

# Psycholinguistics

## Aim of the course

*The aim of the course is to give an introduction to cognitive psychological models of language processing and production, within a broader framework of intentional human communication. The course is necessarily interdisciplinary, as several concepts, models, and evidence from philosophy of language, linguistics, neurolinguistics, neuropsychology, neurosciences and computational modelling will be touched upon, although the major focus will be on psychological models and methodology.*

## Requirements

*Article presentation and written exam*

## Required reading

*Brown, C.,M., Hagoort, P. (2003) The Neurocognition of Language. Oxford University Press, New York.*

*Pinker, S. (1994) The Language Instinct, London: Penguin*

## Syllabus

### 1. Speech perception

### 2. Speech understanding

### 3. Speech production

### 4. Phonetic and phonological background of stress

*Fry, D. (1955). Duration and intensity as acoustic correlates of linguistic stress. Journal of the Acoustical Society of America, 35:765–769.*

*Plag, I., Kunter, G., and Schramm, M. (2011). Acoustic correlates of primary and secondary stress in north american english. Journal of Phonetics, 39(3):362–374.*

### 5. Role of stress in speech processing

*Cutler, A. and Norris, D. (1988). The role of strong syllables in segmentation for lexical access. Journal of Experimental Psychology: Human Perception and Performance, 14(1):113–121.*

*Mattys, S. L., White, L., and Melhorn, J. F. (2005). Integration of multiple speech segmentation cues: A hierarchical framework. Journal of Experimental Psychology: General, 134(4):477– 500.*

### 6. Production of stress

*Schiller, N. O., Bles, M., and Jansma, B. M. (2003). Tracking the time course of phonological encoding in speech production: an event-related brain potential study. Cognitive Brain Research, 17(3):819–31.*

*Van Turenout, M., Hagoort, P., and Brown, C. M. (1998). Brain activity during speaking: From syntax to phonology in 40 milliseconds. Science, 280(5363):572–574.*

### **7. Electrophysiological background of phonetic processing (MMN)**

Näätänen, R., Lehtokoski, A., Lennes, M., Cheour, M., Huotilainen, M., Iivonen, A., Vainio, M., Alku, P., Ilmoniemi, R. J., Luuk, A., Allik, J., Sinkkonen, J., and Alho, K. (1997). Language-specific phoneme representations revealed by electric and magnetic brain responses. *Nature*, 385:432–434.

### **8. Electrophysiological background of higher level linguistic processing (N400, P600, CPS)**

Friederici, A. D. (2002). Towards a neural basis of auditory sentence processing. *Trends in Cognitive Sciences*, 6(2), 78-84.

Steinhauer K, Alter K, Friederici AD (1999) Brain potentials indicate immediate use of prosodic cues in natural speech processing. *Nature Neuroscience*, (2), 191–196.

### **9. Neural background of linguistic processing**

Hickok, G., & Poeppel, D. (2000). Towards a functional neuroanatomy of speech perception. *Trends in Cognitive Sciences*, 4(4), 131-138.

Bornkessel-Schlesewsky I, Schlesewsky M, Small SL, Rauschecker JP (2015). Neurobiological roots of language in primate audition: Common computational properties. *Trends in Cognitive Sciences*, (19), 142–150.

### **10. Acquisition of speech**

Kuhl, P. K., Conboy, B. T., Coffey-Corina, S., Padden, D., Rivera-Gaxiola, M., and Nelson, T. (2008). Phonetic learning as a pathway to language: new data and native language magnet theory expanded (nlm-e). *Philosophical Transactions of the Royal Society B: Biological Sciences*, 363(1493):979–1000.

### **11. Language and music**

Patel, A. D. (2003). Language, music, syntax and the brain. *Nature neuroscience*, 6(7), 674-681.

Koelsch, S., Kasper, E., Sammler, D., Schulze, K., Gunter, T., and Friederici, A. D. (2004). Music, language and meaning: brain signatures of semantic processing. *Nature neuroscience*, 7(3):302–307.

### **12. Second language acquisition**

Dehaene, S., Dupoux, E., Mehler, J., Cohen, L., Paulesu, E., Perani, D., ... & Le Bihan, D. (1997). Anatomical variability in the cortical representation of first and second language. *Neuroreport*, 8(17), 3809-3815.

Sebastian, R., Laird, A. R., and Kiran, S. (2011). Meta-analysis of the neural representation of first language and second language. *Applied psycholinguistics*, 32(04):799–819.