

Übung zur Vorlesung
Informationsvisualisierung

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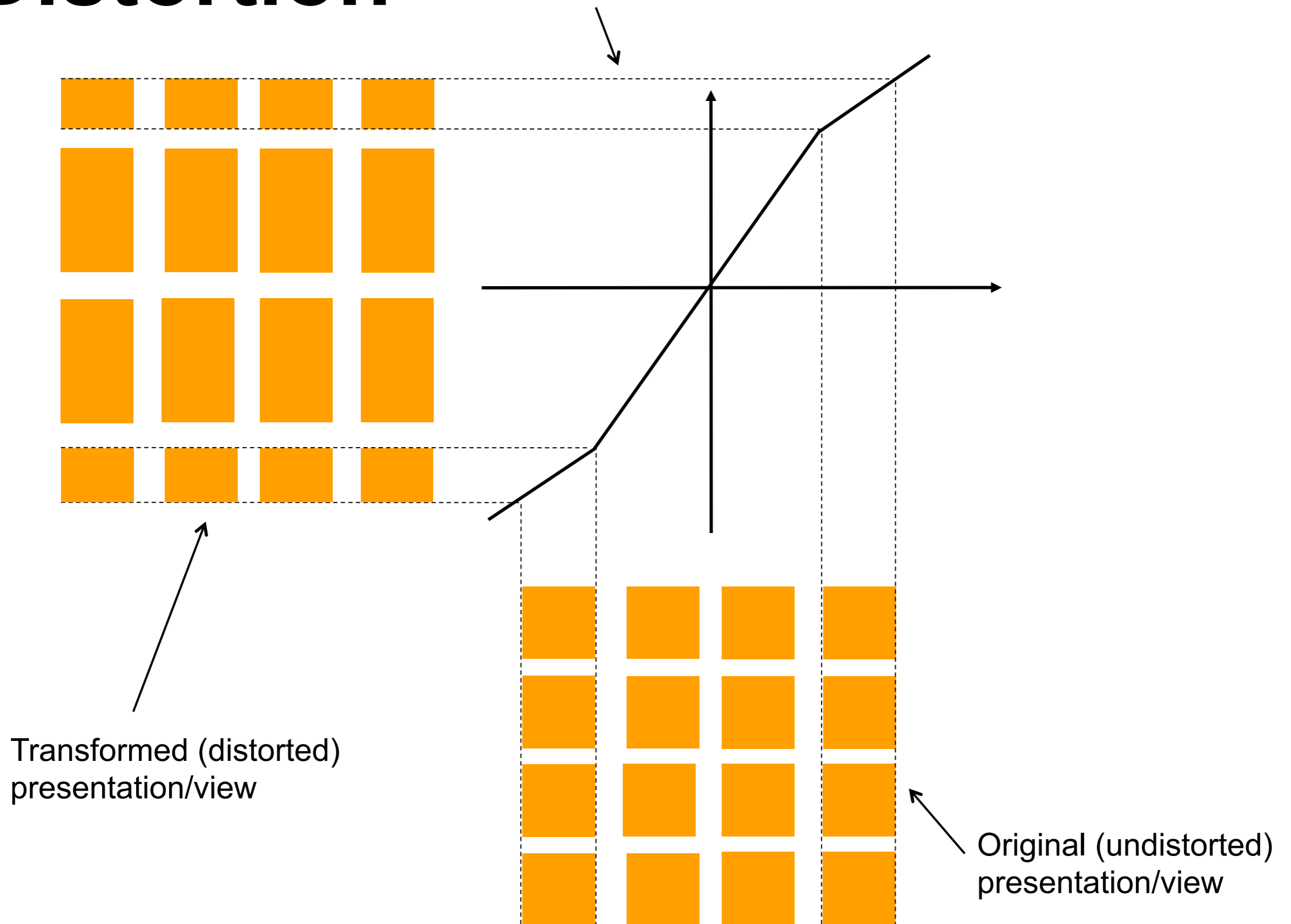
Distortion (fisheyes and stuff)

Why Distortion?

- Show a huge amount of information with limited amount of space
- Focus plus context: provide context to support navigation tasks
- No zooming and no scrolling required

