Writing fiction via Inform Programming

CS 395 Computer Game Design

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Overview

- The ontology and processes of Inform worlds
  - Objects & classes
  - Locations, Trees and containment
  - Parsing & verbs
  - Global flow of control
- Story bibles and plot structures
- Programming in Inform

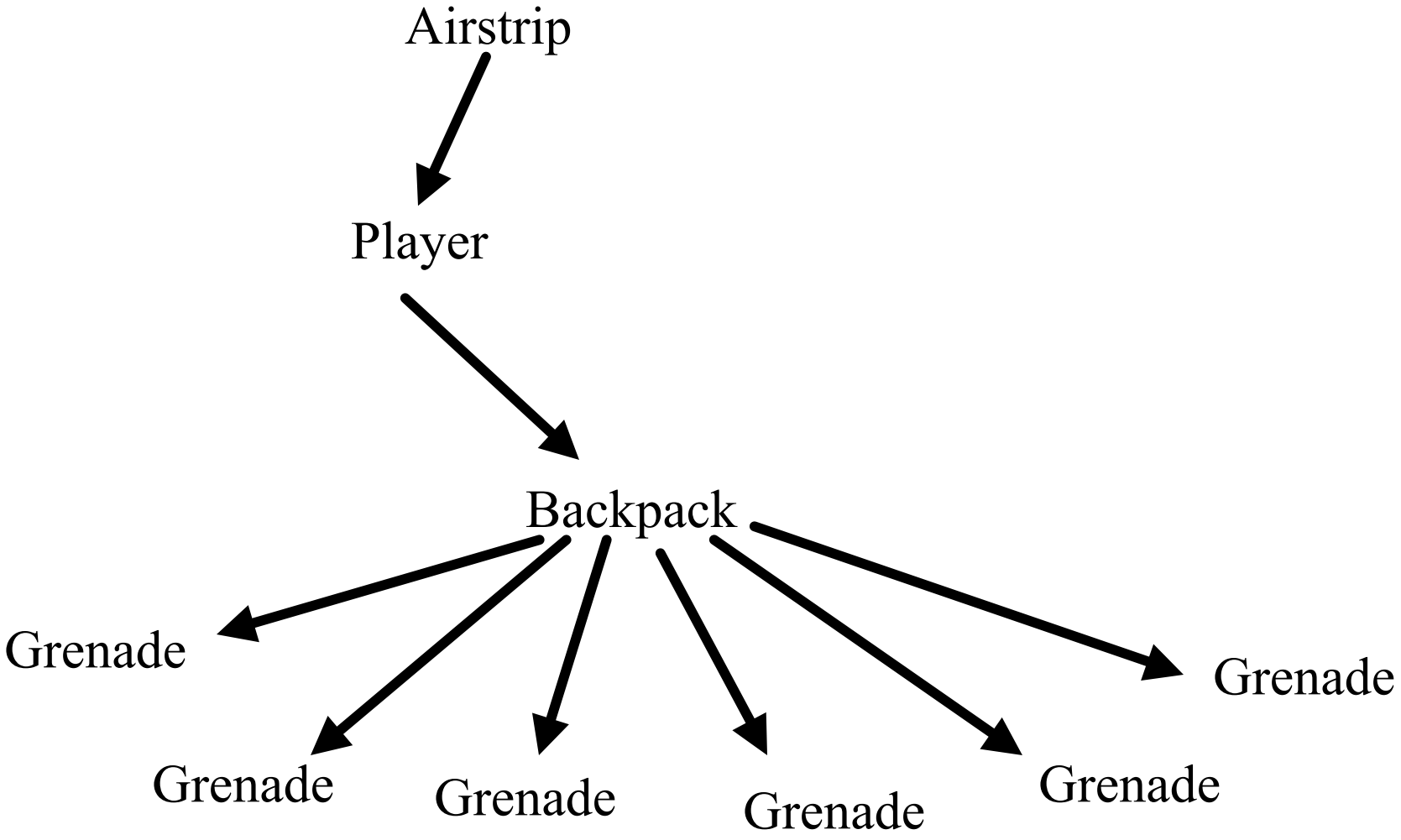
Objects

- Almost everything is an object
  - Numbers aren't
  - Player and NPCs are
- Objects can have attributes
  - e.g., animate
  - These affect how actions on them work
- Objects can have properties
  - e.g., health
  - Properties can be routines
    - Means of defining method
- New classes of objects can be defined

Location, Trees and Containment

- Everything has to be somewhere
  - The place of an object is another object
    - Exception: **`nothing`** is not an object
- Objects in the world are organized into a forest
- Location modeled as a form of containment
  - Physical transportation modeled appropriately
  - Propagation of action effects uses location

Part of the Twonky Island Tree



Natural language processing

- Very simple and elegant NL system for commands
  - Parser kept very simple
  - Semantic interpreter uses world context to help disambiguate
    - What a word refers to can depend on where you are
    - You help it by providing local vocabulary
  - Generator works hard to keep player in state of suspended belief
    - You sometimes have to help it by your declarations

Verbs

- Translate into routines
  - These routines make extensive use of routines associated with classes of objects
- Most effects of actions can be programmed by changing routines for classes
- You can add new verbs if you like
  - Synonyms common
  - Or from scratch, if you really need to

Caveat: Little conversation support

- Conversations drastically harder
  - Requires modeling beliefs and states of knowledge in more detail than a few properties.
  - Requires understanding the kinds of actions at the level of the dialogue itself
    - Example: H. Clark's model of conversation as joint activity
- Level of support = string matching
  - You can build Elizas, but little else.

What happens during a game

- Turn-based notion of activity
  - Player does something
  - Direct and indirect effects computed
  - Timers, daemons updated
  - Repeat
- Stages of processing: Before, During, After
- You can tune what happens in each stage
- If your code returns true at any time, all processing for that stage stops.

Before

- `GamePreRoutine` called, if any.
- `Orders` property of player called
- `react_before` of every object in scope called
- `before` of current room called
- `before` of first noun of action, if any

During

- Library routine for action (or your routine) take over.
- Does the action, but doesn’t print anything until After processing is completed.

After

- Since this occurs before printing in During, action can be undone.
- `React_after` for every object in scope
- after of current room
- `after` of first noun of action, if any
- `GamePostRoutine` called, if any.

Daemons

- Processes that are executed once per turn.
- Read up on these, you'll need them to implement your NPC's!

Quick Inform code tour

- Let's look under the hood at Twonky Island…

Story Bibles

- Your design notes for the story
  - Useful in your own thinking
  - Critical for communication
- Different entertainment genres have different conventions
  - Movies, TV series require extensive documentation
    - Continuity, backstory, visuals…
- For interactive fiction, need to include
  - Plot structure
  - Map
- Example: Twonky Island story bible on web site

Reading assignment

- G. Nelson, *The Inform Designer's Manual*, 4th edition
  - (Mirrored on the course web site)
  - All of chapters 2 and 8
  - Dip into Chapters 1, 3, 4, and 6 as you need them
  - If you need Chapters 5 or 7, you're doing something very unusual!

Homework assignment

- Turn in the story bible for your IF short story. It should include the intended plot structure, map, and lists of the objects and NPCs needed.
- Turn in Inform source containing at least half of the objects and locations needed in your story
- See web site for details