009)