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Multinomial selection in the presence of infinite alternatives. (English) Zbl 1383.62366
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Summary: We propose a new procedure for the multinomial selection problem to solve a real problem of any modern Air Force: the elaboration of better air-to-air tactics for Beyond Visual Range air-to-air combat that maximize its aircraft survival probability $H(\theta, \omega)$, as well as enemy aircraft downing probability $G(\theta, \omega)$. In this study, using a low-resolution simulator with generic parameters for the aircraft and missiles, we could increase an average success rate of 16.69% and 16.23% for $H(\theta, \omega)$ and $G(\theta, \omega)$, respectively, to an average success rate of 76.85% and 79.30%. We can assure with low probability of being wrong that the selected tactic has greater probability of yielding greater success rates in both $H(\theta, \omega)$ and $G(\theta, \omega)$ than any simulated tactic.

MSC:

62P99 Applications of statistics

Keywords:

military; multinomial selection problem; simulation optimization

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