

Lecture 11

Speech Perception

(Lexical Access)

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Recap from lecture 4

Lexical decision experiments ([lexical decision tasks](#) and [priming](#)) are used to test the brain's access to lexical items.

Known words are easier (faster) to access than unknown words.

Impossible non-words vs. Possible non-words

Possible non-words are:

- not found in the lexicon of a language
- [not violating](#) the phonotactics (phonological rules) of the language.
- Examples: (ranp, floth, droy)

Impossible non-words are:

- not found in the lexicon of a language
- [violating](#) the phonotactics (phonological rules) of the language.
- Examples: (trjaz, shlkal, tlat, zner)

Do our brains react differently to these two type of non-words?

- (1) It takes longer to decide that possible non-words are not real, as if the retrieval system conducted an exhaustive, ultimately unsuccessful, search for their entries in the lexicon.
- (2) Brain imaging experiments measuring blood flow in the brain show that the active areas when exposed to possible non-words are different to the areas activated when exposed to impossible non-words (Petersen et al 1990).

Morphemes:

What happens to derived words (i.e. words created by adding bound morphemes to them, e.g. teach vs. teacher) during speech perception?

If the derived form (e.g. [teacher](#)) is created by adding a morpheme (i.e. [-er](#)) to a stem (teach), the morpheme must be removed before the stem is accessed. This is called morpheme stripping. In other words, the bound morpheme is removed before the lexicon is accessed.

The cohort model of lexical access

A word's **cohort** consists of all the lexical items that share an initial sequence of phonemes (e.g. **click clip, cliff**).

The cohort model of lexical access provides an explanation for the quick recognition of words during perception:

Acoustic information is rapidly transformed into phonological information, and lexical entries that match the stimulus phonologically are activated.

A factor that affects retrieval times for words is **neighborhood density**.

A word's **neighborhood** consists of all the lexical items that are phonologically similar.

Exercise

Before lexical retrieval, bound morphemes are

- A. Kept
- B. Removed from the word they are bound to
- C. Only kept if they are derivational morphemes
- D. Only kept if they are inflectional morphemes

The answer is (A).