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David Galvin* (dgalvin1@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556. *Matching permutations.*

The matching sequence (a_1, a_2, \dots, a_m) of a graph G (in which a_k is the number of matchings of size k in G) is always unimodal. It follows that when the sequence is sorted in non-decreasing order—

$$a_{\pi(1)} \leq a_{\pi(2)} \leq \dots \leq a_{\pi(m)}$$

— the resulting permutation π is one of a set of 2^{m-1} “unimodal” permutations.

In 1987 Alavi, Malde, Schwenk and Erdős asked whether all 2^{m-1} unimodal permutations can actually be realized as the sorted matching sequence of some graph. We answer this question, and raise a few more.

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