Plagiarism 101

www.interaction-design.org/encyclopedia/gestalt_principles_of_for...

The law of similarity captures the idea that elements will be grouped perceptually if they are similar to each other. In the "preferences window" of

“ Law of Similarity
The law of similarity captures the idea that elements will be grouped perceptually if they are similar to each other. For instance in the following dialog we tend to devide the given files into two groups: ” [1]

Law of Similarity –

The law of similarity states that objects will be grouped perceptually if they are similar to each other. In other words the repetition in the forms persuades the human mind to group it [1]

[1] http://www.interaction-design.org/encyclopedia/gestalt_principles_of_form_perception.html

Plagiarism = fail this course.

Review

- What are the four big areas of HCI?
- Why is visibility important in design?
- What are affordances?

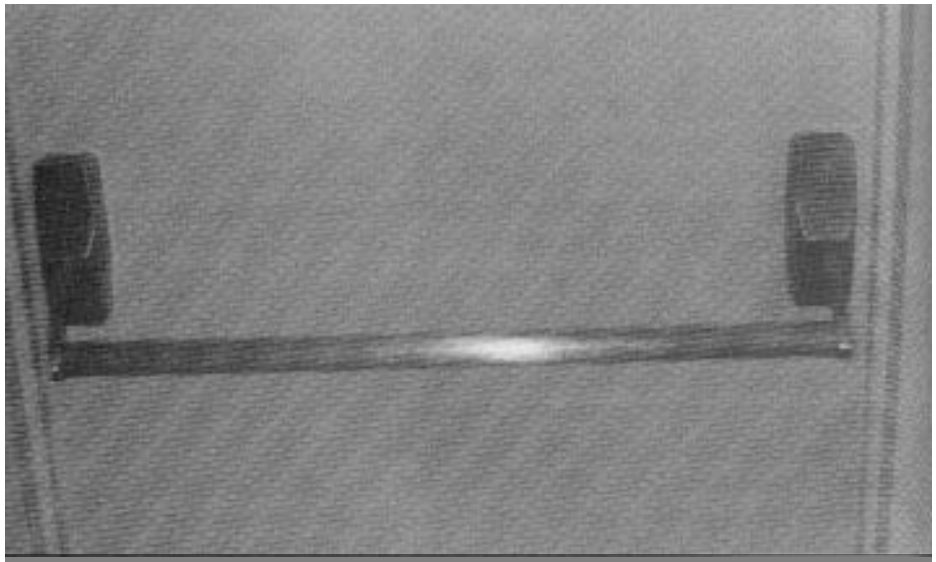
Example: Chairs

- The shape of a chair suggests (“affords”) sitting
- Other actions (lift it up, stand on it, …) are possible as well
- But: They are not those the design suggests most directly
- A simple chair is intuitively usable
- No label needed (“sit down here”)

