Seeing the unforeseen: eye-tracking and multimodal analysis

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Reading paths in hypertext

- Do users read what designers want them to read?
- How can reading patterns be influenced?
- salience
- vectors
Outline

- Salience / vectors / reading paths
- Eye-tracking
- Previous study (2006)
- Current study (2014)
- Conclusions
Kress & van Leeuwen (1996: 218ff.)

- salience
  
  "… reading paths begin with the most salient element, from there move to the next most salient, and so on."
WINTER ENCHANTMENT in the Hohe Tauern National Park

The imposing mountains of the Hohe Tauern range provide a splendid backdrop for a truly enchanting winter vacation. Located just outside the park's boundaries are 8 fantastic ski areas - 799 kilometers of slopes, with access provided by 27 cable lifts, 94 chair lifts and 133 T-bar lifts. They are marked by broad diversity, on occasion very gentle in nature, yet at other times providing challenging experiences. Even fans of "alternative" winter sports will find a perfect refuge: snowboarding, cross-country skiing, tobogganing, winter hiking ... it's all possible! Cautious interaction with nature's treasures is deeply rooted in the region. The free ski shuttles provide comfortable, convenient transportation to, from and between the ski lifts.
Kress & van Leeuwen (2006)

- vectors
  replace verbal processes in images
  not much information about guiding function
A NEW BREED OF GOLD-DIGGERS

Get West young women has taken on a new infatuation for the girls who are striking it rich.

M

They're the girls who are turning the men on with smiles and frilly nails, and they're giving the traditional image of the great American gold digger a good bath. It's a different era: the era of the golden girl.

One of the girls is Repeat, 18, who has been in a relationship with the fashion designer of the decade, 31-year-old Martin Mikal. Repeat has a reputation for being a bit of a gold digger, but she denies it.

“I don’t go for money,” she says. “I just want love and attention.”

Martin Mikal, 31, is known for his wild parties and his love of young women. He met Repeat at a party and was immediately smitten with her.

“Repeat was like a breath of fresh air,” he says. “She was so beautiful and so natural.”

Repeat, who has a slight accent, was born in Russia but moved to the United States when she was 10. She has always been drawn to the glamour of Hollywood and the world of show business.

“I’ve always been fascinated by the movie stars,” she says. “I’ve always wanted to be like them.”

Repeat has been dating Martin for about a year and a half. They met at a party and hit it off immediately.

“I was immediately attracted to her,” Martin says. “She was so smart and so funny.”

Repeat, who is a college graduate, has a degree in business. She is interested in fashion and wants to open a clothing store of her own someday.

Repeat and Martin are often spotted together at parties and events. They seem to be very happy and are frequently photographed together.

“I love Repeat,” Martin says. “She’s the best thing that ever happened to me.”

Repeat, who is slightly overweight, is often criticized for her looks. But she doesn’t care.

“I don’t care what people think,” she says. “I just want to be happy.”

Repeat and Martin are planning to get married next year. They hope to have a baby soon.

“I can’t wait to be a mother,” Repeat says. “I want to be a good mother.”

Repeat and Martin are often seen on the red carpet at fashion shows and other social events. They are considered to be one of the hottest couples in Hollywood.

“We’re just trying to enjoy life,” Martin says. “We’re not looking for anything but love.”

Repeat and Martin are both very generous with their money. They often donate to charity and are known for their good deeds.

“I want to be known for more than just my looks,” Repeat says. “I want to be known for my kindness.”

Repeat and Martin are a perfect couple. They are happy and healthy and seem to be very in love.

“I love Repeat more than anything in the world,” Martin says. “She’s the best thing that ever happened to me.”

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vectors

"... the photograph on the left is tilted to form a vector that leads the eyes to the photograph on the right ..."
A NEW BREED OF GOLD-DIGGERS

Get West young women have taken on a new interest for the girls who are striking it rich.

M in the gold mines near Lachlan. It's a harsh, dusty, and dangerous environment, but for many, the rewards are worth the risk.

Though the work is tough, the young women are determined to succeed. "It's not just about the money," says one miner. "It's about the challenge and the thrill of the hunt."
Können wir bitte einen Tisch im Raucherteil haben?
Could we have a table in the smoking area?
Könnten wir bitte einen Tisch im Raucherteil haben?
Could we have a table in the smoking area?
Kann man mit Kreditkarte bezahlen?
Do you take credit cards?
Vestergaard & Schrøder (1985)

on advertising posters

- start with eye-catching element in optical centre,
  then move on the upper left, lower right diagonal
Sandig (2000)

- text-picture combinations in advertising
  - from top left
  - to the center
  - and bottom right
Kok (2004)

- focal point will attract reader's attention
  - then top down
  - left to right
Method

- Heuristic interpretation (Baldry & Thibault 2006)
- Introspection
- Retrospective protocols (Kress & van Leeuwen 2006)
Eyetracking from speculation to empiricism

- state of the art eye movement recording is @ 1000 sampling rate, i.e., 1 picture every millisecond
- binocular/monocular recording of fixations, saccades
- fixation & saccade reports
- real-time video recording of events
Typical recording situation

