THE DERIVATIVE DEGREE SEQUENCES OF FINITE SIMPLE CONNECTED GRAPHS ARE PARKING FUNCTIONS

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Abstract

Parking functions are well researched and interesting results are found in the listed references and more. Some introductory results stemming from application to degree sequences of simple connected graphs are provided in this paper. Amongst others, the result namely, that a derivative degree sequence,

$$d_d(G) \in \mathbb{D}_d(G)$$

$$= \left\{ \left(\left\lceil \frac{d(v_1)}{\ell} \right\rceil, \left\lceil \frac{d(v_2)}{\ell} \right\rceil, ..., \left\lceil \frac{d(v_n)}{\ell} \right\rceil \right) \mid \ell = d(v_i), \, \forall i, \text{ with } d(v_i) \geq 2 \right\},$$

of a simple connected graph G is a parking function, is presented. We also introduce the concept of looping degree sequences and the looping number, $\xi(G)$. Four open problems are proposed as well.