Computers Evaluating Screenplays?
Automatic Elicitation of Narrativity From Big Data

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Agenda:

1. Narrativity
2. Building narrativity from its elements
3. Text mining procedure
4. Results
5. Lessons learned and still to learn
Narrativity

A review of Mystery Adventures, a live action roleplaying game:

“Great Fun...for a Puzzle Person”
Reviewed 29 May 2011

This is definitely an unusual thing to do in Las Vegas, but can be a wonderful change of pace. If you are into CSI and like solving mysteries, this is for you. If you'd rather just kick back and enjoy the show, this might be a bit much. Max seemed nervous at first with lots of 'uhhh's and ummmms, but warmed up quickly. The mystery started out slow...which might be natural, but picked up pace and excitement as the night went on. And it did go on...from 7pm to well past 10pm. Very exciting and worth the effort we put into it.

Visited May 2011

Helpful? 2 Thank WhyWasteTimeWorking

Ask WhyWasteTimeWorking about Mystery Adventures

This review is the subjective opinion of a TripAdvisor member and not of TripAdvisor LLC.
Narrativity

Gap in narratological research; Stories in our research

Prior research solely provides a valid description of consumer narratives of (hedonic and utilitarian) material purchases.

“Material purchases are those made with the primary intention of acquiring a material good: a tangible object that is kept in one’s possession” (van Boven and Gilovich 2003, 1194)

Our research focuses on

- **Experiential purchases**
  “those made with the primary intention of acquiring a life experience: an event or series of events that one lives through” (van Boven and Gilovich 2003, 1194)

- **Narrative elements**
  which describe the experience consumed and recounted by the reviewer
Narrativity

Research objectives

1. Demonstrate reliable and valid automatic elicitation of narrative elements from big (textual) data

2. Extending the conceptual level of framework-building to the empirical level of stories as bodies of texts that can be measured systematically and quantitatively.
Building narrativity from its elements

1. Narrative elements of identifiable characters

a) Landscapes of affective and
b) cognitive consciousness

Definition: The extent to which the consumer story recounts an initial event about which a character expresses feelings or thoughts that, in turn, lead to a course of action by a character (Bruner 1986).

Proposed effect: Consumers make more inferences and exert more effort to identify characters when a story has well-developed landscapes of consciousness (Feldman et al. 2014).
Building narrativity from its elements

2. Narrative elements of imaginable plot

a) Temporal embedding
   **Definition:** The extent to which the consumer story is organized in a temporal sequence and provides causal links between the events that occur (Escalas 1998; Thompson 1997).

b) Spatial embedding
   **Definition:** The extent to which the consumer story focuses on and explains particular events (Escalas and Bettman 2000).
   **Proposed effect:** Especially transporting stories usually pay attention to setting the scene of the narrative world by repeatedly offering illustrations (Gerrig 1993).

c) Drama
   **Definition:** The extent to which the canon is breached (Burke 1962).
   **Proposed effect:** If consumers strive to understand and explain these breaches, they may experience narrative transportation because more effort leads to more narrative transportation (Nielsen and Escalas 2010).
Building narrativity from its elements

3. Narrative elements of genre

❖ Progressive genre
   **Definition:** Events continuously improve for characters over the course of the storyline (Gergen and Gergen, 1988).

❖ Regressive genre
   **Definition:** Events decline over the course of the storyline (Gergen and Gergen 1988).

❖ Stable genre
   **Definition:** Events neither improve nor decline over the course of the storyline (Gergen and Gergen 1988).

❖ Comedy
   **Definition:** Events start out favorable, deteriorate, and end on a positive note (Gergen and Gergen 1995).

❖ Tragedy
   **Definition:** Events start out unfavorable, ameliorate, and end on a negative note (Freytag 1863/2003).

**Proposed effect:** Emotional story shapes that change over the course of a storyline are more engaging than those that do not alternate in sign (Vonnegut 2005).
Text mining procedure

Identifiable characters:

*n*-gram operationalisation, representative words, and words in dictionary entry

<table>
<thead>
<tr>
<th>Elements</th>
<th>Operationalisation</th>
<th>Representative words</th>
<th>Words in dictionary entry</th>
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</table>
| Landscape of affective consciousness         | Number of trigrams: motion–affective process–motion divided by number of sentences in a review | arrive, car, go abandon, cried, happy | 168  
915                       |
| Landscape of cognitive consciousness        | Number of trigrams: motion–insight–motion divided by number of sentences in a review | consider, know, think      | 195                       |
## Text mining procedure

**Imaginable plot:**

*n*-gram operationalisation, representative words, and words in dictionary entry

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<tbody>
<tr>
<td>Temporal embedding</td>
<td>Presence of unigrams: time (1) causation (2) time and causation (3)</td>
<td>end, season, until because, effect, hence</td>
<td>239 108</td>
</tr>
<tr>
<td>Spatial embedding</td>
<td>Proportion of space unigrams to other words in a review</td>
<td>down, in, thin</td>
<td>220</td>
</tr>
<tr>
<td>Drama</td>
<td>Proportion of surprise unigrams to other words in a review</td>
<td>amazed, astonished, shocked, startled, stupefied</td>
<td>32</td>
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**Text mining procedure**

**Genre:**  
*D-gram operationalisation, representative words, and words in dictionary entry*

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<tr>
<td>Genre</td>
<td>Emotional story shape: absolute difference of positive emotion unigram and negative emotion unigram</td>
<td>love, nice, sweet hurt, nasty, ugly</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>406</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>499</td>
</tr>
<tr>
<td>Progressive</td>
<td>Continuous increase of emotional story shape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regressive</td>
<td>Continuous decrease of emotional story shape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stable</td>
<td>Rate of change near zero for emotional story shape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comedy</td>
<td>Negative curvilinear degree of emotional story shape (i.e., u-shape)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tragedy</td>
<td>Positive curvilinear degree of emotional story shape (i.e., inverted u-shape)</td>
<td></td>
<td></td>
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</tbody>
</table>
Results

The review of Mystery Adventures as an example

- Landscape of (affective) consciousness

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Lessons still to learn

Future research

We detect three trajectories for future research:

1. **(Re-)defining narrativity**: The preciseness of the story definition can be challenged. The increasingly popular flash fiction and the Twitter effect (Hennig-Thurau, Wiertz, and Feldhaus 2015) support the notion of very short stories.

2. **Effects on conversion**: Empirical work on the conversion effects of narratives is scant (van Laer et al. 2014). However, recent developments in digital libraries indicate that there is ample opportunity to investigate conversion as an additional consequence of narrativity (e.g., Google Books, the Internet Archive, and Project Gutenberg).

3. **Effects on brand public**: A line of research into possible brand public creation or strengthening as a consequence of consuming narratives, which violate economic principles, can be initiated (Arvidsson and Caliandro 2015, McQuarrie, McIntyre, and Shanmugam 2015).