

# Presenting Academic Work

Engage, Talk, Visualize

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Academic Literacy  
Winter term 2019/2020

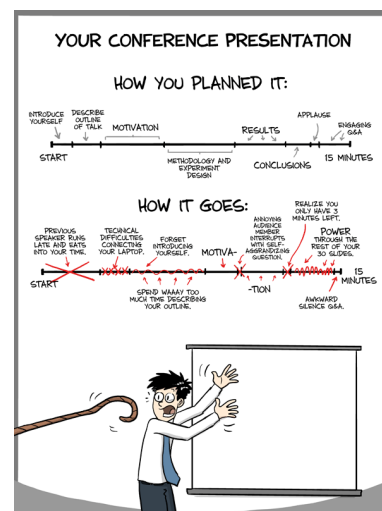


medieninformatik

IMAI – Institut für  
Mathematik und  
Angewandte Informatik

## Welcome

- Ladies and Gentlemen...
- Presentations and Talks:
  - Motivation
  - Presentation
  - Layout
  - Disruptions
  - Feedback

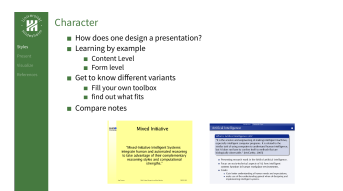
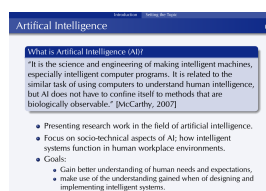
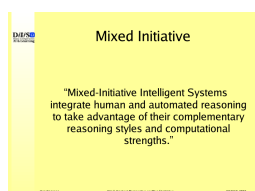


PhD Comics 1553

## 1 Styles

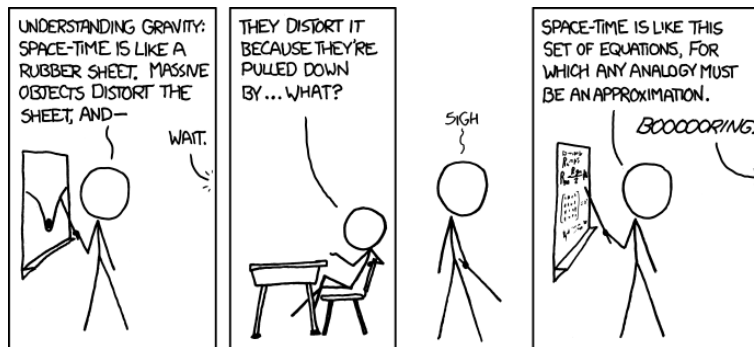
### Character

- How does one design a presentation?
- Learning by example
  - Content Level
  - Form level
- Get to know different variants
  - Fill your own toolbox
  - find out what fits
- Compare notes



## Role Models

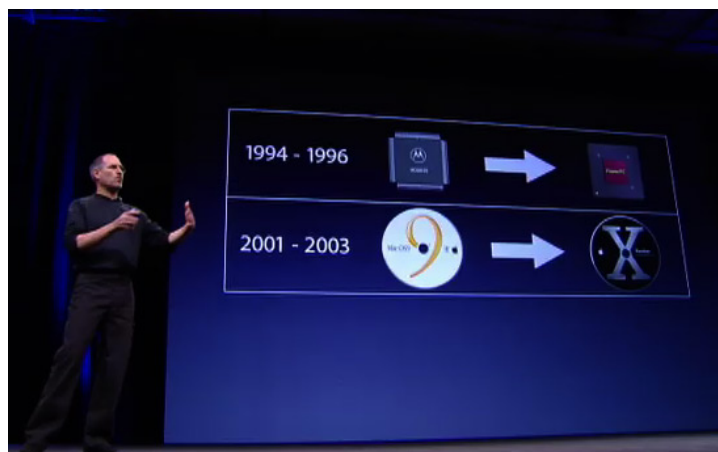
- Two potential role models
  - Bill Gates
  - Steve Jobs
- 📖 Garr Reynolds (2005): Gates, Jobs, & the Zen aesthetic



📖 xkcd: teaching physics



We have lots to show to you!



