CHARACTERIZATIONS OF NONDECREASING SEMILATTICE OPERATIONS ON CHAINS

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We provide a characterization of the class of nondecreasing semilattice operations on chains in terms of a property that generalizes the notion of single-peakedness for total orders (see, e.g., [1, 2, 3]). In the case where the chains are finite, we specify this characterization in terms of properties of the Hasse diagram of the corresponding semilattice. Also, the enumeration of the class of nondecreasing semilattice operations on finite chains leads to a new occurrence of the Catalan numbers.

References

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