

# Design Principles

from Don Norman's "Design of Everyday Things" and  
Preece, Rogers and Sharp's "Beyond Interaction Design"

# Design of Everyday Things

- Donald Norman - cognitive scientist and engineer who has pioneered many ideas surrounding user centred-design
- worked for Apple, Hewlett Packard, Northwestern University, UCSD
- critiques and examines many everyday items as examples of problematic designs
- design principles a framework for discussing and thinking about everyday interactions
- Norman, Donald A. (1988). The Design of Everyday Things. New York: Basic Books.

# Design Principles

- Visibility- can is see it?
- Feedback - what is it doing now?
- Affordance - how do I use it?
- Mapping - where am I and where can I go?
- Constraint - why can't I do that?
- Consistency - I think I have seen this before?

# Visibility

- Can see the state of a device and possible actions
- Car controls are positioned in a way that they can be easily found and used



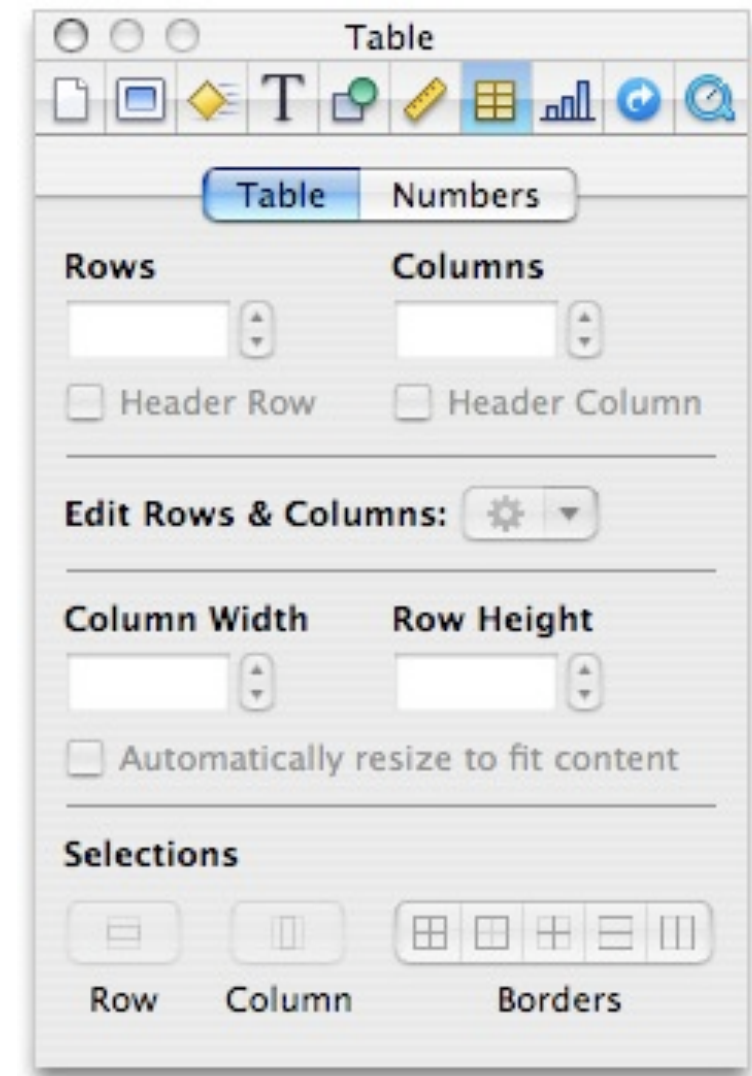
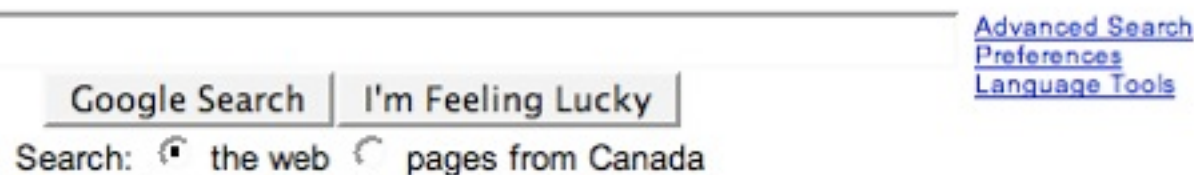
# Visibility

- Problems arise when we cannot “see” how to do use a device
- Sensor technology like auto faucets - not sure how to use - guess where to put hands
- Visible knobs, dials and buttons have been replaced by invisible and ambiguous “active zones”



# Visibility

- Hiding certain functions can be advantageous in interface design
- Certain functions are kept invisible until needed; also contained within a group of similar types
- Google search makes it clear where to enter text





# Visibility

- Other examples of poor or good visibility in design?



