Research seminar in Psycholinguistics 2021-2022

27.09.2021
Prof. Jean-Louis Berger, University of Fribourg

Metacognition and Self-Regulated Learning: Models, Measure and Promotion

Abstract: Since half a century and the seminal work by John Flavell on metacognition, theoretical models describing self-initiated and self-sustained learning processes have largely evolved towards an integration of cognitive, motivational, emotional and contextual components: this is the construct of self-regulated learning. In parallel to these conceptual advances, methodological progresses are allowing to capture self-regulated learning processes in a more direct manner. Finally, knowledge progress has been translated into pedagogical principles to sustain metacognition and self-regulated learning in classroom context, including empirical assessment of their impact. Accordingly, this presentation will offer a) a definitional and conceptual overview of the constructs of metacognition and self-regulated learning, b) a critical review of related measure instruments, and c) a synthesis of the body of work on metacognition and self-regulated learning promotion in various groups of learners.

Host: Pauline Prat

October 11th, 2021
Dr. Audrey Bürki, University of Potsdam

Le paradigme d'interférence image-mot : ce qu'il nous dit et ne nous dit pas sur la production du langage

Abstract: Dans le paradigme d'interférence image-mot, les participants dénomment des images tout en ignorant un mot distracteur. Ce paradigme est souvent utilisé dans les recherches sur la production du langage pour étudier notamment la nature des étapes de traitement impliquées, leur décours temporel, ou encore l'implication des capacités cognitives non linguistiques (attention, inhibition) dans la production des mots. Dans cette présentation je présenterai une série d'études impliquant le paradigme d'interférence image-mot. Je tenterai de montrer les limites de ce paradigme et les défis méthodologiques qu'il suscite.

Host: Eric Ménétré

November 8th, 2021
Ariane Tretow, PhD Candidate at the University of Jyväskylä

Developmental aspects of family risk for dyslexia: combining EEG and Eye Tracking measures for the investigation of reading impairment

Abstract: The Jyväskylä longitudinal study of dyslexia (JLD) is a two-decade-long investigation of family risk for dyslexia and the development of reading. The ongoing research has investigated cognitive skills, environmental factors, and brain responses of 100 children with family risk for dyslexia and 100 children without family risk for dyslexia from birth with multiple measurement time points (last cognitive measure at age 23, N = 135). At the current measurements, we are re-assessing brain responses from the same participants at 25-28 years of age combining MEG/EEG and eye-tracking (ET) and comparing the brain activation with the development of reading from childhood to adulthood. In earlier studies, we, for example, found (Lohvansuu et al. 2018), that rapid automatic naming (RAN) was a mediating factor between later reading speed and infant brain activity to speech. We re-investigate this relationship in adulthood brain data. In this presentation, we give an overview of the methods used for auditory processing, natural reading, and their challenges.

Host: Tanja Atanasova

November 18th, 2021
Prof. Johanne Paradis, University of Alberta

Assessment with young dual language learners: issues and strategies

Abstract: Over- and under-identification of language disorders has long been recognized as a risk factor in the assessment of children in multilingual, multicultural societies. Over-identification occurs when a dual language child is inappropriately diagnosed with a language disorder and receives unnecessary services and/or is inappropriately placed in special education classes. Under-identification occurs when a dual language child actually has a language disorder, but it goes unnoticed or undiagnosed because it is assumed that her poor performance in school or in the majority language are the result of learning two languages. The objective of this colloquium is to discuss the reasons for misidentification of language disorder in dual language children and to provide evidence-based solutions for speech-language pathologists to reduce misidentification. The discussion of issues that arise in assessment with dual language children includes the following: (1) overlap in linguistic characteristics between monolinguals with developmental language disorder and early second language learners; (2) the complex language environment of dual language children; (3) profile effects in dual language children's performance on standardized tests; (4) cultural and psycho-social factors that influence test performance; (5) inappropriate use of monolingual norm-referenced tests. The discussion of strategies to overcome these issues in assessment fall into the following categories: (1) techniques for gathering case history and language background information; (2) considerations for test selection and delivery (including dynamic assessment); (3) alternative and additional procedures for test interpretation. Resources for assessment with bilinguals such as parent questionnaires and tests in multiple languages will be discussed. These issues and strategies are also relevant to the accurate evaluation of the level of language abilities in dual language children with already diagnosed developmental disorders, for example, children with Down syndrome or children with autism spectrum disorder.

