1046-L1-1378 **Thomas C. Hull*** (thull@wnec.edu), Dept. of Mathematics, Box H-5174, Western New England College, 1215 Wilbraham Rd, Springfield, MA 01119. *You Gotta Know How to Fold 'Em.*

Given a crease pattern on a piece of paper which we know can fold flat, is there any way of enumerating the number of ways in which the creases can all be folded flat? That is, how many valid mountain-valley assignments are there for the creases? The fact that this is generally a very difficult – and quite open – question has resulted in a number of interesting folding puzzles. For example, crease patterns that admit only a few ways to be folded can be very challenging to collapse. In this talk we will examine some of the combinatorics behind this general problem, from the very well-understood single-vertex case to more challenging classes of larger crease patterns. (Received September 15, 2008)