# Feedback

- what is it doing now? what action has been performed?
- needs to be immediate and synchronized with user action





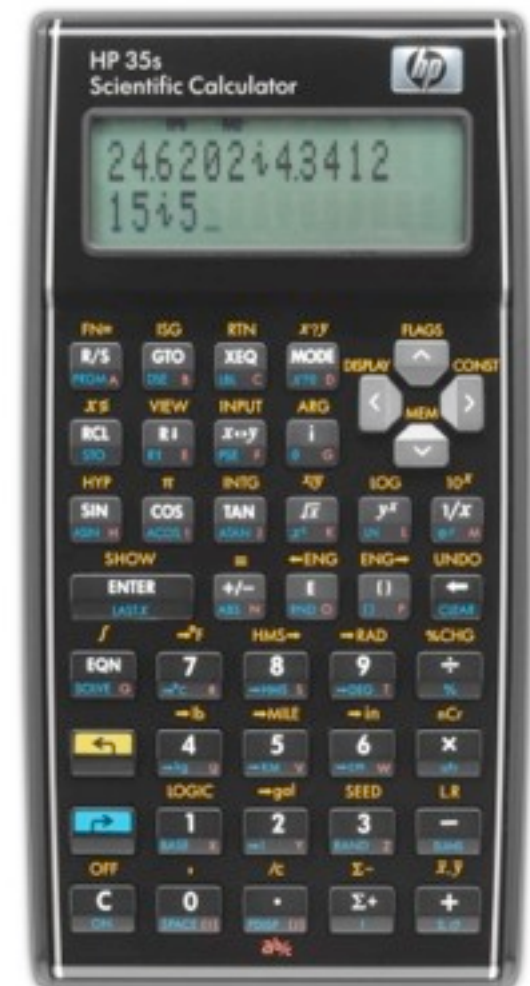
# Feedback

- Sound works as feedback - examples?



# Feedback

- Other examples of feedback in everyday design?



# Affordance

- Perceived and actual properties of an object that give clues to its operation



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# Affordance

- Other examples of affordances in everyday interactions?





