Simina Branzei* (simina@cs.au.dk) and Peter Bro Miltersen. A Dictatorship Theorem for Cake Cutting.

We consider discrete protocols for the classical Steinhaus cake cutting problem. Under mild technical conditions, we show that any deterministic strategy-proof protocol in the standard Robertson-Webb query model is dictatorial, that is, there is a fixed agent to which the protocol allocates the entire cake. In contrast, we exhibit randomized protocols that are truthful in expectation and compute approximately fair allocations. (Received February 10, 2014)