Host: Olivia Hadjadj

November 22nd, 2021
Prof. Judit Gervain, University of Padova

The developmental origins of neural oscillations and their role in language development

Abstract: Speech is quasi-rhythmic as it possesses a temporal structure that exhibits high regularity. Some of this regularity is observed in the modulations of the speech envelope. We found that across typologically different languages, the strongest modulation occurs between 2 and 10 Hz, with a peak around 5 Hz, which corresponds to the syllabic rate (Varnet et al., 2017). Additionally, we also found that slight differences in the AMi spectra reflect linguistic properties such as word order and rhythmic class: the maximum modulation index at the peak is significantly lower for Complement-Head languages than in Head-Complement languages, while the exact frequency of this maximum differed between stress-timed (English, Dutch) and syllable-timed languages (French, Spanish). In adults, such amplitude modulations of the speech signal are readily tracked by the auditory cortex (Ahissar et al., 2001; Luo and Poeppel, 2007) and this speech envelope tracking has been claimed to play a causal role in speech comprehension. I will present an EEG study with nebworns to show that it already takes place at birth and is not modulated by language familiarity (prenatal experience), therefore, suggesting that it represents a basic auditory ability, occurring in the absence of attention and comprehension (Ortiz Barajas et al., 2021a). These results are supported by our findings in cross-frequency coupling (nesting) at birth, were we found that the phase of lower-frequency oscillations (1-2 Hz) modulates the amplitude of higher-frequency oscillations (3-20 Hz) in familiar and unfamiliar languages alike (Ortiz Barajas et al., 2021b). These, together with our results for 6 months-olds, suggest that brain synchronization to the speech envelope modulations is universal at birth, and changes with development and speech experience. The implications of these early speech tracking abilities for language development will be discussed.

Host: Julie Franck

November 29th, 2021
Prof. Florent Meyniel, University Paris-Saclay

Sequence knowledge in the human brain: From transition probabilities to chunks to nested structures

Abstract: In everyday life, observations often unfold across time, forming sequences that exhibit different forms of structure. The human brain is attuned to a variety of such structures and leverage this knowledge of sequences to anticipate what is coming next. We have proposed a taxonomy of sequence knowledge, ranging from the detection of specific transition probabilities in a sequence, to the presence of chunks and to nested structures organized in a language of though. I will present a computational analyses (based on probabilistic inference) and empirical evidence (with reaction times, explicit reports, electrophysiological responses) that support this proposal.

Host: Samuel Schmid

December 6th, 2021
Prof. Isabelle Charnavel, University of Geneva

A linguistic approach to music and dance cognition: a case study about rhythmical structure

Abstract: The specific goal of the talk is to investigate the principles governing the perception of rhythmic structure in a dance-music event on the basis of a case study. I will take as a starting point Lerdahl & Jackendoff's (1983) conception of musical rhythm as the interaction between grouping and meter and examine to what extent it can apply to dance. Then, I will explore how the rhythmical structures of music and dance interact in a single event. The exploration will be guided by a detailed examination of the opening of Stravinsky's Augurs of Spring as choreographed by Nijinsky (1913), Béjart (1970) and Bausch (1975).
By comparing these minimal pairs of dance-music events, I will adopt the formal methodology of linguistics to other cognitive systems. The general goal is to shed further light on the organizational principles of mental representations by comparing several cognitive systems in order to distinguish between general cognitive properties and modality-specific or domain-specific properties.

Host: Julie Franck

December 13th, 2021
Prof. Jason Whitfield, Bowling Green State University

Interactions between attentional control and speech production

Abstract: Speech production studies often employ relatively simple tasks that do not reflect the attentional demands of everyday communication. Quantifying the extent to which competing demands influence speech production may be particularly important for populations with neuromotor speech impairments. For example, data from several studies suggest that the attentional demands associated with performing two concurrent tasks impact the speech of individuals with Parkinson disease (PD) to a greater extent than neurologically healthy controls. Our lab has researched the extent to which divided attentional demands impact speech production in talkers with and without PD. Data from prior studies and pilot cases will be presented to illustrate the utility of the dual-task paradigm and demonstrate how performing two concurrent tasks may impact speech production. Implications and considerations for the assessment and treatment of parkinsonian speech will also be discussed.

Host: Maryll Fournet

January 17th, 2022
Prof. Michel Fayol, University Clermont-Auvergne

La question des accords sujet-verbe en orthographe. Difficultés et mode d'intervention.

