

Discrete Monotonic Programming

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We discuss solution methods and applications of mathematical programming problems which can be cast in the following form

$$\min\{f(x) \mid g(x) \leq 0 \leq h(x), x \in \mathbb{R}_+^n, (x_1, \dots, x_s) \in S\},$$

where $f, g, h : \mathbb{R}_+^n \rightarrow \mathbb{R}$ are increasing functions on \mathbb{R}_+^n and S is a finite set in \mathbb{R}_+^s . Here increasing function on \mathbb{R}_+^n means any function $f(x)$ on \mathbb{R}_+^n such that $f(x') \geq f(x)$ whenever $x' \geq x$ (componentwise).