

# A POLICY ITERATION ALGORITHM FOR PRICING AN AMERICAN PUT

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**Scope:** Develop numerical method for pricing American Put options.

**The method at one glance:**

- ▶ Start from any boundary  $b$
- ▶ Solve the Black Scholes equation with that boundary condition
- ▶ at time  $t$  update the boundary via the rule
$$b_{new}(t) = \underset{S}{\operatorname{argmax}}[K - S - V(S, t)]$$
- ▶ until convergence

Under reasonable assumptions the algorithm converges quadratically to the optimal boundary