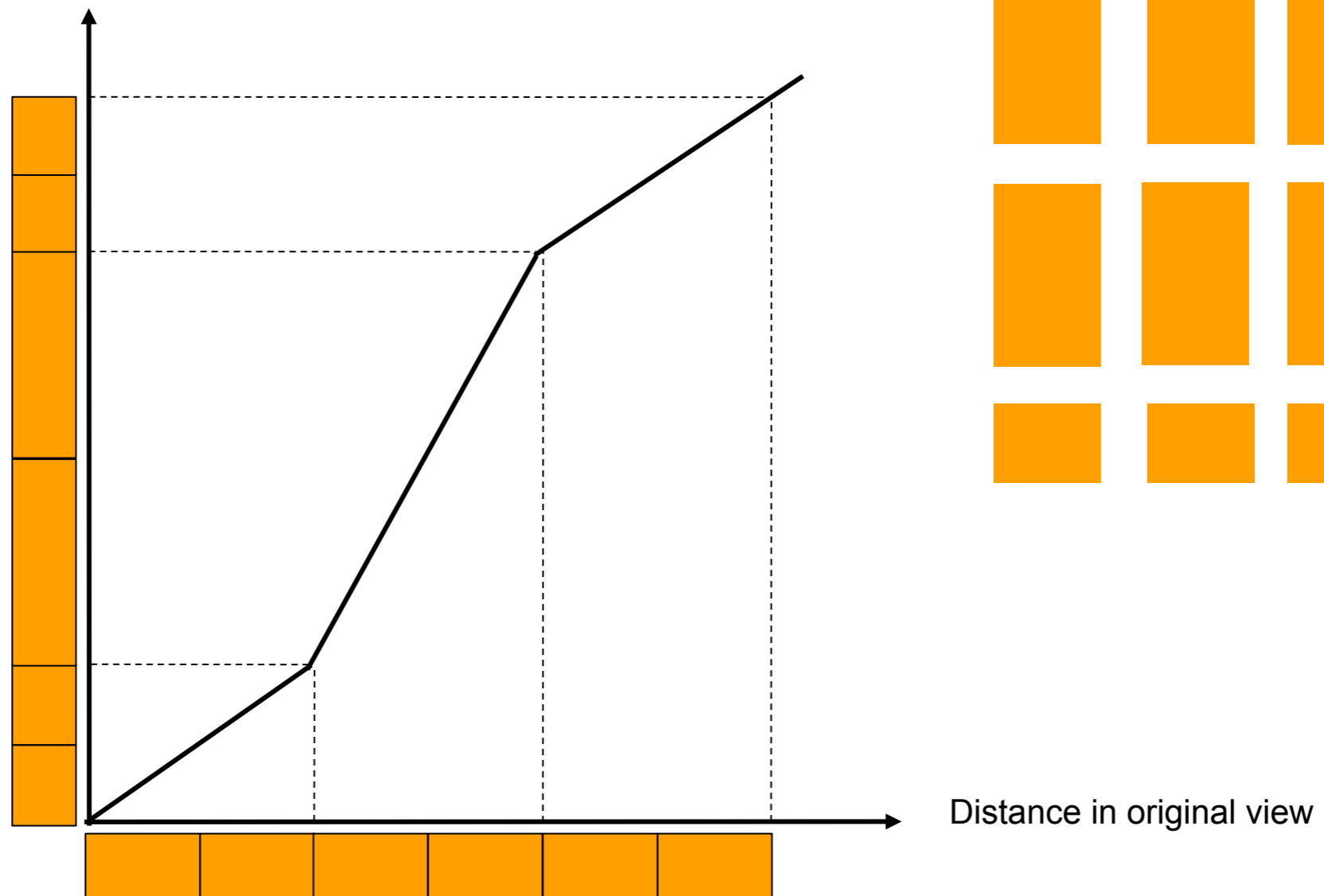
Distortion

Some transformation function



Distortion

Distance in distorted view



Example: Transfer function for a bifocal display

Fisheye Menu

- Example: Fisheye Menu by Bederson et al. [1]
- Font-size reduced with distance from the cursor
- Demo

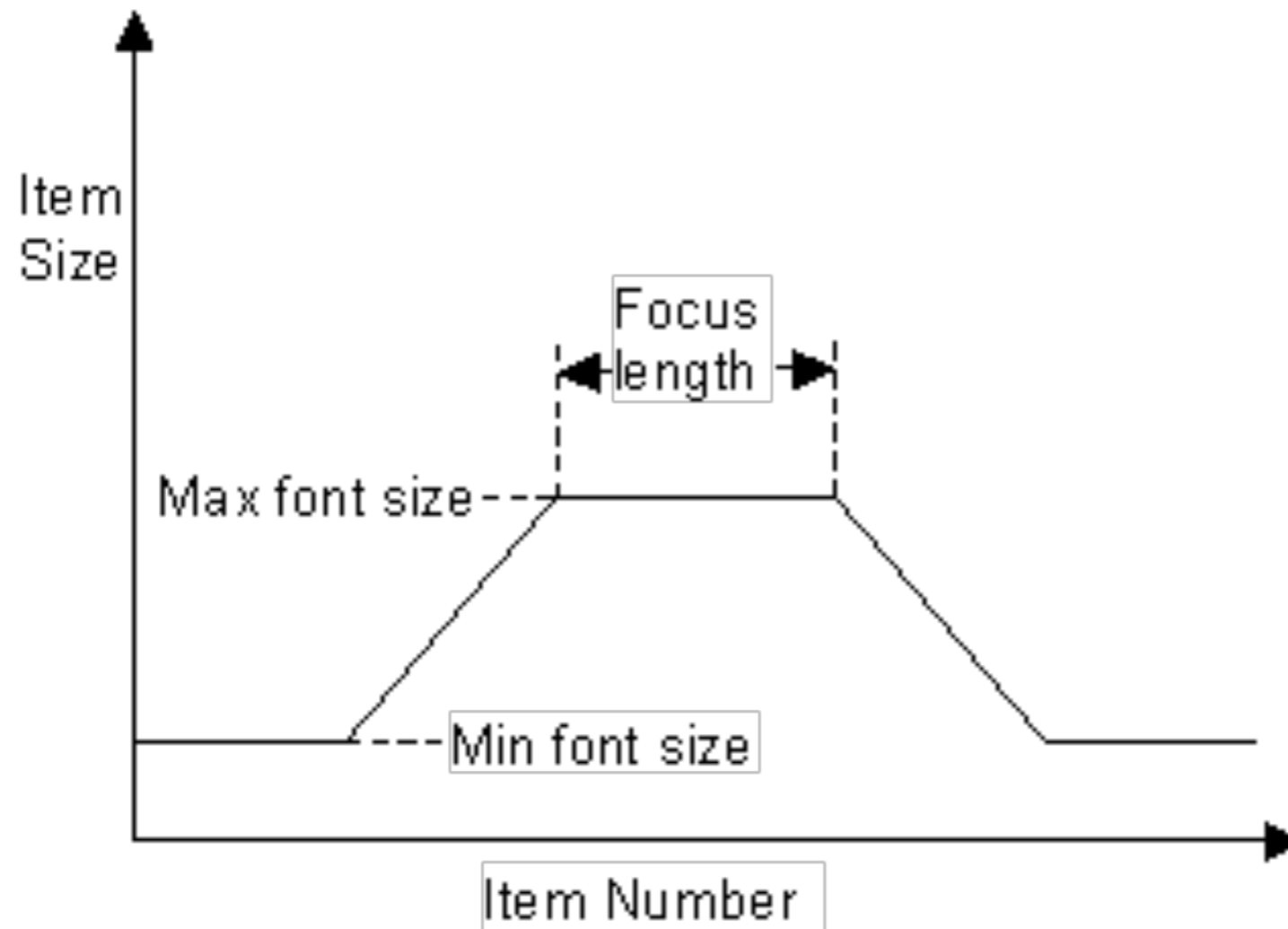
Fixation area to solve the overshoot problem



