Lecture 10
CS148/248: Interactive Narrative

Author goals and plans in Universe

- Universe is an example of an author modeling story system
- Author plans and plot fragments
  - Author goals and plans may make no sense from character viewpoint
- Associated with each plot fragment
  - Author goal it can achieve
  - Characters
  - Constraints
  - Ordered list of subgoals (steps)

Example character in Universe

Name: Liz Chandler
Marriages:
  - Don Craig [1980]
  - Tony Dimera
Stereotypes: Actor, Knockout, Socialite, Party-goer
Trait modifiers: (Sex F) (Age young-adult) (Wealth 3)
  - (Promiscuity -3) (Intelligence 3)
Description:
  - Wealth 8 Promiscuity 3 Competence NIL
  - Niceness 0 Self-Cord 6 Guile 7
  - Naïveté 7 Moodiness 6 Phys-Att 7
  - Intelligence 7 Age young-adult Sex F
Goals: (Find-Happiness Become-Famous Meet-Famous-People)
Example plot fragment

**Plot fragment:** forced-marriage

**Characters:** ?him ?her ?husband ?parent

**Constraints:**
- (has-husband ?her) (has-parent ?husband)
- (< (trait-value ?parent 'niceness) –5)
- (female-adult ?her) (male-adult ?him)

**Goals:**
- (churn ?him ?her) (prevent them from being happy)
- (dump-lover ?her ?him)
- (worry-about ?him)
- (together * ?him)
- (do-threaten ?parent ?her "forget it")
- (do-divorce ?husband ?her)
- (eliminate ?parent)
- (together ?her ?him)

Universe algorithm

- **Loop:**
  - Pick a goal with no missing preconditions
  - Pick a plot fragment for that goal, achieving extra goals, if possible
  - Execute the plan, including adding new goals to the goal graph and producing story output

- **Notice,** Universe simultaneously pursues multiple goals
  - Tries to eventually satisfy all story goals
  - Tries to opportunistically satisfy several story goals with a single plot fragment
  - Plot fragments can add new goals

Recursively solving author goals

**Plan (plot-fragment) library**

- **Pursue goal,** e.g. (churn neil liz)
  - Find all applicable pln
  - Evaluate constraints
  - Pick from satisfied plans
  - Pursue subgoals, e.g. (together * neil)
  - Evaluate constraints
  - Pick from satisfied plans
  - Pursue subgoals – if atomic, add output to story
  - Add daphne seduces neil
Relationship to story grammars

- churn → do-threaten, dump-lover, worry-about, together, eliminate, do-divorce, continue “forced-marriage”
- churn → “lovers-fight”
- churn → “job-problem”

The hierarchical structure can be captured with context free rules

- Goals on the left hand side, plot fragment steps on the right
- Plot fragments are like story grammars in that they are story-centric rather than character centric

But plot fragments have a precondition, plus a story memory (characters) the preconditions can refer to

- Can have much more finely tuned constraints on plot fragment selection
- Multiple story goals are active at the same time – story grammars have a single line of expansion

The story is factored in terms of author goals – this may lead to different factoring than story-centric factoring of grammars

Authoring affordances

- Universe supports authoring chunks of story (plot fragments) organized around desired story effects (author goals)

- During generation, decision points appear in these places:
  - Selection among different plot fragments (preconditions) that accomplish the same goals
  - Binding of values in the world (characters, story state) for use in plot fragments
  - Parameterized atomic actions

- This is much more generative than choose your own adventure, in which every path (including every character and concrete character action) is pre-specified