14th Peripatetic Conference

"Movement Matters: Towards new methodology for capturing experience in motion"

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Book of abstracts

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Research through movement – studying and prototyping interactions with theatrical methods

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As researchers inspired by enactive and ecological approaches in psychology, we seek for methods to study movement as a crucial foundation of cognition. But what if we applied the same perspective to our own – scientific – knowledge acquisition? What if we assumed that, in order to understand a given interaction, we need to experience how our researcher-bodies behave as part of it? To explore this question, we will conduct a short workshop using methods of theatrical improvisation to analyse a selected interaction. Participants will be introduced to the method of investigative rehearsal, and together we will reflect on how this approach has influenced our understanding of the situation. Finally, we will consider the role of theatrical improvisation practices in the toolkit of social interaction researchers. No prior experience with improvisation is required, and participants will be able to choose whether they would prefer to take a more active or an observant role.

Extended communication: How laryngectomy patients and their partner co-construct communicative units

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This talk explores preliminary observations from a qualitative study of interactions involving individuals who have undergone laryngectomy. I will examine how laryngectomees and their caregivers develop hybrid communicative systems that challenge traditional boundaries of individual speech production. Drawing from 4E cognition and distributed cognition frameworks, I analyze how communication partners function as cognitive-communicative extensions, particularly during moments of communicative breakdown.

Through conversational analysis methodology, I examine video-recorded interactions between laryngectomy patients, their partners, and third-party interlocutors in naturalistic settings. The data reveals that patients and partners form what I term "distributed communicative units" – collaborative systems where communicative responsibility fluidly shifts between participants based on contextual demands and repair needs. These units function as an extension of the speaker's apparatus, enabling more effective interaction despite limitations in verbal speech. Using short video excerpts, I highlight the strategies participants use to integrate gestures, vocalizations, and partner contributions into seamless interactional sequences.

This work points to the potential of viewing communication as a distributed, embodied process and raises questions about the role of partner-mediated extensions in speech rehabilitation and everyday interaction. The presentation invites discussion on methodological approaches to studying such phenomena and the broader implications for augmentative and alternative communication research.

How movement matters in dog communication and social learning

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In this talk, I would like to have a closer look at selected instances of interactions among dogs in naturalistic settings, with focus on how they communicate and how, via these communicative events, they learn from one another patterns of social interactions in their social groups. An important aim of the talk will be to demonstrate the relevance of situational context for the interpretation of what is communicated and the implications this relevance has for methodological choices in the study of how communication of this kind works.

Understanding "perceptual directness" in the context of social cognition and ecological psychology

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According to ecological psychology (Gibson 1979) and embodied accounts of social interaction (Gallagher 2008; Gallagher and Hutto 2008; Rączaszek-Leonardi and Zubek 2023), we can be aware of at least some mental phenomena — such as intentions, emotions, and even relations* — without engaging in inference as proposed by theory-theory or simulation theory. Instead, mental states are perceived directly in the course of social interaction, as they are constituted by bodily movements, facial expressions, and goal-directed behavior (Lavelle 2012, 531).

This emphasis on movement, however, rests on an ambiguous assumption: that certain entities can indeed be perceived directly. The difficulty lies in the fact that the notion perceptual directness varies across different interpretations. In a physiological sense, one may perceive an object directly, without any

sub-personal inference, as Gibson proposed in his classic "The Ecological Approach to Visual Perception" (1979). Yet, as other scholars emphasize (Drayson 2018; Snowdon 1992), directness can also be understood either compositionally or functionally. In the first case, the central question is "What exactly is the content of our perceptual experience?", while in the second, the focus is on the epistemic justification of perceptual beliefs. The takeaway is that if we are to examine social interaction and identify social properties expressed through movement, we require a robust and well-specified account of perceptual directness.

I am the author of a large-scale corpus-based study of over eight million scientific articles (currently in preparation as a journal article) that examines how the notion of direct perception is used across the 4E movement. In my talk, however, I will not present empirical results. Instead, I will outline three possible interpretations of direct perception and propose one that is both useful for psychological studies of coordination and intention perception (Heider and Simmel 1944; Morris and Lewis 2010), and at the same time consistent with the mainstream of ecological psychology, which is increasingly recognized as a promising theoretical framework for empirical research (Meyer and Baggs 2025).

* To be precise: relations such as relational properties, causal relations, or attitudes (e.g. love) are not classified here as mental phenomena.

