

Lemma. The solution of ?? is monotonic in \mathbf{V} and \mathbf{W} , i.e., $\langle \mathbf{V}, \mathbf{W} \rangle \preceq \langle \mathbf{V}', \mathbf{W}' \rangle \Rightarrow \Sigma(\mathbf{V}, \mathbf{W}) \leq \Sigma(\mathbf{V}', \mathbf{W}')$.