## Bid and Ask Price.

The situation of $x_i \to y_j$ seen with clusters in the pricing. Clearly $j \in \{1,2,3..k\}$, where $k$ is called size. To find that $k$, we have the digretion: (Spouses and Secretaries) We have $n$ *candidates* (all tested at once), and want to maximise the *probability of choosing the best*. The first approach would be to take $r$ and get the best in this set. (ignore the rest). If we adopt this strategy the first secretary is eliminated, and may have been the best in $n$. **What would be the best** $r$ ?

It should **not be small** (we miss plenty).

It should **not be big or close to** $n$. Then the last ones could be weak (coming form a guide - a book) and we do not want this as the last secretary at the $n$-th value, would be wrongly selected in being incompetent. This happens as $x_i$ , for small $i$ is not skewed to the left.

The best choice is $r = \frac{n}{e} \to \Pr(\sum_{i=1}^{n} X_i = r) = \frac{1}{e}$ with $\frac{1}{2.71828} = 0.36788$. The secretary may be a spouse.

(In Tourism).You want to select few institutions (restaurants most of the time).

We look for same institutions that are listed first, and we think are more representative, that all of them seen. This is $O(n) \in x$ axis=$x_1 x_2 .. x_n$. Most of times $r \leq \frac{n}{e}$, setting all $y_1 y_2 \ldots y_r \in y$ axis. We call the tourist impatient, hasting wrong probabilities.

**Bid and Ask Price**.

The situation of $x_i \to y_j$ seen with clusters in the pricing. The Bid Price $E(x_i)$ <The Ask Price $E(y_j)$, in $\{x_i\} \otimes \{y_j\}$.

We say the Asking Price is to sell the size of selling some shares, namely $1 < 2 < 3 \ldots < k$.

The table is:

$$\left\|\begin{array}{cccc} & y_1 & y_2 & y_k \\ x_1 & . & . & . \\ x_2 & . & . & . \\ x_n & . & . & . \end{array}\right\|$$

**What is a 'Bid Price'**

A bid price is the price a buyer is willing to pay for a security. This is one part of the bid, with the other being the bid size, which details the amount of shares an investor/trader is willing to purchase at the bid price. The opposite of the bid is the ask price, which is the price at which sellers are willing to sell shares; the bid price and ask price are always quoted together, and the bid price is always the lower of the two.

**Breaking down the Bid Price**.

The use of bid and ask is a fundamental part of the market system, as it details the exact amount that you could buy or sell at any point in time. The current price is not the price for which you can purchase the security but the price at which shares last traded.

**Understanding the Bid Price**

The execution of a trade for a security is a transaction between two parties: a buyer and a seller. Broker/dealers (also referred to as market makers) publicly display bid/ask and size quotes for all securities they deal in, and they change the quotes at their discretion. The quotes are mostly generated from the brokerage's order book. These are typically limit orders placed by investors/traders who are customers of the brokerage.

There are two ways for an investor/trader to buy a security. The first is to place a market order with a broker/dealer to buy at the best market price available. This may also be the result of a buy stop order being triggered, which becomes a buy market order. The broker/dealer, in this case the seller, immediately executes the buy market order at the current ask price quoted. In this case, the bid price is irrelevant, because the investor/trader is willing to pay whatever the prevailing market price sellers are asking. Consequently, buying at the market means buying at the current ask price.

The second method is to place a limit order. A limit order specifies a price and size at which the investor/trader is willing to buy. The price at which a buy limit order is placed is always below the current market price. A broker/dealer, therefore, does not immediately execute this buy order. The order is placed on the bid side of the broker's order book. When the market trades lower to a price point in which the prevailing bid price is the same as the limit price of the order, then the investor/trader's order is at the bid, signifying a willingness to buy. The next market order to sell at the bid is then matched, and the transaction is completed.

**Buying at the Bid**

Market orders require investors/traders to buy at the current ask price (a higher price) and/or sell at the current bid price (a lower price). By contrast, limit orders allow investors/traders to be place at the bid to buy and at the ask to sell, thus, buying lower and selling higher.