Fisheye Menu [1]

Fisheye Menu

- Degree of interest function



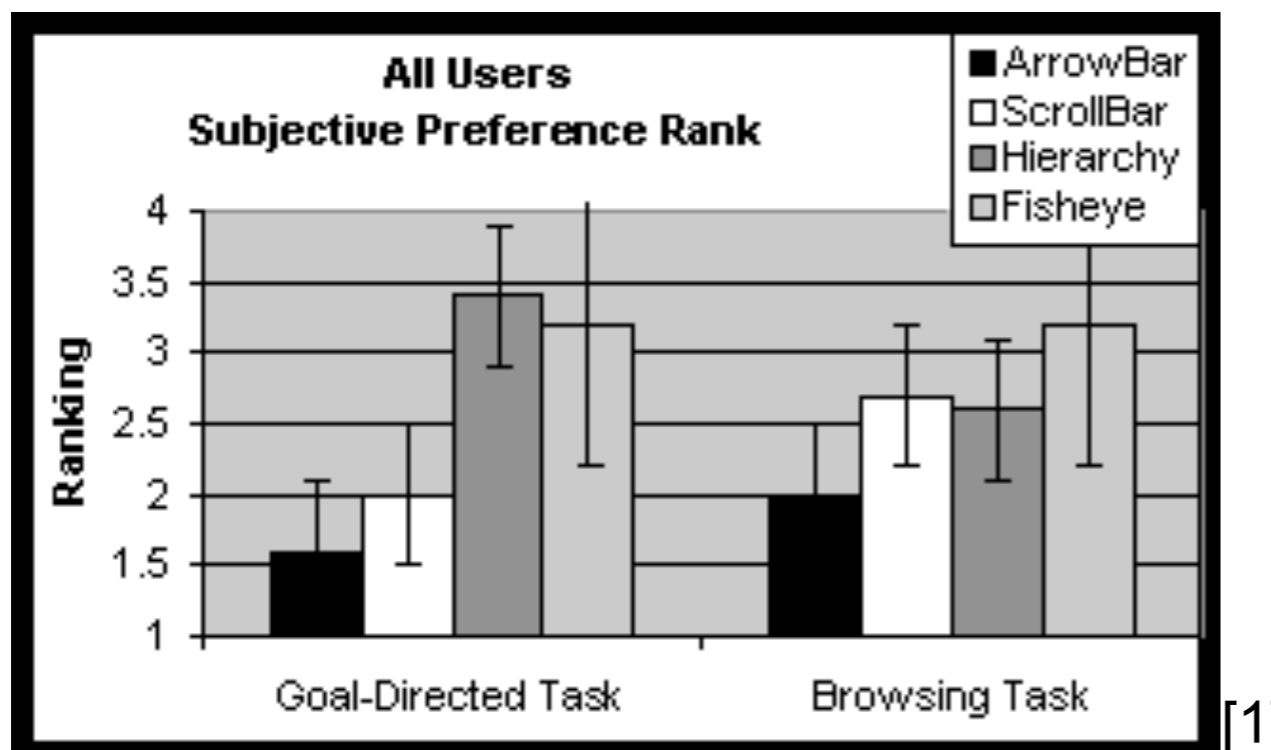
[1]



Fisheye Menu [1]