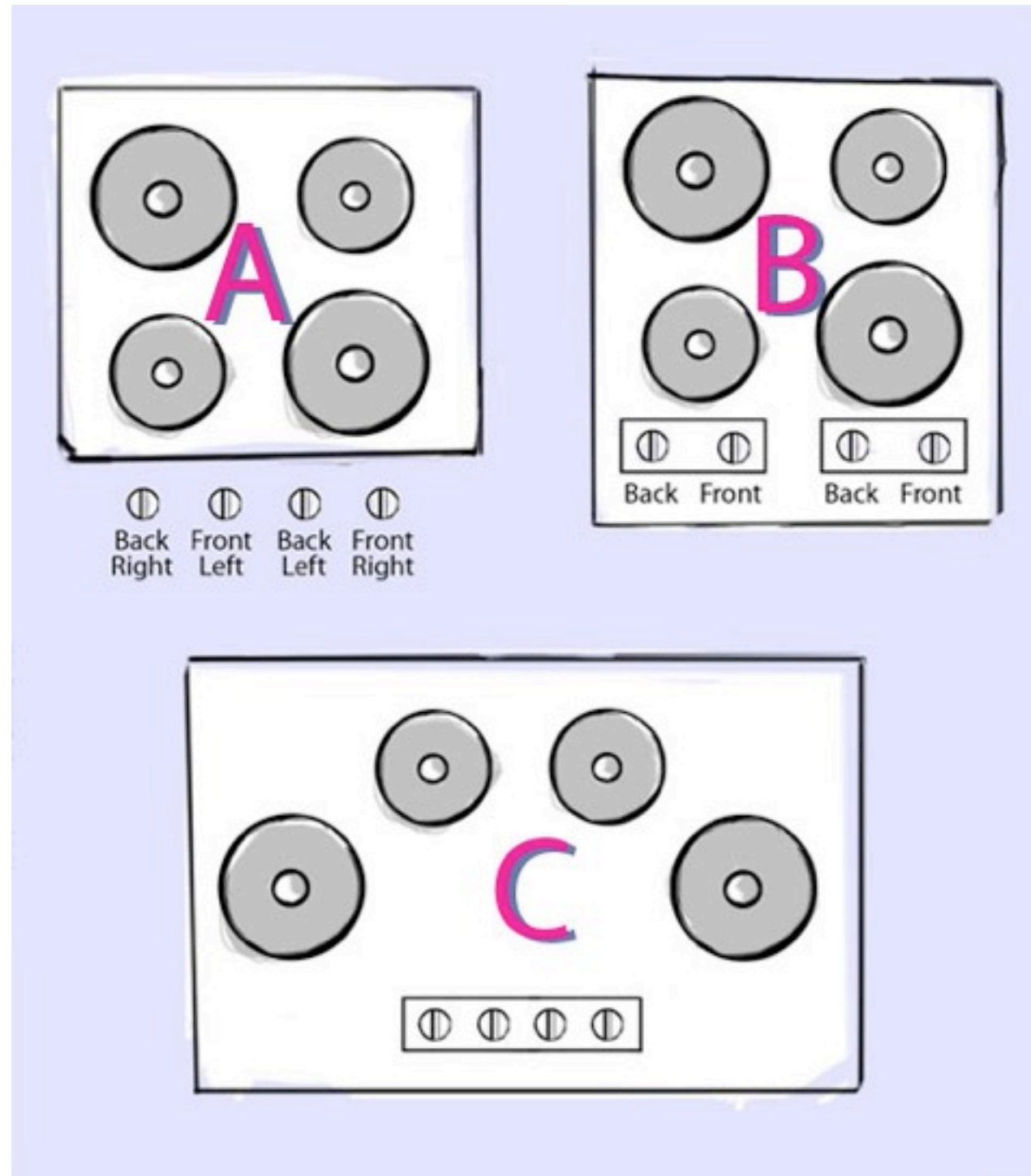
# Mapping

- Relationship to controls and their effect



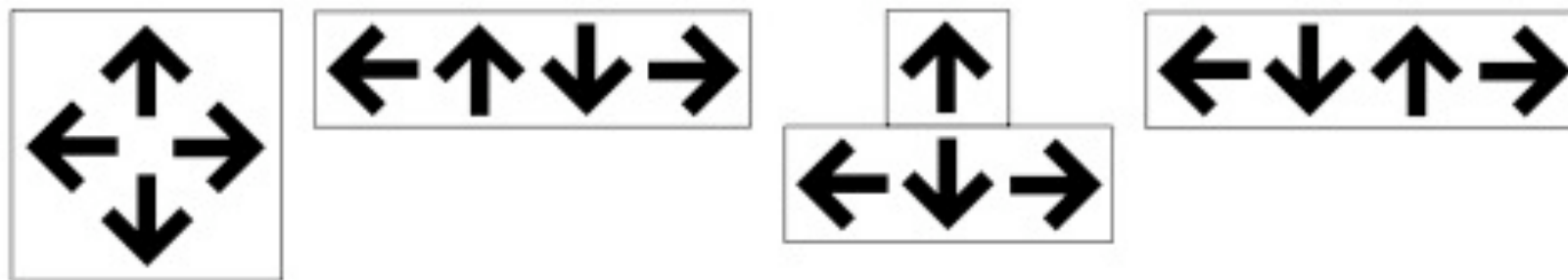
# Mapping

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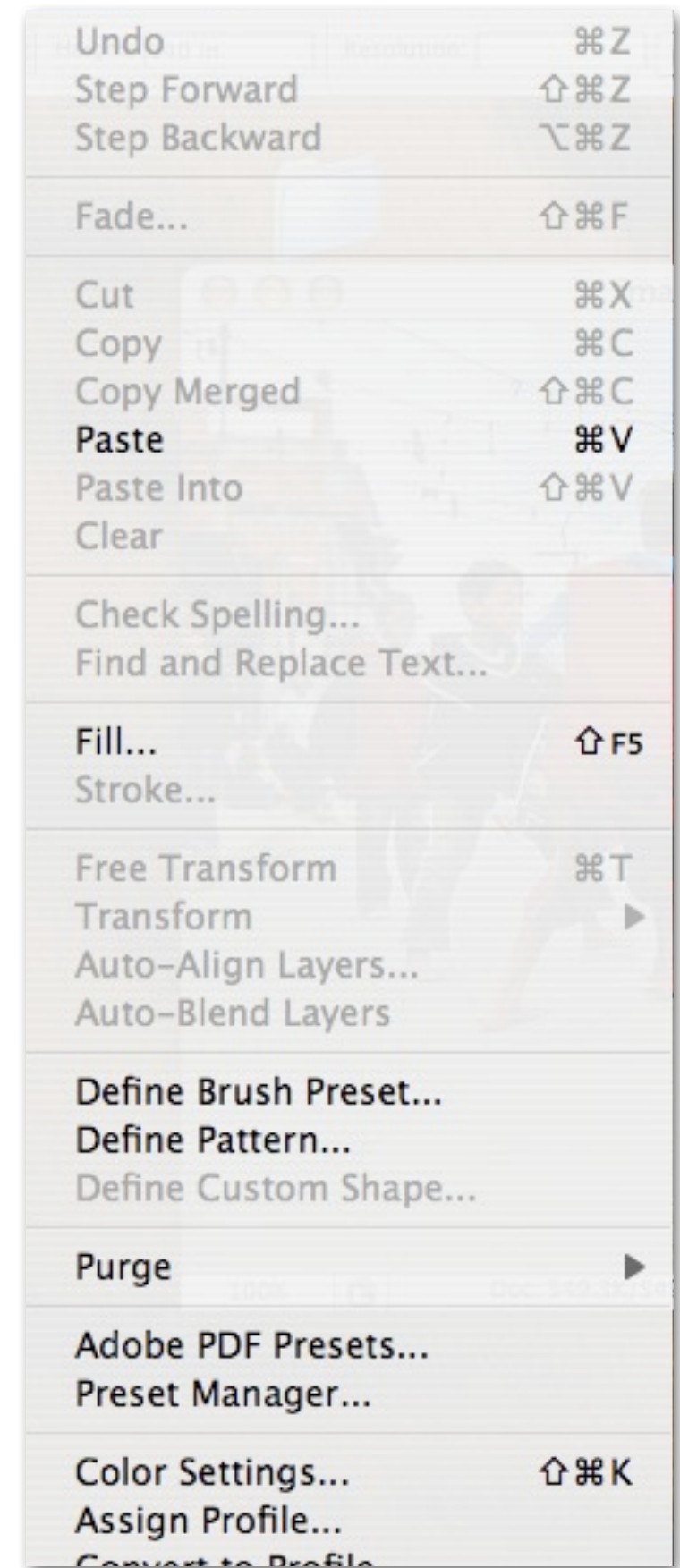
