

Conditional on  $\mathcal{F}_t$ , there are three ways  $N_k(t+1) - N_k(t)$  can be non-zero.

- (III) Another contribution to  $k = 1$  arises from the newly arriving vertex itself. The newly arriving vertex at time  $t + 1$  has degree exactly 1, since the half edge attached to it is not allowed to form a self-loop.