We have lots to show to you as well!



The big (colourful) picture



I need your full attention for the next topics...

### Take Away Focus

- Reduced design language/simplicity
- Reduced colour palette
- Do not be afraid of white space
- A slide is not a handout

### Caveat

But: Find your own style. Not everybody is like Steve Jobs.

## 2 Present

### Present & Visualize

- *Present*
  - Definition
  - Preparation
  - Execution

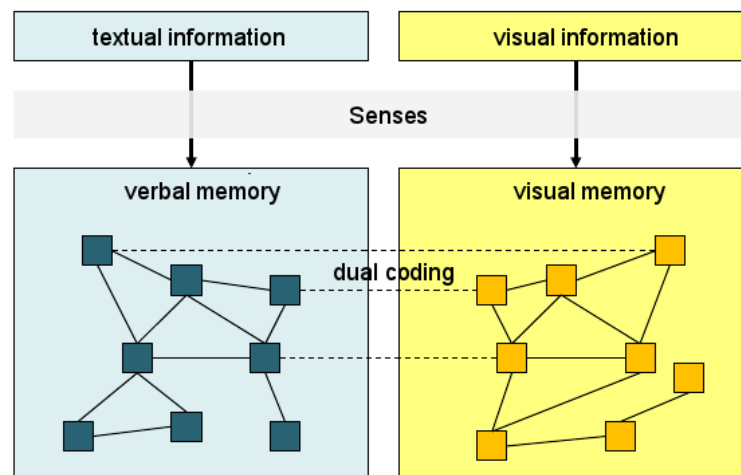
- Non-verbal behaviour
- Reflection
- Visualize
  - Definition and Goals
  - Design elements
  - Colours and Shapes
  - Composition
  - Tips

## Definition

- What?
  - Connecting
    - \* verbal,
    - \* non-verbal and
    - \* visual

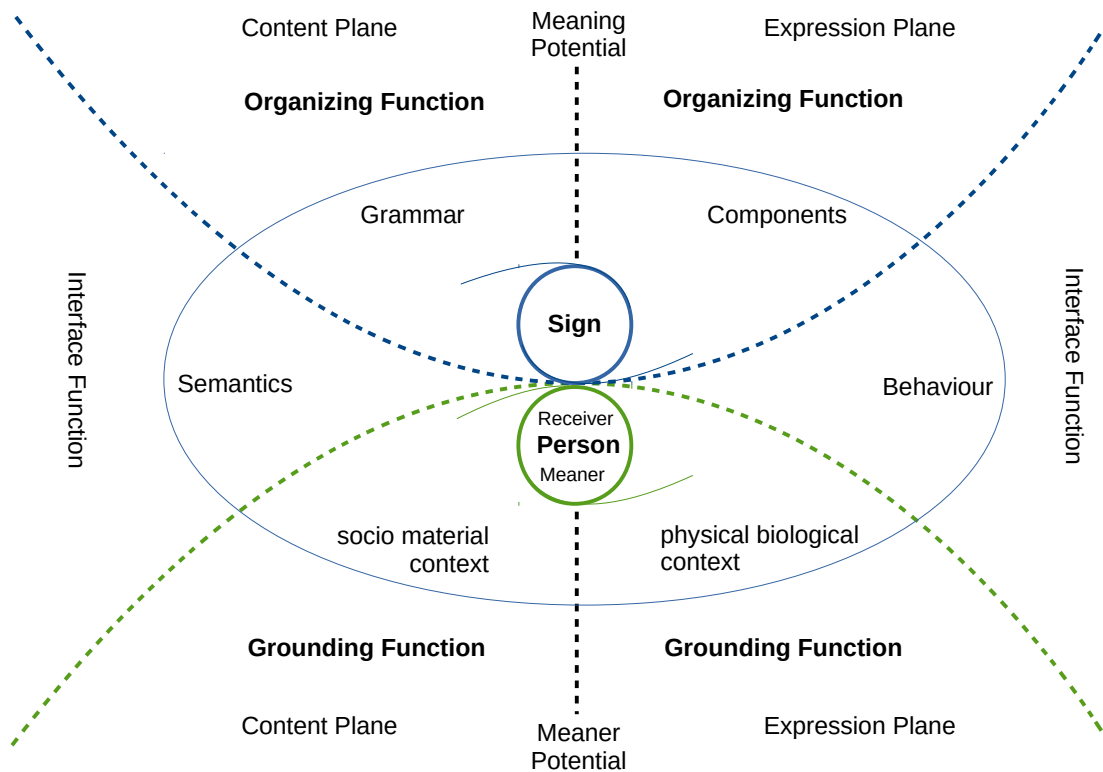
means of communication to make certain content accessible for a recipient
- How?
  - Consistent, clear structure
  - Successful visualization
  - Authentic presentation behavior
  - Multi-medial, *Multi-modal*, *Multi-codal*

