Exercise on Signaling

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1. **Signaling**. Consider Spence's signalling model. A worker's type is $t \in \{0, 1\}$. The probability that any worker is of type $t = 1$ is equal to $\frac{2}{3}$, while the probability that $t = 0$ is equal to $\frac{1}{3}$. The productivity of a worker in a job is $(t + 1)^2$. Each worker chooses a level of education $e \geq 0$. The total cost of obtaining education level e is $C(e|t) = e^2(2 - t)$. The worker's wage is equal to his expected productivity.

   (a) Characterize all pooling perfect Bayesian equilibrium in which both types of workers choose a strictly positive education level.

   (b) Find all separating perfect Bayesian equilibria.

   (c) Which separating equilibrium survives the intuitive criterion? Is it the one with the lowest education level?