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*Functional equations and an inequality on  $\Delta^+$*

Let  $\Delta^+$  be the space of functions  $f: [0, \infty] \rightarrow [0, 1]$  such that  $f(0) = 0, f(\infty) = 1$ , and  $f$  is monotone and left-continuous on  $(0, \infty)$ ; this is the space of distance distribution functions.  $\Delta^+$  is a complete, completely distributive lattice and hence, continuous lattice. We present our earlier results for certain functional equations on this space and present methods that have been used to solve such equations. We then introduce the notion of a strict inequality defined via the way-below relation from the theory of continuous lattices, and investigate the properties of certain functions on  $\Delta^+$  in relation to this inequality. It turns out that some of the methods for solving functional equations can be applied to this question as well.