# Emotions in the Movies

Andrew Salway, Uni Digital

UiB Visual Studies Research Group

7th October 2010

# Archives of Visual Information

- Personal media collections
- Commercial image libraries
- Online art galleries
- Collaborative image and video collections
- Online television stations and film studios
- The web at large

**What tools are there for searching images and videos now and in the future?**

Artist= “Henri Matisse”
PictureOf(Eiffel Tower, Paris)
Film Title = “The English Patient”

# Narrative

- A **story** is a chain of ***events***, in ***cause-effect*** relationships, organised in ***space*** and ***time***. The agents of cause-effect are ***characters*** with ***goals***, ***beliefs*** and ***emotions*** (Bordwell and Thompson 1997).

- "More than reconstructed timelines and inventories of existents, **storyworlds** are ***mentally and emotionally projected environments*** in which interpreters are called upon to live out ***complex blends of cognitive and imaginative response***, encompassing sympathy, the drawing of causal inferences, identification, evaluation, suspense, and so on" (Herman 2002, p. 17).

# Multimodality

- Storytelling in film combines the ***moving image*** with ***dialogue***, ***sound effects***, ***music*** and sometimes a narrator.

- For a particular film, there may be several “collateral texts”, e.g. ***screenplay***, ***subtitles***, ***audio description*** and maybe a novel.

# New ways to study visual culture?

**Data-driven vs hypothesis-driven**

In a data-driven paradigm, provided with a large-scale data set, systems can induce and analyze patterns of information via the implementation of relatively simple models to process massive data collections on high-power computing platforms.

(Halevy, Norvig and Pereira 2009)

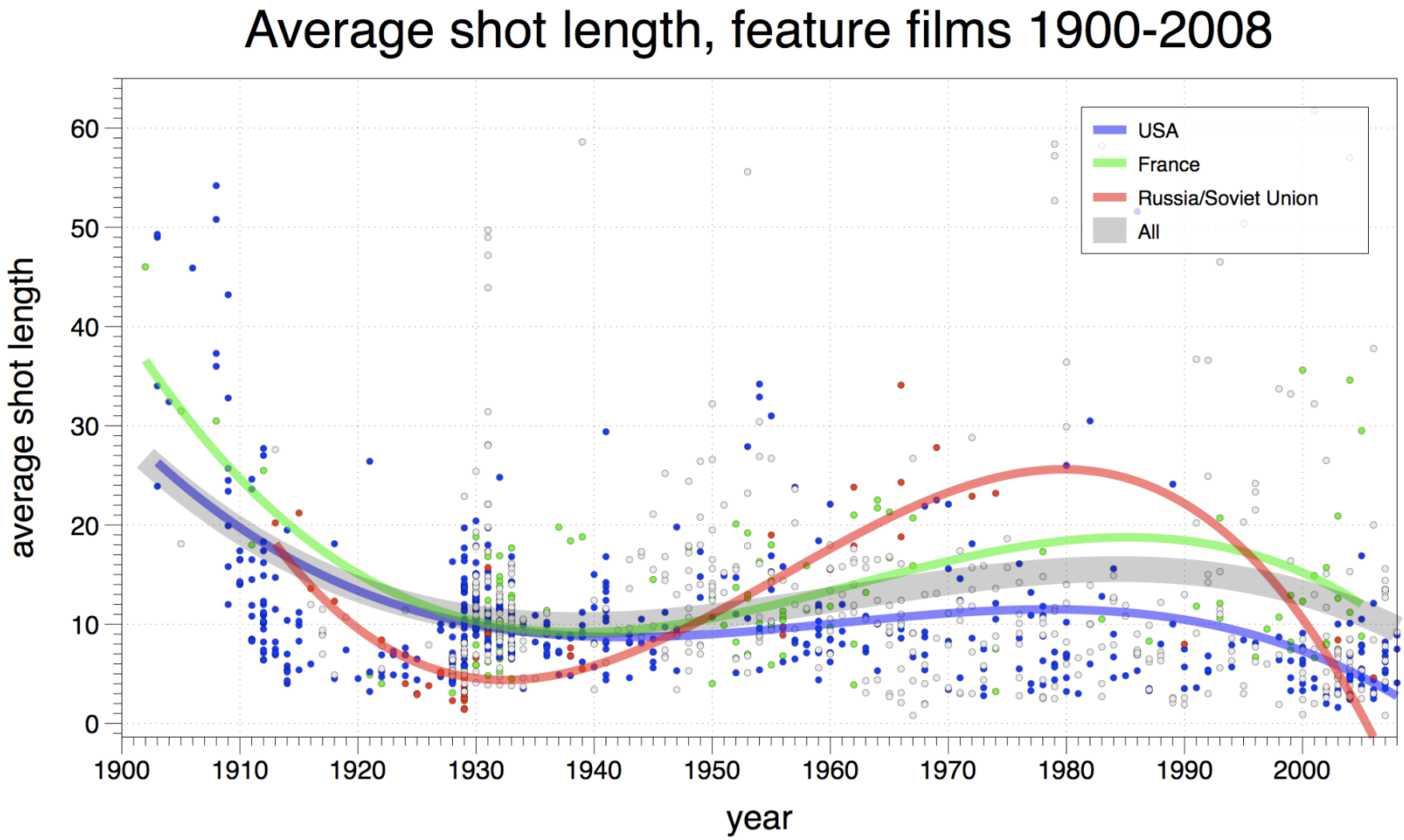
# New ways to study visual culture?

