**Postgraduate Certificate Web Design and Development**
*WDD 2.4*
*Usability & Evaluation*

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# *Recap:* *What you've learned in the last session*

- Translating user research and business requirements into **conceptual solutions**

- Prototyping at the right level of fidelity – **storyboards, sketches** and **wireframes**

- **Classifying** and **structuring information** in a way **meaningful to users**

- Creating navigation systems – **showing users where they are, where they can go, where they have been**

- Creating content that is **relevant, succinct, scannable, legible and credible**

- Homepages that **explain proposition, create clear entrypoints & CTA's and give examples of content**

# *Psychological basis of usability*

# We need to design for limited cognitive hardware

# A model of human information processing (Wickens, 1992)
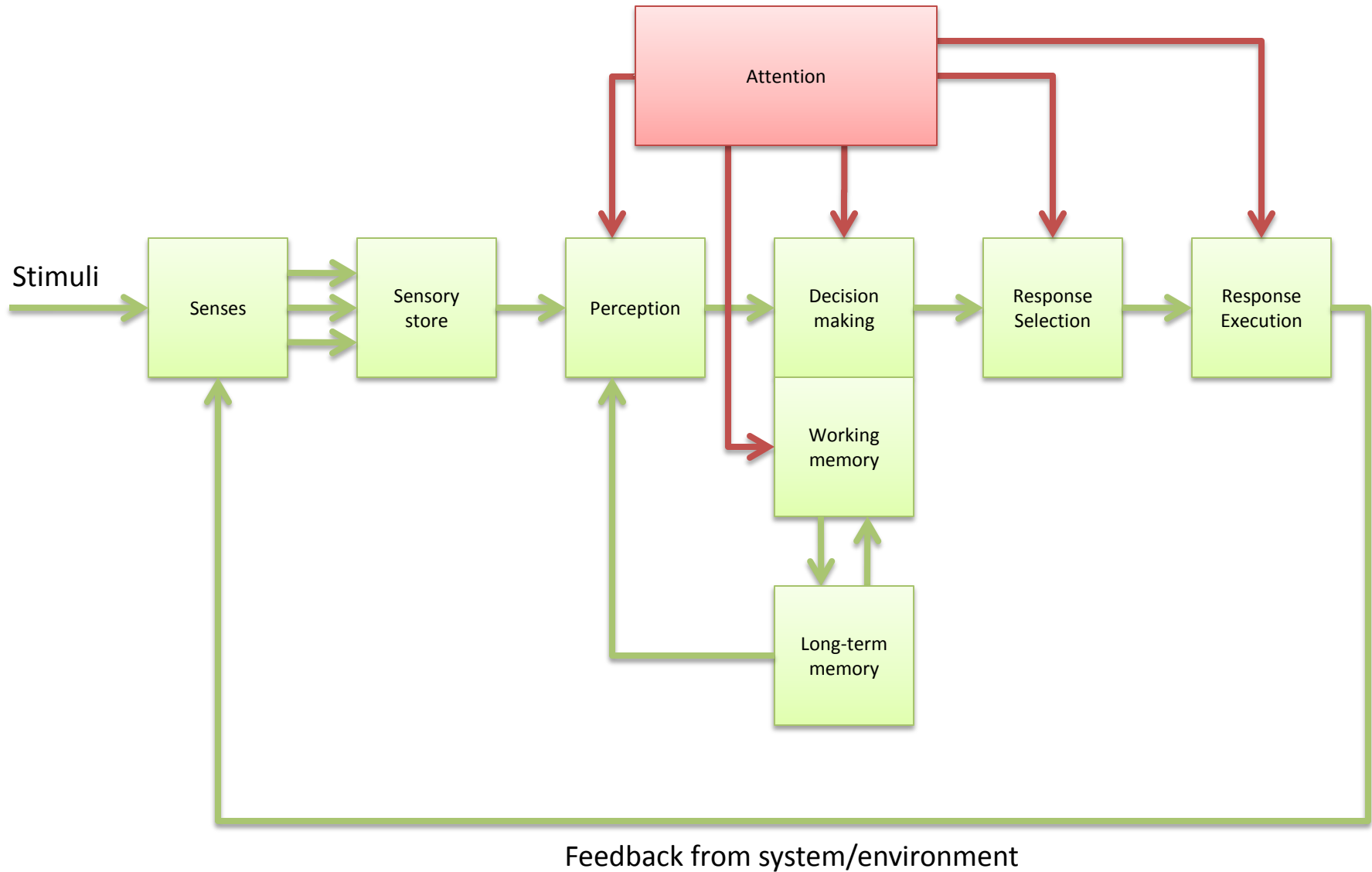
# Sensation & Perception