## Dual Coding



Dual-coding-theory: [Paivio \[1986\]](#)

## Communication



Source: Wegener [2011, 2015]

## Preparation

- Three reference points for determining the content
  - Goals
  - Content
  - Time
- Yardstick for selection of content
- Goals:
  - Which goal (e.g., learning objective) would I like to achieve?
- Content:
  - What content is necessary to achieve my goal?
- Time:
  - How much time is available?
  - \* and how long would the audience like to listen?

## Collect, Select, Compress, Express

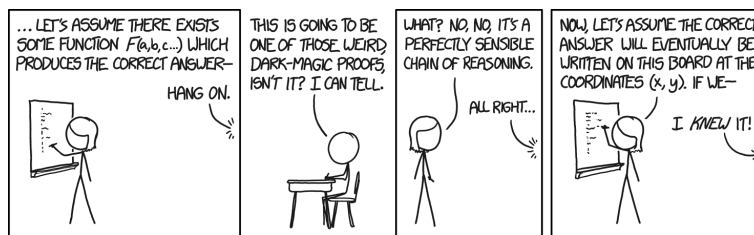
1. Collect & select content
  - What would be suitable for presentation?
    - Topics
    - Examples
    - Visuals
2. Compress content
  - Reduce to the important
    - You don't have much time

### 3. Express content

- Bring the content into shape
- Textual representation
- Visualization

### Compress

- new information takes precedence over known ones
- Focus on most important information
  - To reach your goal
  - To satisfy the target audience
- Make use of context
  - Prior knowledge
- Restrict yourself to the essentials