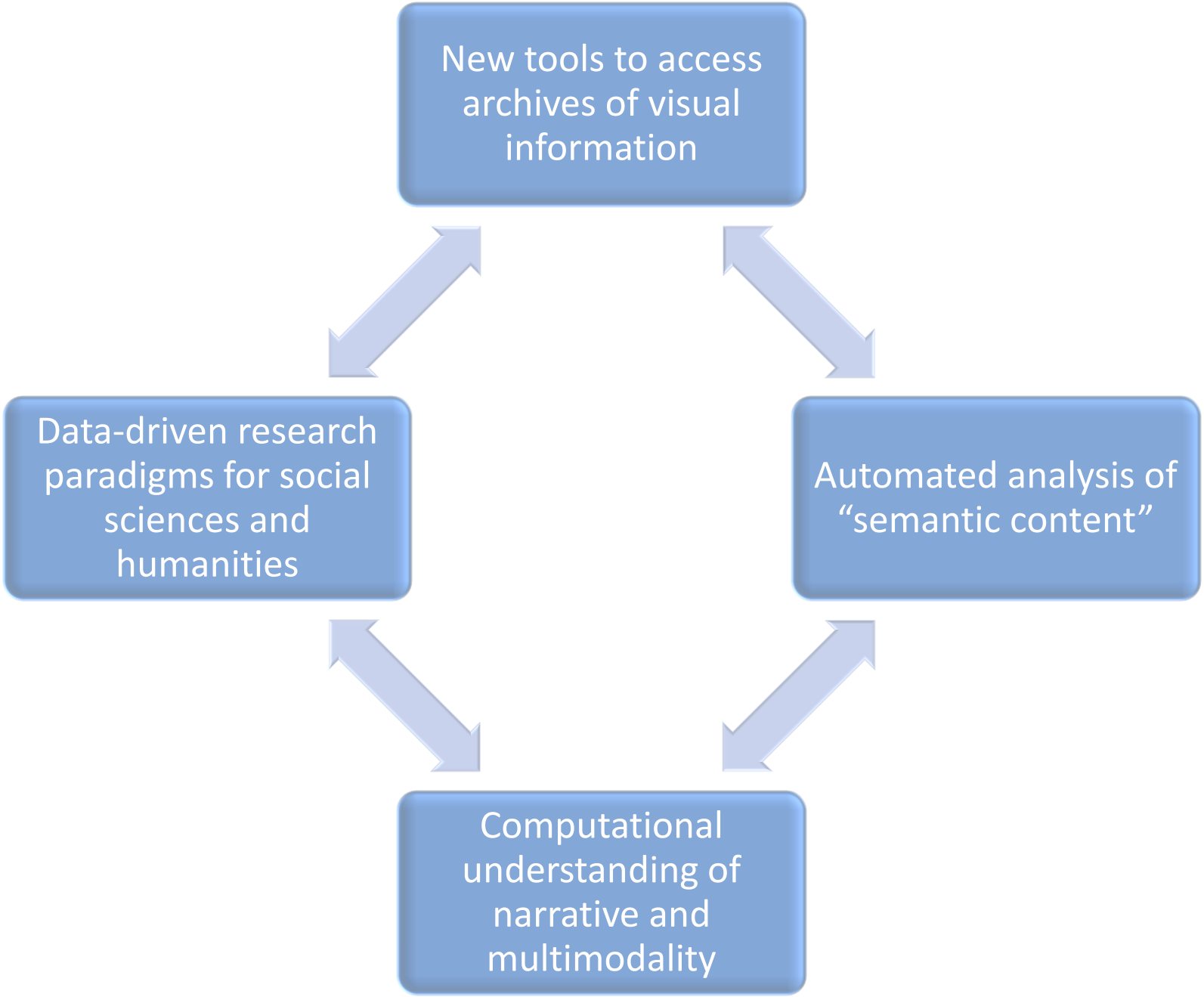
"With books, newspapers, journals, films, artworks, and sound recordings being digitized on a massive scale, [and increasing amounts of information born digital], it is possible to apply data analysis techniques to large collections of diverse cultural heritage resources as well as scientific data."

http://www.diggingintodata.org/

# “Cultural Analytics” at the Software Studies Initiative

http://lab.softwarestudies.com/2008/09/projects.html




New tools to access archives of visual information
Automated analysis of "semantic content"
Computational understanding of narrative and multimodality
Data-driven research paradigms for social sciences and humanities

# Audio Description (“Synstolking”)

# Audio Description (“Synstolking”)

00:10:18 A Red Cross convoy drives through an Italian village. Inside one of the lorries Hana leans over the wounded pilot.

00:10:35 A jeep drives up alongside.

00:10:59 Hana passes Jan some banknotes.

00:11:12 Laughing, Jan falls back into her seat as the jeep overtakes the line of lorries.

00:11:18 An explosion on the road ahead.

