Neurolinguistic Discoveries in Nordic Languages: Perception and Prediction of Speech Input

Seminar by The Lund Neurolinguistics group

Program

The seminar will take place on 31st March in Room 314 A-B, Faculty of Philology, Vilnius University (Universiteto g. 5, Vilnius, Lithuania).

9:30	Opening word
9:35	Renata Kochančikaitė: "Phonetic and phonemic perception of Swedish vowels"
9:55	Tuğba Lulaci: "Coarticulation effect in speech perception"
10:15	Anna Hjortdal: "Perceiving Danish stød"
10:35	Coffee break
11:00	Jinhee Kwon: "The role of Swedish word accents in semantic processing"
11:20	Claudia Sjöström: "Syntactic complexity and the brain"
11:40	Mikael Roll: "The pre-activation negativity (PrAN): A neurophysiological measure of the predictive strength of phonological cues"
12:00	Discussion
12:30	Closing remarks

Abstracts

Phonetic and phonemic perception of Swedish vowels
Renata Kochančikaitė

Phonemes are the building blocks of meaningful speech. But little is known about how the brain encodes the speech input—continuous acoustic signal—into phonological representations of discrete phoneme categories. Previous neurophysiological experiments suggest that different strategies to achieve this goal are available to the listeners. I will present the results from a behavioural experiment showing individual variation in vowel perception among native speakers of Swedish.

Coarticulation effect in speech perception
Tuğba Lulaci

Coarticulation, the phonetic influence on a specific speech sound from following or preceding speech sounds, plays a role in spoken word recognition. In this talk I will discuss anticipatory coarticulation effect in Swedish words and which cues could be more apparent and helpful for processing and prediction.

Perceiving Danish stød
Anna Hjortdal

Since Verner and Trubetzkoy, the Danish creaky voice feature 'stød' has captivated linguists and phoneticians. In this talk, I will present current behavioural and neurolinguistic evidence suggesting that speakers of Danish use the association between stød and morphology to predict upcoming structure. Further, I will touch upon which acoustic cues associated with stød Danish listeners seem to be sensitive to.

The role of Swedish word accents in semantic processing
Jinhee Kwon

Swedish word accents have been considered to perform a stronger grammatical function than semantic roles, as they are highly related to morphological structures (Elert 1964). In this talk, I present a study where I tested the semantic aspect of word accents using minimal pairs and electroencephalography (EEG). The result shows that incongruent pitch accent results in a semantic violation, indicating that word accents do carry a semantic role in parallel with morphological function.

Syntactic complexity and the brain
Claudia Sjöström

Syntactic complexity varies across different sentence structures and the possibilities to exploit syntactic complexity vary across languages. In this talk I will present current findings on syntax

processing in the left inferior frontal gyrus and differences in morphosyntactic processing across languages. Further, considering these findings I will discuss the differences in syntactic complexity in two Germanic languages with similar syntax, namely Swedish and German.

The pre-activation negativity (PrAN): A neurophysiological measure of the predictive strength of phonological cues

Mikael Roll

I will talk about the neural underpinnings of predictive processing, particularly their neurophysiological correlate, the "pre-activation negativity" (PrAN), at the word and sentence levels. Until recently, neurophysiological studies of language processing focused on post-predictive processes. The tendency was to measure the brain response when predictions failed, for example, at the unexpected "potatoes" in "he drinks potatoes." Recent investigations have also turned to see how the prediction is built up online during listening and reading before the (un)predicted element. At the sentence level, intonation can increase prediction for specific syntactic structures. At the word level, North Germanic word accents cue particular suffixes.