

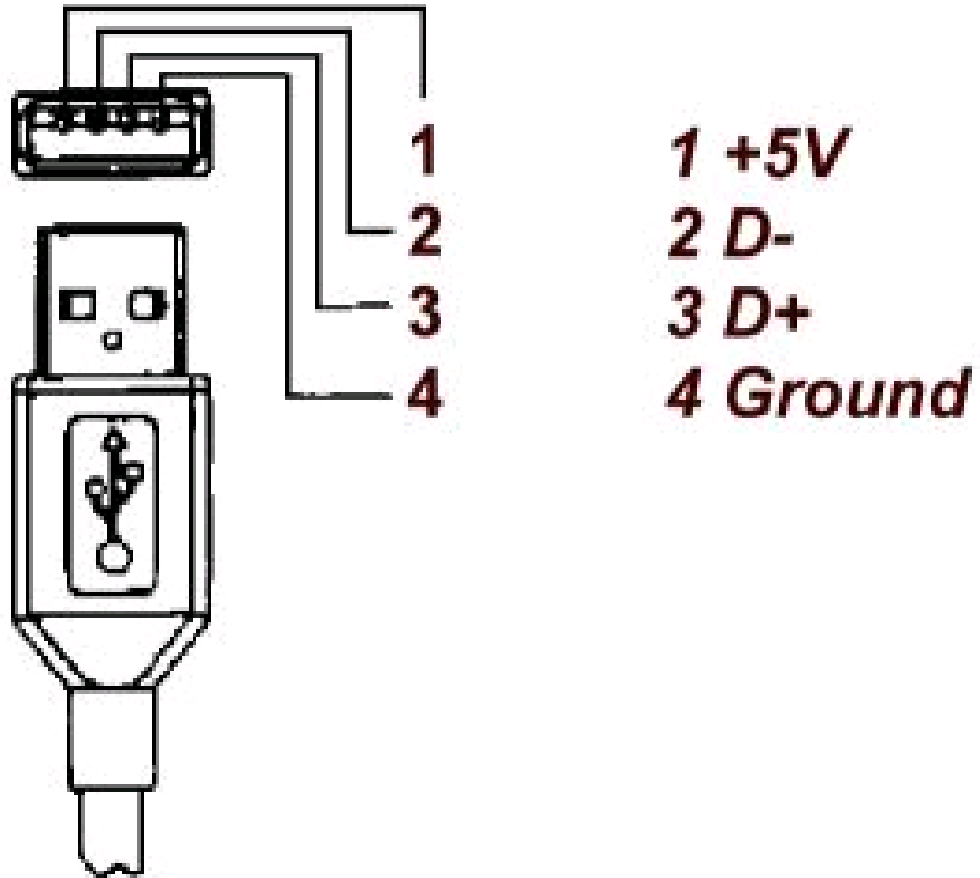


Constraints and Mappings

Learning Goals

- Understand ...
 - What constraints are in the context of interaction design and user interfaces
 - How mappings impact the easy of use
- Be able to ...
 - use mappings and constraints as mechanisms in the design of user interfaces to prevent errors

USB-A-Stecker (Front- und Draufsicht)



Physical Constraints & Affordances



- USB Memory Stick vs. DVD vs. money
 - How many ways can you put them in?
 - If there is more than one option (physically) cater for these cases

- Dials vs. Buttons vs. Sliders
 - Dials are turned
 - Buttons are pressed
 - Sliders are pushed

Constraints

- Physical constraints
 - Basic physical limitations
- Semantic constraints
 - Assumption to create something meaningful
- Cultural constraints
 - Borders and context provided by cultural conventions
- Logical constraints
 - Restrictions due to reasoning

Applying constraints is a design decision!
A Practical way to realise the principle “prevent errors”

Norman, D. A. (2013). The design of everyday things: Revised and expanded edition. New York: Doubleday.

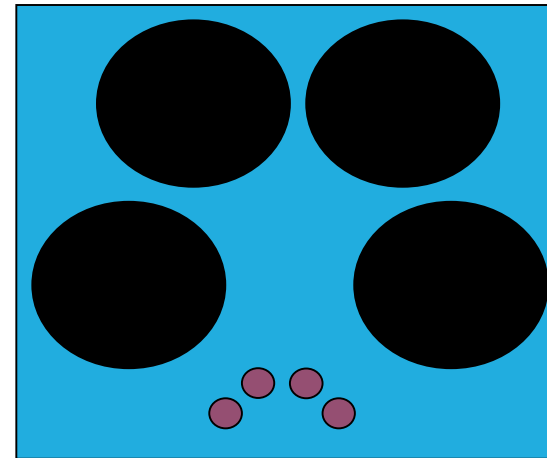
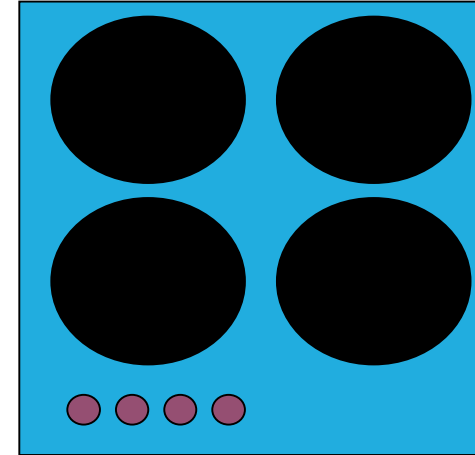
Cultural Constraints