00:11:24 The jeep has hit a mine.

00:11:27 Hana jumps from the lorry.

00:11:35 Desperately she runs towards the mangled jeep.

00:11:42 Soldiers try to stop her.

00:11:46 She struggles with a soldier who grabs hold of her firmly.

00:12:02 Later, beside the destroyed jeep, two mine detecting devices sweep the road.

# Audio Description (“Synstolking”)

00:10:18 A Red Cross convoy drives through an Italian village. Inside one of the lorries Hana leans over the wounded pilot.

00:10:35 A jeep drives up alongside.

00:10:59 Hana passes Jan some banknotes.

00:11:12 **Laughing**, Jan falls back into her seat as the jeep overtakes the line of lorries.

00:11:18 An explosion on the road ahead.

00:11:24 The jeep has hit a mine.

00:11:27 Hana jumps from the lorry.

00:11:35 **Desperately** she runs towards the mangled jeep.

00:11:42 Soldiers try to stop her.

00:11:46 She **struggles** with a soldier who grabs hold of her firmly.

00:12:02 Later, beside the destroyed jeep, two mine detecting devices sweep the road.

# Detecting emotions in Films, via Audio Description (Salway and Graham 2003)

- Based on a cognitive theory of emotion (Ortony, Clore and Collins 1988) which defines 22 types of emotion in terms of beliefs and goals.

- 627 emotion tokens selected for 22 emotion types, using WordNet – an electronic thesaurus (http://wordnet.princeton.edu/).

# Detecting emotions in Films, via Audio Description (Salway and Graham 2003)

**JOY** - euphoria, elation, happy, jolly, pleased

**DISTRESS** - distraught, anguished, miserable, depressed

**LIKE** - love, passionately, adoration, fondness

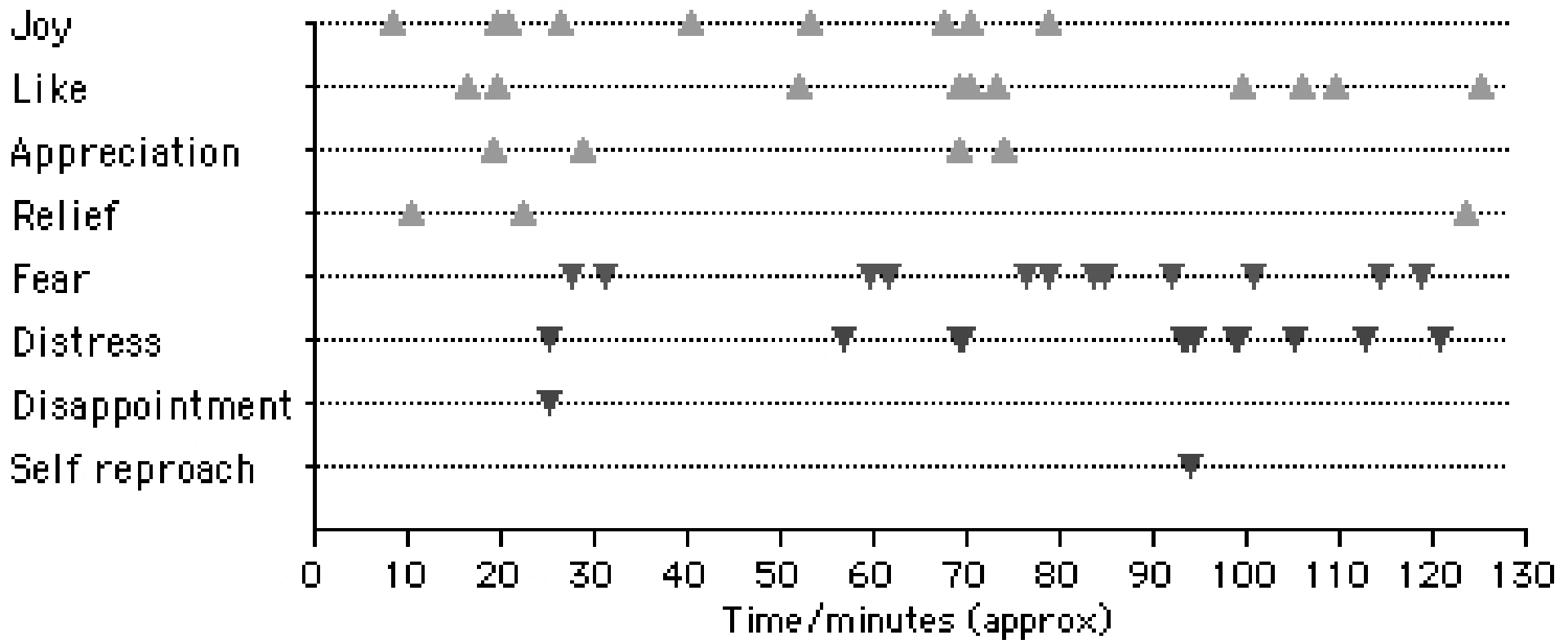
**DISLIKE** - hatred, loathing, disgust, aversion, distaste