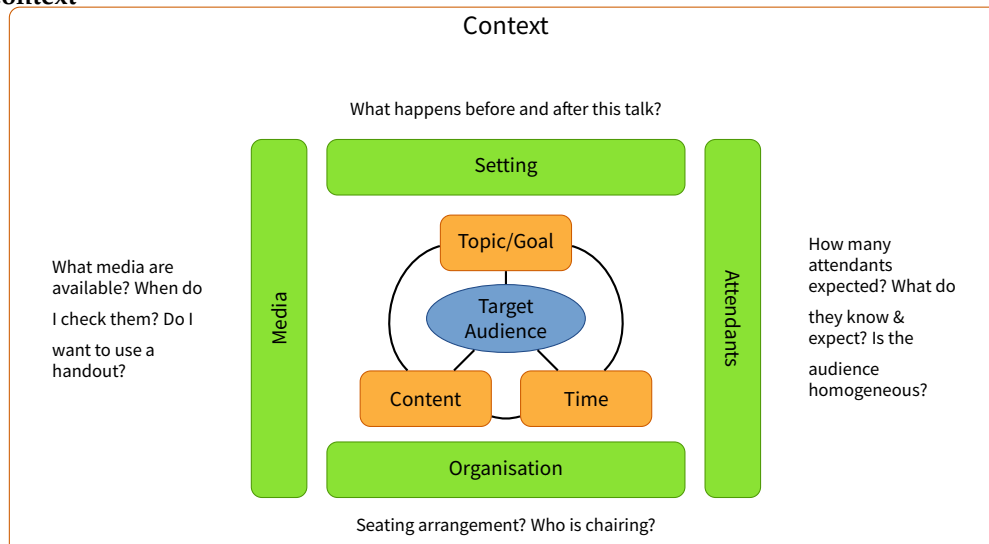


xkcd: proofs

### Target Audience

- Context of talk important
- Centred around the audience
  - How large is the audience?
  - Any commonalities?
    - \* Age
    - \* Gender
    - \* Profession
    - \* Prior knowledge
  - What do the participants expect?
  - What are they interested in?

### Context



## Organisation I

- Length, breaks
  - Review of the length of the lecture
  - Prepare “Emergency program” (select the most important points)
  - Do not talk for more than 45 minutes
- Documents for participants (handout)
  - Design as text (in its own right) or as an image of the slides
  - Always discussed: when to hand it out?
    - \* before: to annotate
    - \* after: probably with extensions
- Personal preparation
  - Visualize sequence of the presentation in your mind
  - Create notes, index cards, or a presentation guide
  - Clarify dress code
- Media
  - Available?
  - In working order?

## Organisation II

- Check presentation technology
  - Projector
  - Wifi, Internet
  - Computer, software
  - Connections, Cables, Adapters
  - Loudspeaker
  - Presenter
  - ...
- Anticipate problems
  - Live-Demo
    - \* Video and/or screenshots of the system
  - Presentation
    - \* Laptop
    - \* USB-Stick
    - \* Dropbox...
    - \* E-Mail
    - \* Printout
    - \* ...

## Preparation

- Check spelling
  - Best by another person
- Practice talk, best...
  - in the right room
  - in front of an audience

- with the technical means to be used
- While doing that or after
  - Take time, usually required:
    - \* BA-/MA-Colloquia: 30 minutes talk, 15 minutes demo
    - \* Seminar: 30 minutes, 15 minutes discussion
    - \* Project/lab course: 30 minutes, maybe including demo
  - revise problematic passages
  - identify & reduce skip actions

## **Skeleton**

- **Introduction (5%)**
  - Welcome the audience
  - Present yourself
  - Arrange the formalities
  - Introduce topic & goal
  - Present the structure
- **Main part (75%)**
  - ...
- **Conclusions (20%)**
  - Summary
  - Move to discussion
  - Marking the end

## **Introduction**

- Welcome
- Introducing yourself
  - Embedding into context
- Agreement on style and procedure
  - When are questions asked?
  - Is something demonstrated?
- Introduce topic and goal
  - motivate the audience to listen
    - \* ask questions
    - \* Show benefits
    - \* provoke (sparingly)
    - \* entry joke

## **Main Part**

- Speak freely (index cards)
- Keep eye contact
  - Talk to the audience, not the wall (screen)
- Short, understandable sentences
- Use your voice in a targeted manner
- Take breaks



- Do not play with a pen, pointer, etc.
  - But you can stick to the pen
- Involve listeners
- Give summaries in between
- Use redundancy consciously
- Build some dramatic effect
  - Posters, situational foils, situational logo

## **Finish**

- Short Summary
- Designated time frame & objective for discussion
- Move to discussion/workshop phase
- Clarify what will happen with results
- At the end: thanks for participation
  - But no “thank you” slide
  - Better: title page or slide with contact details

## **Disruptions**

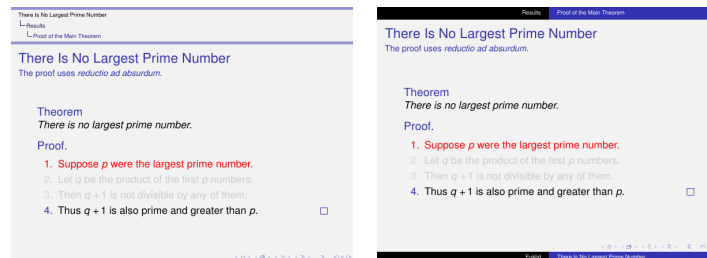
- Late arrivals
  - Welcome by eye-contact only
- Questions
  - Depending on the agreed upon procedure: answer or refer to later
- Slip of the tongue
  - Correct, do not apologize
- Forgotten terms
  - Describe
- Chatty audience
  - Eye contact, direct questions
- Technical mishaps
  - Continue without media or break

