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Paul Steven Brodhead* (pbrodhead@vsu.edu), Department of Mathematics & Computer Science, P.O. Box 9068, Carter G. Woodson Ave, Hunter McDaniel Building, Room 303Sd, Petersburg, VA 23806, and **Bjørn Kjos-Hanssen** (bjoern@math.hawaii.edu), Department of Mathematics, 2565 McCarthy Mall, Keller 401A, Honolulu, HI 96822. *The Strength of the Grätzer-Schmidt Theorem.*

The Grätzer-Schmidt theorem of lattice theory states that each algebraic lattice is isomorphic to the congruence lattice of an algebra. A lattice is algebraic if it is complete and generated by its compact elements. We show that the set of indices of computable lattices that are complete is Π_1^1 -complete; the set of indices of computable lattices that are algebraic is Π_1^1 -complete; and that there is a computable lattice L such that the set of compact elements of L is Π_1^1 -complete. As a corollary, there is a computable algebraic lattice that is not computably isomorphic to any computable congruence lattice. (Received September 17, 2009)