**HOPE** - anticipation, excited, expectant, optimistic,

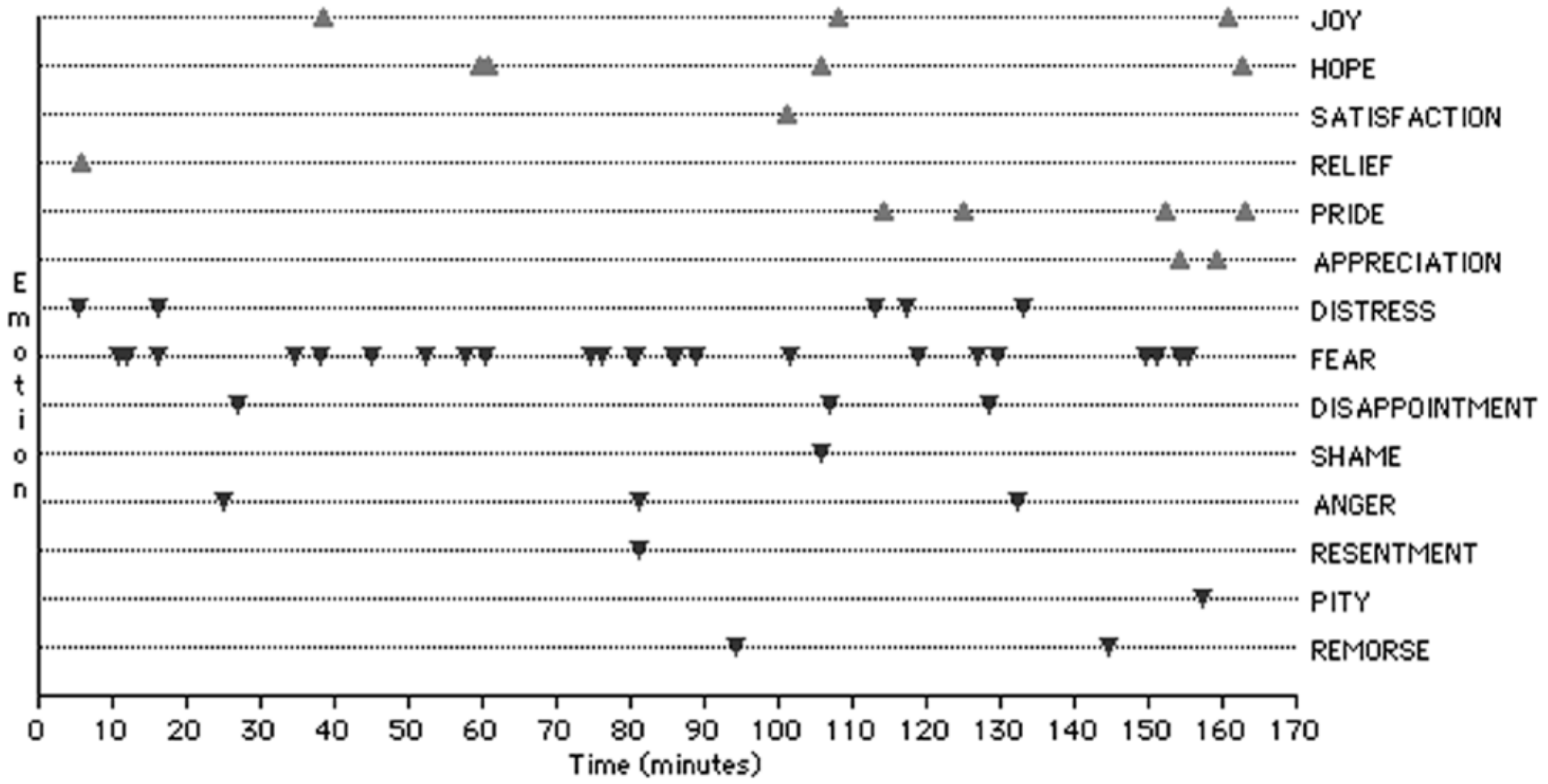
**FEAR** - terrified, panicked, worried, concerned

# *Captain Correlli's Mandolin* (dir. John Madden, 2001)

15-20 minutes: Pelagria's betrothal to Madras
20-30 minutes: invasion of the island
68-74 minutes: Pelagria and Correlli's growing relationship
92-95 minutes: German soldiers disarm Italians



