Psychology of usability 1

User interfaces

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Usability goals

- International Standards Organization ISO 9241 definition:
- Usability is the effectiveness, efficiency, and satisfaction with which users can achieve tasks in a particular environment of a product. High usability means a system is easy to learn and remember; efficient, visually pleasing and fun to use; and quick to recover from errors.
  - Effectiveness: can users successfully achieve their objectives?
  - efficiency: how much effort and resource is expended in achieving those objectives?
  - satisfaction: was the experience satisfactory?

Related fields

- Engineering psychology
- Ergonomics
- Experience design
- Human-centered computing
- Human computer interaction (HCI)
- Industrial Design
- Systems engineering
- Ubiquitous computing
- User-centered design
- User experience design

Universal usability: design for all

- Variations in physical abilities, disabilities
- Variations in use environment
- Diverse cognitive abilities
- Diverse perceptual abilities (vision, hearing)
- Personality differences
- Cultural and international diversity
- Special user groups: children and the elderly

Ease to learn in interface design

- Familiarity in interface
- Layout: patterns and perception
    - regular shapes
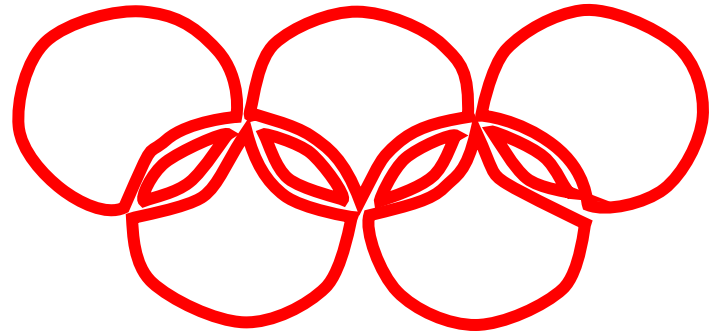   - proximity
    - continuity
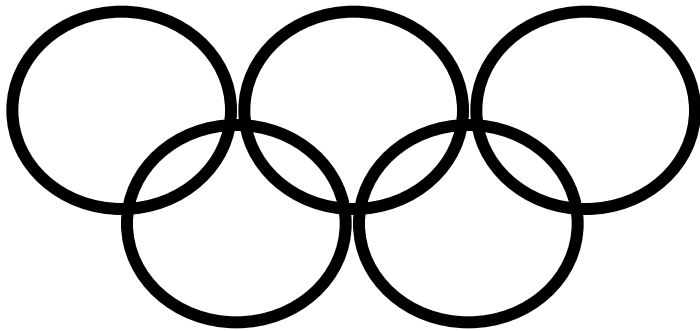   - recognition
    - grouping
- Logical structure

Grouping and patterns

1. Features
   - colors, size, shape
2. Prototypes, schemas
3. Internal consistency & similarity in a group
4. Logical, conform with reality
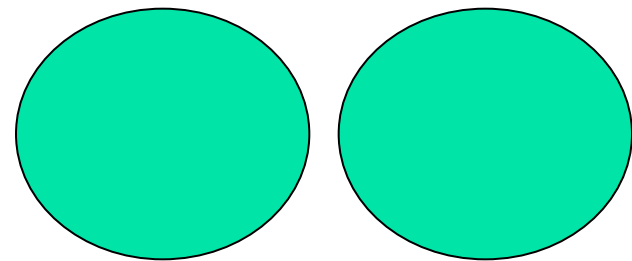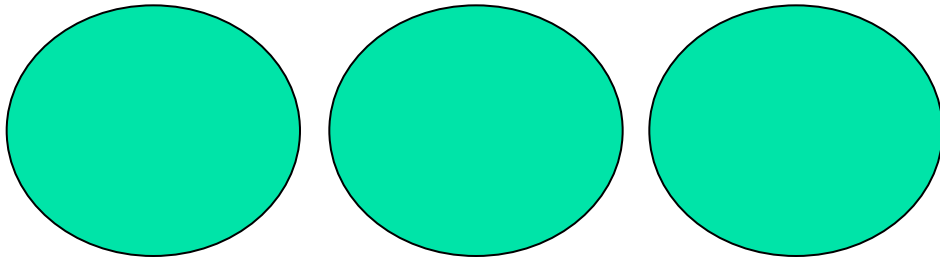5. Sparse (not too many categories)