**Sensation:** Stimuli impinge on the senses and give rise to neural events.

- **Sensory memory** holds stimulus for a very brief period of time.

**Perception:** Giving meaning to the event that produced the sensation.

- **Automatic, rapid and requires little attention** unlike cognitive processes that start when perceived information is processed.
- **Bottom-up processing** is driven by incoming data/stimuli
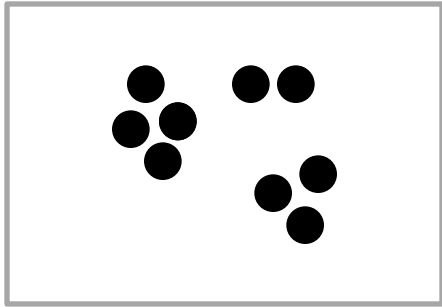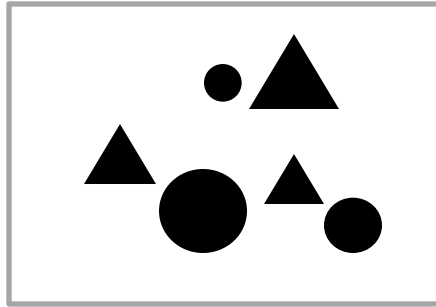- **Top-down processing** is driven by prior knowledge
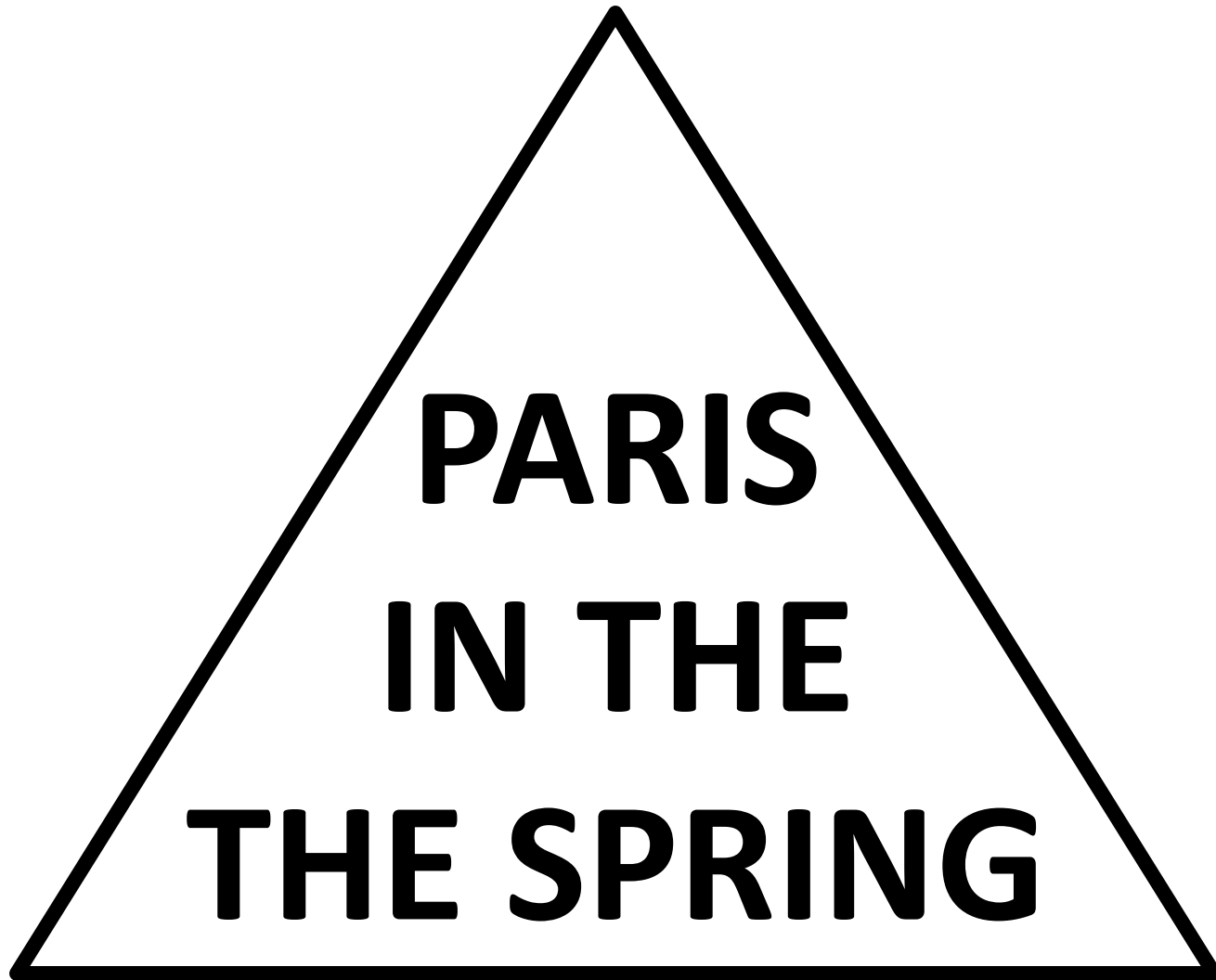
# What is this?
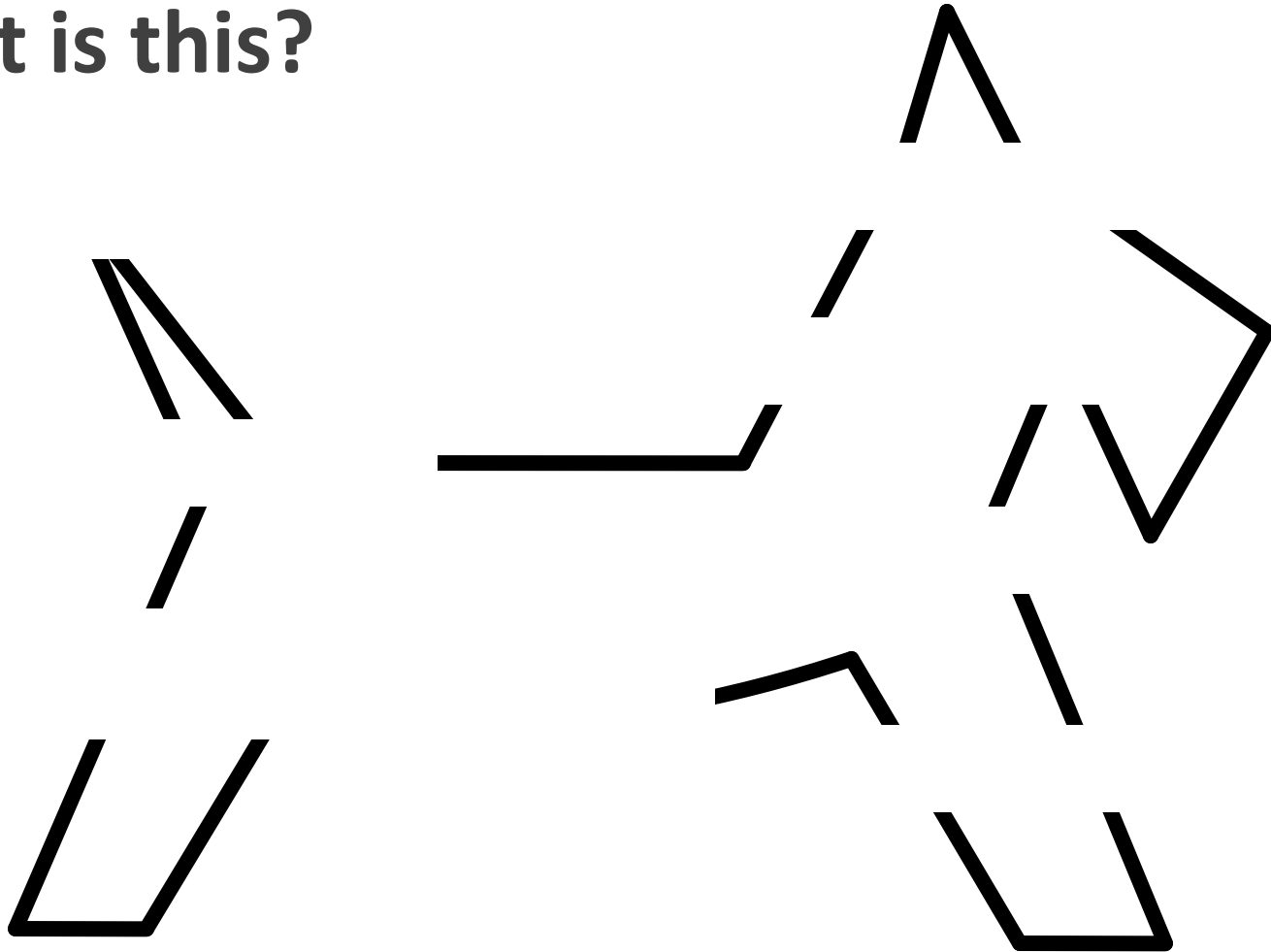
# What does this say?

