“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](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