14.2-4 Repeated Games

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Ray \ Carey	C	P
Share	10, 10	-5, 15	-10, 0
Compete	15, -5	0, 0	-5, -5
Predatory	0, -10	-5, -5	-10, -10

Unraveling if last period is known

Infinite vs Indefinite
↳ if is prob game ends after each play

Grim trigger

$$\sum_{t=1}^{\infty} a^t = \frac{a}{1-a}$$

if $a = \frac{1}{1+r} \rightarrow \frac{1}{r}$

↳ perpetuity formula

$$10 \sum_{0}^{\infty} \frac{.85}{1.1} = 10 \cdot \left(\frac{1}{1 - \frac{.85}{1.1}}\right)$$

π_{one} (0) $\quad \in (\pi_{coop} | app\ Grimm)$

π_{cheat} (15) $\quad \pi_{coop} \sum_{0}^{\infty} \left(\frac{1-\delta}{1+r}\right)$

π_{coop} (10) $\quad \pi_{coop} \cdot 1/1 - \frac{1-\delta}{1+r} \rightarrow \pi_{coop} \cdot \frac{1+r}{r+\delta}$

$(\pi_{cheat} - \pi_{one}) + \pi_{one} \cdot \frac{1+r}{r+\delta}$

$(\pi_{coop} - \pi_{one})\left(\frac{1+r}{r+\delta}\right) > \pi_{cheat} - \pi_{one}$

$\pi_{coop} - \pi_{one}$	↑ → more coop
$\pi_{cheat} - \pi_{one}$	↑ → less coop
↑ r	→ less coop
↑ δ	→ less coop

monitoring costs