1064-03-177 **David Diamondstone*** (ded@math.uchicago.edu), Dept. of Mathematics, 5734 S. University Avenue, Chicago, IL 60637. *Low LR upper bounds.*

We say that $A \leq_{LR} B$ if every B-random real is A-random—in other words, if B has at least as much derandomization power as A. This is what is called a "weak reducibility": it is implied by Turing reducibility, but does not imply Turing reducibility. Even calling it a "reducibility" may be misleading, as LR-lower cones can be uncountable; an example is the cone $\{A : A \leq_{LR} 0'\}$ below $0'$. However, the LR reducibility is a natural one for studying randomness. The K-trivials form the bottom LR degree, just as the computable reals form the bottom Turing degree, and K-trivials often play the role of computable sets from the point of view of randomness.

Much remains mysterious about the LR degrees. It is not even known whether they form a semilattice. (It is known that if a join exists, it cannot be the same as the join in the Turing degrees.) So there are many open structural questions. We show that given two (or even finitely many) low sets, there is a low c.e. set which lies LR above both. This is very different from the situation in the Turing degrees. Indeed, the Sacks splitting theorem gives us two low sets whose Turing degrees join to $0'$, so the fact that any two low sets have a low c.e. upper bound in the LR degrees is quite surprising. (Received September 07, 2010)