

Course ISE 435: Distributed Algorithms in Network  
Communication  
Recitation 3 Exercise

Michael J. May

March 17, 2010

**Note:** This recitation was performed on the board in class and was shorter due to the Hafasaka Peila which took place on March 17, 2010.

## 1 Graph Proof

Prove that cliques greater than size 2 are not bipartite.

### 1.1 Proof 1

Show that a red-black coloration is not possible for any clique with three or more members is not possible.

### 1.2 Proof 2

Show that any clique with three or more members must have an odd-length cycle (between any three nodes in the clique).