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Dropping "Proper" in Vertex Colourings of Mixed Graphs.

Graph homomorphisms to reflexive targets can be used to define vertex colourings of mixed graphs which both take into account the adjacency type between vertices and allow adjacent vertices to be assigned the same colour, provided that we require these *simple colourings* use at least two different colours. We explore simple colourings of families of mixed graphs. For some families, including oriented planar graphs and k -edge-coloured planar graphs, the chromatic number of the mixed graph equals the minimum number of colours in a simple colouring.