

Symmetric Rendezvous on the Unit Cube

Jeff Braun*, John C. Wierman, Johns Hopkins University

A famous open problem in the field of Search Games and Rendezvous is that of the Astronaut Problem. In an effort to develop new strategies and tools to make progress on the Astronaut Problem, we postulated a new, similar scenario that is interesting in its own right, which involves two players attempting to rendezvous on a cube in the smallest expected meeting time. This value is referred to as the symmetric rendezvous value when both players must adopt the same strategy. We have defined a strategy space which dominates among a large subset of all possible strategies. Within this strategy space, we closely examine two special cases, which provides us with excellent upper bounds for the symmetric rendezvous values. We also derived a common lower bound for the symmetric rendezvous value from some ad-hoc reasoning. In the process we also make some remarks on Search Games and Rendezvous problems in general that may be useful for further exploration of other problems.

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