

The one deviation property proof

(\Leftarrow) If s^* is not a subgame equilibrium then there exists a player i and subgame $\Gamma(h')$ where player i can profitably deviate.

- $l(\Gamma(h'))$ is the **length** of the longest history in $\Gamma(h')$.
- The number of times player i 's profitable deviation differs from s^* is limited by the $l(\Gamma(h'))$ (actually, by the number of times player i plays in $\Gamma(h')$).
- From all profitable deviations of $\Gamma(h')$ choose a strategy s'_i with the least number of deviations.
- h^* is the longest history h (latest profitable deviation) where $s'_i(h) \neq (s_i^*|_{h'})(h)$.
- In the subgame $\Gamma(h', h^*)$, $s'_i|_{h', h^*}$ only differs from $s_i^*|_{h', h^*}$ after history (h', h^*) and is a profitable deviation.