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- Visible knobs, dials and buttons have been replaced by invisible and ambiguous "active zones"
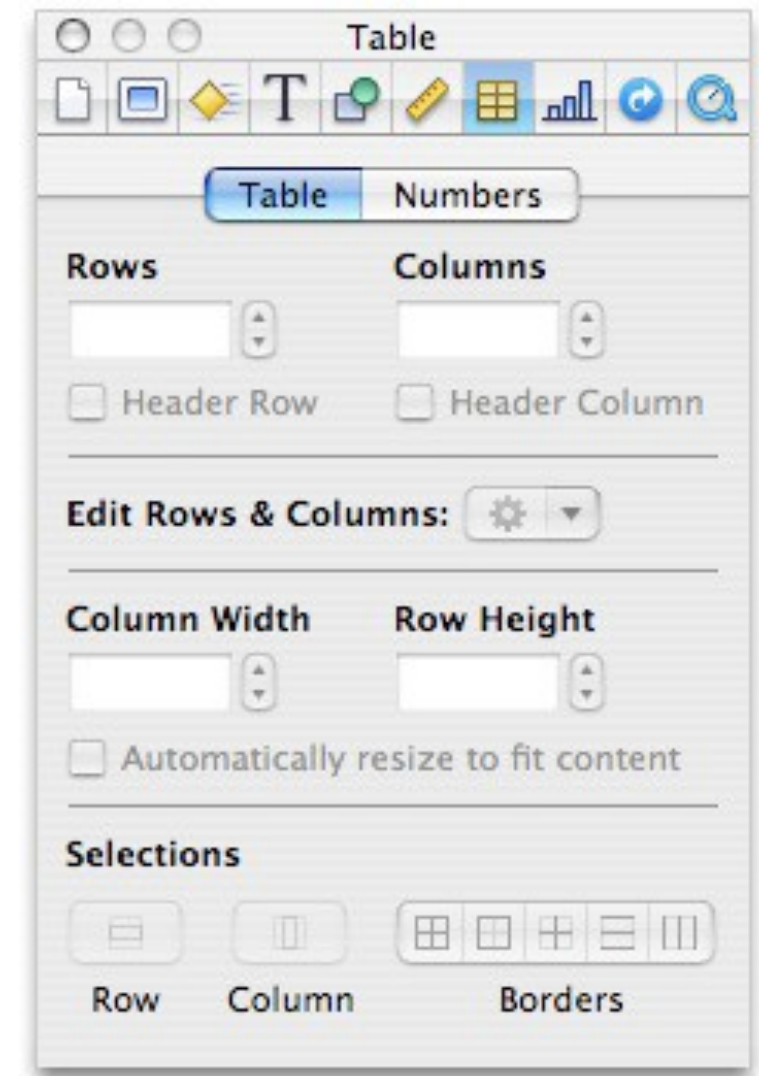
Visibility

