Paths and Claws in n-Chromatic Digraphs

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This is a joint work with M. Kouider.

A *block* of a path in a digraph is a maximal directed subpath. El Sahili conjectured that for $n \geq 4$, every n-chromatic digraph contains any oriented path with two blocks of length $n-1$. Addario-Berry et al. gave a proof of this conjecture using strongly connected digraphs. In this paper, we give an elementary proof of this conjecture, that is with out using strongly connected digraphs. We then study the existence of claws in n-chromatic digraph, we extend a result of Saks and Sós to the tournament-like digraphs.