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Splittings and computably enumerable sets

A split of a c.e. set A is a pair of disjoint c.e. sets whose union is A . We discuss several properties of c.e. sets relating to lowness and show that these properties are not preserved under splits. We present properties such that there is a c.e. set with this property whose elements cannot be split into two sets preserving this property. Speedability is an example of such a property. A c.e. set is speedable if for every computable function, there exists a finite algorithm enumerating membership faster, by the desired computable factor, on infinitely many integers. We also present properties such that there is a c.e. set A with this property but in any way that one non-trivially splits A , both sides of the split do not have this property. For example, being non-low is such a property.