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**Daniel M. Kane** (dakane@ucsd.edu) and **Scott Duke Kominers\***  
(kominers@fas.harvard.edu). *Prisoners, Rooms, and Lightswitches.*

We introduce a new variant of the classic prisoners and light switches puzzle: A warden leads his  $n$  prisoners in and out of  $r$  rooms, one at a time, in some order, with each prisoner eventually visiting every room an arbitrarily large number of times. The rooms are indistinguishable, except that each one has  $s$  light switches; the prisoners win their freedom if at some point a prisoner can correctly declare that each prisoner has been in every room at least once. *What is the minimum number of switches per room,  $s$ , such that the prisoners can manage this?* We show that if the prisoners do not know the switches' starting configuration, then they have no chance of escape—but if the prisoners do know the starting configuration, then the minimum sufficient  $s$  is surprisingly small. The analysis gives rise to a number of puzzling open questions, as well. (Received September 12, 2020)