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Injective oriented colourings

Oriented colourings are vertex colourings of oriented graphs that respect the direction of the arcs: whenever there is an arc from a vertex coloured i to a vertex coloured $j \neq i$, there is no arc from a vertex coloured j to a vertex coloured i . There are several possible definitions of "*injective*" oriented colourings. An example, first studied by Courcelle in 1994, is that these are oriented colourings where no two in-neighbours of a vertex are assigned the same colour. The different definitions lead to a collection of five related colouring parameters. The goal is to discuss the aspects of the theory of these colourings that relate to homomorphism models, complexity, algorithms, critical digraphs, obstructions, and bounds.