- 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

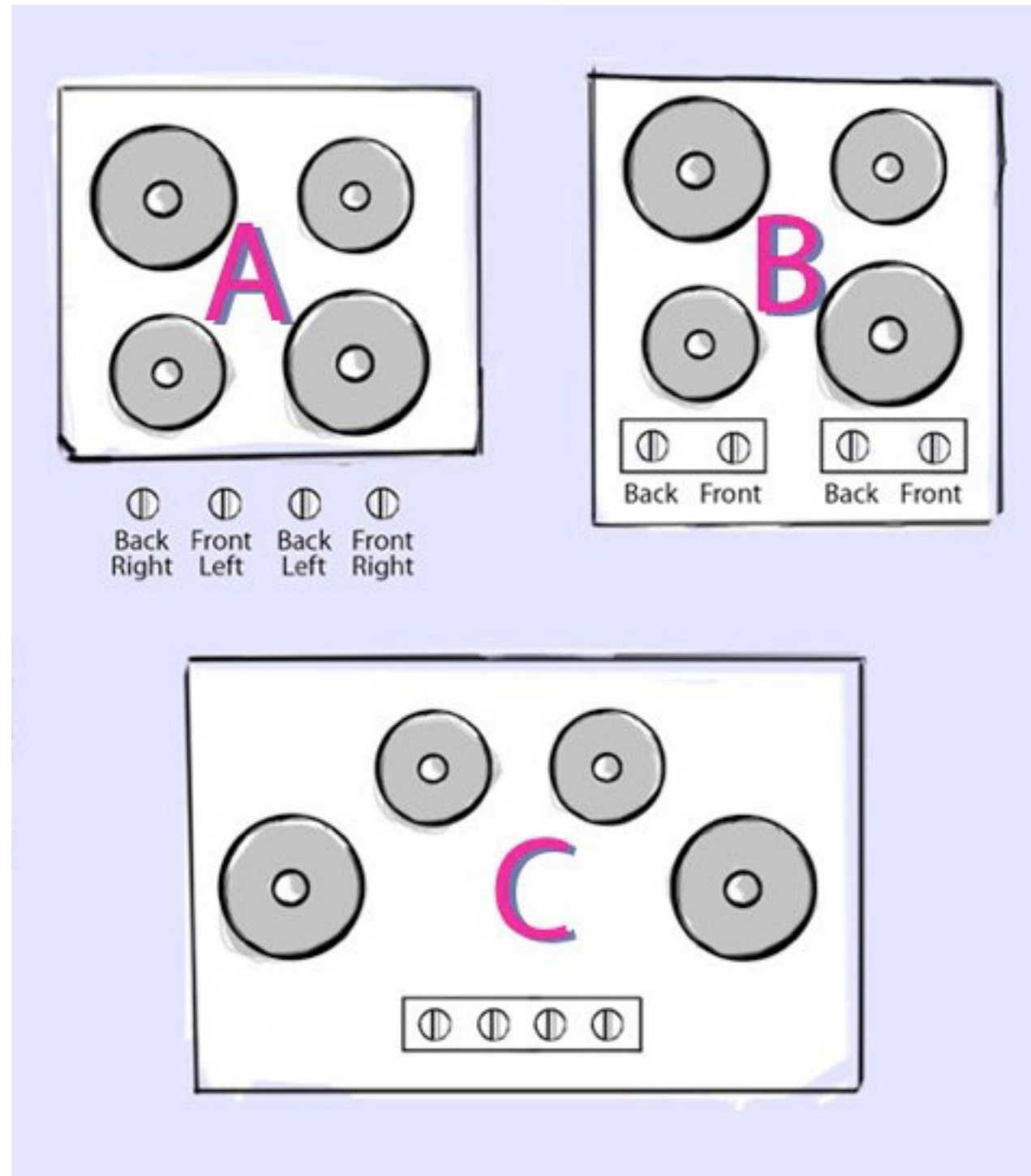- Other examples of affordances in everyday interactions?

Mapping

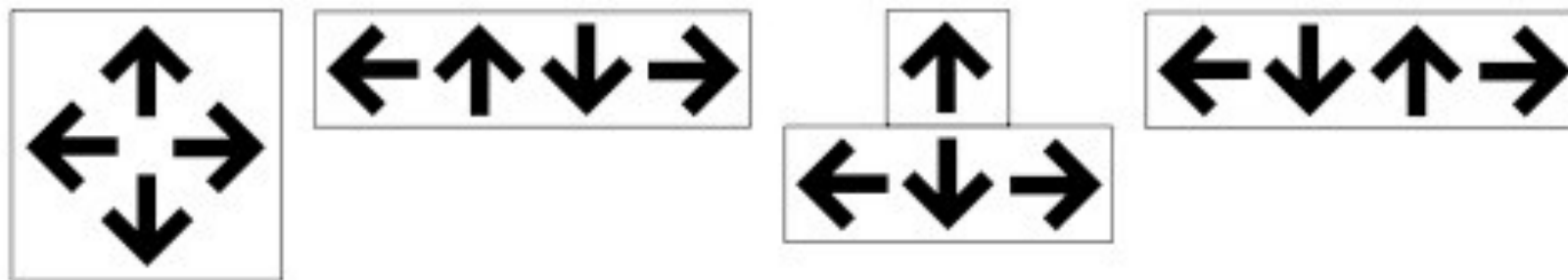- Relationship to controls and their effect