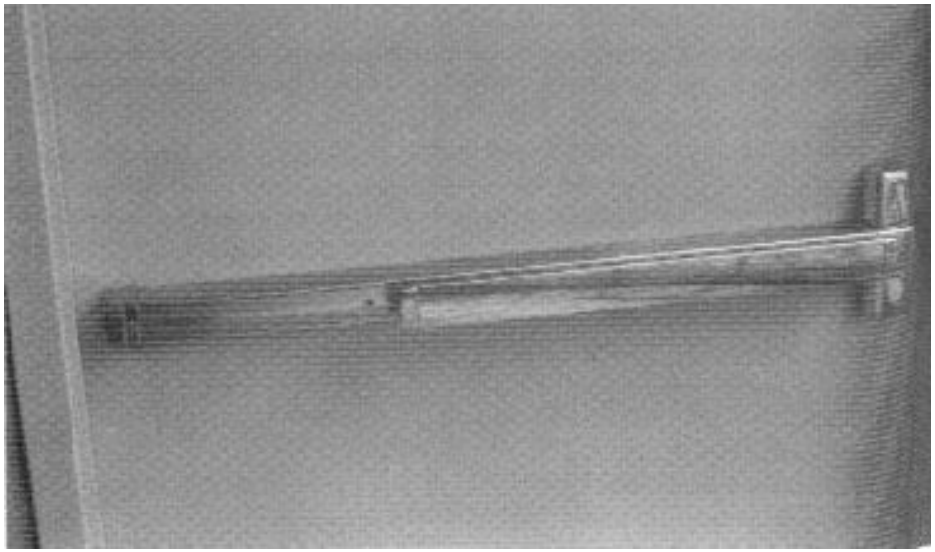
Example: Doors

- Door design suggests how to use it
  - Small door knobs suggest pulling
  - Large, flat vertical surfaces suggest “press here”
- “Designer doors” often consciously hide suggestions (where are the hinges, where do I have to push/pull?)
  - Is this useful?
- A label “PUSH” / “PULL” is essentially a one-word manual. Should it be necessary to study even such a short manual, just to open a door?

By the way, the doorbell is to the left!



This door does not show whether to push or pull, and on which side.

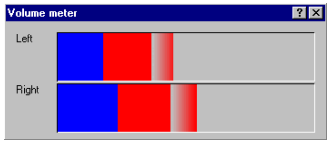


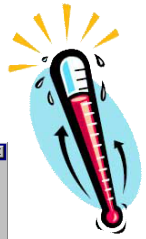
Better escape door: "Press to the right" is clearly suggested.

Mappings

Mappings

- Connect UI elements to real world
  - Examples for input and output?



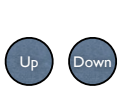


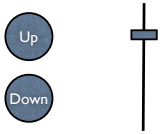
Mappings

- Good mappings are natural
  - Use physical analogies
  - Use cultural standards
- Results:
  - Understood immediately
  - Easier to remember
  - Enable better ease-of-use

Natural Mappings: Spatial Analogies

- Most prominent example of natural mappings
- How would you arrange the controls for this lifting platform?





Natural Mappings: Spatial Analogies

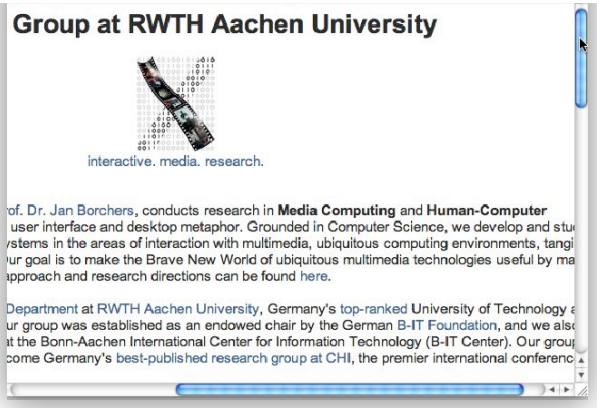
- Rule: arrange controls in the same way that their real-world counterparts are arranged
  - Room lamps
  - Driving wheel
  - Car stereo audio fader

What's Wrong with This Stove?

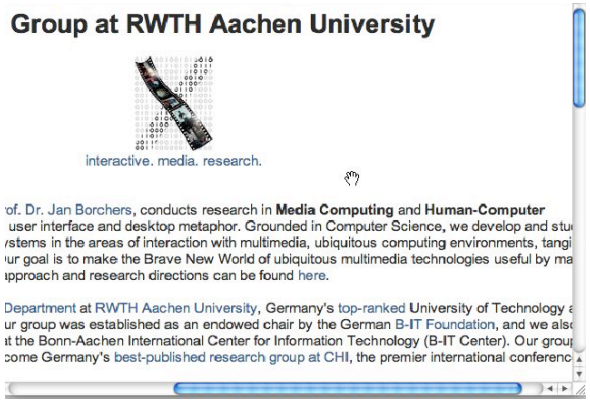
- Controls do not use a natural mapping
  - In-line leads to $4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$ possible arrangements
  - Left/right pairing still leaves 4 possible arrangements
  - Labeling required (often indicates bad design)
- Plus: Labeling only visible by stepping away from the stove beyond operating range
- Better solutions?

