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# Reviewing the Review:

A Text Analysis of  
Why Experience Reviews Are Voted Helpful

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# Agenda :

1. Helpfulness voting
2. Experience reviews as stories
3. Building reviews' narrative structure
4. Text mining procedure
5. Results
6. Lessons learned and still to learn



# Helpfulness voting

A review of Mystery Adventures, a real-life gaming experience:



WhyWasteTimeW...  
San Diego, California

Level **3** Contributor



10 reviews



11 helpful votes

## *"Great Fun..for a Puzzle Person"*

★★★★★ Reviewed May 28, 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

Was this review helpful?

Yes

2

Report

[Ask WhyWasteTimeWorking about Mystery Adventures](#)

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

# Helpfulness voting

## Relevance




**Definition:** Helpfulness is the degree to which consumers perceive that a review's content facilitates their purchase decision process (Mudambi and Schuff 2010).

**Importance:**

TO WHAT EXTENT DO YOU TAKE ACTION ON  
THE FOLLOWING FORMS OF ADVERTISING?



GLOBAL AVERAGE - PERCENT ALWAYS/SOMETIMES TAKE ACTION

FORM OF ADVERTISING	TAKE ACTION	TRUST	DIFFERENCE ACTION VS. TRUST
 Recommendations from people I know	84%	84%	--
 Consumer opinions posted online	70%	68%	2%
 Ads on TV	68%	62%	6%

(Nielsen, 2013)

# Helpfulness voting

## Research on helpfulness voting

### ❖ Scrutinize overt claims and arguments:

*“I chose/love this product because...”* (Moore 2015)

### ❖ Reliance on contextual cues:

- a) Ranking (Scott and Orlikowski 2012)
- b) Review age and volume (Ludwig et al. 2013)
- c) Review extremity (Mudambi and Schuff 2010)
- d) Review emotionality (Yin, Bond, and Zhang 2014)
- e) Review legibility (Ghose and Ipeirotis 2011, Vásquez 2014)
- f) Review length (Pan and Zhang 2011)
- g) Reviewer expertise (Godes and Mayzlin 2004)
- h) Reviewer identity (Forman, Ghose, and Wiesenfeld 2008)

# Helpfulness voting

## Gap in research on helpfulness voting; Reviews in our research

Prior research solely provides a valid description of helpfulness voting for reviews 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 structure**

which describes the experience consumed and recounted by the reviewer

# Helpfulness voting

## Research objectives

1. Organize the relations among words within experience reviews, which are currently considered manifold and indeterminate, in a narrative structure
2. Empirically demonstrate novel links between narrative structure elements and helpfulness voting
3. Provide an instrument for examining the role of change in emotions over sentences and whether there are intertextual differences in this shape



# Experience reviews as stories

Key constructs: The source of the fountain

The conceptual building blocks of our work are five:



1. Identifiable characters

4. Narrative transportation



2. Imaginable plot

5. Helpfulness votes



3. Genre

# Experience reviews as stories

**Key constructs: The source of the fountain**

1. **Identifiable characters** are clearly pinpointed personas through which the reviewer “speaks” to the consumer (Stern 1994).  
They play a role in the events and consumers can empathize with them (Slater and Rouner 2002).
2. **Imaginable plot** is the articulated sequence of events that happen to the characters in a described setting (Escalas 1998).  
It frames the temporality of the events, such that consumers feel as though they are experiencing the events themselves (Green and Brock 2002).
3. **Genre** is the different story shapes that emerge from culturally determined conventions in a given society in a given time (Genette 1979/1992; Plato 380BC/2008).  
It results from the modulation of the emotional intensity along the plot and make consumers experience suspended reality (Gergen and Gergen 1988).