## **Slides**

- Presentation must be visible to all
- Stay out of line of sight
- Do not talk to the media, but to the people
- Use visualization as a “thread”
- Projector: try the mouse instead of a laser
  - Laser pointers can irritate quickly
  - Therefore: Use sparingly (we are no cats)
  - By no means point to everything you say (karaoke)

## Structure

- Structuring: (intermediate) headings
- Situation: Where in the talk are we?
  - At the beginning: agenda
  - During the talks:
    - \* hinted on every slide (eg as with LaTeX beamer) or
    - \* repetition of the agenda as intermediate foils
- Page numbers



## Verbal & Non-verbal

- Voice
  - Control speed
  - Use breaks in speech
  - Control sound, tone, volume
- Posture
  - Upright
- Movement
  - Natural
  - No subconscious movement
- Gesture
  - Fitting the content
  - Avoid uncertainty
  - Authentic
- Eye contact
  - Builds relationship
  - Catching signals

## Briefing and Reflection

- Why?
  - optimize
  - learn from mistakes
- What?
  - goal reached?
  - talk suitable for audience?
  - was structure okay?
  - opening succeeded?
  - conclusion succeeded?
  - was use of media okay?

## 3 Visualize

### Present & Visualize

- Present
  - Definition
  - Preparation
  - Execution
  - Non-verbal behaviour
  - Reflection
- *Visualize*
  - Definition and Goals
  - Design elements
  - Colours and Shapes
  - Composition
  - Tips

### Text I

- Text
  - Good readability
  - Be aware of reading habits:
    - left to right
    - from top to bottom
- Consistent (own) style
  - Corporate Identity
- Legibility
  - dark font
  - bright background
- Font
  - sans serif
  - if possible only one font
- Navigation
  - Chapter structure
  - Slide number

### Text II

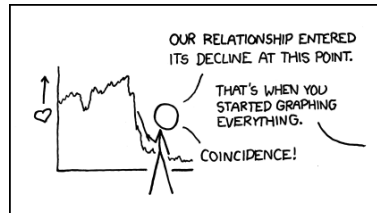
- Reduction to the essentials
- Keywords instead of sentences
- Visualizations examples
- Four intelligibility enhancers:
  - simplicity
  - Structure & order
  - Shortness & conciseness
  - Additional stimuli

### Krug's Third Law of Usability, 2005

"Get rid of half the words on each page, then get rid of half of what's left."

## What is Visualization

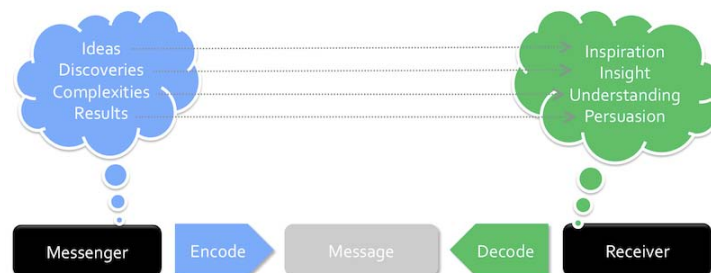
- Visualizing is pictorial representation
  - “A picture is worth a thousand words”
- Aims:
  - Make information easier to grasp
  - Give guidance
  - Provoke statements
  - Further memories



ES xkcd: decline

## Field of Visualization

- Draws from many fields
- Requires a deep and broad knowledge across several traditionally discrete subjects, including cognitive science, semiotics, statistics, graphic design, cartography, and computer science
- Goal: Communication