Fisheye Menu Study

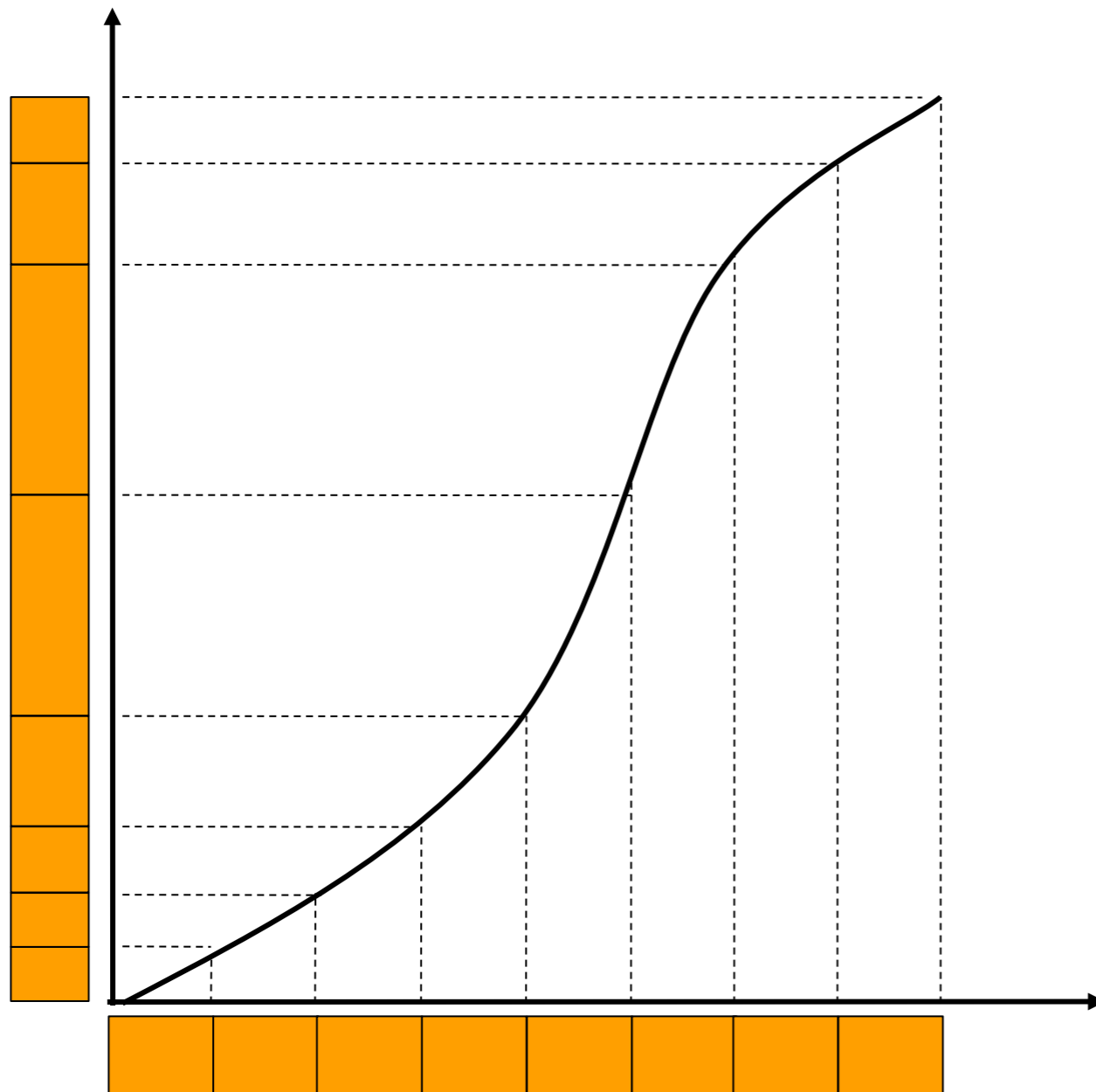
- 10 users
- ArrowBar vs. ScrollBar vs. Hierarchy vs. Fisheye
- click 3 items (near beginning/middle/end)
- "browse the lists for a website you would like to visit"



Fisheye Menu [1]

Fisheye Menu

- Transfer function for the fisheye menu [1]



Fisheye Menu [1]

Magnifying Glass

- Magnifying glass is not a focus plus context technique
- Why not?

I am just an example. Do not read me since that would be a waste of your precious time. If you already did read me ... too bad for you.

I am just an example. Do not read me since that would be a waste of **your** precious time. If you already did read me ... too bad for you.



Context close to the detail gets completely lost!

Ambient Infovis

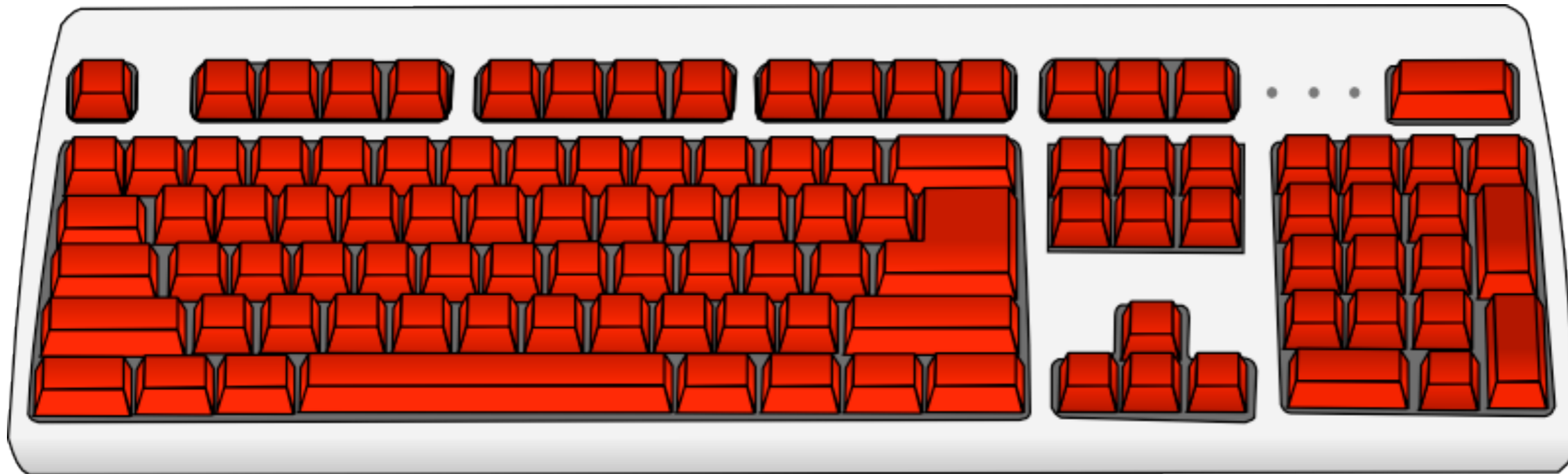
Ambient Infovis

- Mostly no direct interaction
- Non-distracting (to a certain extent)
- Embedded into the surrounding
- In the best case, preattentive information processing
- Examples:



MoodyBoard [1]

- Ambient security visualization



MoodyBoard



The site's security certificate is not trusted!

