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Behaviour of Sequential Predictors of Binary Sequences

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## 1 Introduction

## 2 Deterministic Predictors

Consider the set of  $2^n$  sequences  $\Theta = (\Theta_1, \Theta_2, \dots, \Theta_n) \in 0, 1^n$ .

At stage  $k$ , after the observation  $\Theta_1, \Theta_2, \dots, \Theta_{k-1}$ , the prediction 1 or 0 will be made with probability  $p_k$  and  $1 - p_k$  respectively.

### Definition 2.1 (Sequential Predictor)

*A sequential predictor is a sequence of functions  $p_1, p_2, \dots, p_n$  taking values in  $[0, 1]$ .*

Thus, a sequential predictor on  $0, 1^n$  will be completely specified by the set of functions  $p_1, p_2(\Theta_1), p_3(\Theta_1, \Theta_2), \dots$  taking values in  $[0, 1]$ .

## 3 Sequential Betting Systems

## 4 Random Predictors

## 5 Conclusions