Mapping

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Mapping

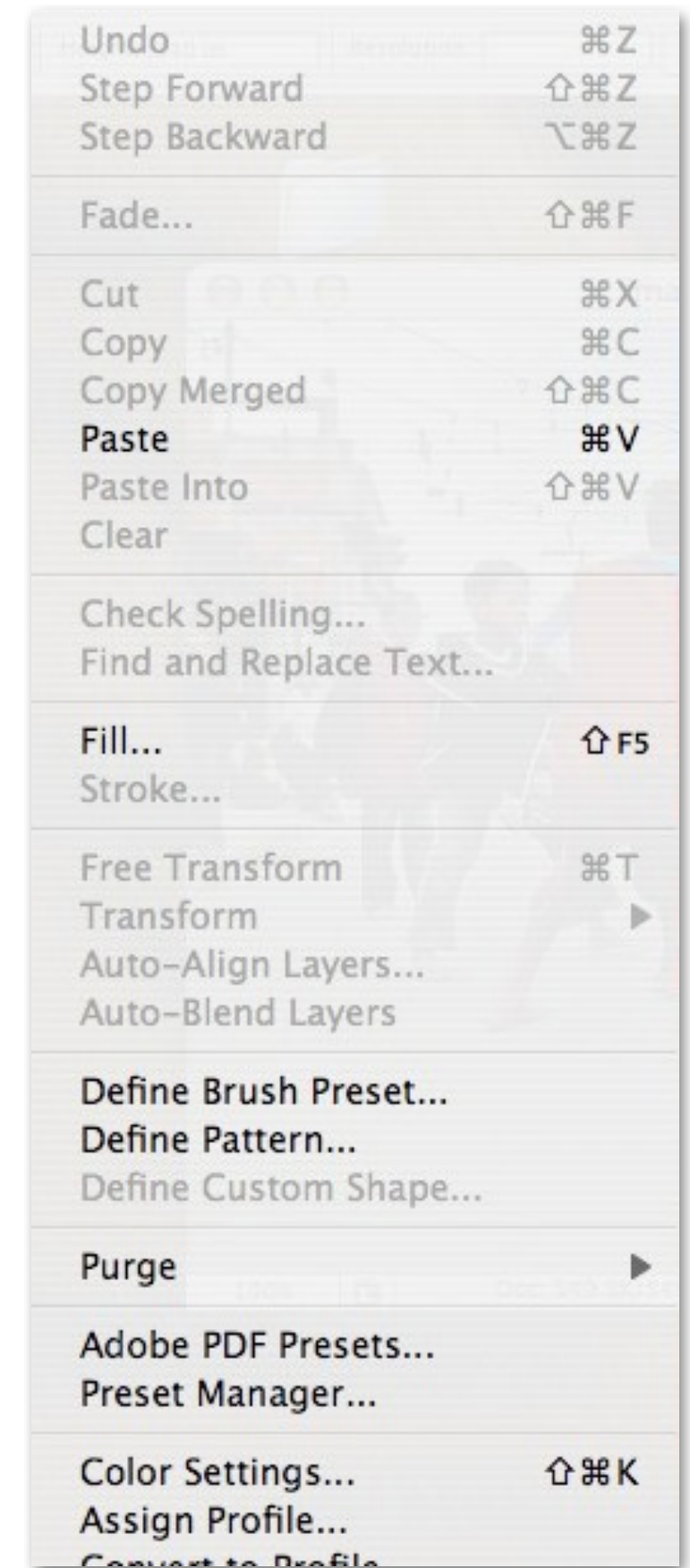- Relationship to controls and their effect

