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Maria J Monks* (monks@mit.edu), 290 Massachusetts Avenue, Cambridge, MA 02139. *Number theoretic properties of generating functions related to Dyson's rank for partitions into distinct parts.*

Let $Q(n)$ denote the number of partitions of n into distinct parts. We show that Dyson's rank provides a combinatorial interpretation of the well-known fact that $Q(n)$ is almost always divisible by 4. This interpretation gives rise to a new false theta function identity that reveals surprising analytic properties of one of Ramanujan's mock theta functions, which in turn gives generating functions for values of certain Dirichlet L -functions at non-positive integers. (Received January 21, 2009)