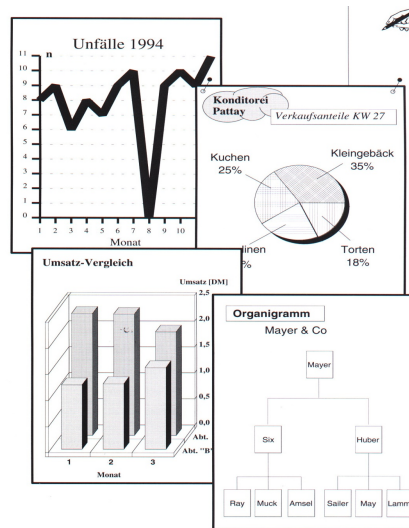
Source: Kirk [2012]

## Graphic Elements

- Graphs, icons, diagrams
- What for?
  - Avoid too much text
  - additional stimuli
  - Loosening up “dry” topics
- and really?
  - Clarification/highlighting of elements
  - Explanation of facts
  - Illustration of facts
- Question: What should be achieved with the picture?
  - choose appropriate visualization
- no images/scans/photos of poor quality (pixelated, crooked, illegible, ...)
  - better to do it over yourself
- Avoid 3D-effects or shadows
- Use color sparingly

## Diagrams

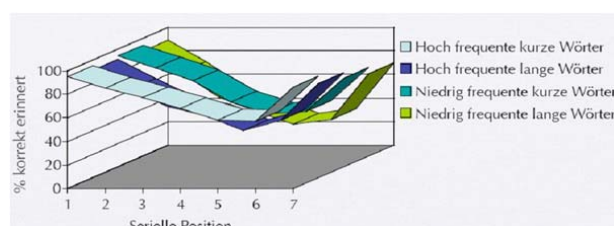
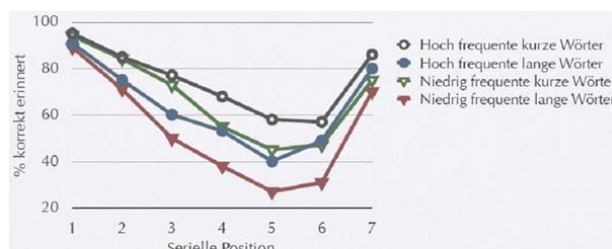
- Comparison of:
  - absolute numbers
  - development courses
  - proportions
- Illustration of:
  - procedures
  - structures



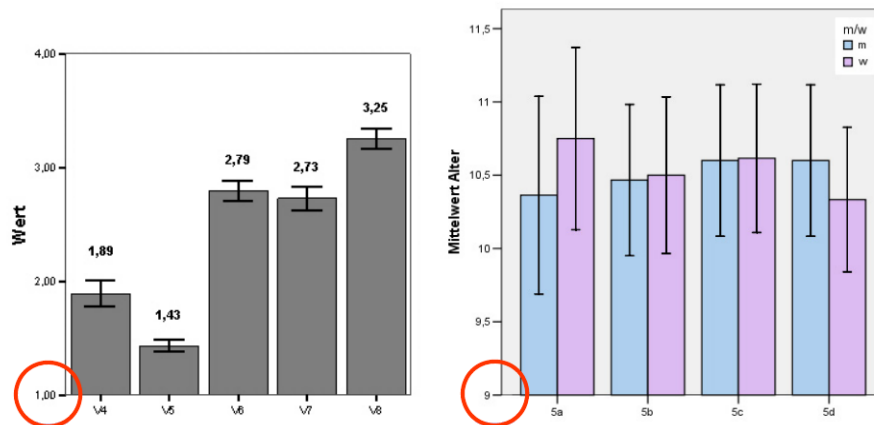
## Layout

- Pictures have captions
  - Can be omitted if the image serves mainly structuring purposes or the content is communicated in the graphic
- Pictures have numbers
  - Can be omitted in numbered slides
  - otherwise number consecutively, possibly by chapter
- Graphic processing of data
  - Attach legend
  - Axes of the coordinate system intersect at the origin
    - \* if not: indicate
  - Always specify axes and/or units
  - Make multiple curves easily distinguishable
    - \* Texture/hatching, color, strength
  - Observe scientific layout rules
    - \* 3D-effects usually counter-productive
  - Supplement the measures of the central tendency with dispersion measures

