

Saliency and Predictability: attention, accessibility and surprisal

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UNIVERSITÄT
DES
SAARLANDES

Outline

- ① Salience and Predictability
- ② Administrative remarks
- ③ How to give a good talk

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Saliency and Predictability

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information-theoretic notions to account for behavioral correlates of cognitive load (RTs, eye gaze, N400)

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- ▶ cognitive effort proportional to amount of information
- ▶ highly predictable input conveys little information
- ▶ we predict upcoming input, react to unexpected stimuli

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But do we focus on all stimuli in the same way?

Salience and Predictability

- ▶ Our perceptual experience is "an embarrassment of riches"
- ▶ Our brain has to filter out the relevant information
- ▶ Attention guides us, easing the processing burden

[Wolfe and Horowitz, 2004]



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Do we need a separate notion of salience
in an information-theoretic account of comprehension?

Saliency and Predictability

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- ▶ attention, goal, task, situation model

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Research questions:

- ▶ Can salience effects be reduced to surprisal effects?
- ▶ Can we distinguish between the predictions of the two accounts?

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Grading: We will weigh all parts equally.

(1) Presenting a paper

You can find a list of suggested papers on the website:

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- ▶ prepare discussion topics

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You can make an appointment with us for feedback on slides at least **one week prior** to the presentation date:

vera at coli.uni-saarland.de

zarcone at coli.uni-saarland.de

(2-3) Summary, questions and discussion

- ▶ The **speaker** is expected to prepare discussion topics
- ▶ The **class** is expected to email a summary and two questions by **Thursday evening** before the course
- ▶ Each presentation will be paired with a **discussion chair**, who should bring up two problematic aspects of the paper

(4) Peer feedback

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Both speakers and reviewers should keep in mind *how to give a good talk*

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- ① Content
- ② Structure and use of your time

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- ⑤ On stage: speaking style and body language
- ⑥ Discussion

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- ▶ highlight the important points
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- ▶ get them engaged (why should they care?)
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Common mistake:

- ▶ too many technical details, not enough motivation

(2) Structure and use of your time

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Structure: what story are you telling?

- ▶ who's the main character?
- ▶ where are the problems (the bad guys)?
- ▶ where are the solutions (the heroes)?
- ▶ how do the different parts relate to one another?
- ▶ what's the take-home message?

(2) Structure and use of your time

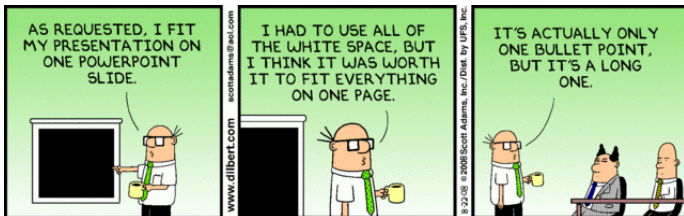
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Common mistakes:

- ▶ not structuring the talk
- ▶ presenting too much stuff
- ▶ poor time management

(3) Style of language



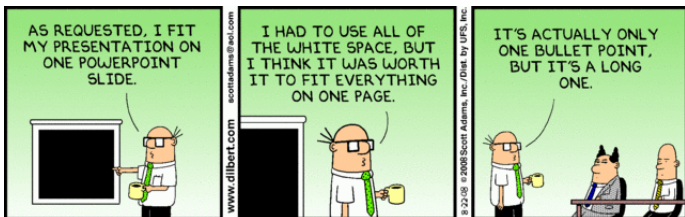
(3) Style of language



The slides should help the audience, not distract them

- ▶ be coherent with your color scheme
- ▶ make sensible use of *boldface*
- ▶ not too much text, not too little
- ▶ wise use of examples, images, tables and graphs
- ▶ be sure the font is not too small

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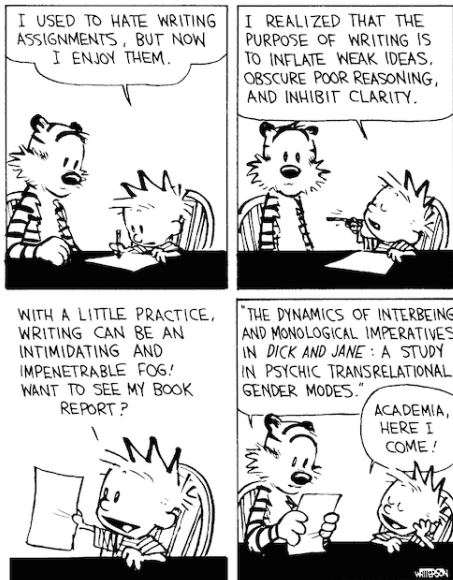
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Common mistakes:

