Variations on Peg Solitaire on Graphs

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Peg solitaire is a board game that involves pegs occupying all but one of the spaces on some game board, with the goal of the game to use geometric jumps (like checkers jumps) to reduce the number of pegs to one. The game has been played on various types of boards, including a cross (the English board) and a triangle (the game Eg-no-ra-moose, which is common in Cracker Barrel restaurants). Recently the game was generalized, in a combinatorial sense, to graphs. We explore some of the variations of peg solitaire on graphs, presenting some results – with plenty of visuals! – as well as some open questions ripe for the tackling. This talk is based on work that is partly joint with Christopher Stocker of the MSCS department and partly joint with Ryan Weber, a former MU undergraduate student. Lastly, while [SPOILER ALERT!] the quaternions may make a surprise appearance, the talk assumes no prior knowledge of quaternions, graphs, or peg solitaire.