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Complexity of Relations on Computable Structures.

Let \mathcal{A} be a computable structure and R be an additional relation on \mathcal{A} . The Turing degree spectrum of R on \mathcal{A} is the set of all Turing degrees of the images of R under all isomorphisms from \mathcal{A} to computable models. Harizanov found a sufficient and necessary condition for the Turing degree spectrum to contain all Turing degrees, which can be adapted to truth-table reducibility. She also showed that the Turing degree spectrum of the ω -part of a linear ordering of type $\omega + \omega^*$ is all of the Δ_2^0 Turing degrees. This is not the case for tt-degrees, and it can be shown that there is a computably enumerable set D such that D is not weak truth-table reducible to any initial segment of any computable scattered linear ordering. (Received September 09, 2007)