- Display monitor
- Host monitor
Pilot study

- 10 students from Salzburg
- 2 male, 8 female; age 22-27
- English C1/C2
- 7 stimuli (webpages as screenshots)

- read / view what you find interesting
The data

- four pages from *The British Museum Children's Compass* Baldry & Thibault (2006: ch. 3)
- 20 seconds per stimulus
Results

Pilot study
WINTER ENCHANTMENT in the

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e-mail: ferienregion@nationalpark.at

The imposing mountains of the Hohe Tauern range provide a splendid backdrop for a truly enchanting winter vacation. Located just outside the park's boundaries are 8 fantastic ski areas - 799 kilometers of slopes, with access provided by 27 cable lifts, 94 chair lifts and 133 T-bar tows. They are marked by broad diversity, on occasion very gentle in nature, yet at other times providing challenging experiences. Even fans of "alternative" winter sports will find a perfect refuge: snowboarding, cross-country skiing, tobogganng, winter hiking ... it's all possible! Cautious interaction with nature's treasures is deeply rooted in the region. The free ski shuttles provide comfortable, convenient transportation to, from and between the ski lifts.
Located at the fringes of the National Park are 8 fantastic ski areas - boasting some 800 kilometres of superb ski slopes! And fans of alternative winter sports will also discover their own perfect refuge: cross-country skiing, tobogganing, snowshoe hikes, igloo building, horse-drawn sleigh rides, ice climbing, and so much more.

...absolutely nothing stands in the way of an unforgettable winter vacation!
Women sewing, a print

From: Japan
Date: Edo period, about AD 1795-96

Sewing was done by Japanese women, who often spent their time apart from the men of the family. This print shows three women working together on their sewing on a hot summer's day. On the right, two of them stretch and fold a red silk sash with a tie-dyed pattern of white starfishes. On the left, one woman is holding up a sash, maybe to check the repair she has just made.

Look for other members of the family - a teenage girl peering into a small cage, which holds her pet insect; a little boy teasing a cat with its reflection in a mirror; and a baby playing with its mother's fan.

Height: 370 mm (each approx.)
Width: 245 mm (each approx.)

JA 1912.4-16.0220
Department of Japanese Antiquities (study collection)
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thematic relations / covariate ties

- cothematic ties: image and verbal description correspond
- coactional ties: enforce reader action onto represented items
  - *look for other members of the family*
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Conclusions

- thematic / co-actional ties not observed
- salience ???
- equal distribution of modalities makes them equally salient → visual type, text type
- students are readers not viewers
Follow-up study (August 2014)

1. non academic test-persons
   - 5 janitors from University of Salzburg
   - English A1/A2

2. academic test-persons
   - 6 faculty from University of Salzburg
   - English C2
   - asked to
     "study the webpages and answer content-related questions"
Follow-up study (August 2014)

1. janitors' results

- scanning instead of reading
- pictures
- logo
Winter Enchantment in the Nationalpark Hohe Tauern

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E-mail: ferienregion@nationalpark.at

The imposing mountains of the Hohe Tauern range provide a splendid backdrop for a truly enchanting winter vacation. Located just outside the park's boundaries are 8 fantastic ski areas with 799 kilometers of slopes, 87 lifts provided by 80 cable cars, 52 chair lifts and 133 T-bar lifts. They are marked by broad diversity, on occasion very gentle in nature, yet at other times providing challenging experiences. Even fans of "alternative" winter sports will find a perfect refuge: snowboarding, cross-country skiing, tobogganing, winter hiking ... it's all possible! Cautious interaction with nature's treasures is deeply rooted in the region. The free ski shuttles provide comfortable, convenient transportation to, from and between the ski lifts.

Link to National Park Headquarters
2. academics' results

- studying → considerably more time
- salient picture still not much attention
- logo recognized
WINTER ENCHANTMENT in the FERIENREGION Nationalpark Hohe Tauern

The imposing mountains of the Hohe Tauern range provide a splendid base camp for a truly enchanting winter vacation. Located just outside the park's boundaries, are fantastic ski areas with a network of slopes, lifts, and cross-country trails. The area is marked by the diversity of its slopes, very gentle in nature, yet at other times providing challenging experiences. Even fans of "alternative" winter sports will find a perfect refuge: snowboarding, cross-country hiking, tobogganing, winter hiking... It's all possible! Caution: interaction with nature's treasures is deeply rooted in the region. The free ski shuttles provide comfortable, convenient transportation to, from and between the ski lifts.
Follow-up study (August 2014)

2. academics' results

- co thematic ties recognized
- several co thematic, intermodal saccades

- TP24 Trial7
Conclusions

- Eye-tracking + Multimodal theory → mutual benefit
Advantages of Eye-tracking

- enormous potential for testing / showing effects of semiotic modalities
- professional webdesign
- support / refute / improve heuristic methods / introspection
- help detect phenomena unrecognized by multimodal theory (covert vectors)
Disadvantages of Eye-tracking

- costs
- time
- nerd needed
- Observer's paradox (Labov)