Regular shapes

- vision / perceptions simplifies and groups things together
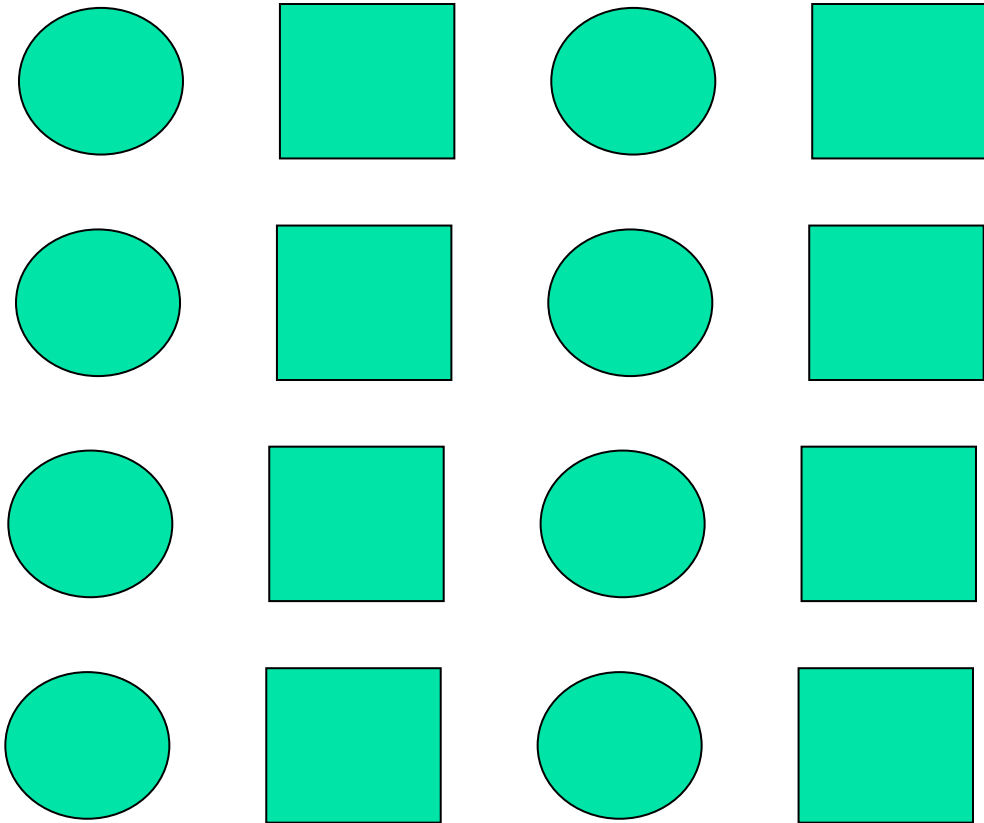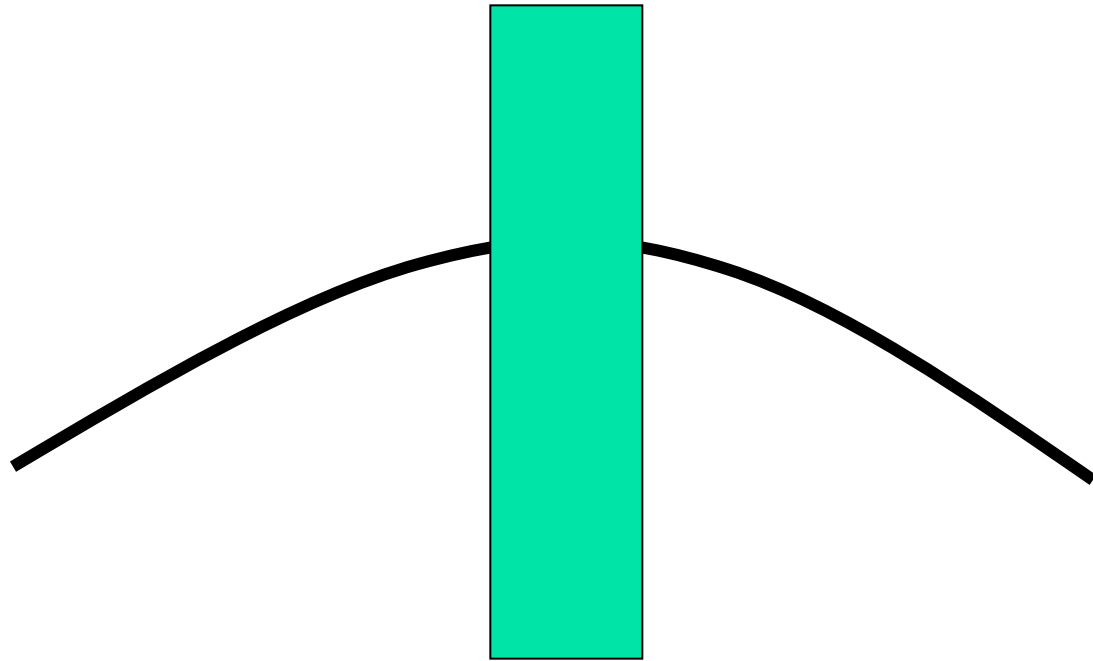 - 5 circles (not 9 parts)

