

Lecture 1:

Types of Attention:

- Focused/Selective Attention** – auditory or visual
- Divided Attention** – processing multiple inputs
- Control/Inhibition Attention** – consciousness and automaticity.

Experience and Selective Attention:

- We cannot attend to everything.
- We don't fully process everything (but know where to find it).
- What is dynamic and moving receives our attention.

Dichotic Listening:

- Shadowing Task** – repeat input from attended ear.
- Cherry 1953**; Subjects were told to attend to left or right ear.
- Cherry's Findings**; *Selection is possible* = we can mentally 'turn off' one signal.
 - However, physically similar voices are harder to distinguish.
 - Unattended Ear* = only crude information is encoded e.g. sex of speaker.

Where is the Locus of Selection?

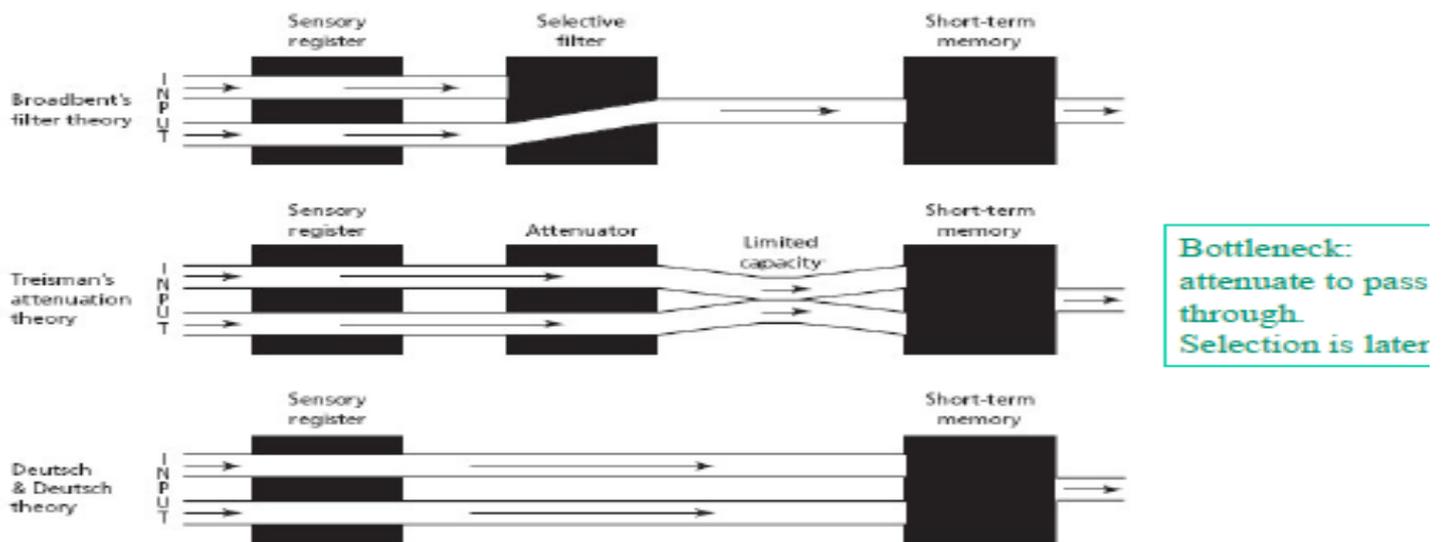
- It's the point at which some material is 'accepted' or 'selected' for further processing and some material is rejected and no longer processed.
- Early Locus of Selection** – lower position on hierarchy.
- Broadbent's Filter Theory**; multiple inputs are initially encoded in parallel at an early, sensory level.
 - One is selected on the basis of its physical characteristics for further processing.
 - It accounts for the lack of processing of unattended stimuli.
- Evidence Against Early Selection**; people report numbers grouped by ear and not by order.
 - Some information from the unattended ear is processed beyond the physical level.

Moray Switching During Shadowing Experiments:

- Few instructions were reported or acted on* – subjects ignored speech in unattended ear.
- Probability of switching was greater if preceded by the listener's name.
 - Confirmation bias* = notice your name when you hear it but what about the times you don't.
- Working Memory** – people with low working memory are more likely to hear their own names.
 - They're less able to control their attention.
- Treisman found that in a dichotic listening task subjects switched to the unattended channel if the speech made sense, but quickly switched back.
- Does this Indicate Late Selection?** – yes (also shows the priming/predictive aspects of speech).
 - People wanted to follow the story and this is only possible if we have late selection.

Theories of Attention Concerned with the Locus of Selection:

- Deutsch and Deutsch**; all stimuli are processed to a large degree.
 - Selection is based on importance (contradicts the point of attention).
- Johnston and Heinz**; selection occurs as early as possible.
 - Task demands necessitate early selection (complex stimuli cannot all be processed).



Leaky Filter vs Slippage:

In Treisman the switch is not absolute – this is why some unattended items receive further analysis.

Slippage is when the attentional switch suddenly shifts to unattended channel.

Attention is like a strobe light = grasping information and quickly processing and recording snapshots.

Lavie's Perceptual Load Theory of Attention:

The Switch is More Flexible; we are more likely to be distracted doing a task with low perceptual load.

So the selection filter can be early or late depending on spare capacity.

Lecture 2:

Evaluative Pressure:

Visual search task presented as perception training or IQ assessment.

Pressure increased distraction caused by task related features and reduced distraction by irrelevant features.

Pressure leads to top down attentional narrowing.

Feature Integration Theory:

Pre Attentive Stage; basic features are processed automatically and in parallel.

Attentive Stage; this is combing features in a slow, serial process to form objects.

Feature Search:

Automatically Extract Red from Blue – effortless and extremely fast.

No serial combinations of features required.

Conjunction Search:

Not a Simple Contrast (Red Plus Circle) so Need a Deliberate Search – this requires effort and attention.

Chance is involved due to where attention is originally drawn.

It's a serial combination of features.

Another version of Conjunction Search:

There are distractors varying in two feature dimensions.

When No Distinguishing Target – have to make an exhaustive search of all elements.

If you are cued that the target is red, your search is 2x faster.