

## OBJECT RECOGNITION

*Form Perception* is the process through which you see the shape and size of an object

*Object recognition* is the process through which you identify what the object is

- *Reversible figures* show that our perception goes beyond the information given in a picture
- *Gestalt Principles* are rules governing how we perceive objects as a whole within their overall context
  - Guided by principles of proximity and similarity
- *Illusions* occur when we misinterpret the information provided
  - Another indication that you don't just receive information, you interpret it
  - Misconception of depth

### Two Main Processes in Object Recognition

#### 1. Top-Down Processes

- Type of processing in which the sequence of mental events is influenced by a broad pattern of knowledge and expectations
- Conceptually driven

#### 2. Bottom-Up Processes

- Type of processing in which the sequence of mental events is determined largely by the pattern of incoming information - features
- Data-driven

### Word Recognition

- Begins with the detection of simple features
- Separate mechanisms put the features together
- Complete object
- Influenced by many factors

### **Word Frequency:**

- *Tachistoscope* is a device that allows the presentation of stimuli for precisely controlled amounts of time, including very brief presentations
- The more familiar a word is (familiarity directly influenced by how frequently its presented in print) the more likely it is going to be recognised quicker

### **Priming:**

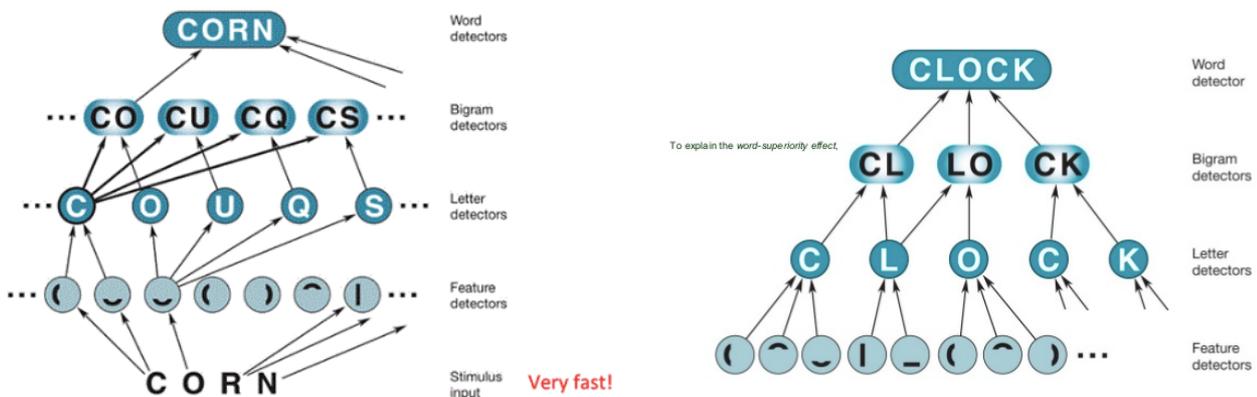
- Individual will recognise a word much quicker if they have previously been primed with it (word is more readily available) – *repetition priming*

## Well-Formed Sequence:

- **Word-Superiority Effect** is the data pattern in which research participants are more accurate and more efficient in recognising words than they are in recognising individual letters
- Context effect:
  - It's easier to recognise an 'E' if the letter appears in context than it is if the letter appears alone
  - There's no context effect if we present a string like 'HZYE' or 'SBNE'
  - There is a context effect if we present a string like 'FIKE' or 'LAFE' – letters in this context are easier to identify than letters alone or letters in random strings
- How well-formed a letter string is (how well the letter sequence conforms to the usual spelling patterns of English) is a good predictor of word recognition: *the more English-like the string is, the easier it will be to recognise that string and the greater context benefit the string will produce*

## Feature Net

**Feature net** is a system for recognising patterns that involves a network of detectors for features as the initial layer into the system



- Each detector in the network has a particular activation level, which reflects the status of the detector at just that moment – roughly, how energised the detector is
- The activation level will eventually reach the detector's response threshold, and at that point the detector will fire – that is, send its signal to other detectors to which it is connected
- Detectors likely involve complex assemblies of neural tissue
- Activation levels depend of principles of recency and frequency (priming)
- Only lower level detectors can influence higher level detectors, not the other way round