Abstract: Le Français écrit est un système alphabétique, reposant donc sur les associations entre phonèmes et graphèmes (APG). Ce principe d'APG, qui implique qu'à chaque P (vs G) corresponde au moins un G (vs P), est souvent pris en défaut. De fait, de nombreuses lettres ou graphèmes ne correspondent à aucune marque phonologique (e.g. foulard ; ils jouent). Il s'ensuit que : 1) l'absence de marque phonologique oblige à se référer à la seule dimension visuelle ; 2) les erreurs d'omission (e.g. les chien) ou de substitution (e.g. il les timbres) sont fréquentes, même chez les adultes (Lucci & Millet, 1994 ; Fayol et al., 1994) ; 3) ces erreurs deviennent moins fréquentes quand des marques audibles existent (e. g. ils finissent ; Largy & Fayol, 2001) ; 4) les élèves ne découvrent ces marques qu'à leur entrée à l'école élémentaire et peinent à les acquérir et à les utiliser en production de textes (Thevenin et al., 1999 ; Fayol & al., 2006). Ces constats nous ont conduit à élaborer un dispositif d'intervention en plusieurs phases visant à faire acquérir ces marques, à en consolider l'usage dans des exercices puis dans des activités de plus en plus complexes. Ce dispositif et ses résultats seront exposés.

Host: Estelle Ardanouy

January 31st, 2022
Prof. Shelley Gray, Arizona State University

Theory, Structure, and Variables Affecting Word Learning in Young Children

Abstract: Word learning is a critical component of language acquisition and a learning process that continues throughout life. Experiments provide the opportunity to observe dynamic word learning to determine variables that promote or hinder learning and to determine who has difficulty with different aspects of word learning. In this overview we will consider findings from 20 years of research from our lab in conjunction with findings from other word learning researchers. The audience will be asked to consider what the next, most important research questions should be in child word learning research.

Host: Mélodie Matrat

February 7th, 2022
Prof. Karla McGregor, Boys Town National Research Hospital

Adults with Developmental Language Disorder

Abstract: In this two-part talk, I share the logistics of identifying developmental language disorder in adults and review three studies of word learning and retention that reveal the encoding of word forms to be one characteristic feature of the phenotype in some but not all adults.

Host: Pauline Prat

February 21st, 2022
Dr. Ladislas Nalborczyk, Aix-Marseille University

Moving to a World beyond p < .05 (and BF > 3): Why and how?

Abstract: Numerous authors have highlighted the limitations of the Null-Hypothesis Significance Testing (NHST) approach and the (near exclusive) reliance on p-values and significance testing. Beyond the methodological advantages and disadvantages of NHST compared to other paradigms of statistical inference, one of the main barriers to the correct use of the NHST procedure remains its complexity, often hidden by misleading intuitive interpretation. For instance, a p-value does not indicate the probability of obtaining certain data "by chance", nor the probability of "being wrong". In 2019, The American Statistician published a special issue named "Statistical Inference in the 21st Century: A World Beyond p < 0.05", with the intention to provide new recommendations for users of statistics (e.g., researchers, policy makers, journalists). This issue comprises 43 original papers aiming to provide new guidelines and practical alternatives to the "mindless" use of statistics and arbitrary thresholds. In the accompanying editorial, Wasserstein, Schirm, & Lazar (2019) summarise these recommendations in the form of the ATOM guidelines: "Accept uncertainty. Be thoughtful, open, and modest." In this talk, we will explore some consequences of these guidelines when applied to the analysis of empirical data, in the light of core concepts from the philosophy of statistics. We will illustrate how this approach nicely fits with the recently proposed "Bayesian workflow" (Gelman et al. 2020), which includes iterative model building, model checking, model understanding, and model comparison.

