Design Principles

Evaluating a Software tool using Norman's Principles

Norman's Principles

- Visibility
- Feedback
- Affordance
- Mapping
- Constraint
- Consistency

Norman's Principles

- Visibility: can I see it (so that I can use it!)
- Feedback
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Visibility

- Correct parts must be ***visible*** (and send correct message)
- natural signs → naturally interpreted
- bad ***visibility***: clues are missing
- bad ***visibility***: too many clues!
- mapping between *intent* and *use* should be ***visible***
- state of device should be ***visible***

Visibility

- Example:
  - what do A B X Y mean?
  - △□XO ?

Norman's Principles

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- Feedback: What is it doing?
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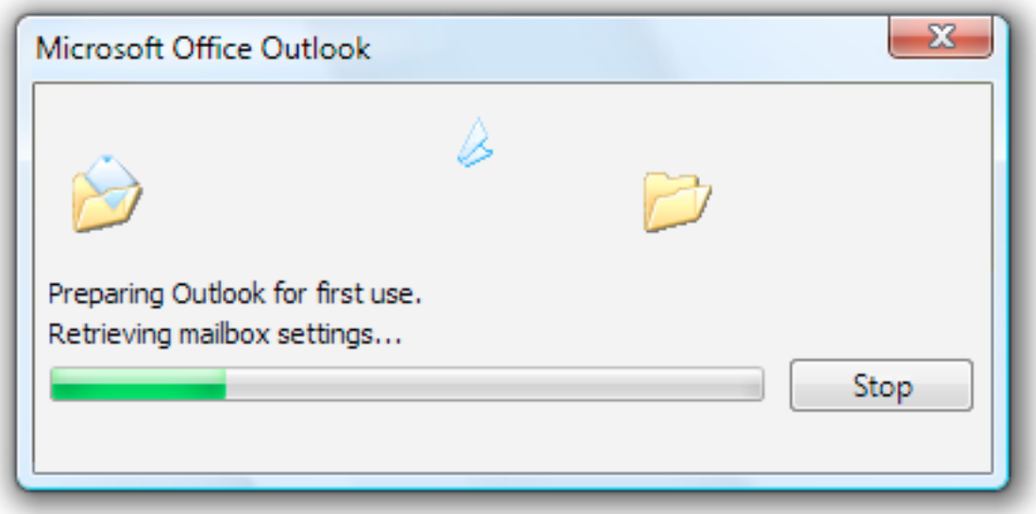
Feedback

- What just happened??
- Send the user information *back*
  - highlighting:
  - sound: “click”

Feedback

- Example:
  - feedback tells you why you're waiting



Norman's Principles

- Visibility
- Feedback
- Affordance: how do I use it?
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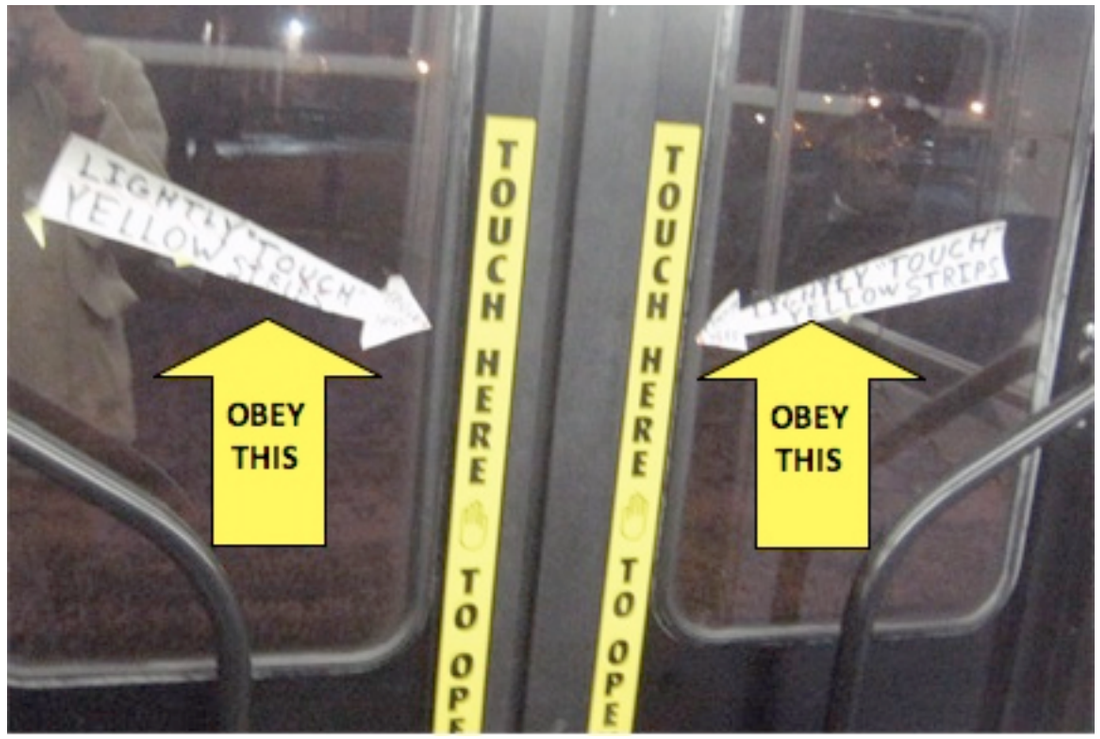
Affordance

