1046-37-82   **Joshua Brandon Holden*** (`holden@rose-hulman.edu`), CM#125, 5500 Wabash Ave., Terre Haute, IN 47803. *Braids, Cables, and Cells: An intersection of Mathematics, Computer Science, and Fiber Arts.* Preliminary report.

The mathematical study of braids combines aspects of topology and group theory to study mathematical representations of one-dimensional strands in three-dimensional space. These strands are also sometimes viewed as representing the movement through a time dimension of points in two-dimensional space. On the other hand, the study of cellular automata usually involves a one- or two-dimensional grid of cells which evolve through a time dimension according to specified rules. This time dimension is often represented as an extra spacial dimension. Therefore, it seems reasonable to ask whether rules for cellular automata can be written in order to produce depictions of braids. The ideas of representing both strands in space and cellular automata have also been explored in many artistic media, including knitting and crochet, where braids are called "cables". We will view some examples of braids and their mathematical representations in these media. (Received September 15, 2008)