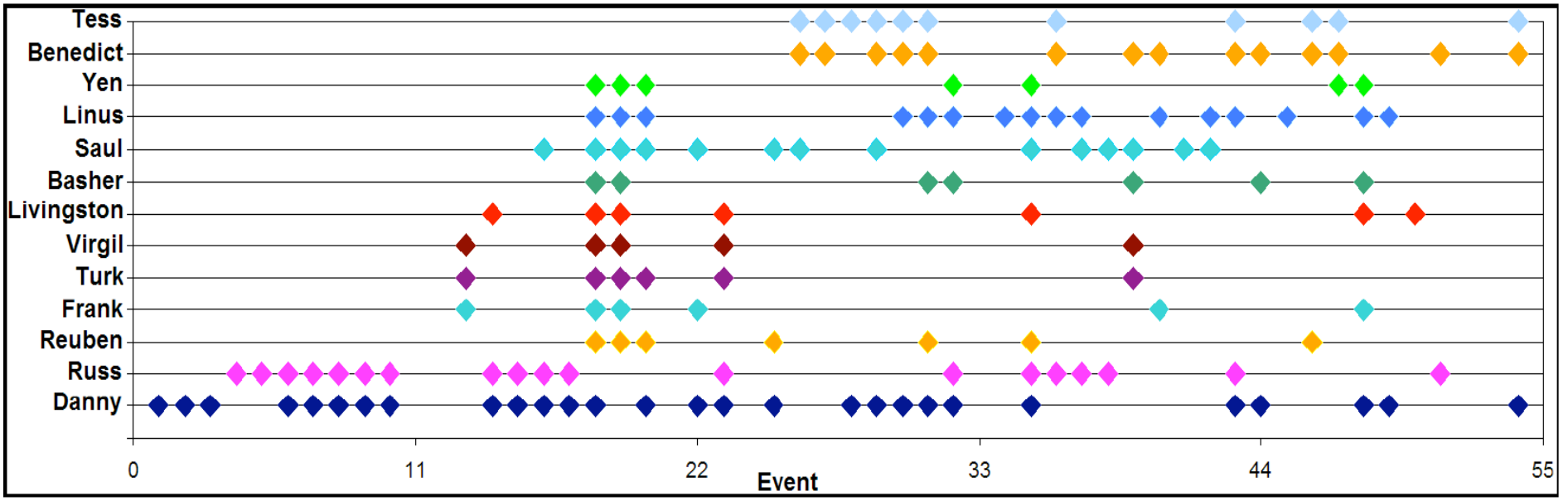
# *The Postman* (dir. Kevin Costner, 1997)



# Characters' Appearance in Films

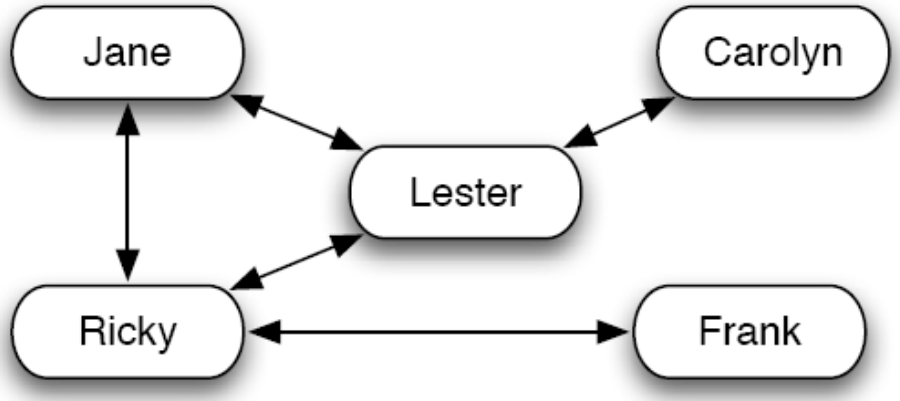
(Salway, Lehane and O'Connor 2007)

*Ocean's Eleven* (dir. Steven Soderbergh, 2001).



