Mark E Watkins* (mewatkin@syr.edu), NY. Vertex-transitive non-Cayley graphs of connectivity 1. Preliminary report.

A VTNCG is a vertex-transitive non-Cayley graph. While Cayley graphs are vertex-transitive, the converse is false, and a number of papers (see, for example, C. Praeger or B. McCay) have been written searching for VTNCGs. We present a variety of conditions for an infinite graph of connectivity 1 to be a VTNCG. A typical theorem is the following: For some integer $n \geq 2$, let $\Gamma$ be a graph of connectivity 1 whose lobes (i.e., maximal biconnected subgraphs) are copies of the Petersen graph (resp., the dodecahedral graph), and each vertex is incident with exactly $n$ such copies. If $n$ is even, then $\Gamma$ is a Cayley graph; if $n$ is odd, then $\Gamma$ is a VTNCG. More elaborate examples involve lobes that are edge-transitive bipartite graphs. (Received August 28, 2020)