- Hints at how to use
- icons or buttons afford clicking
- Scrollbars afford moving up or down

Affordances

- Good affordances require little signage



Norman's Principles

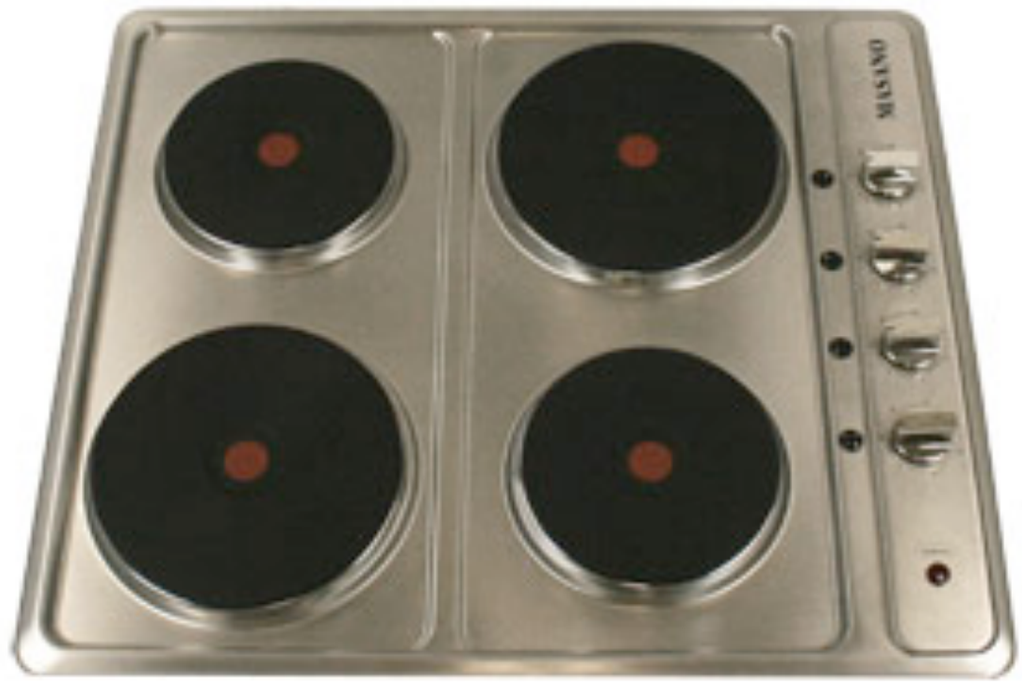
- Visibility
- Feedback
- Affordance
- **Mapping:** relationship between control and effect
- Constraint
- Consistency

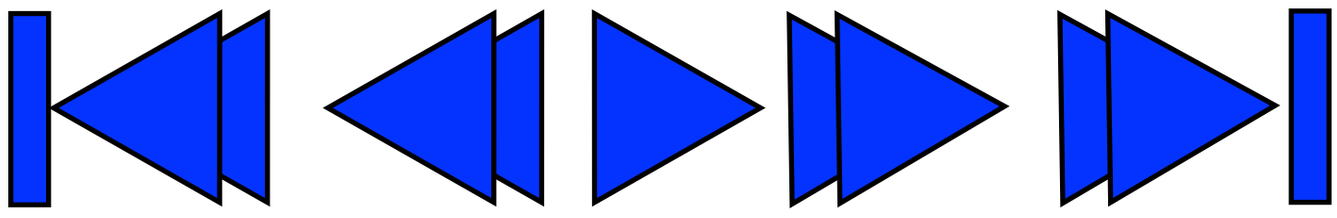
Mapping

- Controls should exploit natural mappings
  - Physical analogies
  - Cultural standards
    - hot on left, cold on right
    - forward right, backward left

Mapping

- What dial for which burner?
- Good mapping: video controls





Norman's Principles

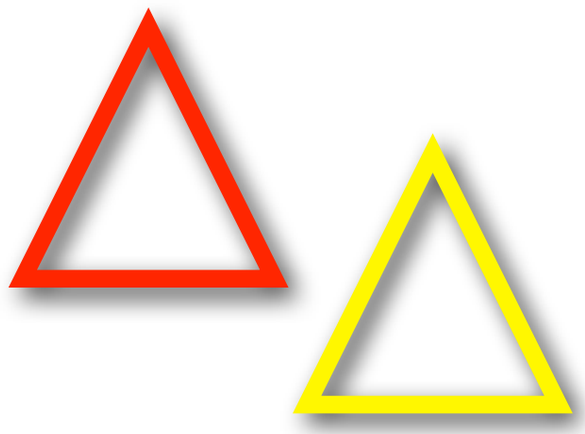
- Visibility
- Feedback
- Affordance
- Mapping
- Constraint: why can't I do that?
- Consistency

Constraints

- Physical
  - physically restricts movement/action
- Cultural
  - learned conventions
- Logical
  - exploits common sense about how things work

Constraints

- Physical



- Cultural

- Logical
  - which goes where?

Norman's Principles

- Visibility
- Feedback
- Affordance
- Mapping
- Constraint
- Consistency: Have I seen this before

Consistency

- Internal consistency
  - are operations the same within the application/platform
- External consistency
  - are operations the same across applications, devices, platforms...

Analysis of Connex Interface

- Use Norman's Principles to analyze the Connex interface

- For each principle:
  - One positive example
  - One negative example

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- Consistency: Have I seen this before