PuzzlOR: Golf Queuing

Sy was one of the nation's most accomplished and well-regarded analysts of defense issues. He was renowned for his ability to integrate the multiple dimensions of problems into a form that was readable, understandable, and actionable. In doing so, he exemplified the highest standards of operations research, which include a passion for clear thinking, creative option development, objective assessment, sound analysis, integrity, and depiction of conclusions in a form that policymakers can use.

In recent years, Sy was engaged with the MORS Social Science Community of Practice. He shared lessons from the use of social science during the Vietnam War that are relevant to current studies of irregular warfare.

PuzzlOR

Golf Queuing

Golfing can be an enjoyable and rewarding way to spend your time. Despite the attraction and fun of the game there can be many challenges. One of the more common challenges for experienced players is waiting for slower players to finish a hole before the experienced player can start.

As the owner of a 9 hole golf course, you currently have a First-In-First-Out policy. In other words, faster players are not allowed to jump ahead of slower players. You are considering changing this First-In-First-Out policy to a Priority queuing policy to allow faster players to jump ahead of slower players in between holes.

Players arrive at your golf course at an interarrival time of 10 minutes, exponentially distributed. The players on your golf course have 3 different skill levels. Fast players complete holes at an average of 5 minutes. Medium players complete holes at an average of 7 minutes. Slow players complete holes at an average of 10 minutes. All distributions are normal and have a standard deviation of 1 minute. Player skill level is randomly distributed (1/3 Fast, 1/3 Medium, 1/3 Slow).

Assume players start golfing as soon as they arrive on the course and that the system has achieved steady state. Each player is golfing individually (not in a group) and players must go in sequential order from hole 1 to hole 9. Players can only jump the queue if a slower player has not yet started the hole.

Question: How much time on average (in minutes) will a player save if you convert to the Priority queuing from First-In-First-Out queuing?

Send your answer to puzzlor@gmail.com by April 15th, 2014. The winner, chosen randomly from correct answers, will receive a $25 Amazon Gift Card.

PuzzLOR is the creation of John Toczek. John is the Sr. Director of Decision Support and Analytics for ARAMARK Corporation in the Global Operational Excellence group. He earned his BSc. in chemical engineering at Drexel University (1996) and his MSc. in operations research from Virginia Commonwealth University (2005).