# Constraints

- Restricting the kind of interactions that can take place



# Constraints

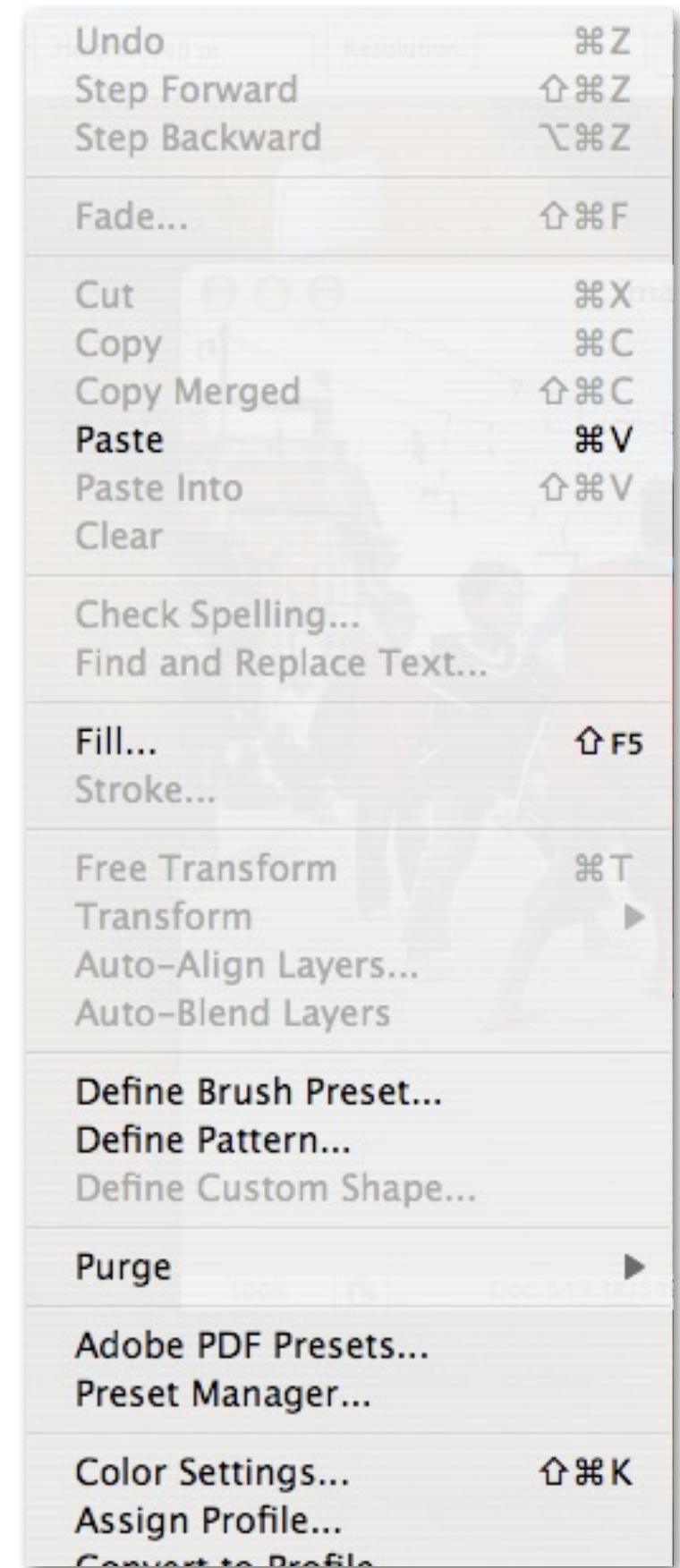
- Restricting the kind of interactions that can take place
- Reduce the chance of error
- Can also work to focus user's attention to needed task





