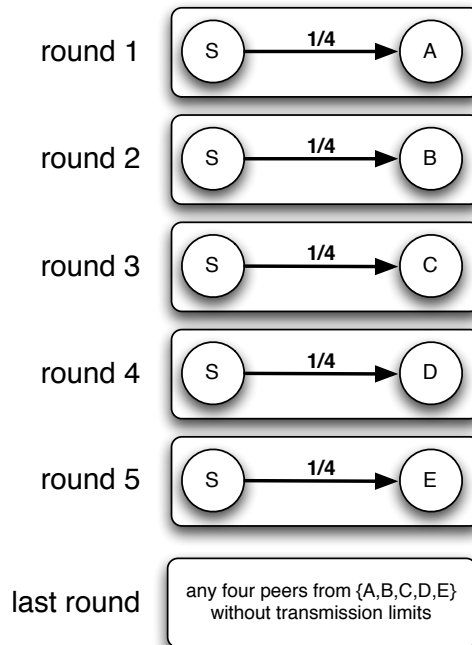


Exercise No. 9  
**Peer-To-Peer Networks**  
 Summer 2010

**Exercise 1** *Paircoding*



Consider the above scenario, where the five peers  $A, B, C, D, E$  can download one quarter of the total file size, and in the last round 6, an adversary chooses 4 of these peers, which then may exchange all their data. Let the file consist of eight blocks, i.e.  $\vec{x} = (x_1, x_2, \dots, x_8)$ .

Give an optimal coding solution for Paircoding, i.e. give the code blocks  $p_{i,j}$  that are transmitted to each peer. Show that your solution is correct! *Hint: Think of the connected components!*