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Using generating trees to construct Skolem sequences

A Skolem sequence is a linear arrangement of the multiset $1,1,2,2,\dots,n,n$ such that if r appears in positions i and j , then $|i-j|=r$. We first translate the problem to a particular set of perfect matchings, and then apply the method of generating trees for open arc diagrams to generate exhaustively all Skolem sequences of a given size. Tracking arc length between pairs of vertices in an arc diagram is the central task. Although we do not surpass previously known enumerative results, this method drastically reduces the search space compared to previously known methods.