Proximity

Similarity

Continuity

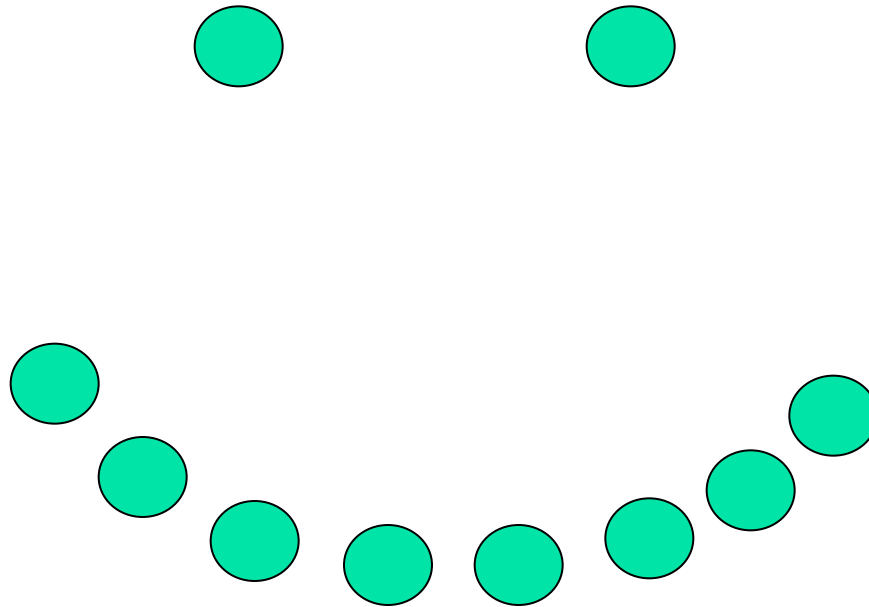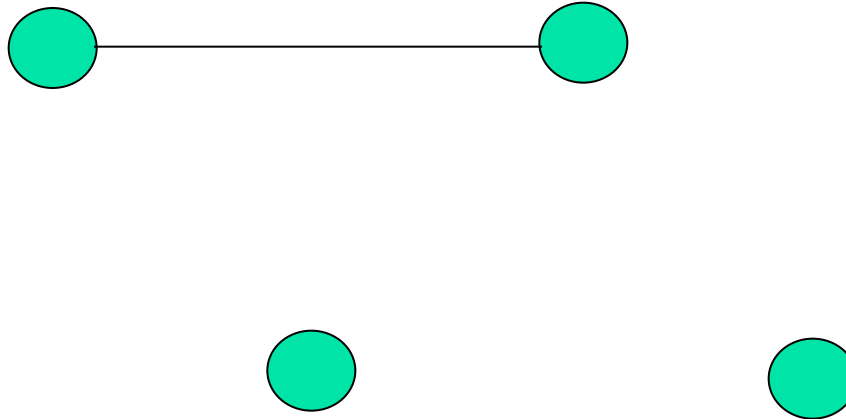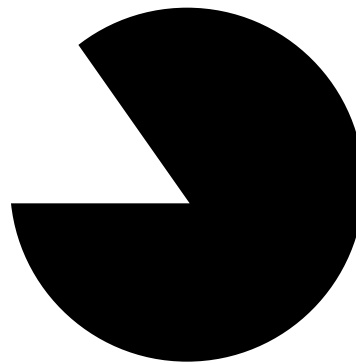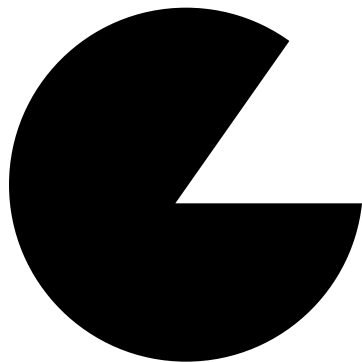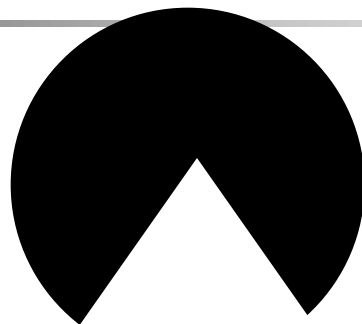# Familiarity