# Experience reviews as stories

## Key constructs: The source of the fountain

Narrative transportation and helpfulness voting constitute respectively the vehicle for and relevance of experience reviews as stories:

4. **Narrative transportation** is the extent to which (1) a consumer empathizes with the story characters and (2) the story plot activates his or her imagination, which leads him or her to experience suspended reality during story reception (van Laer et al. 2014).
5. **Helpfulness voting** is suggested to be an attitude towards the review's content, since helpfulness is the degree to which consumers believe that a review facilitates their purchase decision process (Mudambi and Schuff 2010) and an attitude is defined as an evaluation of beliefs with some degree of favor or disfavor (Eagly and Chaiken 1993).

# Experience reviews as stories

Why narrative transportation affects helpfulness voting

Transported consumers

- a) perceive a story's content as realistic (Escalas 2004, Green 2004)
- b) perceive a story's content as truthful (Marsh and Fazio 2003, Morgan, Movius, and Cody 2009)
- c) change their attitude to reflect the story's content (van Laer et al. 2014)

For experience reviews,

a helpfulness vote is the manifestation of a positive attitude toward the review as a result of narrative transportation.

# Building reviews' narrative structure

## 1. Narrative structure elements of identifiable characters

- a) Landscapes of affective and
- b) cognitive consciousness

**Definition:** The extent to which the review 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).

- c) Canonicity

**Definition:** The extent to which the review explains how a course of action by a character results in a particular outcome (Pennington and Hastie 1988).

**Proposed effect:** More compelling stories consist of multiple goal-oriented action sequences (Stein and Albro 2010).

# Building reviews' narrative structure

## 1. Narrative structure elements of identifiable characters

### Hypothesis 1

A story, which gives insight into

- a) what a character is feeling,
- b) what a character is thinking, and
- c) how a course of action by a character results in a particular outcome,

is evaluated as more helpful.

# Building reviews' narrative structure

## 2. Narrative structure elements of imaginable plot

### a) Temporal embedding

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

**Proposed effect:** Temporally embedded stories determine why consumers translate stories into transporting past-present-future narratives (Adaval, Isbell, and Wyer 2007; Adaval and Wyer 1998; Barthes 1975).

### b) Spatial embedding

**Definition:** The extent to which the review 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 and enhances evaluations (Nielsen and Escalas 2010).

# Building reviews' narrative structure

## 2. Narrative structure elements of imaginable plot

### Hypothesis 2

A story, which

- a) is organized in a temporal and causal sequence,
- b) explains particular events, and
- c) breaches the canon

is evaluated as more helpful.



# Building reviews' narrative structure

## 2. Narrative structure 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).

### ❖ Romantic comedy

**Definition:** Events start out favorable, deteriorate, and end on a positive note (Gergen and Gergen, 1988).

### ❖ Tragedy

**Definition:** Events start out unfavorable, ameliorate, and end on a negative note (Freitag 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).

# Building reviews' narrative structure

## 3. Narrative structure elements of genre

### Hypothesis 3

Romantic comedies and tragedies

are evaluated as more helpful than

stories that have a progressive, regressive, or stable genre.

# Text mining procedure

## Dataset

- ❖ **Setting:** Reviews of “things to do” (i.e., experiences) in Las Vegas, US, posted on <http://www.tripadvisor.com>
- ❖ **Timeframe:** February 2000 – October 2014
- ❖ **Sample:** 190,461 reviews of 989 experiences
- ❖ **Helpfulness voting:**  ( $M = .77$ )
- ❖ **Contextual variables:**
  - a) Experience rank order ( $M = .84$ )
  - b) Pictures with the experience ( $M = 537$ )
  - c) Review age ( $M = 740$ )
  - d) Review extremity ( $M = .66$ )
  - e) Review legibility ( $M = .23$ )
  - f) Review volume ( $M = 4,151$ )
  - g) Reviewer expertise ( $M = 27$ )

# Text mining procedure

**Identifiable characters:**

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

Elements	Operationalisation	Representative words	Words in dictionary entry
Landscape of affective consciousness ( $M = .17$ )	Presence of trigram: motion– affective process– motion	arrive, car, go abandon, cried, happy	168 915
Landscape of cognitive consciousness ( $M = .07$ )	Presence of trigram: motion– insight– motion	consider, know, think	195
Canonicity ( $M = .35$ )	Presence of bigram: motion– space and/or motion– time in the last two sentences	down, in, thin  end, season, until	220  239

