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*Constructions of 3-existentially closed graphs using graph operations*

A graph is  $n$ -existentially closed ( $n$ -e.c.) if for any two sets  $A, B \subset V$  with  $|A| + |B| = n$  there exists a vertex  $x \in V \setminus (A \cup B)$  that is adjacent to every vertex in  $A$  and to none in  $B$ . We produce a large family of 3-e.c. graphs by considering a binary graph operation (denoted by  $\bowtie$ ) and determining necessary and sufficient conditions for  $G \bowtie H$  to be 3-e.c. if  $H$  is 3-e.c.

Joint work with David Pike.