Let $P_n$ be the set of all distinct ordered pairs $(\lambda, \lambda_i)$, where $\lambda$ is a partition of $n$ and $\lambda_i$ is a part size of $\lambda$. We give a combinatorial proof that, for a pair $(\lambda, \lambda_i)$ chosen uniformly at random from $P_n$, the probability that the multiplicity of $\lambda_i$ in $\lambda$ is 1 tends to $1/2$ as $n \to \infty$. This is inspired by work of Corteel, Pittel, Savage, and Wilf, who investigated part multiplicities under a different distribution on $P_n$. (Received September 27, 2005)