Decoding Narrative Discourse: A Computational Exploration of Media Modality Effects

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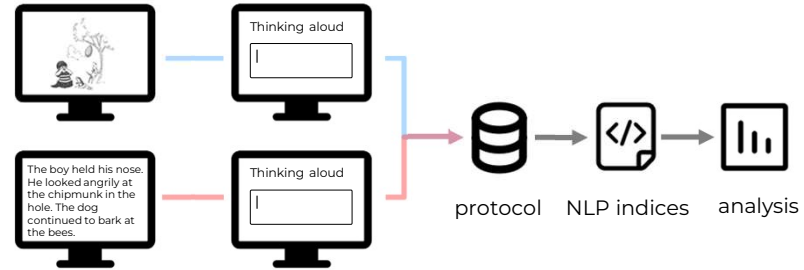*Georgia State University[1], University of Minnesota[2], Middle Georgia State University[2]*

Introduction

▶ We experience narratives in texts, comics, and movies
▶ How does the media of a narrative affect how we understand and talk about narratives?
▶ Affordances of Media (Magliano et al., 2013)

The dog jumped up at a bees nest hanging from a tree. The boy found a hole. He yelled down it.

A chipmunk came out of the hole. He bit the boy's nose.

The boy held his nose. He looked angrily at the chipmunk in the hole. The dog continued to bark at the bees.

Pictures:
Afford high specificity of spatial relationships between entities

Text:
Afford the explicit specification of the internal states of characters

▶ Thinking aloud is one approach to study how people make sense of narratives (Trabasso & Magliano, 1996)
▶ Natural language processing tools provide one basis for exploring meaning making of media (Allen et al, 2016)

Research Goals

Goal :
To explore if media affects how people talk about the internal states of characters, the spatial relationships of entities, and causality.

Predictions:
Spatial information: Pictures > text
Internal states: Text > Picture
Causality: ?

Methods

Thinking aloud

The boy held his nose. He looked angrily at the chipmunk in the hole. The dog continued to bark at the bees.

Thinking aloud

protocol   NLP indices   analysis

Participants: 132 college students
Materials: Text and Picture versions of Boy, Dog, Frog stories
Task:
  ▶ View 6 stories (half in picture, half in text)
  ▶ Each story has 4 episodes
  ▶ Think aloud at the end state of each episode
NLP tools: Dictionary based indices using LIWC and General Inquirer
  ▶ Space: Places words (GI); Spatial relationship words (LIWC)
  ▶ Internal state: Affective state words (LIWC); Mental state words (GI)
  ▶ Causality: Causality dictionary
Analysis: A linear mixed effects model was applied

Results

Index	Modality		t	P
	Pictures	Text		
	Mean(SD)	Mean(SD)		
Place	0.02(0.04)	0.01(0.04)	-4.67	<0.001
Affective States	0.07(0.08)	0.08(0.09)	2.69	.007
Mental States	0.10(0.08)	0.12(0.09)	4.45	< .001
Causality	0.01(0.03)	0.02(0.03)	3.67	< .001
Number of Words	18.21(14.77)	14.69(11.32)		

Summary of Results

▶ There were media affects on mental state and place words used when thinking aloud
  ▶ Mental states: Texts > Pictures
  ▶ Place: Texts < Pictures
▶ There were no affects of coherence gaps

Implications

▶ The affordances of media have implications on how people convey their understanding of narratives
  ▶ Text enable a richer representation of the internal states of characters and causality
  ▶ Visual narratives afford a richer representation of the spatial environment in which events take place

Future Directions

▶ The research team has been fleshing out a theoretical framework for specifying the broader affordance of media on the processes and products of meaning making
▶ How is representation grounded in affordance of the stimulus?
▶ We are interested in a broader range of narrative experiences
  ▶ Affective engagement (Bohn-Gettler & Rapp, 2014)
  ▶ Participation (Gerrig & Jacovina, 2009)

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