Host: Tanja Atanasova

March 7th, 2022
Dr. Salomé Schwob, University of Neuchâtel

Dynamic assessment: situations from my thesis

Abstract: Introduction: Bilingual children's language skills are strongly influenced by exposure to each of their languages, among other linguistic, environmental, and cognitive factors (e.g., Paradis, 2019). In the clinical speech and language therapy context, it is difficult to disentangle developmental language disorders from insufficient exposure (Hasson et al., 2013). In this presentation I will present different options from recent research that can be used by speech and language therapists to assess bilingual children. Then, I will focus on dynamic assessment. This method directly tests the learning potential of children (Camilleri & Law, 2007), so it offers a promising solution for this dilemma.
Methods: I will present and compare the clinical potential of two dynamic assessment situations, varying amount of adult mediation (autonomous computer game vs. interactive story reading with graduated cues), as well as the linguistic domains (comprehension and production) and item types (nouns, verbs, and inflections) involved. Forty-nine French monolingual and French-Portuguese bilingual children with and without developmental language disorder, aged 5;0 to 7;11 years, were include in the final analyses.
Results: I will present also the most important results of my thesis. Performance in most dynamic assessment tasks differed according to clinical status (developmental language disorder vs. typical development) with medium and large effect sizes, but not according to language background (except for some productive tasks). This highlights the clinical value of our situations and the near absence of linguistic biases. Our interactive dynamic assessment situation yielded the highest clinical classification power, with 91 % sensitivity and 85 % of specificity.
Conclusions: This study highlights the dynamic assessment as a promising task for in order to identify bilingual and monolingual children with developmental language disorder, particularly when the situation involves interaction, and the experimenter provides graduated cues to the child.

Host: Olivia Hadjadj

March 21st, 2022
Prof. Steve Majerus, University of Liège

The nature of working memory impairment in dyslexia

Abstract: Working memory is a frequent and long-lasting deficit in children with dyslexia and will negatively impact academic success even when reading abilities have improved. In this talk, I will present recent work on the nature of working memory impairment in dyslexia and its functional implications. I will also situate the role of working memory in developmental learning disabilities more generally, by arguing that serial order working memory impairment may be an important risk factor for different forms of learning disabilities.

Host: Claire Ballot

April 4th, 2022
Dr. Pertti Palo, Indiana University Bloomington

Articulation and Acoustics at Onset of Speech: Results from delayed naming measured with tongue ultrasound

Abstract: This talk concentrates on the timing aspects of what speakers do around the onset of acoustic speech. It offers methodological, experimental, and theoretical results based on tongue movement recorded using ultrasound. The data comes from delayed naming with some custom instructions often known as the 'Rastle instructions' (after Rastle et al., 2005). The instructions are specifically designed to exclude pre-speech movements which are not directly related to the linguistic content of the utterance. The materials vary systematically the phonetic onsets and vowel nuclei of the monosyllabic target words. They also provide an acoustic measure of the duration of the syllable rhyme. I present computer assisted methods for detecting articulatory onsets in ultrasound data. The methods have been validated against manually annotated video data. The latter technique is based on a novel way of identifying the region of the tongue that is first to initiate movement. Linear models are used to analyse the timing relationships of articulatory onset, acoustic durations of the onset consonant segments, and the acoustic duration of the rhyme. The main experimental finding is that the silent articulation which precedes the acoustic utterance is 1. timed in inverse correlation with the acoustic duration of the onset consonant and 2. in positive correlation with the acoustic rhyme of the first word. This leads to the theoretical conclusion that silent pre-speech articulation should be considered part of the utterance.

Host: Monica Lancheros

May 2nd, 2022
Prof. Inge-Marie Eigsti, University of Connecticut

Longterm outcomes in autism: Behavioral features and neural plasticity of language circuits

Abstract: Our research team has been studying a unique group of adolescents and adults who were diagnosed with autism spectrum disorder (ASD) early in development, but who no longer have symptoms of ASD; they form of group which has Lost the Autism Diagnosis (LAD). When compared to individuals with current autism and with a neurotypical (NT) sample, they offer an exciting opportunity to understand more about the neural circuits underlying language acquisition and compensation in development. There is robust evidence of neural specialization of language function to the lef hemisphere in typical development (Olulade et al., 2020) and of diminished left hemisphere lateralization of language function in individuals with ASD (Jourvalev et al., 2020). We examined functional activation of language circuits in LAD, autistic, and NT participants, matched for age and nonverbal IQ, while they performed a sentence comprehension task, and identified striking differences in neural activity in the LAD group. Specifically, we found heightened activation of a number of frontal and right hemisphere regions (Eigsti et al., 2016). Further analyses probed the relative lateralization of brain networks that are critical in language functioning (Larson et al., in press); contrary to our predictions, results indicated the presence of structural language difficulties (as defined by CELF Recalling Sentences performance) in a subgroup of ASD and LAD individuals, who also showed heightened lateralization of these brain networks. I will present psycholinguistic findings from a novel sample of participants, and discuss which features of language seem to be most resistant to compensatory development.

Host: Hélène Delage