## 3D-Effects

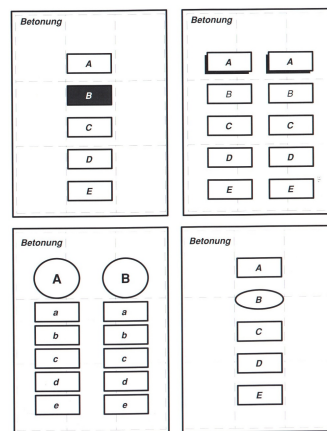


## Error Bars

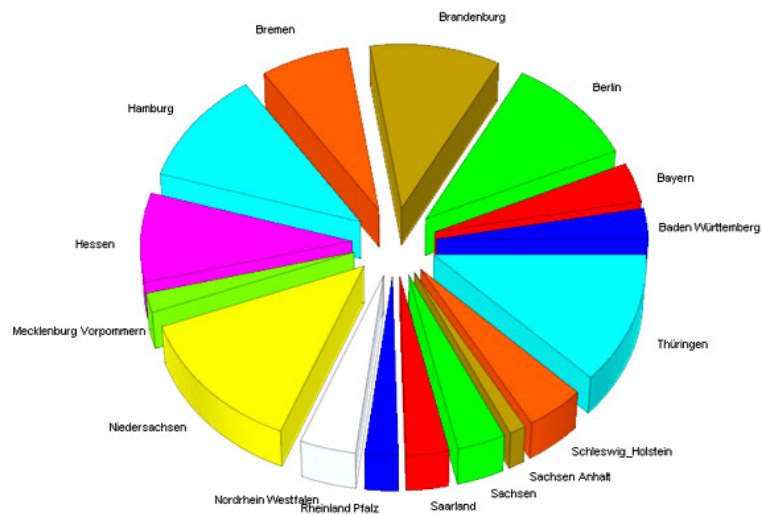


## Shapes & Colours

- What for?
  - Highlight important information
  - Clarify relationships
  - Make cross references between several representations clear
  - connect successive representations



## Pie Charts

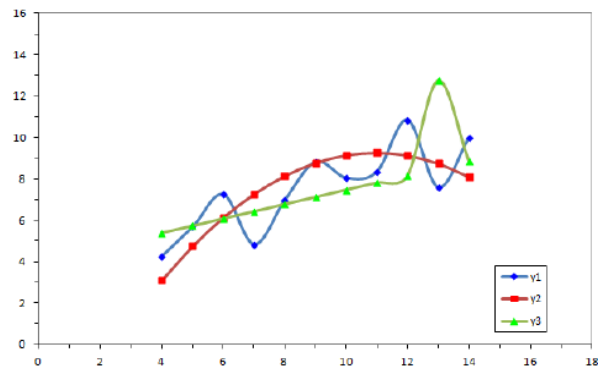


[schule.mupad.de/aktuelles/presse/bilder/index\\_11.shtml](http://schule.mupad.de/aktuelles/presse/bilder/index_11.shtml)

## Tables

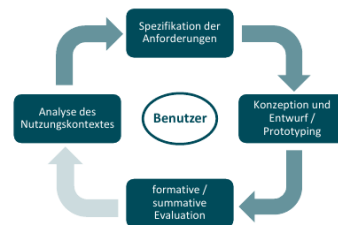
- avoid unnecessary (vertical) lines
- maintain sufficient distance to the cell boundary (padding)
- if possible: supplement with diagrams

x	y <sub>1</sub>	y <sub>2</sub>	y <sub>3</sub>
4	4,26	3,10	5,39
5	5,68	4,74	5,73
6	7,24	6,13	6,08
7	4,82	7,26	6,42
8	6,95	8,14	6,77
9	8,81	8,77	7,11
10	8,04	9,14	7,46
11	8,33	9,26	7,81
12	10,84	9,13	8,15
13	7,58	8,74	12,74
14	9,96	8,10	8,84

