



### 3 Uniform Quorum Systems

**Definitions:**

**s-Uniform:** A quorum system  $\mathcal{S}$  is *s-uniform* if every quorum in  $\mathcal{S}$  has exactly  $s$  elements.

**Balanced access strategy:** An access strategy  $Z$  for a quorum system  $\mathcal{S}$  is *balanced* if it satisfies  $L_Z(v_i) = L$  for all  $v_i \in V$ .

**Claim:** An  $s$ -uniform quorum system  $\mathcal{S}$  reaches an optimal load with a balanced access strategy<sup>1</sup>.

- a) Describe in your own words, why this claim is true.
- b) Prove the optimality of a balanced access strategy on an  $s$ -uniform quorum system.

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<sup>1</sup>Use the assumption that a balanced access strategy exists.