Problem Set 1
GR6493 [Dean]
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Question 1 For those of us that may have forgotten what NIAS and NIAC are, define:

$$\left[P_A(a \mid \omega) \equiv \sum_{\gamma \in \Gamma(A)} \pi_A(\gamma \mid \omega) C_A(a \mid \gamma)\right] \quad \left[g(\gamma, A) \equiv \max_{a \in A} \sum_{\omega \in \Omega} \gamma(\omega) u(a, \omega)\right] \quad \left[G(\pi, A) \equiv \sum_{\gamma \in \Gamma(\pi)} P(\gamma) g(\gamma, A)\right]$$

NIAS For every chosen action a,

$$\sum \mu(\omega) P_A(a \mid \omega)[u(a(\omega)) - u(b(\omega))] \geq 0, \ \forall b \in A$$

NIAC For an observed sequence of decision problems $A_1, \ldots, A_K$, and associated revealed information stuctures $\overline{\pi}^1, \ldots, \overline{\pi}^K$,

$$G(A^1, \overline{\pi}^1) - G(A^1, \overline{\pi}^2) + \cdots + G(A^K, \overline{\pi}^K) - G(A^K, \overline{\pi}^1) \geq 0.$$

This is not going to be fun....

Question 2

1. Think we just need to replicate slides
Testing NIAS: Experiment 1 Testing NIAC: Experiment 1

2.

3.

Question 3

1.

2.

3.