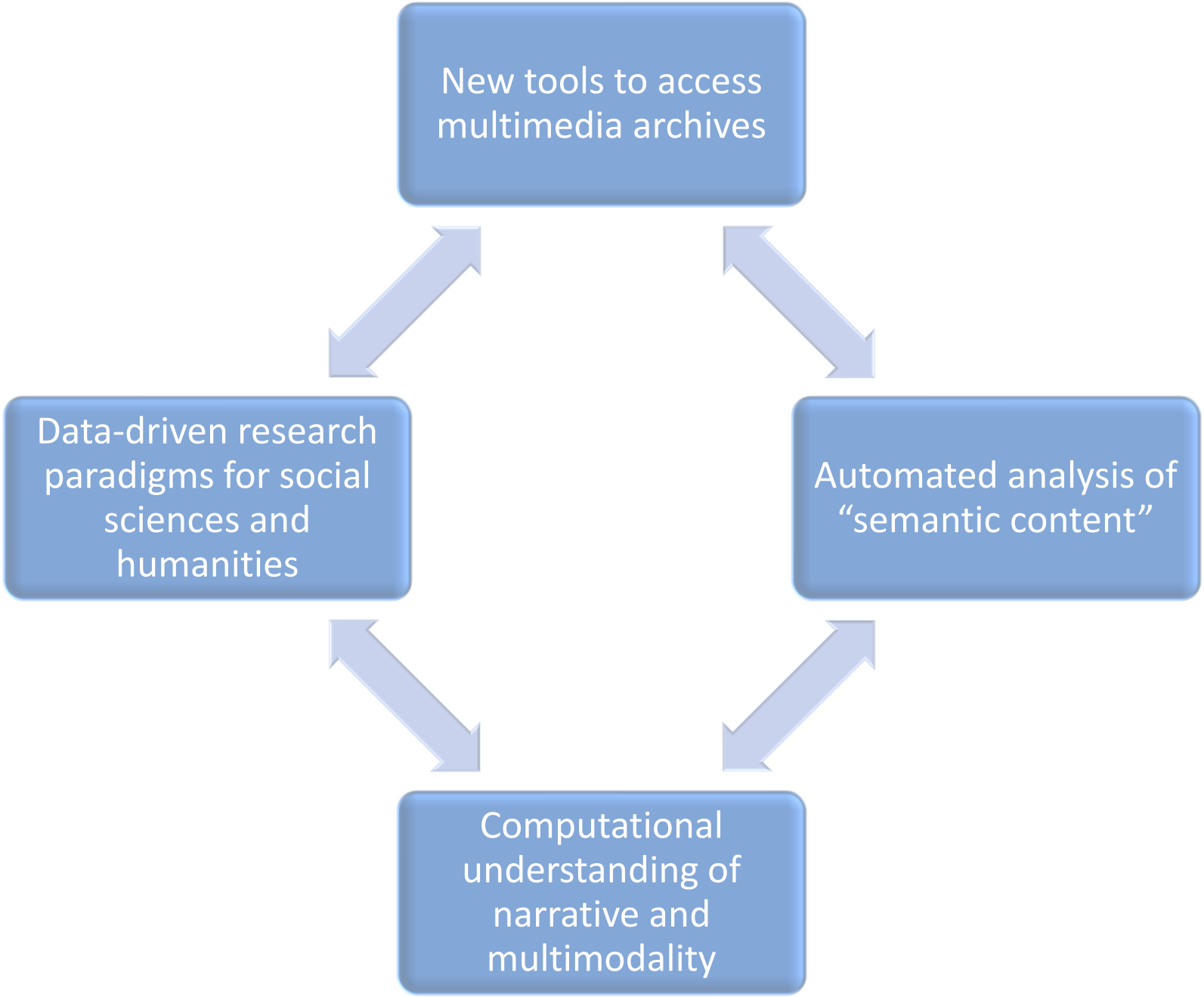
# Characters' Co-occurrence in Films

(Salway, Lehane and O'Connor 2007)




*American Beauty*
(dir. Sam Mendes, 1999)

*The English Patient*
(dir. Anthony Minghella, 1996)


New tools to access multimedia archives
Automated analysis of "semantic content"
Computational understanding of narrative and multimodality
Data-driven research paradigms for social sciences and humanities

# A data-driven paradigm

Use a computer to identify unusually frequent forms in corpora of multimodal narratives, then:

(i) develop theory to account for the occurrence of these forms in terms of their functions;

(ii) automatically generate databases of these forms / functions for further analysis.

# What do people say in films?

(Lingabavan and Salway 2006)

“I don't know”

“I'm gonna X”, “I am going to X”

“I wanna X”, “I want to X”

“I gotta X”

# Some common phrases in film scripts and audio descriptions

(Salway, Vassiliou and Ahmad 2005; Vassiliou 2006; Salway 2009)

“X looks Y-ed / Y-ly”

“X looks at Y”

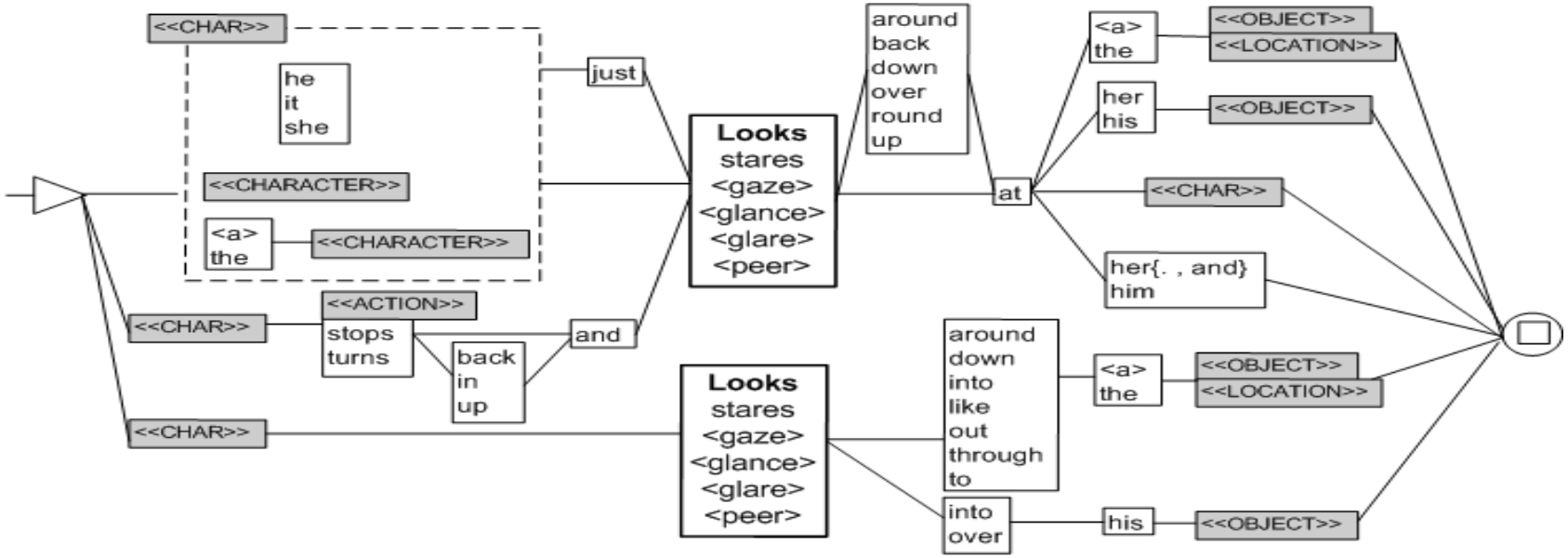
“X goes to the Y”

