

## 1. Weighted voting system terminology

- (a) Player: Voter
- (b) Weight: Number of votes a player gets
- (c) Quota: Minimum number  $q$  of votes needed to pass a motion
- (d) Dictator: Player with  $q$  or more votes
- (e) Player with veto power: Player who can single-handedly prevent a motion from passing

## 2. Power index terminology

- (a) Coalition: Set of players voting together
- (b) Weight of a coalition: Number of votes the coalition controls
- (c) Winning coalition: Coalition with enough votes to win
- (d) Losing coalition: Coalition without enough votes to win
- (e) Critical player: Player that will change a winning coalition to a losing coalition if he leaves
- (f) Sequential coalition: Players who have joined together *in a certain order* to vote together
- (g) Pivotal player: Player that changed a losing coalition to a winning coalition *when he joined*

## 3. Banzhaf power index

- (a) List all *winning* coalitions.
- (b) Underline the critical players in each winning coalition.
- (c) The Banzhaf power index for each player is the number of times that player is critical over the number of times any player is critical. (A **dummy** has no power.)

## 4. Shapley-Shubik power index

- (a) List all sequential coalitions.
- (b) Underline the pivotal player in each sequential coalition.
- (c) The Shapley-Shubik power index for each player is the number of times that player is pivotal over the the number of times any player is pivotal. (A **dummy** has no power.)