- ▶ too many words
- ▶ too many bullet-point lists
- ▶ full sentences

(4) Style of language



(5) On stage: speaking style and body language



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- ▶ be confident



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- ▶ be confident
- ▶ keep a consistent pace



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- ▶ be confident
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- ▶ use your voice to highlight important points



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- ▶ be confident
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- ▶ make sure everyone can hear you



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- ▶ be confident
- ▶ keep a consistent pace
- ▶ use your voice to highlight important points
- ▶ make sure everyone can hear you
- ▶ don't turn your back to the audience or obscure the screen



(5) On stage: speaking style and body language

good

bad

(5) On stage: speaking style and body language

good

stand

move

bad

sit

stand still

(5) On stage: speaking style and body language

good

stand

move

talk

vary the pitch of your voice

speak loudly, facing the audience

bad

sit

stand still

read

speak in a monotone

mumble, facing downward

(5) On stage: speaking style and body language

good

stand

move

talk

vary the pitch of your voice

speak loudly, facing the audience

finish within your time limit

rehearse

bad

sit

stand still

read

speak in a monotone

mumble, facing downward

run overtime

don't rehearse because you are

busy with the slides

(5) On stage: speaking style and body language

good

stand

move

talk

vary the pitch of your voice

speak loudly, facing the audience

finish within your time limit

rehearse

eye contact

notice your audience, respond to it

bad

sit

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don't rehearse because you are

busy with the slides

stare at the laptop

ignore audience behavior

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good

stand

move

talk

vary the pitch of your voice

speak loudly, facing the audience

finish within your time limit

rehearse

eye contact

notice your audience, respond to it

emulate excellent speakers

bad

sit

stand still

read

speak in a monotone

mumble, facing downward

run overtime

don't rehearse because you are

busy with the slides

stare at the laptop

ignore audience behavior

emulate your advisor,

even if s/he gives lousy talks

(6) Discussion

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- ▶ actively leading discussion
- ▶ prepare interesting questions
- ▶ set the scope and topic of discussion
- ▶ encourage arguments, not opinions

Timeline

- week 1** assignment of topics and discussion chairs
send us your preferred papers by Oct 30th
- week 2** no seminar
- week 3** reading group
topic: Surprise, Itti & Baldi (2009)
- week 4** presentation
topic: Surprise, Barto, A., Mirolli, M., & Baldassarre, G. (2013)
- week 5** presentation
topic: Attentional deployment
- week 6** presentation
topic: Acquisition / learning
- week 7+** more topic-related presentations by students

Don't forget

as soon as possible register to the mailing list:

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by Oct 30 send us our paper suggestions

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Before your presentation

2-3 weeks before start reading the paper, check if you haven't understood something, prepare your slides (it takes time!)

one week before you can get feedback on the slides
(send the slides before the meeting)
practice your presentation

Seminar BINGO!

To play, simply print out this bingo sheet and attend a departmental seminar.

Mark over each square that occurs throughout the course of the lecture.

The first one to form a straight line (or all four corners) must yell out to win!



SEMINAR B I N G O

Speaker bashes previous work	Repeated use of "um..."	Speaker sucks up to host professor	Host Professor falls asleep	Speaker wastes 5 minutes explaining outline
Laptop malfunction	Work ties in to Cancer/HIV or War on Terror	"...et al."	You're the only one in your lab that bothered to show up	Blatant typo
Entire slide filled with equations	"The data <i>clearly</i> shows..."	FREE Speaker runs out of time	Use of Powerpoint template with blue background	References Advisor (past or present)
There's a Grad Student wearing same clothes as yesterday	Bitter Post-doc asks question	"That's an interesting question"	"Beyond the scope of this work"	Master's student bobs head fighting sleep
Speaker forgets to thank collaborators	Cell phone goes off	You've no idea what's going on	"Future work will..."	Results conveniently show improvement

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- ▶ Hale, J. (2001). A probabilistic earley parser as a psycholinguistic model. In *Proceedings of the NAACL*, pages 1–8.
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- ▶ Wolfe, J. M. and Horowitz, T. S. (2004). What attributes guide the deployment of visual attention and how do they do it? *Nature Reviews Neuroscience*, 5(6):495–501.