Player #1, the government, wishes to influence the choice of player #2. Player #2 will choose an action \( a \in A = \{0, 1\} \) and will receive a transfer \( t \in T = \{0, 1\} \) from the government, which observes \( a_2 \). Player 2 wishes to maximize the value of his transfer net of costs. The cost is 0 if \( a = 0 \) and cost is \( c \) if \( a = 1 \). Player #1's objective is to minimize the sum \( g(a - 1)^2 + t \); so there utility functions are

\[
U_1 = -g(a - 1)^2 - t \quad \text{and} \quad U_2 = t - c
\]

[Assume \( g > 1 \) and \( 0 < c < 1 \).] Before Player #2 chooses his action, the government announces a transfer rule \( t(a) \) mapping \( A \) to \( T \). Since \( A \) and \( T \) both have 2 elements, there are four possible transfer rules.

A. Draw the extensive form for the case where the government is required to carry out the transfer indicated by the transfer rule it announced.

B. What strategy profile(s) are obtained by backwards induction? Are there Nash Equilibria that are not subgame perfect?

C. Draw the extensive form (game tree) for the case where the government’s announcement is not binding and has no effect on payoffs. (Thus at each of what were four terminal nodes in Part A there are now two possible choices by player 1: to transfer 0 or transfer 1.)

D. What strategy profile(s) are obtained by backwards induction?