

# One-dimensional optimal bounded-shape partitions for Schur convex sum objective functions

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## Abstract

Recently, Hwang and Rothblum solved the problem in the title for the special case that the lower bounds and upper bounds over the parts have the same ordering. In this paper we consider the general case. While a unique optimal solution may not exist, we give a set of at most  $(\frac{p^2}{8} + 1) \binom{p}{\lfloor p/2 \rfloor}$  candidates, where  $p$  is the number of parts the  $n$  elements are partitioned into. We conjecture that the candidate set actually has at most  $\binom{p-1}{\lfloor (p-1)/2 \rfloor}$  members.

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