

## Cooperation

---

---

---

---

---

---

---

---

## Many Bases For Cooperation

- AMD/American Austin/San Jose flights
- Complements
  - Wintel (MS/Intel)
  - Intel/Rambus
- No negative advertisements

---

---

---

---

---

---

---

---

## Major Elements of Cooperation

- Shared interest
  - Share proceeds of cooperation equitably
  - Can be leveraged into other areas
- Punishment for misbehavior
  - Withdrawal of cooperation
  - Adequate deterrent
  - Credibly used
  - Need to punish failure to punish
- Recovery
  - Mistakes happen

---

---

---

---

---

---

---

---

## Credible Punishments

- Too severe and punishment won't be used
- Trigger to start a punishment
- Method for recovering from punishment and returning to cooperation,
- A fixed length punishment is often a good choice – if it is credible.

---

---

---

---

---

---

---

---

## Grim Trigger Strategy

- Cooperate if  $\pi^m + \pi^c \frac{\delta}{1-\delta} \leq \frac{\pi^m}{n} \frac{1}{1-\delta}$
- or  $\pi^c \leq \frac{\pi^m}{n} \frac{1-n}{\delta} (1-\delta)$
- True if  $\delta$  near 1, false if  $n(1-\delta) > 1$ .

---

---

---

---

---

---

---

---

## Problems of Price Cooperation

- Confessions
- Too many firms
- Product differentiation
- Reaction time
- Random demand
- Motivating managers

---

---

---

---

---

---

---

---

## Problems, Continued

- Efficient allocation and bargaining
- Unenforceable contracts
- Communication is risky
- Small or failing firms
- Entry, substitutes
- Quality competition

---

---

---

---

---

---

---

---

## Phases of the Moon


---

---

---

---

---

---

---

---

## Solutions

- Industry association
- Published price lists
- Exclusive territories
- Pre-announced price increases
- Incrementalism

---

---

---

---

---

---

---

---

## Solutions, Continued

- Multi-market contact
- Multi-level contact
- Excess capacity
- Grow (or crush) small or bankrupt firms

---

---

---

---

---

---

---

---

## Cooperation Summary

- Cooperate on a variety of matters, not just price,
- Identify the basis for cooperation,
- Share the proceeds of cooperation sufficiently that the relevant parties participate,
- Identify punishments for misbehavior that are an adequate deterrent,

---

---

---

---

---

---

---

---

## Cooperation Summary, Cont'd

- Identify punishments that will credibly be used,
- Set a trigger to start a punishment,
- Fix a method for recovering from punishment and returning to cooperation,
- A fixed length punishment is often a good choice – if it is credible.

---

---

---

---

---

---

---

---