Definition of Evolutionarily Stability (Game-Theory version)

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**Definition** In a 2-player, symmetric game, the pure strategy \( \hat{s} \) is evolutionarily stable in pure strategies if

a) \((\hat{s}, \hat{s})\) is a symmetric Nash equilibrium; that is \( u(\hat{s}, \hat{s}) \geq u(s', \hat{s}) \) for all \( s' \); AND

b) If \((\hat{s}, \hat{s})\) is **not** a strict Nash equilibrium, then for every \( s' \neq \hat{s} \) such that \( u(\hat{s}, \hat{s}) = u(s', \hat{s}) \), we have \( u(\hat{s}, s') > u(s', s') \).