1112-03-563 **Rutger Kuyper*** (mail@rutgerkuyper.com), Department of Mathematics, University of Wisconsin, 480 Lincoln Dr., Madison, WI 53706-1388. *A measure of uniformity.*

There are two well-known ways to compare the difficulty of two *mass problems*, i.e. of sets $\mathcal{A}, \mathcal{B} \subseteq \omega^\omega$. The first of these, *Medvedev reducibility*, says that $\mathcal{A}$ reduces to $\mathcal{B}$ if there is a single Turing functional Φ such that $\Phi(\mathcal{B}) \subseteq \mathcal{A}$. On the other hand, we say that $\mathcal{A}$ *Muchnik reduces* to $\mathcal{B}$ if every element of $\mathcal{B}$ computes an element of $\mathcal{A}$.

These two reducibilities can be seen as two opposite extremes: Medvedev reducibility is as uniform as possible, while Muchnik reducibility is as non-uniform as possible. Therefore, if some reduction is not completely uniform, one can only conclude that it is a Muchnik reduction, even though intuitively it might feel like there is some uniformity contained in the reduction.

We propose a hierarchy of reducibilities between Medvedev and Muchnik reducibility, which capture different levels of uniformity. We say that $\mathcal{A}$ *n-uniformly reduces* to $\mathcal{B}$ if there is a Π^0_n-cover $\mathcal{V}_0, \mathcal{V}_1, \dots$ of $\mathcal{B}$ such that the elements from $\mathcal{B} \cap \mathcal{V}_i$ uniformly compute elements from $\mathcal{A}$. We use this concept to measure the uniformity of some well-known Muchnik reductions. (Received August 11, 2015)