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**John E Porter\*** (ted.porter@murraystate.edu) and **Strashimir G. Popvassilev** (spopvassilev@ccny.cuny.edu). *Monotone Properties Using Stars of Coverings*. Preliminary report.

We define some monotone properties using stars of coverings. This relates to work of V. Tkachik, R. Wilson, J. van Mill, O. Alas, M. Matveev and others who generalized the D-space property of E. van Douwen and E. Michael (they studied non-monotone versions and used stars of open neighborhood assignments). Given a property  $\mathcal{P}$ , we call a topological space  $X$  monotonically star- $\mathcal{P}$  if one can assign to any open cover  $\mathcal{U}$  a subspace  $s(\mathcal{U}) \subset X$  with property  $\mathcal{P}$  in such a way that  $\text{St}(s(\mathcal{U}), \mathcal{U}) = \cup\{U \in \mathcal{U} : U \cap s(\mathcal{U}) \neq \emptyset\} = X$  and if  $\mathcal{V}$  refines  $\mathcal{U}$  then  $s(\mathcal{U}) \subset s(\mathcal{V})$ . We study monotonically star- $\mathcal{P}$  spaces for various compactness-like properties  $\mathcal{P}$  such as finite, compact, and compact metrizable. Other properties  $\mathcal{P}$  are considered as well. For example if  $\kappa$  is a regular uncountable cardinal then it is monotonically star-compact but not monotonically star-finite, and is monotonically star-compact-and-metrizable if  $\kappa = \omega_1$ . (Received January 19, 2011)