

# Multivariate Records

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Consider a vector-valued process indexed by a discrete time parameter. For such a process, a multivariate record is said to occur at a given time  $t$  if there is no previous time in which the value of the process dominates the value at time  $t$  in every coordinate. This notion generalizes the usual concept of a record in the univariate case. The probability of a multivariate record at time  $t$  given the history up to time  $t-1$  can be calculated using an improved inclusion-exclusion formula and provides a nice example of the use of abstract tubes, introduced by Naiman and Wynn in 1997.