Connectedness
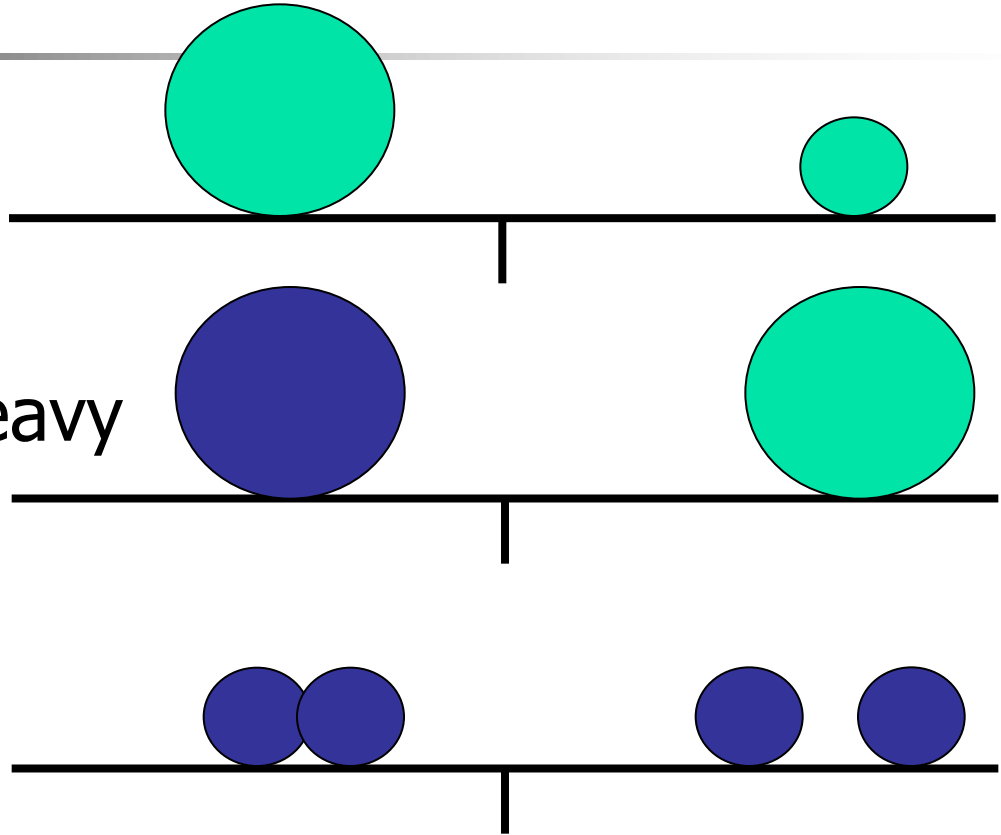
Object - background

Balance

- size
- color
  - dark colors heavy
- position
  - proximity
- do these move?

Template and grid

- *Design on a grid: easy to align*
