

Decition problem and definitions	General expression for Δ $\langle p \rangle = \frac{1}{N} \sum_{i=0}^{N-1} p_i$ $\langle p^2 \rangle = \frac{1}{N} \sum_{i=0}^{N-1} p_i^2$	$p_i = p$ (constant) $\implies \langle p \rangle = p$ $\implies \langle p^2 \rangle = p^2$	$p_i \in \{0, 1\}$ $\implies \langle p^2 \rangle = \langle p \rangle$	$p_i \in \{\epsilon, 1 - \epsilon\}$ $\implies \epsilon \leq \langle p \rangle \leq 1 - \epsilon$ $\implies \langle p^2 \rangle = \langle p \rangle - \epsilon(1 - \epsilon)$
Prisoners dilemma against copy $\Delta := Q(\text{Cooperate}) - Q(\text{Defect})$ $p_i := P(\text{Cooperate} h_{>i})$	$\Delta = M \frac{\langle p^2 \rangle - \langle p \rangle^2}{\langle p \rangle (1 - \langle p \rangle)} - m$	$\Delta = -m$	$\Delta = M - m$	$\Delta = M \left(1 - \frac{\epsilon(1-\epsilon)}{\langle p \rangle (1 - \langle p \rangle)} \right) - m$
Evidential blackmail $\Delta := Q(\text{Pay} \text{Blackmail})$ $\quad - Q(\text{Dont} \text{Blackmail})$ $q := P(\text{Market crash})$ $p_i := P(\text{Pay} \text{Blackmail}, h_{>i})$	$\Delta =$	$\Delta =$	$\Delta =$	$\Delta =$
Absent minded driver $\Delta := Q(\text{Continue}) - Q(\text{Exit})$ $p_i := P(\text{Continue} h_{>i})$	$\Delta = \frac{4\langle p \rangle - 4\langle p \rangle^2 - 2\langle p^2 \rangle - 4\langle p \rangle \langle p^2 \rangle + 6\langle p^2 \rangle^2}{(1 - \langle p^2 \rangle)(\langle p \rangle + \langle p^2 \rangle)}$	$\Delta = \frac{4 - 6p}{1 + p}$	$\Delta = 1$	$\Delta = \frac{2\langle p \rangle (1 - \langle p \rangle) + [2 - 8\langle p \rangle + 6\epsilon(1 - \epsilon)]\epsilon(1 - \epsilon)}{2\langle p \rangle (1 - \langle p \rangle) + [3\langle p \rangle - 1 - \epsilon(1 - \epsilon)]\epsilon(1 - \epsilon)}$
Death in Damaskus $\Delta := Q(\text{Damaskus}) - Q(\text{Alleppo})$ $M := \text{Value of beeing alive}$ $p_i := P(\text{Damaskus} h_{>i})$	$\Delta = M \frac{(\langle p \rangle - \langle p^2 \rangle)(1 - 2\langle p \rangle)}{\langle p \rangle (1 - \langle p \rangle)}$	$\Delta = M(1 - 2p)$	$\Delta = 0$	$\Delta = M \frac{\epsilon(1 - \epsilon)(1 - 2\langle p \rangle)}{\langle p \rangle (1 - \langle p \rangle)}$