# Text mining procedure

Imaginable plot:

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

Elements	Operationalisation	Representative words	Words in dictionary entry
Temporal embedding ( $M = .40$ )	Presence of unigram: time/ causation	end, season, until because, effect, hence	239 108
Spatial embedding ( $M = 5.95$ )	Ratio of unigram: space	down, in, thin	220
Drama ( $M = .66$ )	Ratio of unigram: surprise	amaze, astonish, shock, startle, stupefy	32

# Text mining procedure

**Genre:**

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

Elements	Operationalisation	Representative words	Words in dictionary entry
Genre	Presence of sentence-level <i>D</i> -gram: absolute difference of positive emotion unigram and negative emotion unigram	love, nice, sweet hurt, nasty, ugly	406 499
Progressive ( <i>n</i> = 793)	Presence of linear degree of increase of <i>D</i> -gram shape		
Regressive ( <i>n</i> = 4,601)	Presence of linear degree of decrease of <i>D</i> -gram shape		
Stable ( <i>n</i> = 163,576)	Presence of a rate of change near zero for <i>D</i> -gram shape		
Romantic comedy ( <i>n</i> = 17, 279)	Presence of negative curvilinear degree of <i>D</i> -gram shape (i.e., u-shape)		
Tragedy ( <i>n</i> = 4,212)	Presence of positive curvilinear degree of <i>D</i> -gram shape (i.e., inverted u-shape)		

# Results

## The review of Mystery Adventures as an example

### ❖ Landscape of (affective) consciousness

(WhyWasteTimeWorking, TripAdvisor, 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, 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.

# Results

## The review of Mystery Adventures as an example

- ❖ **Canonicity**
- ❖ **Temporal embedding**

(WhyWasteTimeWorking, TripAdvisor, 29 May 2011)

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# Results

## The review of Mystery Adventures as an example

### ❖ Spatial embedding

(WhyWasteTimeWorking, TripAdvisor, 29 May 2011)

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If you are **into** CSI and like solving mysteries, this is for you.

If you'd rather just kick back, this might be a bit much.

Max seemed nervous at first with lots of 'uhhh's and ummmms, but warmed up quickly.

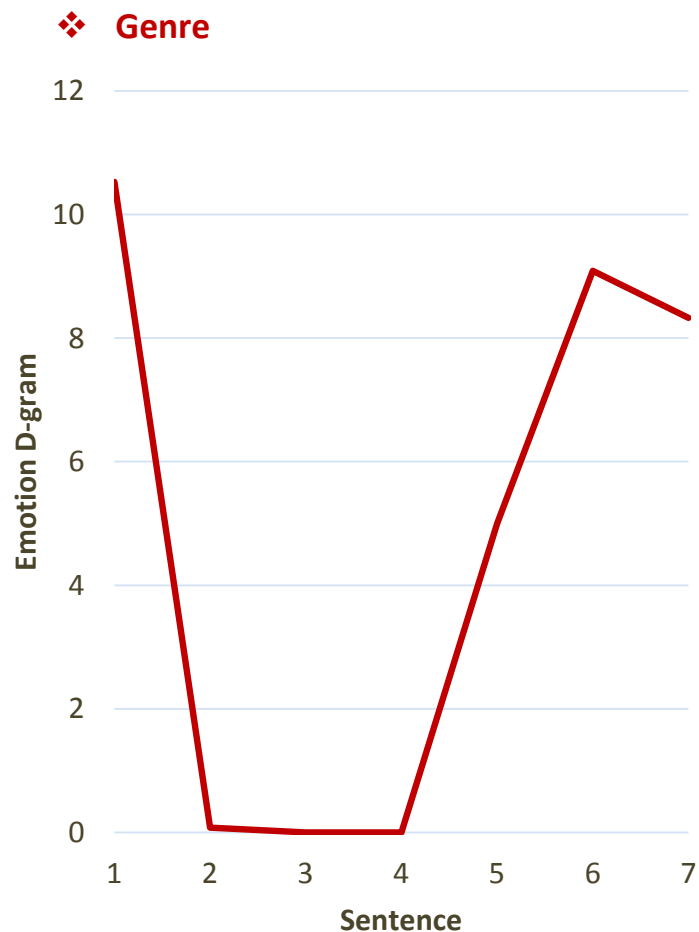
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# Results