You attempted to reach www.pst.ifi.lmu.de, but the server presented a certificate issued by an entity that is not trusted by your computer's operating system. This may mean that the server has generated its own security credentials, which Google Chrome cannot rely on for identity information, or an attacker may be trying to intercept your communications. You should not proceed, **especially** if you have never seen this warning before for this site.

Proceed anyway

Back to safety

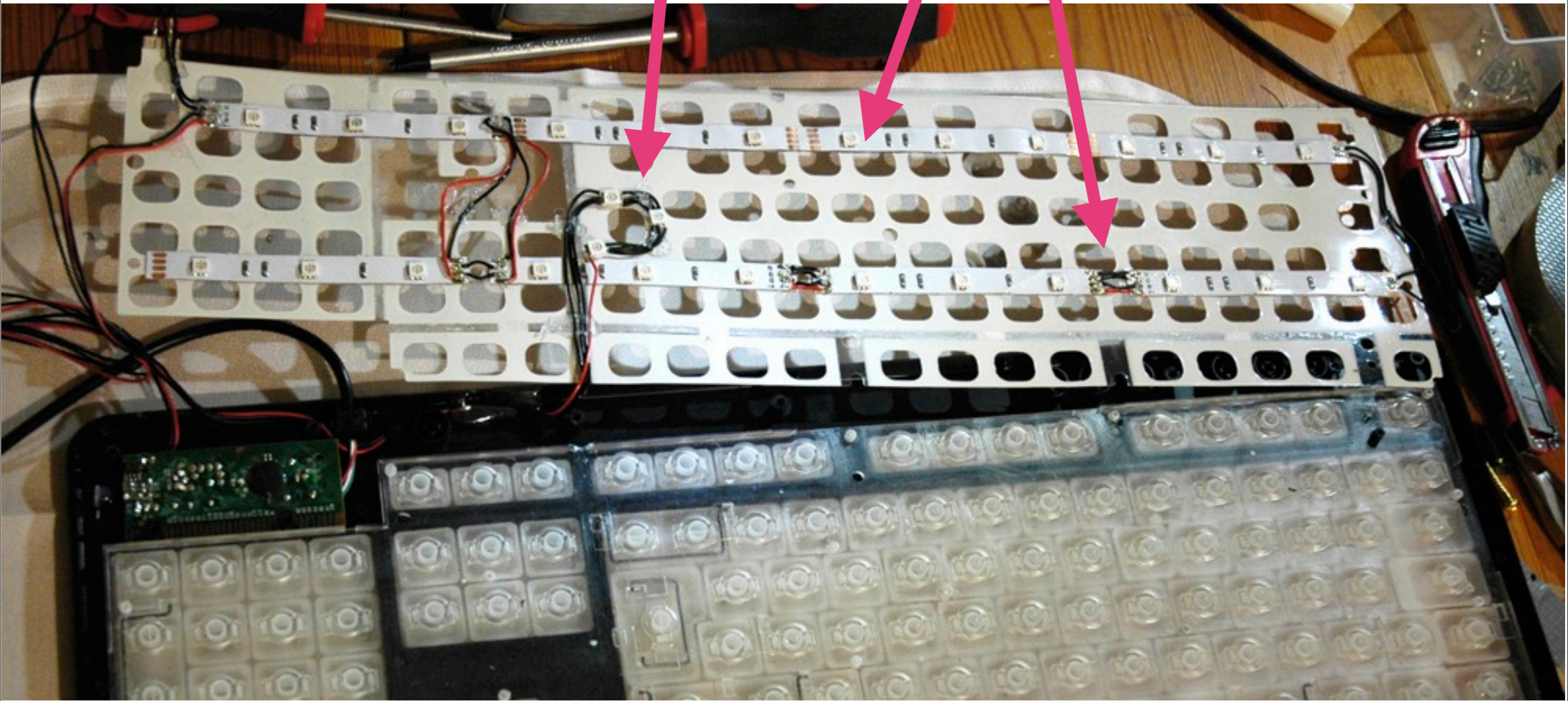
▶ [Help me understand](#)

