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Colouring graphs with small clique number

We prove that every triangle-free graph with maximum degree Δ has list chromatic number at most $(1 + o(1))\frac{\Delta}{\ln \Delta}$. This improves the constant in a classic result of Johannson and matches the best-known bound for graphs of girth at least five. We also provide a new proof of Johannson's result that for any $r \geq 4$ every K_r-free graph has list-chromatic number at most $200r\frac{\Delta \ln \ln \Delta}{\ln \Delta}$. Both proofs are significantly simpler than Johannson's original arguments.