

Key

Review Test: Weighted Voting Systems!

1. Consider the weighted voting system:

[11: 12, 5, 2]

- (a) Are any players "dictators"? If so, which player(s)? P_1
- (b) Are any players "dummies"? If so, which player(s)? P_2, P_3
- (c) Do any players have "veto power"? If so, which player(s)? NONE

2. Consider the weighted voting system:

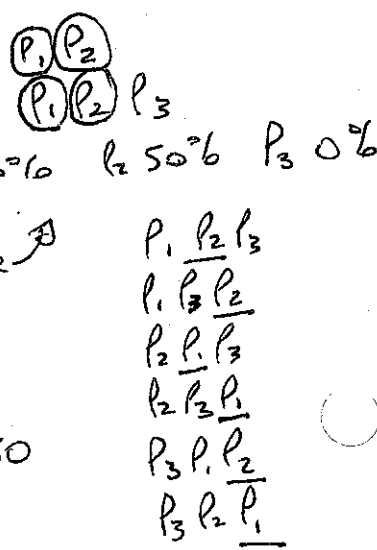
[17: 12, 7, 5, 3, 2]

- (a) State whether the coalition $\{P_1, P_2, P_3\}$ is a "winning coalition" or a "losing coalition" and then identify any "critical players". WINNING $(P_1) P_2 P_3$
- (b) State whether the coalition $\{P_2, P_3, P_4\}$ is a "winning coalition" or a "losing coalition" and then identify any "critical players". LOSING
- (c) State whether the coalition $\{P_3, P_4, P_5\}$ is a "winning coalition" or a "losing coalition" and then identify any "critical players". LOSING
- (d) State whether the coalition $\{P_1, P_2, P_3, P_4\}$ is a "winning coalition" or a "losing coalition" and then identify any "critical players". WINNING $(P_1) P_2 P_3 P_4$
- (e) State the "pivotal player" in the sequential coalition $\langle P_1, P_2, P_3, P_4, P_5 \rangle$.
- (f) State the "pivotal player" in the sequential coalition $\langle P_5, P_4, P_3, P_2, P_1 \rangle$.
- (g) State the "pivotal player" in the sequential coalition $\langle P_5, P_3, P_1, P_4, P_2 \rangle$.
- (h) State the "pivotal player" in the sequential coalition $\langle P_3, P_5, P_4, P_2, P_1 \rangle$.

3. Consider the weighted voting system:

[17: 13, 7, 3]

- (a) Compute the Banzhaf power distribution for the system. $P_1 50\% \quad P_2 50\% \quad P_3 0\%$
- (b) Compute the Shapley-Shubik power distribution for the system. Same \uparrow



4. Consider a weighted voting system with 9 players.

- (a) How many different coalitions are possible? $2^9 - 1 = 511$
- (b) How many different sequential coalitions are possible? $9! = 362,880$