# Constraints

- Other examples of good and bad constraints?





# Consistency

- designing interfaces to have similar operations and use similar elements for achieving similar task
- systems are usable and learnable when similar concepts are expressed in similar ways
- enables people to quickly transfer prior knowledge to new contexts and focus on relevant tasks

Four types of consistency:

*aesthetic*

*functional*

*internal*

*external*



# Consistency



## Aesthetic

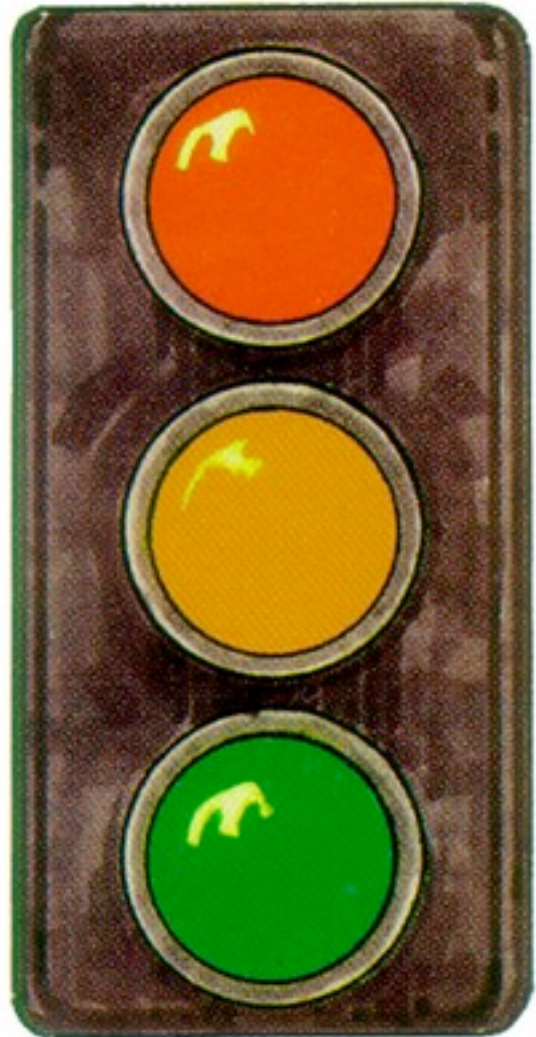
- style and appearance is repeated to enhance recognition, communicates membership and sets emotional tone
- Mercedes Benz vehicles are instantly recognizable because the company consistently feature its logo on all its vehicles
- associated with quality and prestige; respected and admired; fine craftsmanship and reliable



# Consistency

## Functional

- meaning and action are consistent to improve learnability and understanding
- consistent use of symbols to represent similar concepts, leverages prior knowledge and makes new things easier to use
- traffic always turns yellow before red
- cassette recorder control symbols used on a





# Consistency



## Internal

- consistency with other elements in the system
- cultivates a sense of orientation and trust
- indicates system is well thought out and planned
- eg. park and trail signage

# Consistency

## External

- consistent with other elements in the environment
- extends the benefit of internal consistencies across multiple, independent systems
- more difficult to achieve because different systems rarely observe the same design standards

Finder File Edit View Go Window Help

Safari File Edit View History Bookmarks Window Help

Photoshop File Edit Image Layer Select Filter View Window Help