blocking

← → ↻ ~~http~~://www.pst.ifi.lmu.de/uniworx/

non-blocking

Prototype



Video



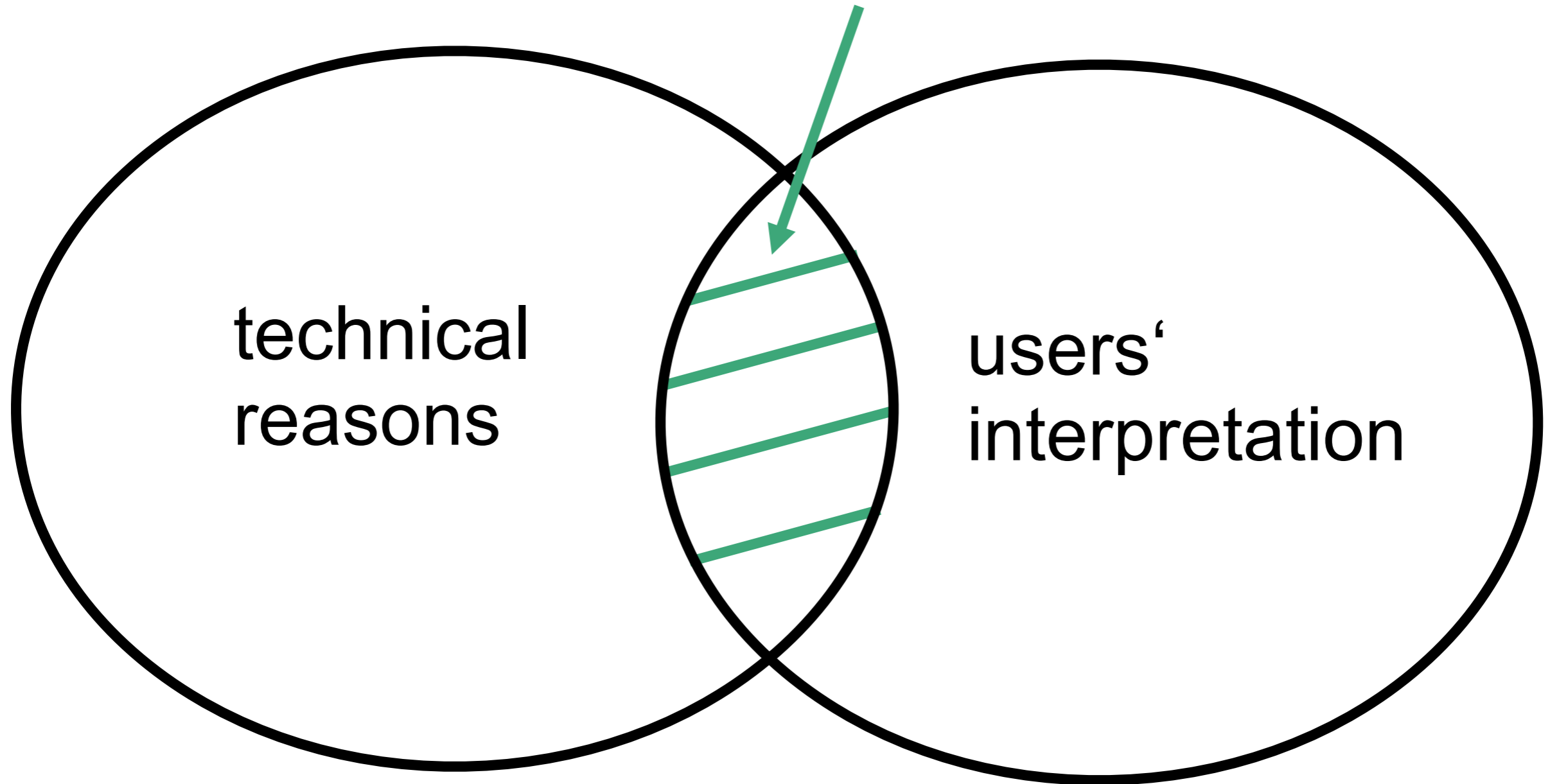
Pilot Study

- notifications vs. users' interpretation
- repeated measures study
- 4 different tasks (counterbalanced)
- 24 participants



Results

35% match ratio



- But: all identified red as warnings and $> 50\%$ mentioned data security

Results: Avoid Positive Feedback

“I guess this means that
EVERYTHING is fine!!”

connection is secure

data will be handled carefully

only very nice people work for this
company

Results: Help Button



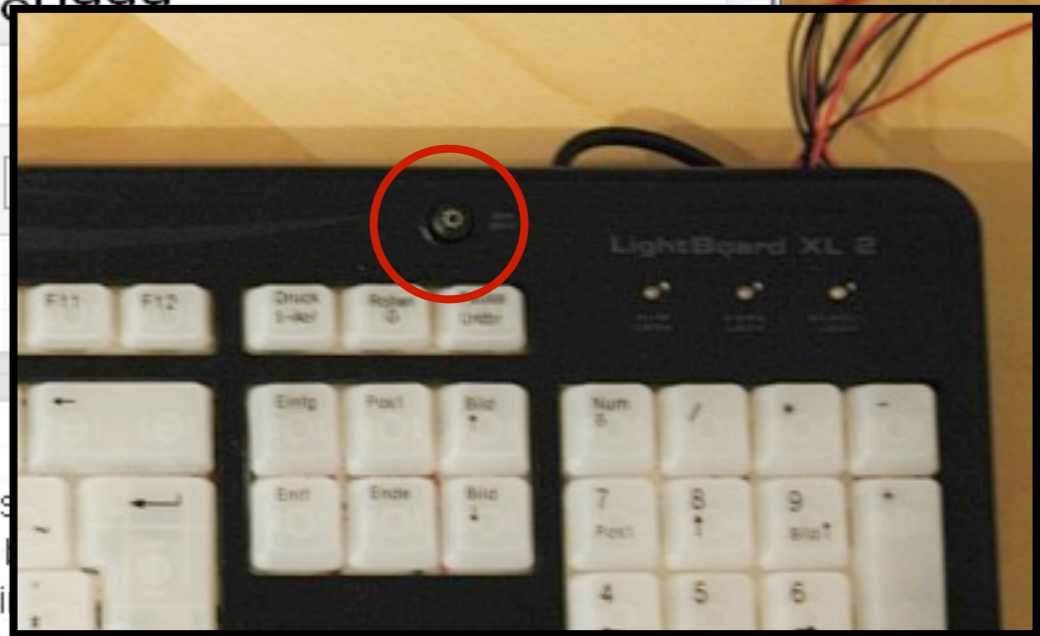
Address Postal Code
Address 2 Country

Pick your plastic VISA MasterCard AMEX DISCOVER

Card Number

Security Code Exp /

I understand that I should not be put in my intestines causing serious injury or death. I will see immediate medical attention if magnets are swallowed or inhaled.



MoodyBoard [Close]

Credit Card

This field contains credit card information, which is transmitted unencrypted to the server. An attacker can intercept this information. Please make sure that this page is not a fraud attempt.