- Same template: uniform outlook
- Planning in black & white
  - Colors later

Grid for forms

Code: 12345   OK

Name: A Company

Address: Old countryroad
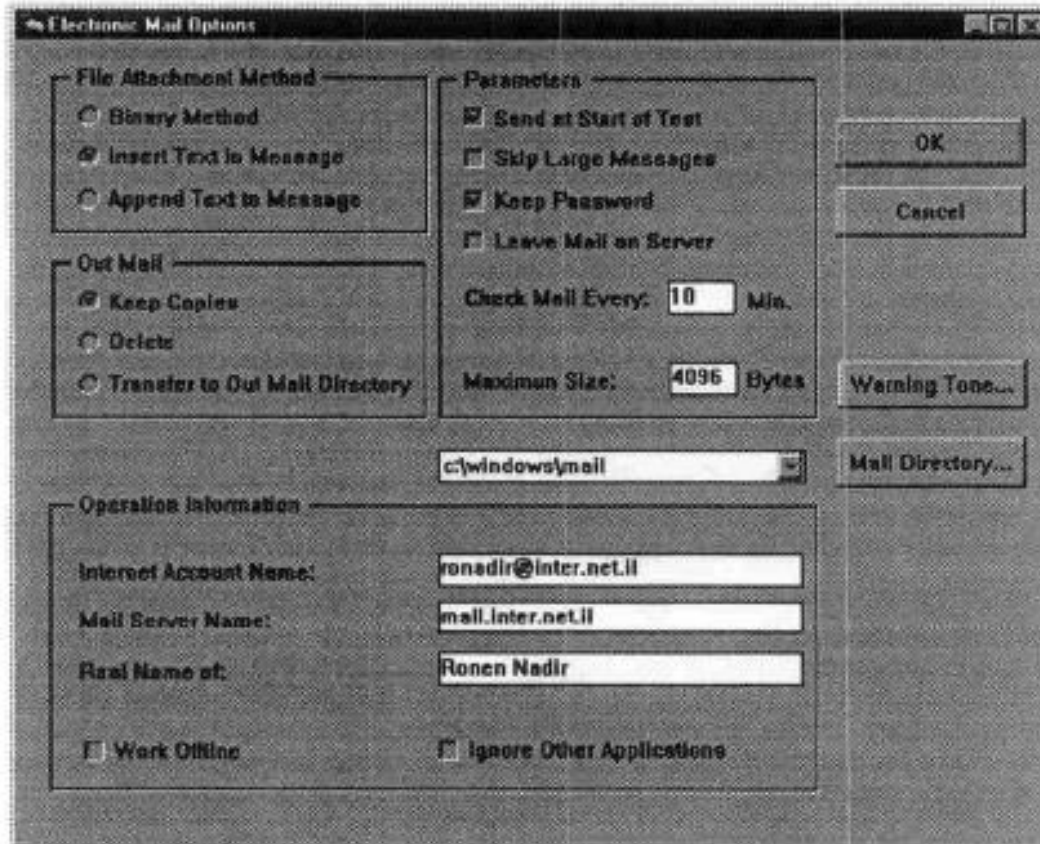
                02650   Esbo