Constraints

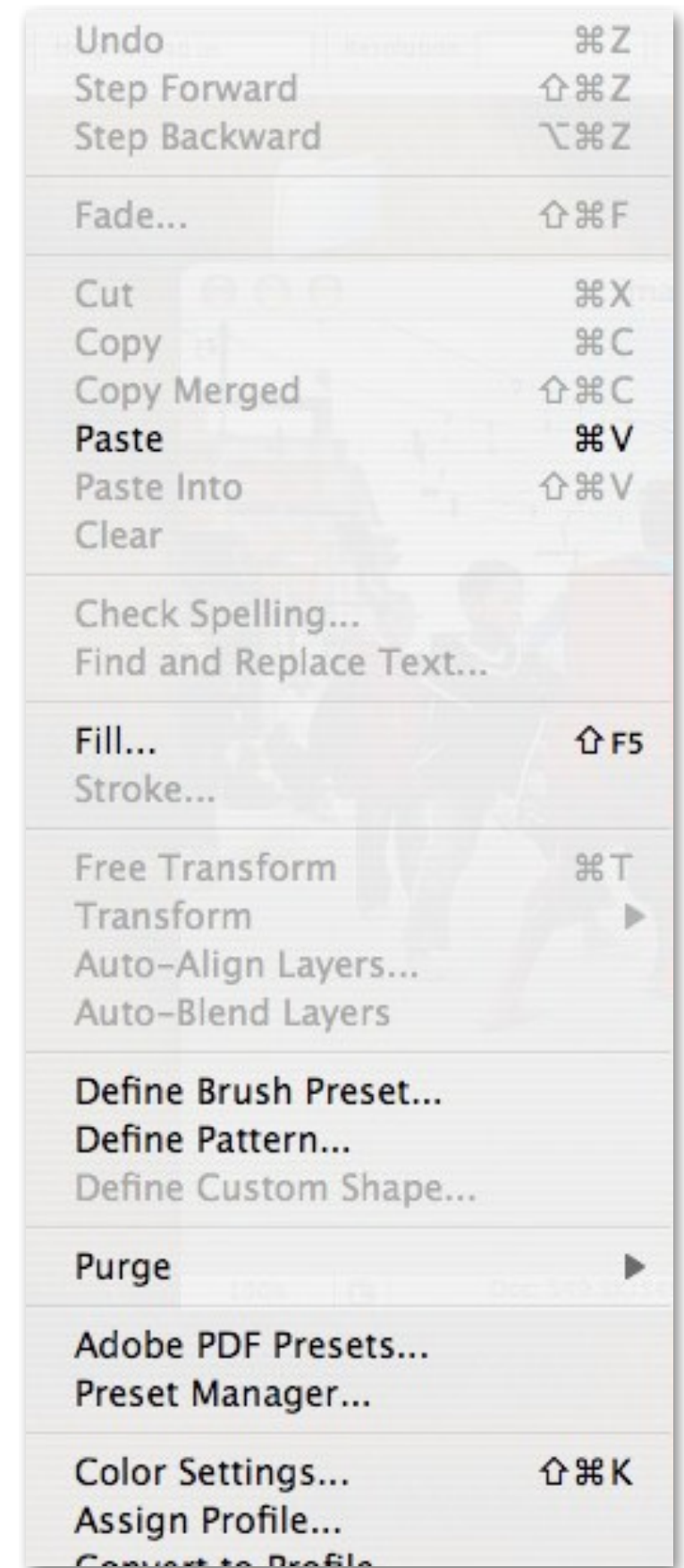- Restricting the kind of interactions that can take place

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

Undo ⌘Z
Step Forward ⇧⌘Z
Step Backward ⌥⌘Z

Fade... ⇧⌘F

Cut ⌘X
Copy ⌘C
Copy Merged ⇧⌘C
Paste ⌘V
Paste Into ⇧⌘V
Clear

Check Spelling...
Find and Replace Text...

Fill... ⇧F5
Stroke...

Free Transform ⌘T
Transform ▶
Auto–Align Layers...
Auto–Blend Layers

Define Brush Preset...
Define Pattern...
Define Custom Shape...

Purge ▶

Adobe PDF Presets...
Preset Manager...

Color Settings... ⇧⌘K
Assign Profile...
Convert to Profile

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 expresses 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
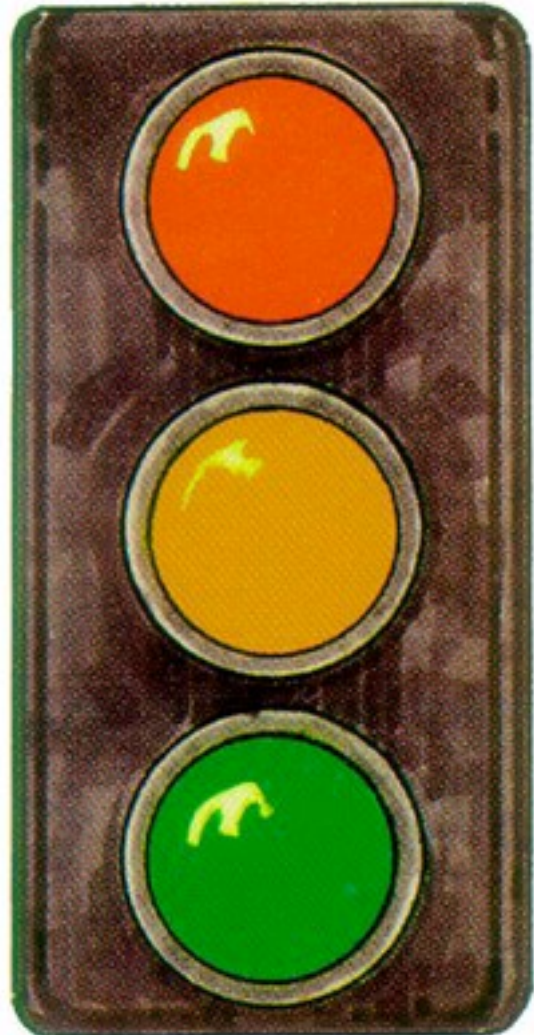
Consistency

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