

TH3, Ex. 3.b solution

Solution: Consider the separating PBE where sellers of bad cars don't give warranty, but sellers of good cars do. Go through the signaling requirements:

SR3: The beliefs of the consumer C that are consistent with this separating strategy are that it's a good car if the sellers gives warranty and a bad car if not, i.e.

$$\mu(\text{Bad}|W) = p = 0 \text{ and } \mu(\text{Bad}|NW) = q = 1 \quad (1 \text{ point})$$

SR2R: Given these beliefs, the consumer buys a car with a warranty but does not buy a car without a warranty as:

$$\begin{aligned} \mathbb{E}[u_C(W, B)|p = 0] &= 2 > 0 = \mathbb{E}[u_C(W, N)|p = 0] \\ \mathbb{E}[u_C(NW, N)|q = 1] &= 0 > -1 = \mathbb{E}[u_C(NW, B)|q = 1] \end{aligned} \quad (1 \text{ point})$$

SR2S: Sellers of good cars nor sellers of bad cars want to deviate as:

$$\begin{aligned} u_S(NW, N|\text{Bad}) &= 0 > -1 = u_S(W, B|\text{Bad}) \\ u_S(W, N|\text{Good}) &= 1 > 0 = u_S(NW, N|\text{Good}) \end{aligned} \quad (1 \text{ point})$$

As there is no incentive to deviate, $PBE = \{(NW, W), (B, N), p = 0, q = 1\}$ (1 point)