THE CAT

# Gestalt principles

Proximity

Similarity
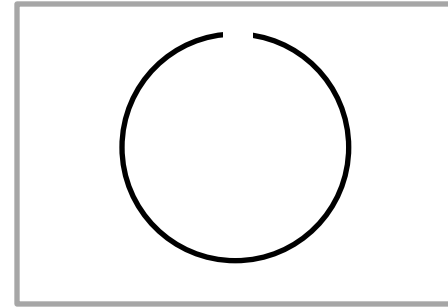
Closure
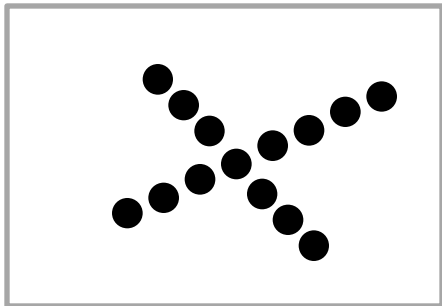
Continuity
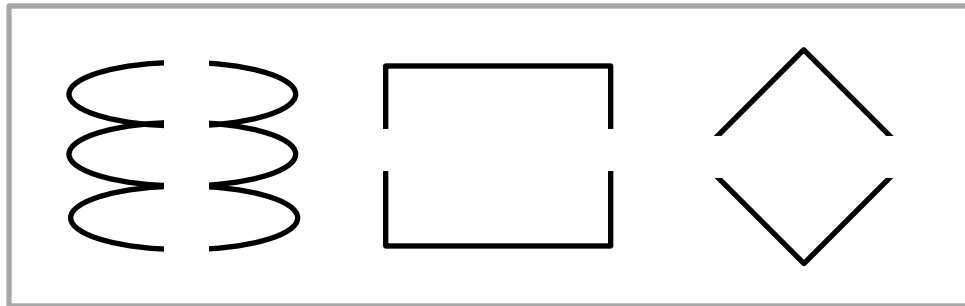
Symmetry

**It's important to be aware of these principles and to consider them in your design!**

# Design implications

- **Structure:** Help users understand what belongs together by chunking similar and separating different items

- **Consistency:** Help users apply previously acquired knowledge from LTM. (consistency within the UI and consistency with the world)

- **Visibility** and **affordance:** Show all required information and use controls that are self-explanatory.

