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Dylan M Cable* (dcable@stanford.edu), 1079 Oak Ridge Dr, Glencoe, IL 60022, and **Antonio Auffinger**. *Pemantle's min-plus binary tree*.

We consider a stochastic process that describes several particles interacting by either merging or annihilation. When two particles merge, they combine their masses; when annihilation occurs, only the particle of smallest mass survives. Particles start at the bottom of a binary tree of depth N and move towards the root. Assuming that merging or annihilation happens independently at random, we determine the limit law of the final mass of the system in the large N limit. We do so by providing precise upper and lower bounds for the difference equation of the cumulative distribution function. If we let p be the probability of merging, then we observe critical behavior at $p = 1/2$. (Received September 25, 2017)