**Keeping your Distance is Hard**

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We will look at the computational complexity of deciding who wins from a given position in graph distance games, where two players alternately color the vertices of a given graph with red or blue, subject to distance conditions. One example is the game of **COL**, where adjacent vertices cannot be colored with the same color. In general graph distance games, two sets describe at which distances like or different colors are not allowed.

Using the fact that some members of this family, namely **COL**, **SNORT**, and **NODEKAYLES**, are PSPACE-hard, we can show that a large number of graph distance games are also PSPACE-hard. The proof uses the insertion of a subgraph into the graph of a game with known computational complexity. This creates a bijection between the positions of that game and a game whose complexity is to be determined.

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