Creating forms

- Left-aligned
- Vertical alignment of texts
- Items that repeat in the same position
- Chunking & grouping
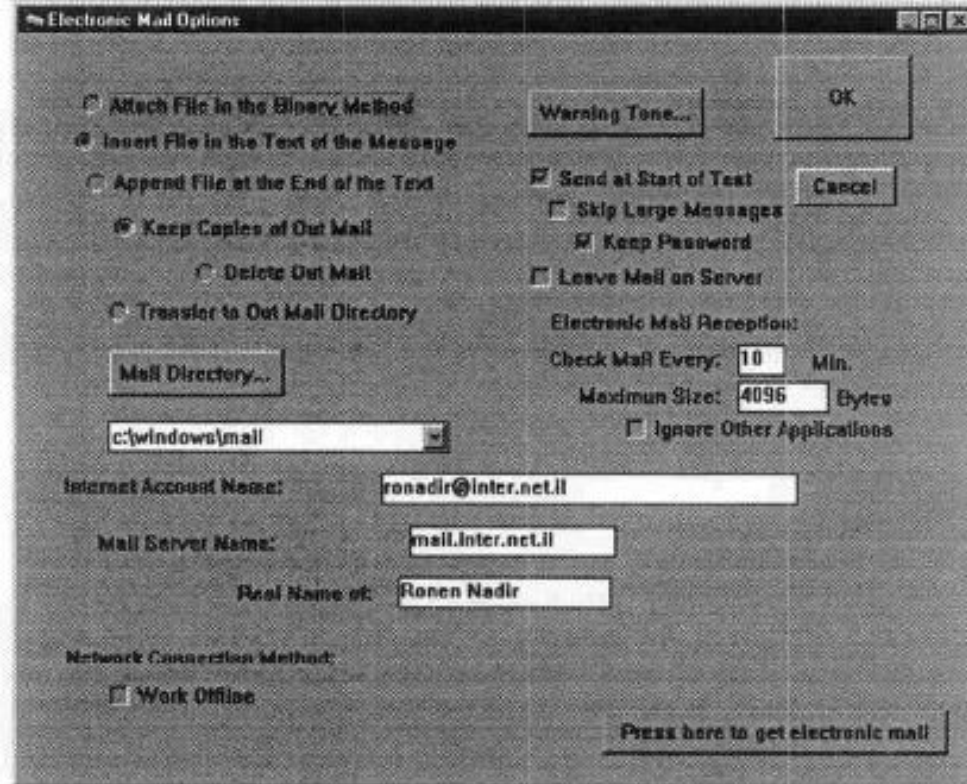- Regular size input fields

Fastest spotting of items

Efficient dialogue

- 6..15 groups

- neat layout
- use of space
- experienced user prefer dense forms
- novices prefer less crowded boxes

Mediocre spotting of items

Grouping of items in interface design

Kotval, X. P., and Goldberg, J. H. (1998), Eye Movements and Interface Components Grouping: An Evaluation Method

The same icons where grouped in four different ways:

      1. functional grouping (editing, drawing, text properties)

      2. majority grouping

      3. random grouping

      4. no grouping condition

(1) was most efficient, (4) second;
 "wrong" grouping turned out to be confusing

Human perception: sees patterns

- People can discriminate color and lighting
- Object and background
- Borders and continuity
- Shapes and interpretations
- People remember even large chunks
- Football teams: colored shirts; chess pieces

Design principles for web sites

- Clear structure
  - Not organizational hierarchy or admistrative units
  - Location, where to go?
- Consistent outlook and layout
  - Location of buttons
  - Colors, background images
  - Theme?
- Functionalities give feedback

Assisting users

- Right amount of information at right time
- Summary on top level
  - Details on lower levels
- Groups and outlines
- Familiarity