1096-03-2131 **Rebecca M. Steiner*** (rebecca.m.steiner@vanderbilt.edu), Vanderbilt University, Mathematics, 1326 Stevenson Center, Nashville, TN 37203. *Effective Symmetry Breaking.*

Symmetry breaking in combinatorics involves coloring the elements of a structure so that there are no nontrivial automorphisms of the structure which respect the coloring. We say that such a coloring *distinguishes* the structure.

We apply computability theory to this notion and show that there is a computable, finite-valence, pointed graph which is distinguished by a 2-coloring but not by any computable 2-coloring.

We also show that if a computable, finite-branching tree has a distinguishing 2-coloring, then it must have a $\mathbf{0}'$-computable distinguishing 2-coloring. We don't know yet if the same is true in the more general case of computable, finite-valence, pointed graphs. (Received September 17, 2013)