1135-54-1145   **Gerald Beer** and **Colin Bloomfield*** (`colinbloomfield1@gmail.com`), 405 Lewis st., Los Angeles, CA 90042. *A Closure Operator for Clopen Topologies.*

A topology τ on a nonempty set X is called a clopen topology provided each member of τ is both open and closed. Given a function f from X to Y, the operator $E \mapsto f^{-1}(f(E))$ is a closure operator on the power set of X whose fixed points are closed subsets corresponding to a clopen topology on X. Conversely, for each clopen topology τ on X, we produce a function f with domain X such that $\tau = \{E \subseteq X : E = f^{-1}(f(E))\}$. We characterize the clopen topologies on X as those that are weak topologies determined by a surjective function with values in some discrete topological space. Paralleling this result, we show that a topology admits a clopen base if and only if it is a weak topology determined by a family of functions with values in discrete spaces. (Received September 19, 2017)