

"Mathematics and strategic thinking: The Odds-algorithm"

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Abstract : Our life is sequential, and so is the stream of events and options on which we have to take decisions. There is, as we will argue, quite a number of situations in real life where it turns out that the intrinsic decision problem is of the following form: Maximize the probability of predicting correctly the /last time/ at which a specific event occurs in a random stream of events. Under certain conditions the odds-algorithm gives quickly the optimal solution. We will explain the idea behind the basic Theorem and the simple algorithm ,and then give a few examples (Business Economics, Games) to show the tractability and elegance for simple problems. But then we also see that slight changes in the hypotheses make the question of optimality really hard. This is exemplified by a serious problem in clinical trials. As far as the author understands, the true mathematical problem is a measure-theoretic challenge.

Keywords: Decision strategies, secretary problems, venture capital, generating functions, optimality, measure theory, (Bruss-algorithm).