2/3 [Up] [Down]

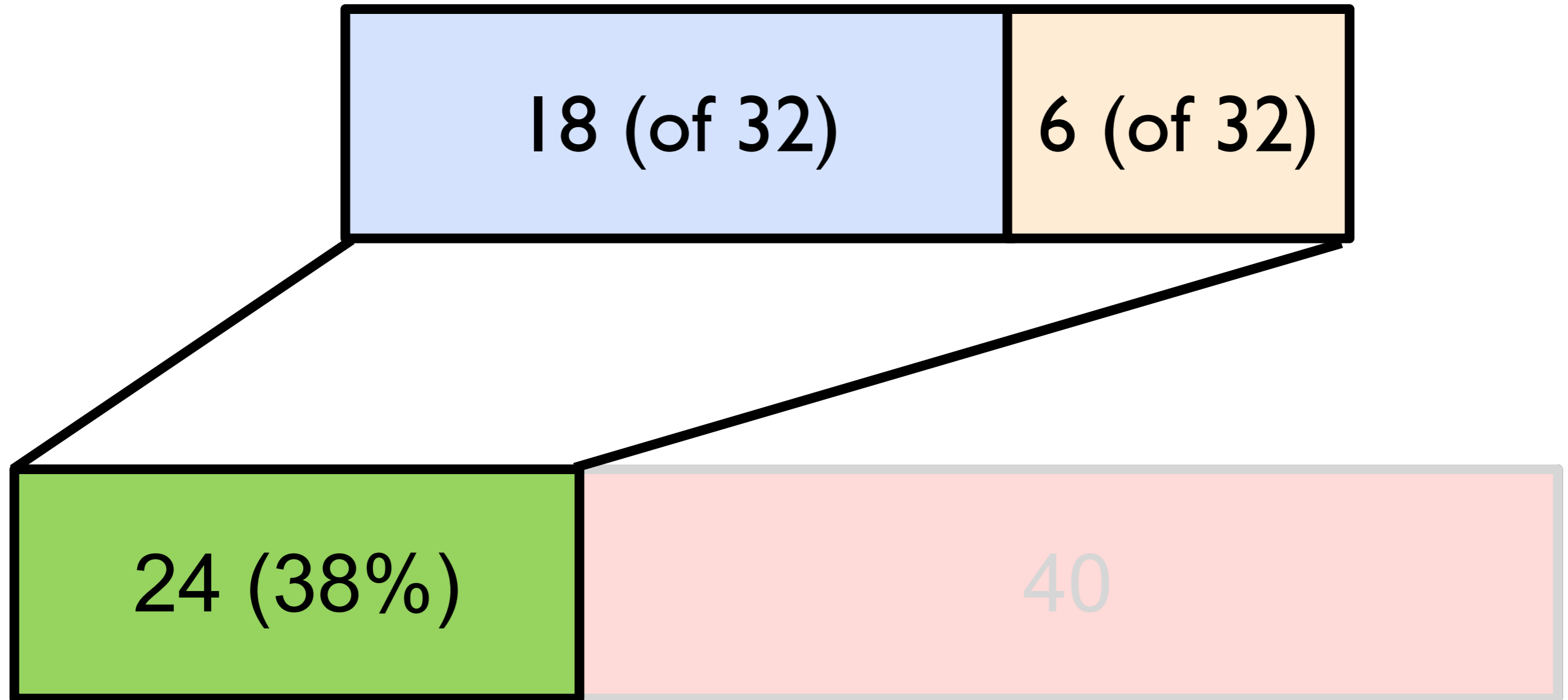
Security Study

- does it support secure behavior?
- mixed model design (moodyboard vs control)
- four tasks (PW and credit card data)
- 32 participants (16 per group)



