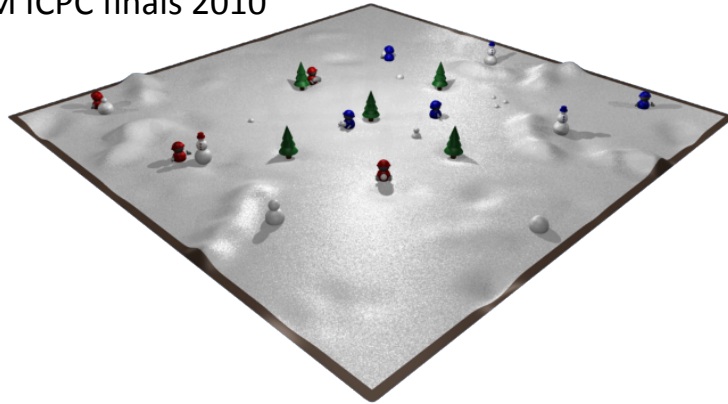# "Icy Projectile" Competition

- Snowball fight simulator
- You control team of four children
- Used in ACM ICPC finals 2010

Structure

- Two players (two programs)
- 180 turns on a 31x31 field
- Each turn, your program...
  - Reads "world configuration" from stdin
  - Computes for up to 0.5 seconds
  - Writes four moves/actions to stdout
- Winner determined by
  - Number of hits with thrown snowballs
  - Territory controlled by built snowmen

Playing Field

- 31 x 31 grid of squares
- Snow, up to 9 units high (default 3)
  - 6 units or more is impassable
  - 0 units means no good for making snowballs
- Trees (form barriers)
- Eight children
  - Four red
  - Four blue

Space Contents

- Empty
- Child
- Tree
- Snow
  - Powdered
  - Small snowball
  - Medium snowball
  - Large snowball
  - And combinations (large->medium->small is a snowman)

Child Can Carry

- Empty handed
- 1-3 units of powdered snow
- 1-3 small snowballs
- 1 medium snowball
- 1 large snowball

Child Actions

- Idle
- Crouch
- Stand
- Run x y (2)
- Crawl x y (1)
- Pickup x y
- Drop x y
- Crush
- Throw x y (24)
- Catch x y

Complications

- Linear paths take multiple steps in a turn
  - Run
  - Crawl
  - Throw
- Obstructions block movement
- Hit snowballs daze for 4 turns
- Fog of war: children can see 8 spaces

Localisms

- http://pc.cs.purdue.edu/icypc
  - Hosts "ladder" competition for class
  - Your player in: /homes/LOGIN/icypc/PLAYER
- Tools in /homes/cs390cp/bin
  - battle L1 P1 L2 P2
  - view2d NNN
  - view3d NNN