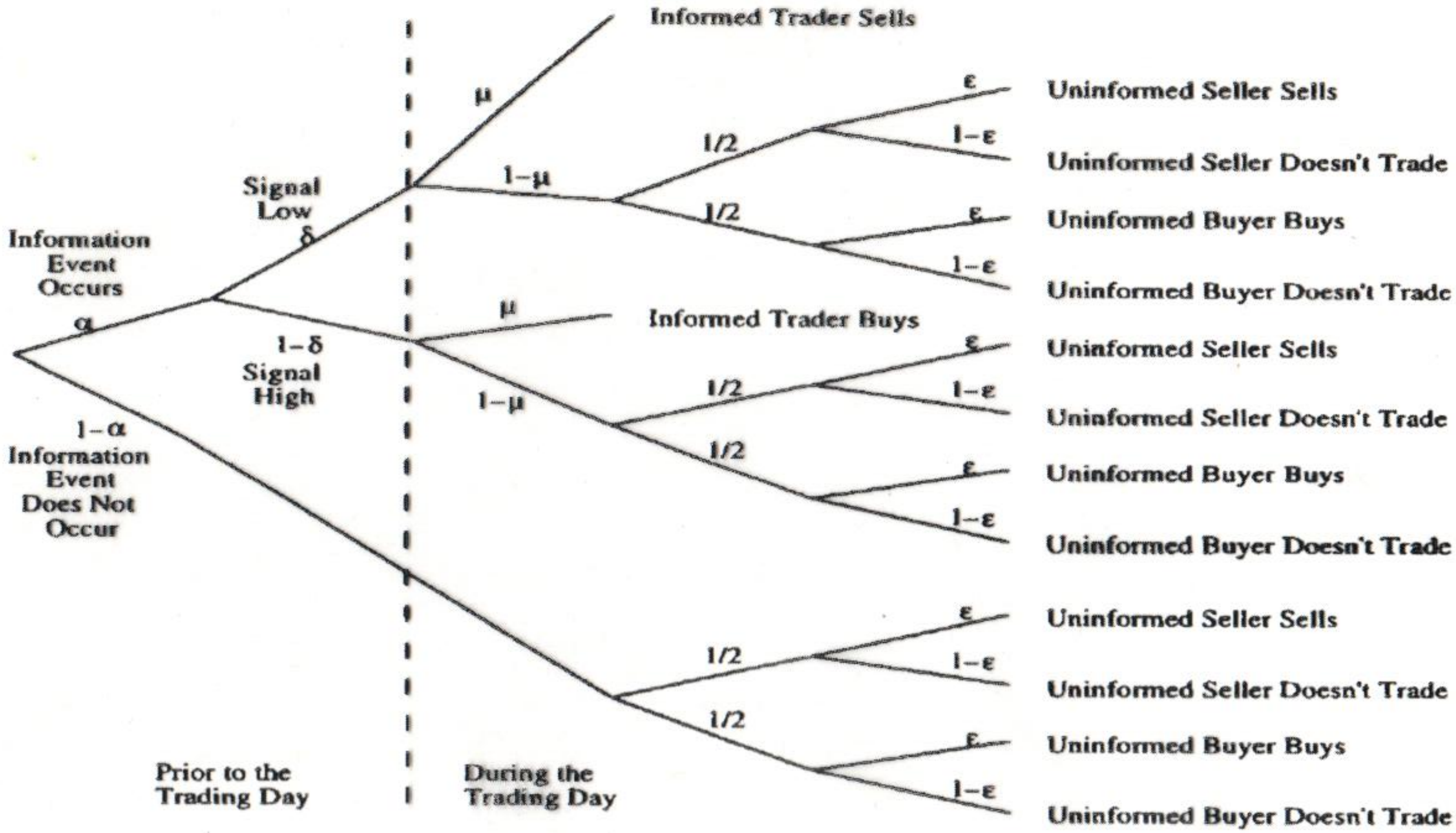

Figure 1
Tree diagram of the trading process.
α is the probability of an information event, δ is the probability of a low signal, μ is the probability that the trade comes from an informed trader, 1/2 is the probability that an uninformed trader is a seller, and ε is the probability that the uninformed trader will actually trade. Nodes to the left of the dotted line occur only at the beginning of the trading day; nodes to the right are possible at each trading interval.

The probability of a buy, sell, or no-trade at any time during this day can be read off the good event branch of the tree in Figure 1. The probability of B buys, S sells, and N no-trades on a good event day is thus proportional to[7]

$$\Pr\{B, S, N|\psi = H\} = [\mu + (1-\mu)1/2\varepsilon]^{B}[(1-\mu)1/2\varepsilon]^{S}[(1-\mu)(1-\varepsilon)]^{N}. \tag{10}$$

Similarly, on a bad event day the probability of (B,S,N) is proportional to

$$\Pr\{B, S, N|\psi = L\} = [(1-\mu)1/2\varepsilon]^{B}[\mu + (1-\mu)1/2\varepsilon]^{S}[(1-\mu)(1-\varepsilon)]^{N}. \tag{11}$$

Finally, on a day in which no event has occurred the probability of (B, S, N) is proportional to

$$\Pr\{B, S, N|\Psi = 0\} = [1/2\varepsilon]^{B+S}(1-\varepsilon)^{N}. \tag{12}$$

$$
\begin{aligned}
\Pr\{B, S, N|\alpha, \delta, \mu, \varepsilon\} = {} & \alpha(1-\delta)[[\mu + (1-\mu)1/2(\varepsilon)]^{B} \\
& \cdot [(1-\mu)1/2(\varepsilon)]^{S} \cdot [(1-\mu)(1-\varepsilon)]^{N}] \\
& +\alpha\delta[[(1-\mu)1/2(\varepsilon)]^{B} \cdot [\mu + (1-\mu)1/2(\varepsilon)]^{S} \\
& \cdot [(1-\mu)(1-\varepsilon)]^{N}] \\
& +(1-\alpha)[[1/2(\varepsilon)]^{B+S}(1-\varepsilon)^{N}]. \qquad (13)
\end{aligned}
$$