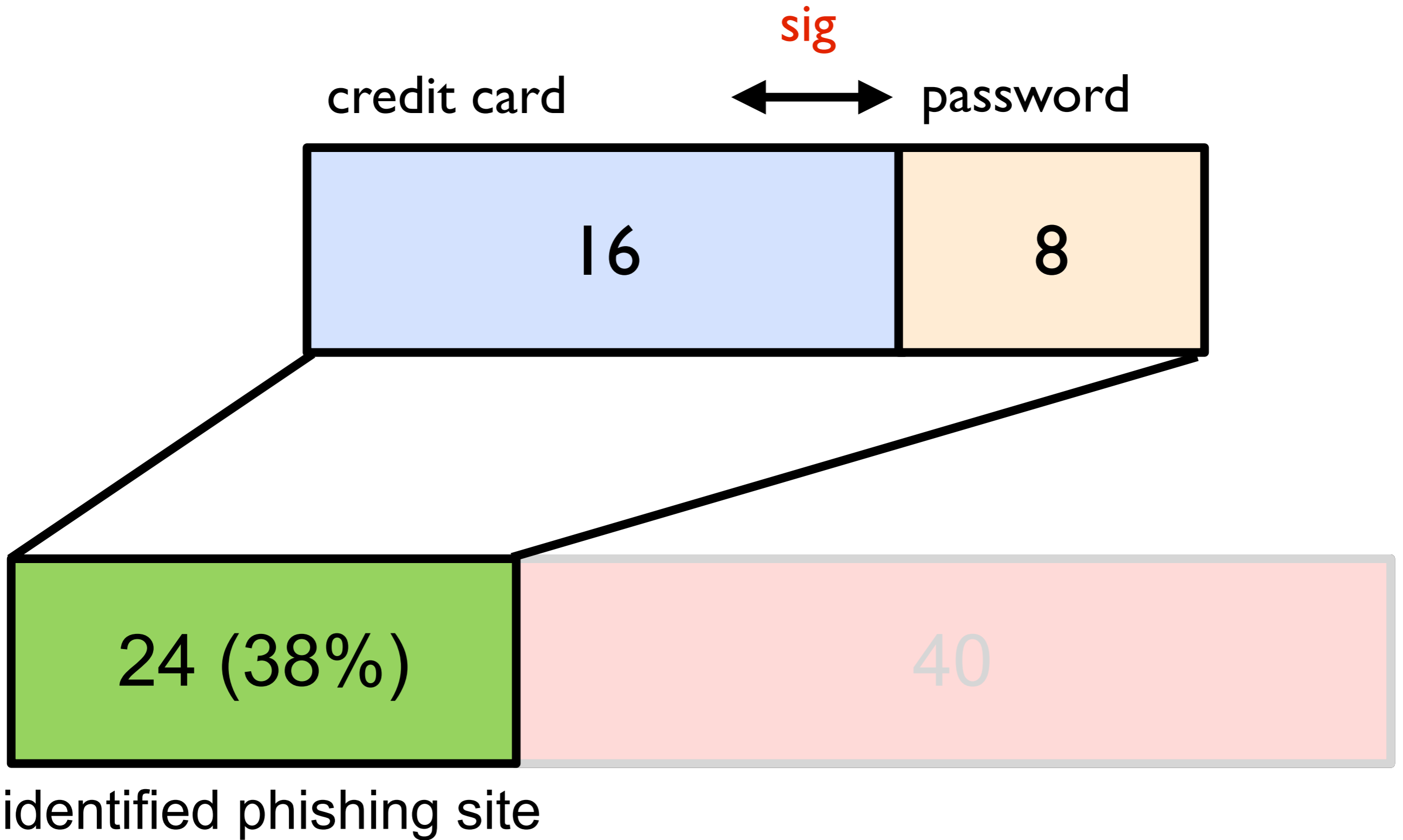
Results

moodyboard sig ↔ control



identified phishing site

Results



Results: False Positives

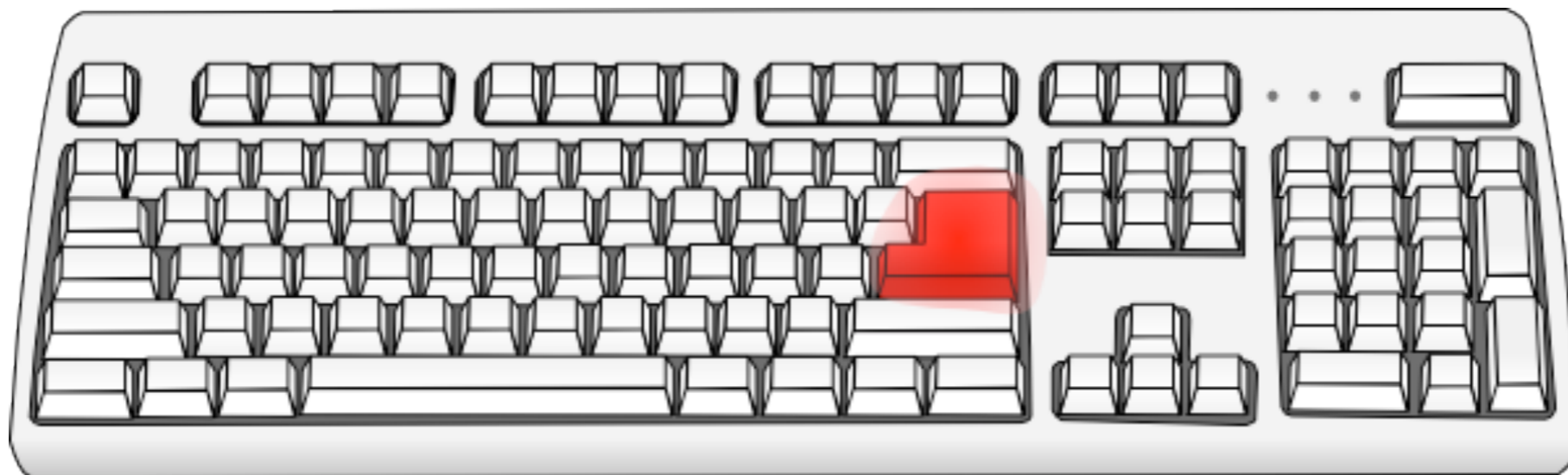
- 3 false positives
- 2 possibly due to suspicion about the experiment
- and one:

*“not sure whether this is really
the trip my friend wanted to
book”*

Results: Falling for Phish

- 3 misinterpretations of the warnings
- one users thought the wrong URLs were necessary for the experiment

“I thought I was supposed to press the red button”



References

1. Benjamin B. Bederson. 2000. Fisheye menus. In Proceedings of the 13th annual ACM symposium on User interface software and technology (UIST '00). ACM, New York, NY, USA, 217-225.
2. Alexander De Luca, Bernhard Frauendienst, Max-Emanuel Maurer, Julian Seifert, Doris Hausen, Niels Kammerer, and Heinrich Hussmann. 2011. Does MoodyBoard make internet use more secure?: evaluating an ambient security visualization tool. In Proceedings of the 2011 annual conference on Human factors in computing systems (CHI '11). ACM, New York, NY, USA, 887-890.
3. Doris Hausen, Andreas Butz. Extending Interaction to the Periphery. Workshop Embodied Interaction: Theory and Practice in HCI. In conjunction with 29th ACM International Conference on Human Factors in Computing Systems (CHI 2011), Vancouver, BC, Canada, May 07-12, 2011.