1154-M5-2576   **Therese Aglialoro** and **Robert Hochberg*** (`hochberg@udallas.edu`), University of Dallas, Department of Mathematics, 1845 E. Northgate Drive, Irving, TX 75062. *Snakes: Legal, Illegal and Dodecahedral.*

Solved Rubik's cubes are all alike; every unsolved cube is unsolved in its own way. Among these unsolved positions lies a wonderful array of beautiful patterns, and discovering them can be the occupation of many an enjoyable hour. One of the oldest of these patterns is the *snake*, which is formed by putting an "L" or "I" on each face so that they connect to form a contiguous shape winding around the cube, entering and leaving each face once. The authors wondered whether the Megaminx puzzle (dodecahedral variant of the Rubik's cube) also had snakes, and if so, how many. Finding the answer required a pleasant tour of graphs, groups and geometry which this talk aims to share. And *our* answer to *how many* is 21, but arguments could be made for 6, or 700. (Received September 17, 2019)