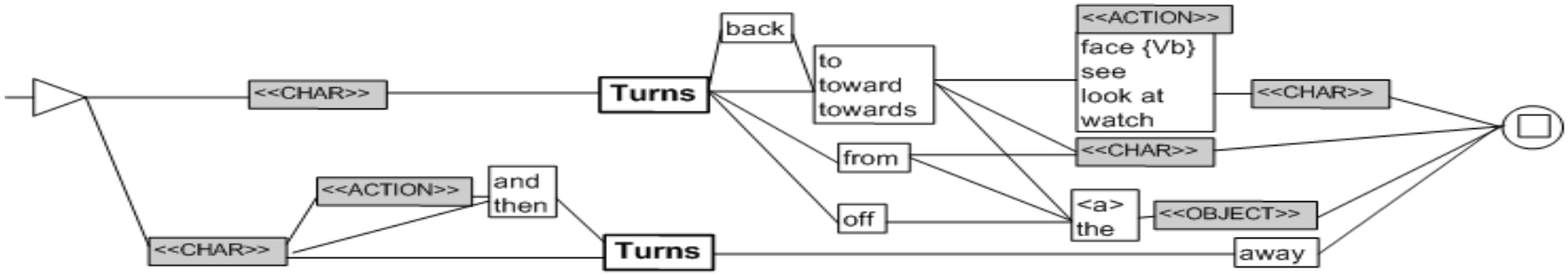
“X opens the door and leaves”

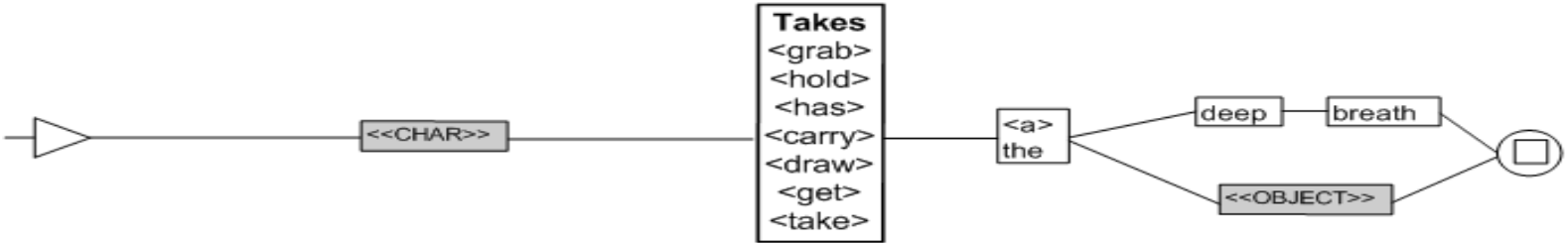
“X nods his/her head”

| | |
|---|---|
| *directly* | 9 |
| *anxiously* | 8 |
| *sadly, steadily, thoughtfully* | 7 |
| *nervously* | 6 |
| *fearfully, grimly, longingly, quizzically* | 4 |
| *curiously, slowly* | 3 |
| *blankly, briefly, carefully, frantically, intently, pensively, searchingly, seriously, sheepishly, sympathetically, uneasily, urgently* | 2 |
| *accusingly, appealingly, awkwardly, bitterly, calmly, cautiously, closely, coldly, contemptuously, defiantly, disappointedly, disapprovingly, earnestly, enquiringly, entreatingly, firmly, forlornly, gravely, guiltily, impatiently, incredulously, malevolently, meaningfully, miserably, mournfully, pathetically, pityingly, pleadingly, pointedly, questioningly, quickly, resignedly, sceptically, shakily, sharply, shyly, solemnly, surreptitiously, tenderly, unsurely, vacantly, warily, wistfully* | 1 |

# FOCUS OF ATTENTION



# Corpus-driven Information Extraction

(Salway, Vassiliou and Ahmad 2005; Vassiliou 2006; Salway 2009)

| CFOA ID | Focus Type | Character Focussing | Character Focussed On | Object Focussed On | Occurrence Time | Text String |
|---|---|---|---|---|---|---|
| FOAAD5 | ACTIVE | Jim | | (their) car | 00:15:22:24 | 00:15:22:24 looking at |
| FOAAD6 | ACTIVE | Carl (He) | Jim | | 00:23:32:07 | 00:23:32:07 turns to see |
| FOAAD7 | PASSIVE | Jim | | the gun | 00:25:11:36 | 00:25:11:36 takes |

| ScCh ID | INT\EXT | Location | Time of Day | Line No. | % Film Time | Text String |
|---|---|---|---|---|---|---|
| ScChAD1 | Interior | FITTS HOUSE - RICKY'S BEDROOM | Night | 2 | 0.07 | INT. FITTS HOUSE - RICKY'S BEDROOM- NIGHT |
| ScChAD10 | Exterior | SALE HOUSE | Day | 322 | 11.25 | EXT. SALE HOUSE- DAY |

