

AN ENVY-FREE CAKE DIVISION ALGORITHM

by

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ABSTRACT. An algorithm is given that provides an envy-free division of a cake among n people, each of whom may have a different way of measuring the value of fractional parts of the cake. Previous results were (1) non-constructive, (2) produced a division based on the weaker notion of fairness in which each person believed he or she received at least $1/n^{\text{th}}$ of the cake, but not necessarily the largest piece, or (3) worked only for the case $n = 3$.

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