EMPATHY IN FAIRY TALES

Göttingen–Hildesheim Workshop

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eTRAP
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- Early PhD student in German Philology at the Graduate School of Humanities Göttingen (GSGG)

- Interests in Cognitive Literature and Sentiment Analysis
  - Master thesis: "Kafka's Style. A Qualitative Approach"
  - PhD dissertation: "Empathy in Fairy Tales"

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EMPATHY & EMOTION

- Reactions of one individual to the observed experiences of another (Davis, 1983c)

- The understanding of others' feelings (Kohler, 1929)

- Perspective Taking - the tendency to spontaneously adopt the psychological point of view of others

- Fantasy - respondents' tendencies to transpose themselves imaginatively into the feelings and actions of fictitious characters in books, movies, and plays

- Empathic Concern - "other-oriented" feelings of sympathy and concern for unfortunate others

- Personal Distress - "self-oriented" feelings of personal anxiety and unease in tense interpersonal settings

What are the emotions you feel?

Figure 1: Vertigo directed by Alfred Hitchcock (1958).
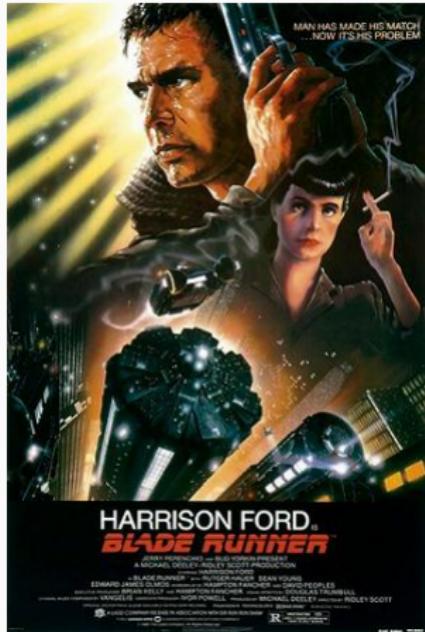
Figure 2: Blade-Runner directed by Ridley Scott (1982).

- When the protagonist was doing well
    - => positive emotions: happiness, pleasure, relief

- When the protagonist's plans went bad
    - => negative emotions: anxiety, anger, frustration

- When the antagonist's plans were going well
    - => negative emotions

- When the antagonist's plans suffered setbacks
    - => positive emotions

Trabasso & Chung, 2004

Positive emotions → **EMPATHY** → Willingness to help

Barlett & Desteno, 2006

- Empathy is strongly related to altruistic behavior

    Eisenberg & Miller, 1987; Batson, Ahmad, Lishner, & Tsang, 2002

- Perspective taking and emphatic concern are significant predictors of prosocial behavior

    Davis, 1983a/b; Litvak-Miller & McDougall, 1997; Hoffman, 2000

SENTIMENT ANALYSIS TOOLS

WHICH are those clues in a fairy tale that prompt high empathic responses?

How can emotions be identified computationally?

- Linguistic Inquiry and Word Count (LIWC) software (Pennebaker, et al., 2007)

- The NRC Emotion Lexicon (Mohammad & Yang, 2011)

LIWC2015:

- 80 default dictionaries
- 6,400 words, word stems, and selected emoticons

Detect superficial linguistic features of the text:

- positive emotions
- negative emotions (anxiety, anger, sadness)
- social words (family, friends)
- cognitive processes (insight, cause, certainty)
- long words (more than six letters)
- self references (I, me)
- other references (he, they)

NRC Emotion Lexicon:

- The Roget Thesaurus
- 14,182 words types

Emotions: (Plutchik, 1980)

anger
anticipation
disgust
fear
joy
sadness
surprise
trust

Sentiments:

negative emotions
positive emotions

"The Queen Bee"

- By the Brothers Grimm, 1857;
- English translation by F. J. Olcott, 1927.[1]

Table 1: The Distribution of Traditional Dimensions in "The Queen Bee".

Traditional LIWC Dimension	The Queen Bee
I-words (I, me, my)	0.4
Social words	**13.8**
Positive emotions	1.1
Negative emotions	1.0
Cognitive processes	**8.2**

Table 2: The Distribution of Summary Variables in "The Queen Bee".

Summary Variables	The Queen Bee
Analytic	**87.3**
Clout	**82.5**
Authenticity	40.6
Emotional tones	27.9

EMOTION WORDS IN NOVELS VS. FAIRY TALES

Table 3: Density of emotion words in novels and fairy tales: number of emotion words in every 10,000 words.

|	anger		anticip.		disgust		fear	
	mean	σ	mean	σ	mean	σ	mean	σ
CEN	**746**	162	1230	126	591	135	975	225
FTC	**749**	393	**1394**	460	**682**	460	910	454

	joy		sadness		surprise		trust	
	mean	σ	mean	σ	mean	σ	mean	σ
CEN	1164	196	**785**	159	628	93	1473	190
FTC	**1417**	467	**814**	443	**680**	325	1348	491

Mohammad, 2013

Results:

- Mean values for anger and sadness across Corpus of English Novels and Fairy Tale Corpus are not significantly different

- **Fairy tales:**

  - higher anticipation, disgust, joy, and surprise densities
  - lower trust word density
  - much larger standard deviation
  - lower number of negative terms
  - higher number of positive words

LIMITATIONS
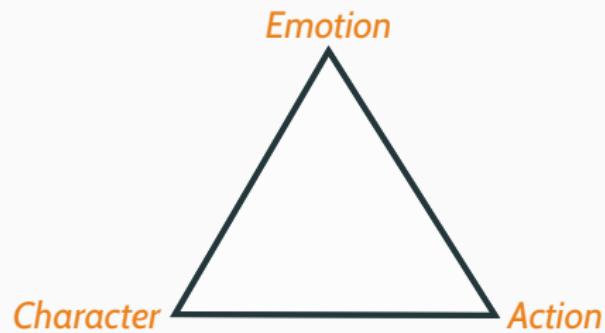
Lack in determining fine-grained distinctions in emotion and in its appraisal types

- Further examine sentiment analysis tools;
- Identify the best-suited approach to detect emotions in fairy tales;
- Run computational analyses on the fairy tales of Brothers Grimm;
- Study the results.

- Model in detecting emotions in fairy tales;
- Set of fairy tales that augment empathy;
- Social value.

Thank you.
Questions?

Presentation

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APPENDIX

Public domain

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- Blade-Runner.
  At: `https://en.wikipedia.org/wiki/Blade_Runner#/media/File:`
  `Blade_Runner_poster.jpg` (Accessed: 11 October 2016).

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