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Chomp on Hexagonal Grids & Other Lexicographic Products of Impartial Poset Games

This talk discusses CHOMP on a hexagonal grid (or HONEYCOMB CHOMP), a poset game that generalizes the well known game of CHOMP, played on a square grid. We note that a hexagonal grid is the lexicographic product of a square grid and a total order of size 2. In order to understand HONEYCOMB CHOMP we develop a theory of lexicographic products of impartial poset games. This theory allows us to determine the value of a follower of a lexicographic product of impartial poset games given only the value of a corresponding follower of the left factor in the initial product. This reduces calculating the number of a position in HONEYCOMB CHOMP to calculating the number of a corresponding CHOMP position. Furthermore, this corresponding position is easily constructed in polynomial. This is joint work with Dr. Neil McKay.