

$$s_i(0) = p_{i-1} \quad i = 1 \dots n$$

$$s_i(1) = p_i \quad i = 1 \dots n$$

$$s'_i(1) = s'_{i+1}(0) \quad i = 1 \dots n - 1$$

$$s''_i(1) = s''_{i+1}(0) \quad i = 1 \dots n - 1$$

$$s''_1(0) = s''_n(1) = 0$$