A Discourse-first Approach to Visual Narrative Generation through Operationalizing Comic Panel Transitions
Paper type: System Description

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Abstract

This abstract is so awesome.

Introduction

- What are we trying to do?
- What is our approach?
- Talk about how creative the discipline is
- Why are comics a great domain for computational creativity?

System Description

XXX overview our approach

Visual elements, frames, and transitions

Visual element (VE): unique identifier from an infinite set, mappable to visually distinct image components, such as anthropomorphic "characters," scenery, and geometric shapes.

Frame: a named panel outline dictating a minimum number of visual elements requires to fill it in, e.g. "give" requires three visual elements (a giver, a gift, and a giftee). The frame should contain instructions for visual rendering, e.g. an image with three holes for the spatial positions of each element.

Panel: a frame with its holes filled by visual elements, and optionally some additional VEs (e.g. observers carried over from previous panels).

Modifier: visual details overlaid on frames and VEs to add semantic coherence to the comic, such as floating emotes, facial expressions, motion lines, word balloons, and other text.

Formal Transition Types

Moment: keep VEs, change frame and/or modifiers.

Add: introduce a VE that didn't appear in the previous panel (but might have appeared earlier).

Subtract: remove a VE from the previous panel (and potentially choose a new frame).

Meanwhile: choose a new frame and only show VEs that didn't appear in the previous panel, generating new VEs if necessary.

Rendez-vous: choose a new frame and fill it with any combination of previously-appearing VEs. Generate new VEs only when there aren't enough previous VEs to fill the frame.

Example

Implementation

Output

Related Work

- Talk about Understanding Comics (McCloud 1993)
- Talk about Visual Language of Comics (Cohn 2013)
- Talk about the MEXICA System (Pérez y Pérez and Sharples 2001) and how we're different
- Talk about the departure from traditional narrative generation work
  - Talk about the pipeline model of narrative generation (primarily simulation focused)
  - We're exploring an alternative account - focus on the telling of the story, let story consumers "fill in the gaps"

Historically, the computational generation of narrative has followed what Ronfard and Szilas (2014) term the *pipeline model*: a narrative artefact is computationally generated by first simulating the story world as a collection of events, and then piping the story world information to a discourse generator, which generates a selective presentation of story world events in a particular medium. Current work in the computational creativity community has primarily pursued this pipeline model for narrative generation. Work by [**RCR:** *There are several papers to cite here, but the gist is: pipeline model is pervasive.*]

As Ronfard and Szilas argue, the pipeline model is neither *necessary* nor *sufficient* for the successful generation of narrative structure, but rather represents one paradigm of narrative generation. [**RCR:** *Present one example of why it's not necessary, and one example of why it's not sufficient.*]

Our work presents a departure from the pipeline model, opting instead for a *discourse-first approach to narrative generation*. In this model, the story world is simulated inasmuch as is necessary to support the telling of story events in the discourse. The work we present here is a first step in this

discourse-driven model, focused on understanding how the discourse of visual language narratives enforces constraints on the underlying story worlds they represent, and how these can further guide subsequent choices for discursive presentation.

Narrative authors design their narratives to affect audiences in specific ways (Bordwell), and authors care to structure discourse to achieve specific narratological effects. This is achievable in the pipeline model, but reasoning about discourse first helps you catch things that are not realizable in a specific target medium (e.g. identity for murderers in thrillers.)

Acknowledgments

These acknowledgments are tubular.

References

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Ronfard, R., and Szilas, N. 2014. Where story and media meet: computer generation of narrative discourse. In *Proceedings of the 5th Workshop on Computational Models of Narrative*, 164–176.