A Model of Rational Speculative Trade

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- Interpretation of our paper
  - Possibility of pure speculation (no gains from trade)
  - A model of noise traders

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- Trading based on signal informs about one's type
  - If type is sufficiently bad then exit
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- **Main Question:** Can the experimentation motive overcome adverse selection in the no-trade theorem?

Setup

- Example (see handout)

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- More General
  - Match of θ_1 and θ_2 generates outcome $y = (u_1, u_2, \sigma) \in \mathbf{Y}$
    - zero sum payoffs: $u_1 + u_2 = 0$
    - payoff-irrelevant signal: σ
    - set of outcomes $\mathbf{Y}$ countable
  - Outcomes stochastic: $G(y \mid \theta_1, \theta_2)$
  - History after t trades: $h_t = (y_1, ..., y_t)$
  - Agent's strategy: $A(h_t) \in \{\text{stay}, \text{exit}\}$

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- Questions
  - Interpretation: model of rational trade vs model of noise traders?
  - Is pairwise random matching a good example? For instance, how about double auction?
  - Assumption that trade is necessary for information is key, how to defend it?
  - Applications: overconfidence, bubbles, others?

Purification

- Two firms with cost c simultaneously set prices
- Two groups of consumers both with unit demand and valuation v
  - Measure 1 loyal (visit one store)
  - Measure λ shoppers (visit both stores, buy where cheaper)
- Only equilibrium is in mixed strategies:

$$f(p) = \frac{1-\lambda}{\lambda}\frac{v}{2}\frac{1}{p^2}$$

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- Alternative Bayesian game: cost is uniformly distributed on $[c-\alpha, c+\alpha]$ and privately observed
  - For any $\alpha > 0$ obtain pure strategy equilibrium $p^*(c)$, get price distribution $h(p)$
  - Result: $\lim_{\alpha \to 0} h(p) = f(p)$