Story Canvas: Novice-Friendly Authoring of Plan-based Interactive Storyboards

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Overview

- Graphical, storyboard-based interactive story authoring and generation tool
- Based on the UNIVERSE story generation model, and an evolution of the Wide Ruled text-based interactive story generator, which was evaluated in multiple classroom settings
  - A story world contains Characters, Environments and Plot Points (episodic memory)
  - Plot structure is composed of Author Goals, and Plot Fragments, which are ways to fulfill an Author Goal
  - Fragments contain a precondition and a sequential list of actions, including a subgoal action to pursue other Author Goals
  - Story generation begins at an initial goal, and proceeds down the tree in a depth-first fashion
  - Characters and Environments are author-customized visualized avatars and sketches
  - Storyboards/comic panes visualize preconditions that constrain and bind characters/environments/plot points, and story actions that modify the story world and generate visual output
  - Reading interface is a continuous comic strip, generated on the fly
  - Author-specified interactive actions interrupt the story and change important or interesting plot elements relevant to the current author goal context

From Storyboard to Code: A Plot Fragment

```java
sequential behavior TheEncounter () {
  precondition {
    (CharWME id::chID1 Name::name1) (CharWME id::chID2 Name::name2 Husband == chID1)
  } 
  act showStoryPane(1, chID1, chID2, name1, name2, envID1).
  subgoal IntroduceFrank(chID1, chID2);
  mental_act {
    workingMemory.get(chID1).getWifeVal();
    double newWifeVal = workingMemory.get(chID1).getWifeVal();
  }
  act showStoryPane(4, chID1, chID2, name1, name2, envID1).
  subgoal LoversConflict(chID1, chID2, envID1);
}
```

Story Hierarchy Visualization

Architectural Design

- Translate to ABL Agent
  - Author Goals and Plot Fragments
  - Characters, Environments, Plot Points
  - ABL Behavior Tree
  - Generate ABL
  - Render Static ABL
  - Compile Static Code Framework
  - ABL Agent

Generate Story

Reader

Icon

Interaction Commands

Interaction

Story Canvas

Rendered Storyboard

Interactive Storyboard

Static Storyboard

Story Fragments

SC ABL Agent

Future Work

- Full classroom evaluation/comparison/analysis, as we did for Wide Ruled: Do SC users make good stories? Are they helped or hindered by the visual interface?
- Harness other comic drawing techniques: computational composition, shading, line style, pane arrangement, etc.
- Authoring-time story analysis and feedback: hierarchy coverage, heat maps, infinite loop detection, etc.
- Apply same interface techniques and metaphors to a more complex story model and game engine (The Prom/CCF), in order to author complete game experiences

More info on Story Canvas:

http://eis.ucsc.edu/Story_Canvas

Reading and Interaction

After work, Mark and Julie decide to spend a romantic evening at the beach

Later that night... a rendezvous

Where have you been?

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