Supplemental Material for Survival of the Scarcer

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We numerically integrate Eq. (2) of our manuscript [1] forward in time and show the results in a movie online at [2]. We impose an artificial population cutoff at size $2K$ for each species by not allowing any processes that take either of the species from population $2K$ to greater than $2K$. We verified that the resulting probability distribution was independent of this cutoff choice.

The video shows a heat map of the probability $P_{m,n}(t)$ as it evolves in time. The parameters of the reaction are $\epsilon = 0.9$, $K = 30$, $g = 0.35$, and $\alpha = 0$. Initially, the A and B populations equal the mean-field fixed point values given in Eq. (4). For these parameters, the single-species peak at $(0, Kg)$ grows faster than the peak at $(K, 0)$. This faster growth indicates the As are more likely to first become extinct. Eventually, the probability leaks to state of complete extinction at $(0, 0)$.

[1] A. Gabel, B. Meerson, and S. Redner, arix.org:1210.xxxx.

[2] `http://physics.bu.edu/~redner/projects/2-species-comp/index.html`.