



Figure 2.2 This ensemble *a* through *j* represents a system of 10 spins with energy $-8mB$ and spin excess $2s = 8$. The multiplicity $g(N,s)$ is $g(10,4) = 10$, so that the representative ensemble must contain 10 systems. The order in which the various systems in the ensemble are listed has no significance.

accessible to the actual system is represented in the ensemble by one system in a stationary quantum state, as in Figure 2.2. We assume that the ensemble represents the real system—this is implied in the fundamental assumption.

Example: Construction of an ensemble. We construct in Figure 2.3 an ensemble to represent a closed system of five spins, each system with spin excess $2s = 1$. The energy of each in a magnetic field is $-mB$. (Do not confuse the use of s in spin excess with our frequent use of s as a state index or label.) Each system represents one of the multiples of