Natural Mappings: Perceptual Analogies

- The input devices for controlling something (or output devices for monitoring its state) look like the actual thing itself
- Think of it as "the Voodoo Principle"
- Example: Mercedes car seat controls [Norman '88]



Scrolling



Panning

Natural Mappings: Biological/Cultural Analogies

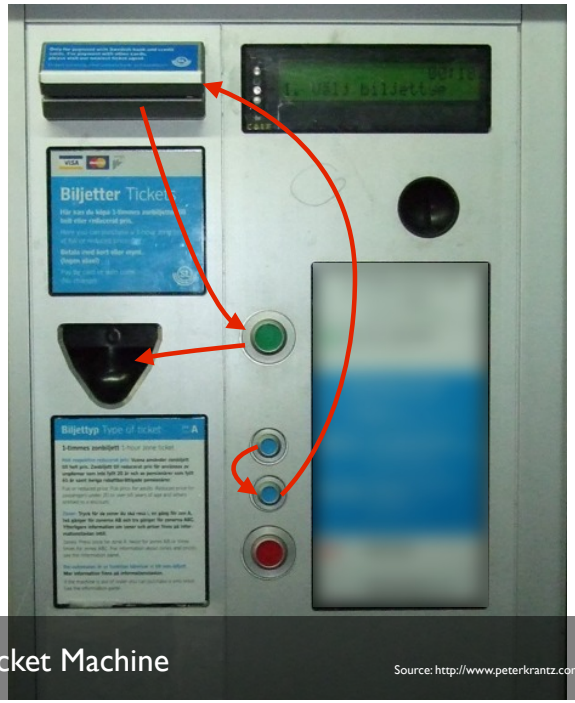
- In-class Exercise:

  Classifying dimensions

- Example:

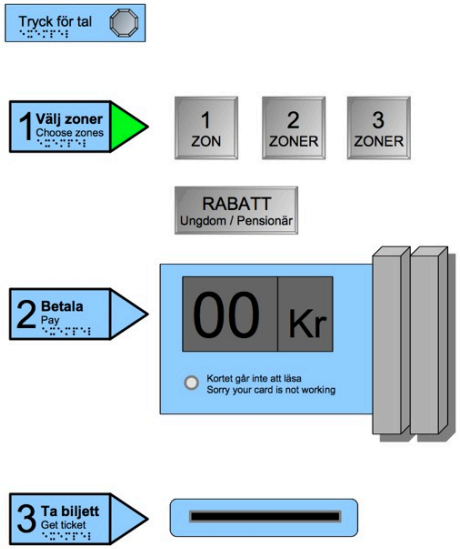
  Rising level = "more", falling level = "less"

  - Natural for all additive dimensions, e.g., amount (water level), heat (thermometer), volume, line thickness, brightness, weight,…
  - But: not for substitutive dimensions, e.g., color, audio pitch(!), taste, location,…



Stockholm Ticket Machine

Source: http://www.peterkrantz.com/2007/man-machine-interface/
Photo: http://en.wikipedia.org/



Stockholm Ticket Machine (Redesigned)

Source: http://peterkrantz.com/wud/nylage

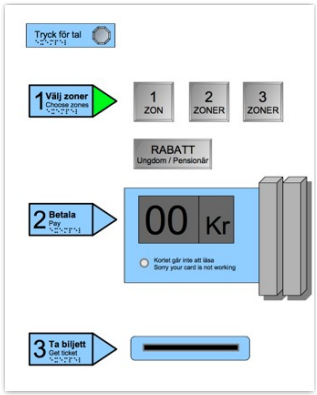
Natural Mappings: Biological/Cultural Analogies

