LAST CLASS Dec 5
Exan II in that class
Project Due 15

TODAY — more divisible division

Web page suggestion?
Cooper alg published (10 prefs needed)

Next lecture
Adjust winner
Next Next Fisher market clearing

Lucas method of markers
Force players to declare n pies each worth 1/n

Analogy — Dubins, Spanier moving knife

Discuss partition items into pies worth 1/n
Example

a b c d e f g h i

→ linear order

P1: a b c d e f g h i

values only vowels

P2: a b c d e f g h i

2 constants/group

values only constants

P3: a b c d e f g h i

wants 1 vowel and at least 1 constant

view simultaneously

a b c d e f g n i

1 3 2 1 2 3

n players, each can make n-1 marks,

→ $n^2 - n$ markers
at most $n^2 - n + 1$ segments. In this example $h = 3$, 7 possible segments 6 actual.

run knife, $P_1$ get fa3
with a gone value $V_3('a', 'b_3')$ is unknown
look for 2nd marker at remaining players so the second marker is after f
pick either $P_2$ look left $P_3$
for same #

$P_2$ gets $\{d, e, f\}$

$P_3$ resume find $P_3$'s 2nd remaining markers at end $P_3$ gets $f, g, h, i, j$

b, c unallocated

* "knife" could have run right-to-left, same results.

show this is not envy free
P₃ went before P₂, P₂ may only P₃ because of C-element.

Alternation
Strict me, you, me, you, your.
Balance Alternation
Three to compensate 2nd chooser.

Ann & Ben DeVore
At issue: Pensim, House, Investments, Custody, Assets.
Custody can be valued.

Feelings Cardinal

Ann
P
H
H
V
C

Ben
H
V
C
P
Start

A

P

B

H

I

C

Each gets P

1st and 2nd choice

If A "knows" P is B's least favorite for later "knows" it will be available

Assume 1) P never choose least preferred item, (may be forced to take it)

[rational behavior at the other player's part]

For example, B never pick P over any other item.

2) Never waste choice on an item I know will remain available later
B knows A will leave C on table.
A can wait for p knowing B doesn't want it.

A: f H, p3 bottom up strategy
B: f I, c) kohler chandris known

Given "optimal" scheme B prefers by lying. How you feel

Feel  →  Bottom up  →  Pick

Schnee
Suppose B mimics A's prefs

A          B
P           P
H           H
I           T
C

Ben now gets H & C as actually 1st & 2nd choice with "optimal" alg B gets 2nd & 3rd

A Lies       B Lies
H           P
I           H
X           X
C

A runs B by fore B take B's actual 3rd & 4th choice compensate somehow for 1st choice Querry step
each side exposes the preference

both agree, award them both

all

no contest

award

contest item

contest

items value diminish

Be fair about the contest items

Balanced alternation

A basis "step"

1) A B

Or 2) B A

first chooser taking turns taking turns

1 1 2 1 2 1 2

A B B A A B BA

pick twice
12 AB BA
21 BA AB
ABBA BAAB