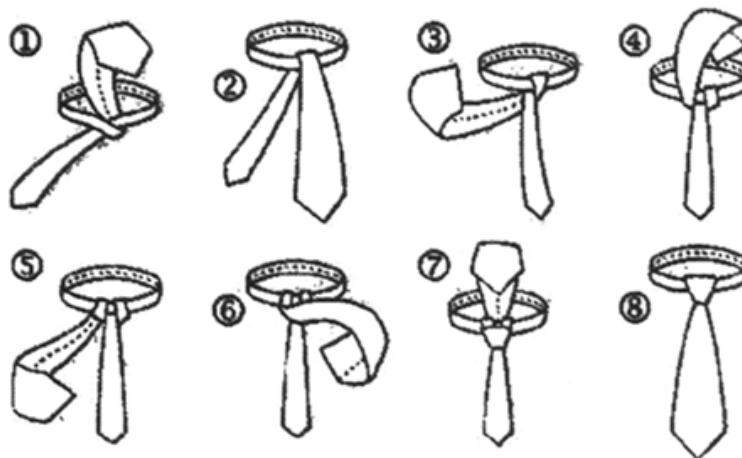


## Composition and dramaturgy

- Reveal/uncover and animation
- Why?
  - Suspense
  - Loosening up
- And really?
  - Visualization of processes, processes, phases
  - Clarification of differences and/or developments
  - Not an end in itself!

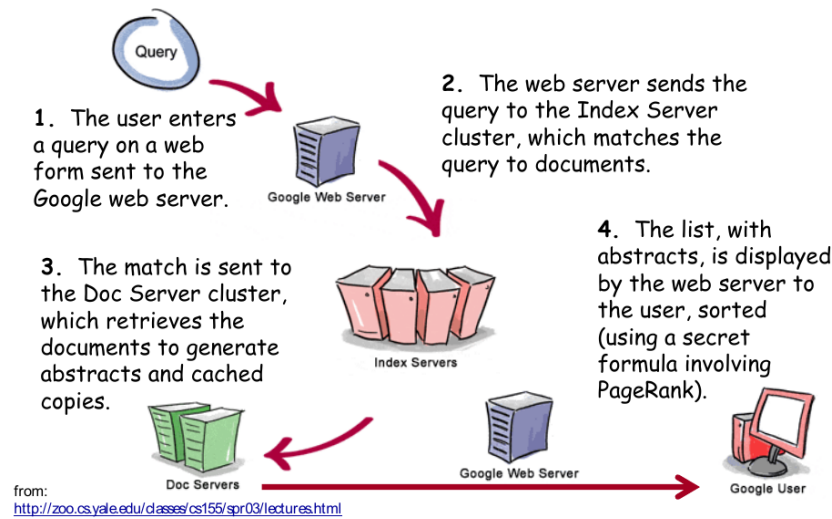


## Process Visualization I



(aus Wirth 2004, S.64)

## Process Visualization II



## Tips

- maximum 3 colors per representation
- Visually summarize sense units (color, spatial)
  - Gestalt Principles
- Emphasize important aspects
- leave enough space
- Font size at least 18 point (Powerpoint etc.)
- sans serif font (Droid Sans, Frutiger, Helvetica, Futura)
- Keep slides to show in case of questions

**Ludwig Mies van der Rohe**  
 "Less is more!"

## References

## References

- Kirk, A. (2012). *Data Visualization – A Successful Design Process*. PACKT Publishing, Birmingham.
- Paivio, A. (1986). *Mental representations: A dual-coding approach*. Oxford University Press, New York.
- Wegener, R. (2011). *Parameters of context: from theory to model and application*. PhD thesis, Department of Linguistics, Macquarie University.
- Wegener, R. (2015). *Continuing Discourse on Language. A functional perspective, Vol. 1*, chapter Studying language in society and society through language: context and multimodal communication. Equinox.