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Kyle Pula* (jpula@du.edu), Department of Mathematics, University of Denver, 2360 South Gaylord Street, Denver, CO. *Gallai Multigraphs*.

A complete, edge-colored graph is called Gallai if every 3-cycle contains a repeated color. As first demonstrated by Gallai himself, this class of graphs admits a surprisingly simple iterative construction. While attempting to extend this construction to the 4-cycle version of the Gallai property, we encountered the following natural generalization: in a Gallai multigraph we allow vertices to be connected by multiple colors again with the constraint that any 3-cycle contains a repeated color. As the original Gallai construction does not extend to this class of multigraphs, we give a complete description and construction of all Gallai multigraphs and, in the process, demonstrate a new decomposition of Gallai graphs. (Received January 12, 2007)