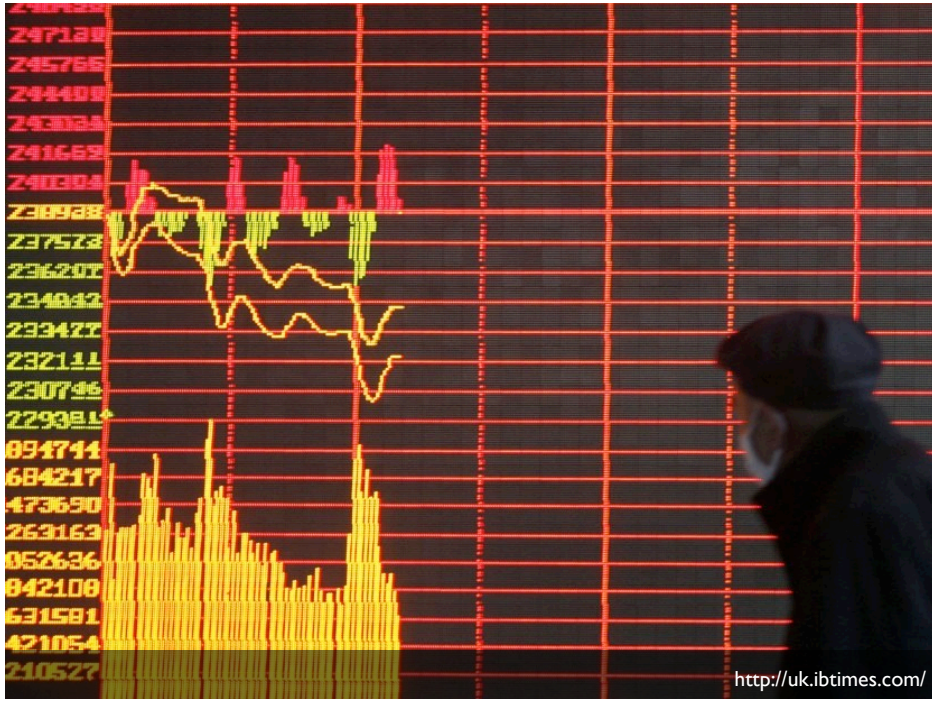
- Another natural analogy:

  Order from top to bottom

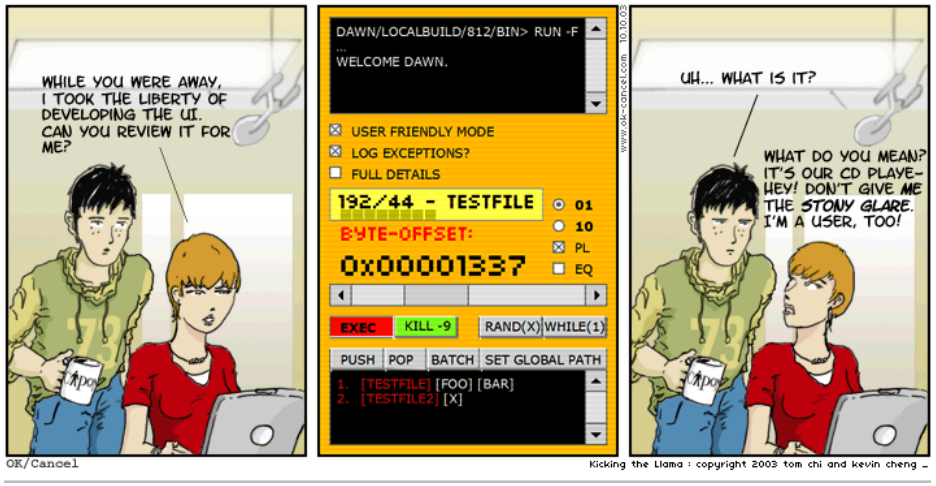
- How about from left to right?

