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*Deduction with $k$ moves*

Deduction is a graph process in which searchers seek to capture an invisible evader on the vertices of a graph $G$ in a series of stages. Vertices that have ever been occupied by a cop are considered protected. In each stage, searchers on a vertex $v$ move to neighbouring vertices if the number of cops on $v$ is at least the number of unprotected neighbours of $v$. However, each searcher may move a fixed number of times. If every vertex is eventually protected, then the searchers are successful. The minimum number of searchers required for success on $G$ is called the deduction number of $G$.

Deduction was originally considered in the case that searchers could move at most once. In this talk, we allow each searcher to move $k$ times, where $k$ is a fixed positive integer. We give bounds on the $k$-move deduction number and consider similarities and differences with the one-move case. We discuss the process on various graph classes, including Cartesian and strong grids.

This is joint work with Nancy Clarke, Shannon Fitzpatrick and Melissa Huggan.