## The review of Mystery Adventures as an example



(WhyWasteTimeWorking, TripAdvisor, 29 May 2011)

This is **definitely** an unusual thing to do in Las Vegas, but can be a **wonderful** change of pace.

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Very **exciting** and worth the effort we put into it.

# Results

## What is supported; what is not

	Elements	Model 2	Model 3	Model 4	IRR
Identifiable characters					
	<b>Landscape of affective consciousness</b>	.19 (.02) **	.15 (.02) **	.15 (.02) **	1.17
	<b>Landscape of cognitive consciousness</b>	.15 (.02) **	.12 (.02) **	.11 (.02) **	1.12
	<b>Canonicity</b>	.15 (.01) **	.10 (.01) **	.09 (.01) **	1.10
Imaginable plot					
	<b>Temporal embedding</b>		.31 (.01) **	.31 (.01) **	1.36
	<b>Spatial embedding</b>		.04 (.01) **	.04 (.01) **	1.04
	Drama		-.02 (.01) *	-.02 (.01) *	.98
<b>Genre</b>					
	Progressive			.01 (.06)	1.00
	Regressive			-.06 (.03)	.95
	Romantic comedy			.07 (.02) **	1.07
	Tragedy			.09 (.03) **	1.10
Wald's $\chi^2_{\text{Change (df)}}$		3137.17 <sub>(2)</sub> ***	2595.16 <sub>(2)</sub> ***	93.94 <sub>(2)</sub> ***	
McFadden's pseudo $R^2$		.148	.153	.154	

All models:  $N = 190,461$ ; Model 1: Wald's  $\chi^2_{(24)} = 20694.75$ ; McFadden's pseudo  $R^2 = .142$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

# Lessons learned and still to learn

## Possible explanation for the unsupported drama hypothesis

### ❖ Surprising order:

*“Charles got up from the chair. He walked slowly toward the window. The window broke and Charles fell dead. The sound of a shot echoed in the distance.”*

(Brewer and Lichtenstein 1982, 480-481)

### ❖ Curiosity order:

*“Charles fell dead. The police came and found the broken glass, etc.”*

(Brewer and Lichtenstein 1982, 481).

### ❖ Curiosity is perhaps more widely accepted for online reviews than surprise, because of the former’s stimulating effect (Brewer and Lichtenstein 1982):

- a) In social media, reviewers are relatively more willing to stimulate information processing in order to help consumers (Hennig-Thurau et al. 2004);
- b) Reviewers are able to intuit which order of events is more stimulating (Moore 2015);
- c) Consumers’ preferences mirror reviewers’ intuitions (Moore 2015).

# Lessons learned and still to learn

## Possible explanations for notable significant results

- ❖ **Temporal embedding:** The incidence rate ratio demonstrates that if a review's temporal embedding were to increase by .49 time-causation unigrams, the review's helpfulness would be expected to increase by a factor 1.36. This effect size highlights the importance of temporality and causality.
- ❖ **Romantic comedy and tragedy:** The effect of these story shapes on helpfulness voting is more positive than a progressive, regressive, or stable genre.  
The thrust of this result is to criticize the adequacy of the previously accepted negativity bias (though calling for its substitution with a new organizing proposition rather than merely claiming the influence of review emotionality is completely incapable of being structured).

# Lessons learned and still to learn

## Future research

We detect three trajectories for future research:

1. **(Re-)defining narrative structure:** 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 a narrative structure (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).