א היא האות הראשונה
באלף-בית העברי. אחת
מאותיות אהו"י אשר
מציינות תנועה. אות זו
מצוייה כאם-קריאה
אחרי כל התנועות.





http://uk.ibtimes.com/



Constraints

Constraints

- Constraints are the "inverse" of affordances, and can augment them
- They limit the way an object can be used
- Goals:
  - Avoid usage errors
  - Minimize the information to be remembered
- Types of Constraints:
  - Physical, semantic, logical, cultural

Physical Constraints

- Limit number of possible physical operations
- Limiting is done by physical shape
  - Example: Traditional key does not fit into security lock
- More efficient and useful if constraint is visible ahead of time!
  - Example: Car key should fit both ways, but should then also work both ways

Semantic Constraints

- Use our common knowledge about the world and particularly the meaning of the current situation
- Example: Driver's figurine in a model plane construction kit has to sit facing forward to "make sense"
- Powerful means to improve intuitiveness
- But: Only use rules that are valid throughout your user population!

Logical Constraints

- Use logical conclusions to exclude certain solutions
  - Example: All parts of a model plane construction kit are to be used
- Natural mappings often use logical constraints, and are hard to distinguish
  - Example: left switch = left lamp is natural/logical

Cultural Constraints

- Rely on generally accepted cultural conventions
  - Example: Labels are to be read, so are expected not to be upside down — implies which side is up on a closed package
  - Example: Red = Stop
- But: Only applies to specific cultural group!
  - Chinese labeling does not give most Westerners an idea where "up" is
  - Pointing with index finger is inappropriate in some middle and far east cultures

In-Class Exercise: Constraints

- Think about three examples for objects where constraints help us use them correctly
- Try to find examples for the different types of constraints
  - Physical, semantic, logical, cultural
- Sample areas: kitchen appliances, security devices, vending machines, …

Conceptual Models

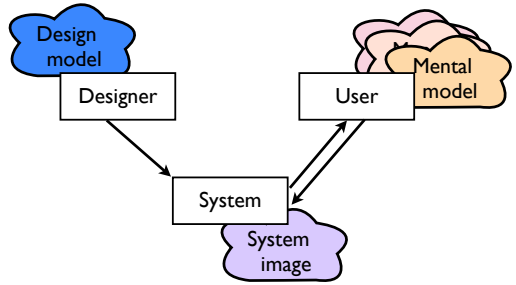
- We are surrounded by innumerable objects (20,000 everyday things)
- How do we cope?
  - Mind aims to make sense of things
  - Affordances support using objects easily
  - Designers can provide a good image of how a system works
- Humans form a conceptual model of how something works when they encounter it

Providing Good Conceptual Models

- Principle of good design
- Allows to predict effects of our actions, and cope with problems
- Conceptual models are mental models of things
  - Other mental models: Of ourselves, others, the environment, …
  - Formed through experience, training, instruction

Design Model, System Image, and User's Model

- By carefully crafting the system image, designers can provide a good idea of how a system works
- Problems arise when the designer's conceptual model is different from what emerges as the user's mental model
- Important concept to remember when designing UIs!

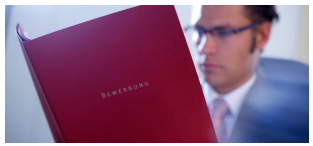


Assignment: Revisiting the Remote Control

- Reflect on your remote control design in your idea log
  - How did you map your controls to the system?
  - Are the mappings natural? How?
  - What are alternative mappings? What are their pros and cons?
  - What were constraints you used in your design?
  - How does the system image of your remote control communicate the conceptual model to the user?

Bewerbertraining für IT-ler

- **Bewerbungsunterlagen – was soll da rein, wie sieht das aus?**
- **Vorbereitung auf ein Vorstellungsgespräch**
- **Was soll ich als Gehaltswunsch angeben? Ist das Gehalt überhaupt verhandelbar?**



Termin: **Dienstag, den 8.11.2011 von 14 -18 Uhr**

Ort: SOPTIM AG, Im Süsterfeld 22 in Aachen

Anmeldung bei SOPTIM unter: Personalmanagement@soptim.de

Referentin: Ina Rixen, Personalleiterin der SOPTIM AG

Das Seminar ist kostenlos!

