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**Richard A Shore\*** ([shore@math.cornell.edu](mailto:shore@math.cornell.edu)), Department of Mathematics, Malott Hall, Cornell University, Ithaca, NY 14853. *Direct definitions of the Turing Jump from degree classes*. Preliminary report.

In addition to the naturalness of the question, another motivation for early attempts at defining the (generalized) jump classes was the hope that they would lead to other definability results, in particular, for the jump operator itself. By now we have a definition of the jump (R. A. Shore and T. Slaman, *Math. Res. Let.* **6** (1999), 711-722). However, that definition relies on the metamathematical techniques of Slaman and Woodin.

It still seems of interest to pursue possible definitions that avoid these methods and that may overcome some of their limitations. We provide a number of examples of such definitions in terms of various degree classes. For example, we provide direct definitions of the jump in terms of any class of degrees contained in the ANR degrees and containing  $\text{GH}_3$  such as the ANR or  $\overline{GL}_2$  degrees or indeed any generalized jump class between  $\text{GL}_2$  and  $\text{GH}_3$ . Another class of arguments shows, for example, that the old conjecture about  $\mathcal{C}_0 = \{\mathbf{x} \mid \forall \mathbf{a} (\mathbf{x} \vee \mathbf{a} \text{ is not a minimal cover of } \mathbf{a})\}$  that every  $\mathbf{x} \in \mathcal{C}_0$  bounds a nonrecursive r.e. degree, would, if relativizable, also give a direct definition of the jump. (Received August 10, 2006)