- **Feedback:** Communicate the consequence of an action

# Prominence
## indicates importance

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# Big things
## are perceived more important
### THAN SMALL ONES

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# Proximity-compatibility principle

## Things that are near each other are presumed to be similar

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# Things that are separated are presumed to be different

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# Difference can also be indicated using visual contrast i.e. colour, size, style

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# Headings summarise adjacent content

Painfully obvious isn't it?

**But for it to work, headings must be instantly recognised as headings.**

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**Lack of distinction or visual clutter undermines their function**

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Aliquam eu dui. Nam ullamcorper magna id nisi.

# Try to remember this:

# KFJASANIBFOTNASPU

# Now this:

# KFJ ASAN IBF OTNA SPU CKF

# Now this:

# JFK NASA FBI NATO UPS KFC

# Memory

**Short term (working) memory**

- Size **7 ± 2 chunks** (Miller, 1956), consists of:
- **An auditory component** [the phonological loop]
- **A visual component** [the visio-spatial sketchpad]
- Each has its own store & its own rehearsal mechanism

**Long term memory**

- Thought to be organised on the basis of **meaning and semantics**
- **Schemas:** Organised knowledge structure to reflect knowledge, experience, expectations. Unconscious routines for commonly performed actions
- **Activated schemas** stand ready to execute on cues from the environment

# Design implications

- **Visibility:** Minimise what users need to remember ("the knowledge in their head") and show all required information on the page ("the knowledge in the world")

- **Consistency:** use a language and imagery that conforms to user expectations and previously acquired knowledge; allowing users to connect existing knowledge with new one.

- **Simplicity:** avoid information overload.

- **Concrete things are easier to remember** than abstract ones.

- **Examples and mnemonic devices** help us remembering things: see Dyson website

# Attention

**Selective Attention**

- Attention can be selective (e.g. listening to a particular instrument in an orchestra)

**Divided Attention**

- **Criteria:** Task difficulty, Task similarity & Practice
- Practice leads to processes becoming automatic
- Differentiate between **controlled and automatic processes**
- **Controlled:** Limited capacity, requires attention, flexible
- **Automatic:** No capacity limitation, require no attention, difficult to modify

*Check this: [Card trick](#)*

# Design implications

- We have **limited attentional resources** at our disposal. Use visibility, affordance, structure, feedback and consistency to help users shift attention between different tasks and aspects of the page and alert them of changes.

- **Simplicity:** Don't present too many things at once.

- **Tolerance:** Help users recover from slips of their attention and help avoid errors.

# In Summary

**The human information processing system can be seen as:**

- **A general purpose pattern recogniser**

- **With limited information processing capacity**

- **Using heuristics** (rules of thumbs) to simplify the information processing load

- **Acting as a satisficer** rather than an optimiser

Reason (1990)

# In Summary

- We make **predictions based on previous experience,** or, in other words, **we see what we expect to see.**

- We use Gestalt principles to interpret what we see, and therefore **it is easier for us to perceive a structured layout.**

- We have limited working memory, therefore **it's easier to recognise than recall** for us.

- We use **habits to help us reduce mental effort,** which means that on the web, we often do things in automatic mode rather than consciously paying attention.

- With our limited **attentional** resources we can only give real **attention to one thing at a time.**

# In Summary

**Design principles to apply:**

- **Visibility** of information and controls

- **Affordance** and correct **mapping** of controls

- **Feedback** from the system

- **Structure** of the design

- **Consistency** with user expectations and the world

- **Simplicity** of the design

- **Tolerance** of the system to errors

(Norman 1988)