Learning About Users

Learning About Users

- Providing useful functions is not enough
- Functions also need to fit seamlessly into users' task environment, otherwise it won't be used (cost/benefit)
- So: Know The User!
- Find real people interested in your planned system (otherwise there's a problem—example: CBT authoring system)

Finding Users

- "No time": Will likely have no time to use final product either
- So: motivate them, explaining why system will be useful
- Geeks are often more willing
- Bribery helps (gummi bears, t-shirts, coffee mugs—usually better than money)

Lame Excuses by Designers Avoiding to Find Users

- "My system is useful for everyone."
  - If true, finding users should be easy
  - If not, "everyone" really means "no one"
- "I am a typical user myself."
  - Would you really use it daily?
  - Also: usefulness that designer appreciates after long thought process may not be obvious to the user

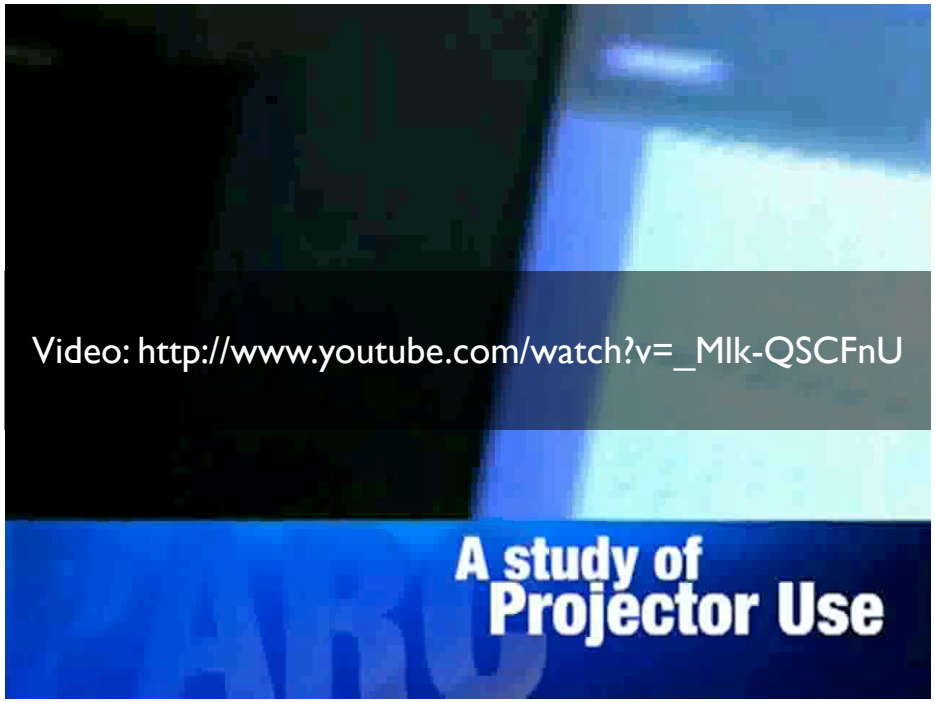
Observing Users

- Setting goals
  - How will you analyze the data from the observation?
- Identifying users
  - Who will you observe?
- Triangulation
  - Use multiple evidences to confirm your observations
- Pilot observation
  - Do a small-scale observation to debug the process

Simple Observation Framework

- People: Who is using the technology at any particular time?
- Places: Where are they using it?
- Things: What are they doing with it?

Source: Preece et al., Interaction Design, 3rd ed., 2001



Detailed Observation Framework

- Space: What is the physical space like and how is it laid out?
- Actors: What are the names and relevant details of the people involved?
- Activities: What are the actors doing and why?
- Objects: What physical objects are present, such as furniture?
- Acts: What are specific individual actions?
- Events: Is what you observe part of a special event?
- Time: What is the sequence of the event?
- Goals: What are the actors trying to accomplish?
- Feelings: What is the mood of the group and of individuals?

Source: Preece et al., Interaction Design, 3rd ed., 2001

Summary

- Natural mappings connect system state to the real world
- Constraints limits the way an object can be used
  - Avoid errors
  - Reduce information to be remembered
- Usable objects use the system image to convey the right conceptual model to the user
- Knowing your real users is the key to usable design
- User observation is one method to learn about users