Šoltés, Lubomír
Neighbourhoods in line graphs. (English) Zbl 0766.05071

L. W. Beineke’s characterization [J. Comb. Theory 9, 129-135 (1970; Zbl 0202.557)] of line graphs by 9 forbidden induced subgraphs is now very well known. Since four of these obstructions have a vertex adjacent to all other vertices, forbidding these subgraphs means just a restriction on all the neighborhoods of the graph. Such graphs obeying these neighborhood conditions are called locally-Θ graphs; they can be expressed in a very neat form, as is shown in the paper. Furthermore, for a graph H, a locally-H graph is one where all neighborhoods are isomorphic to H. It is shown that the question whether a locally-H graph is a line graph or not only depends on H.

Reviewer: E. Prisner (Hamburg)

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05C75 Structural characterization of families of graphs

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References:
[8] KRAUSZ J.: Démonstration nouvelle d’une théorème de Whitney sur les réseaux. (Hungarian), Mat. Fiz. Lapok. 50 (1943), 75-89. · Zbl 0061.41401

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