| NVC ID | Body Part | Character Communicating | Action Involved | Occurrence Time | Text String |
|---|---|---|---|---|---|
| NVCAD9 | Head | Madox | shakes | 00:25:09:16 | 00:25:09:16 shakes his head |
| NVCAD10 | Eyes | Caravaggio | closes | 00:25:34:20 | 00:25:34:20 closes his eyes |

| COL ID | Character State | Character Changing Location | Occurrence Time | Text String |
|---|---|---|---|---|
| COLAD2 | ENTERING | Donkey | 00:06:26:17 | 00:06:26:17 runs into |
| COLAD3 | LEAVING | Donkey | 00:10:51:06 | 00:10:51:06 walks out |
| COLAD4 | WITHIN\ON | Donkey | 00:11:55:04 | 00:11:55:04 walking over to |

# For discussion…

- How do the different modes (moving image, dialogue, music) each contribute to the depiction of emotion and storytelling in films?
- How is a film related to its "collateral texts", e.g. screenplay, subtitles, audio description?
- How do the emotions depicted by characters affect the emotional experience of the audience?

**Is there a role for computation in research to address these questions?**

**What are the affordances / limitations of a data-driven research paradigm for visual culture?**

**Special report**
Japan

Search this site

Go

Go to...

Special report: Japan

Japan archived articles

In this section

Japan avoids full apology for war sex slavery

Japanese police find missing British woman's body in bath of sand

News Front Page
Africa
Americas
Asia-Pacific
Europe
Middle East
South Asia
UK
Business
Health
Science/Nature
Technology
Entertainment

Video and Audio

Have Your Say
In Pictures
Country Profiles
Special Reports

RELATED BBC SITES
SPORT
WEATHER
ON THIS DAY
EDITORS' BLOG

Last Updated: Monday, 19 March 2007, 00:14 GMT

VIDEO AND AUDIO NEWS
What life is like for those living in Baghdad
WATCH

THE STRUGGLE FOR IRAQ

KEY STORIES
- US held talks with Iraq militants
- Dozens die in fresh Iraq attacks
- Iraq deputy PM injured in blast
- UN chief shaken by Baghdad blast
- Freed Sadr aide meets Iraq's PM

BACKGROUND AND ANALYSIS

Middle East fears
Iraq's neighbours are worried about a melt-down, says Jeremy Bowen

- Hospital crisis as doctors flee
- Security struggle in south
- The battle to get educated
- Baghdad: Mapping the violence
- Iraq violence in figures

MY IRAQ
- Child psychiatrist
- Baker's sweet smell of success

News Front Page

Africa
Americas
Asia-Pacific
Europe
Middle East
South Asia
UK
England
Northern Ireland
Scotland
Wales
UK Politics
Education
Magazine
Business
Health
Science/Nature
Technology
Entertainment

Video and Audio

Have Your Say
In Pictures
Country Profiles
Special Reports

BBC NEWS: VIDEO AND AUDIO

**Hear Tariq Ramadan defend his position**

AUDIO

# Magazine

**Now for the science**
What's the science behind anti-wrinkle creams and do they actually work?

- **Suburban parakeets**
  Your pics of exotic birds in UK
- **Spread the word**
  Word-of-mouth advertising
- **Saddle up**
  Try our cycling proficiency quiz

MAGAZINE REGULARS

**Daily Mini-Quiz**
How many drivers are caught and fined each day using mobiles?

- Magazine Monitor

VISIT THE MAGAZINE INDEX

BBC NEWS

OPEN The News in 2 minutes

**News services**
Your news when you want it

Last Updated: Monday, 26 March 2007, 23:58 GMT 23:58 UK

## OIL PRICE UNCERTAINTY

**NEWS**
- Oil rebounds despite stock rises
- Stockpile news drives oil price
- Oil prices rally after fresh fall
- Healthy stocks send oil tumbling

**ANALYSIS**

**Oil still rising**
Growing demand means the era of easy oil is over

- Phantom reserves
- Has production peaked?
- Why are oil prices so high?
- The rocky road to oil riches
- Oil and conflict - a natural mix

**BACKGROUND**
- OPEN Where the world's oil li
- OPEN Petrol prices explained
- Opec in profile
- Oil markets explained
- What it was like in 1974
- What will the future hold?

**LATEST OIL PRICES**
- Brent crude oil
- West Texas Intermediate crude

HAVE YOUR SAY

# Work in Multimodality

- We showed how news images can be classified as 'specific person' or 'general person' by humans reliably, and by computers automatically on the basis of low-level image features (Hughes, Salway, Jones and O'Connor 2007)
  - Image brightness, sharpness and colour variation
  - Face detection / size
- We proposed a system of image-text relations to account for the different ways in which visual and verbal information can function together in multimodal documents (Martinec and Salway 2005); drawing on Barthes; Halliday; Kress and van Leeuwen
  - Not a computer-based analysis, but we were considered the limits of computational analysis when specifying realisations of image-text relations