- Universal or culturally specific
 - Arbitrary conventions that have been learned
 - Users' expectations build on cultural constraints
-
- Example Colors
 - Red
 - Green
 - Blue



Mapping

- Relationship between controls and action
- Mappings should be
 - Understandable
(e.g. moving the mouse up move the slider up)
 - Consistent
 - Recognizable or at least quickly learnable and easy to recall
 - Natural, meaning to be consistent with knowledge the user already has
- Example: cooker
- For these issues see also Gestalt theory!



Please attach a Message to Your Order.

Message Text:

Position to Print Message:

- bottom
- bottom-left
- bottom-right
- centre
- left
- right
- top
- top-left
- top-right

Please attach a Message to Your Order.

Message Text:

Position to Print Message

- | | | |
|-----------------------------------|------------------------------|--|
| <input type="radio"/> top-left | <input type="radio"/> top | <input type="radio"/> top-right |
| <input type="radio"/> left | <input type="radio"/> centre | <input checked="" type="radio"/> right |
| <input type="radio"/> bottom-left | <input type="radio"/> bottom | <input type="radio"/> bottom-right |

Mapping Example

Please attach a Message to Your Order.

Message Text:

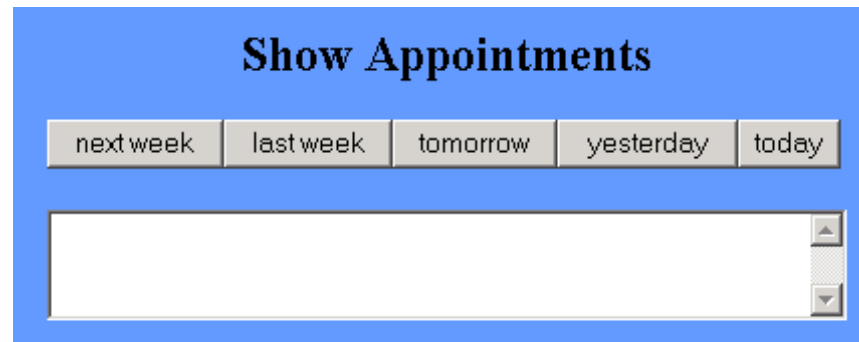
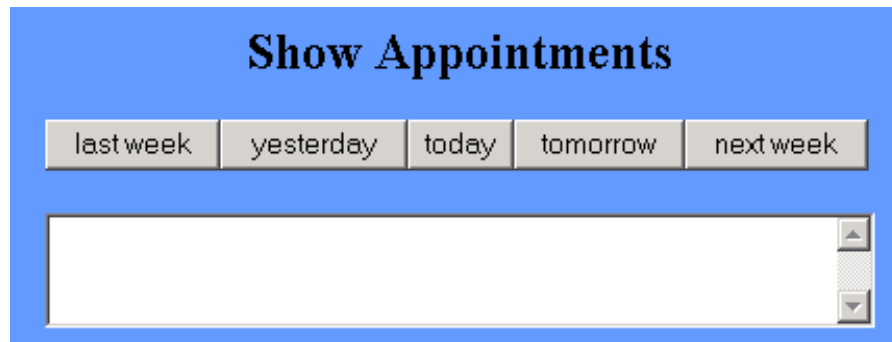
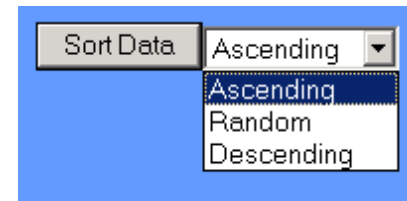
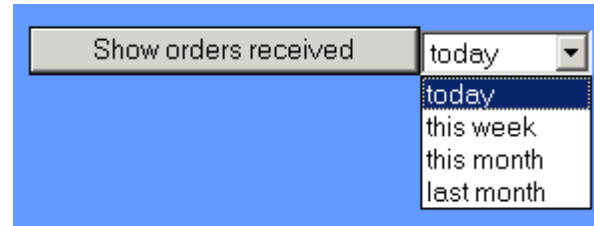
Click anywhere on the envelop to place it



Mapping

Example

- “Natural” mappings can be found in many areas
- It is not always obvious what the “natural” mapping is
- Correlation with cultural constraints





Did you understand this block?

Can you answer these questions?

- What different constraints are relevant for the design of user interfaces?
- Explain cultural constraints in the context of Uis.
- What is important when we design mappings? How can mappings increase or decrease usability?

Reference

- Norman, D. A. (2013). The design of everyday things: Revised and expanded edition. New York: Doubleday.

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