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The Chameleon in Motion: Personality, Empathy, and Gestural Alignment

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The presented study explores the role of individual differences in gestural alignment during a referential communication game, where dyads interact solely through gestures. Using motion capture, we quantify movement synchrony and examine its relationship to personality traits assessed via the Big Five, Adjective Check List, and empathy scales. We hypothesize that individual differences in personality are systematically linked to the degree of gestural alignment and communicative efficiency, with the aim of testing whether personality not only influences communicative style but actively shapes the success of interactive alignment in non-verbal systems.

Movement in space. Visuospatial orientation deterioration

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Visuospatial orientation underpins navigation and safety, but declines with age, posing medical, social, and economic challenges (Distefano, 2024). These deficits, affecting mobility and driving (Tinella et al., 2020; Kunishige et al., 2019), remain insufficiently understood, while diagnostic and therapeutic options are limited (Tragantzopoulou & Giannouli, 2024). Evidence shows a shared hippocampal–entorhinal system for spatial and temporal orientation, where place, grid, and time cells act as a spatio-temporal hub. Sensitive measures, including Multi-match algorithms (Wagner et al., 2019) and path integration errors (Colmant et al., 2025; Koike et al., 2024), may improve early detection, crucial as declines emerge even in midlife (Yu et al., 2021). This talk highlights mechanisms, risks, and prospects for innovative diagnostics in spatio-temporal deterioration.

RQA in psycho-physiological research

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RQA in psycho-physiological research

Transient Coupling of Cardiac and Neural Complexity during Heart Rate Variability Biofeedback

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Heart-brain interactions play a central role in autonomic and cognitive regulation, and heart rate variability (HRV) biofeedback (HRV-BFB) has been shown to modulate these dynamics. High signal complexity in both EEG and HRV is considered a marker of healthy physiological adaptability. In this study, we investigated the relationship between neural and cardiac complexity during HRV-BFB training. 43 participants (20 female = 52.6%) aged 18-35 (mean = 22.44 ± 3.53) underwent 20 sessions of either real or sham HRV-BFB (20 min each). Physiological recordings were collected at rest before training (pre-test), during the final HRV-BFB session, and at rest after training (post-test). EEG signals were analysed using microstate analysis, and HRV was assessed from ECG recordings. Complexity measures included Lempel-Ziv complexity for EEG microstate transitioning sequences and approximate and sample entropy (ApEn, SampEn) for HRV. Results showed a significant negative correlation between EEG and HRV complexity during HRV-BFB sessions, whereas no correlation was observed at rest. This suggests that enhanced entrainment of heartbeat during biofeedback promotes more complex brain dynamics, reflecting dynamic heart-brain interactions that are context-dependent. These findings highlight the transient but meaningful coupling between cardiac and neural systems during HRV-BFB training.

Powering Up Cognitive Research: Comparing Different Methods for Reaction Time Tasks

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Linear mixed-effects models (LMMs) and generalized mixed-effects models (GLMMs) are increasingly used in trial-level analyses of reaction times (RTs) data, due to their superior performance, for instance in terms of power, compared to traditional methods such as ANOVAs or t-tests on averaged reaction times. Among these, GLMMs are expected to perform better than LMMs, as they can more accurately capture the skewed distribution of RTs. However, despite this advantage, it remains unclear whether GLMMs outperform LMMs when applied to real, complex datasets involving multiple interactions, since they tend to have more convergence problems. To address this question, we compared these models in terms of power using data from two large experiments, one involving parity classifications and the other involving magnitude classifications. Simulations were conducted by repeatedly sub-sampling data from real participants at different sample sizes and numbers of repetitions, and power estimates were corrected when necessary to account for under-coverage of the 95

From Words to Movement: How Language Shapes Shared Reality in Collective Mobilization — A Computational and Experimental Approach

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In this talk, we show how collective movements emerge when individual actions are transformed into coordinated effort, with language as a central driver of this process. Agency, understood as the capacity to act with purpose, is not only an individual trait but a sociocultural force embedded in interaction. Our research demonstrates that language encodes agency across multiple layers—semantic choices, grammatical structures, and rhetorical forms—that both reflect and amplify action orientation. Verbs act as dynamic signals that set intentions into motion, while concrete expressions provide planning

scaffolds that render action feasible. Using computational analyses of large-scale political discourse and experimental studies of mobilizing messages, we show that both authors (encoders) and readers (decoders) converge on these cues to construct a shared reality of action and persuasiveness. These cues intensify in frequency before major political events, revealing how linguistic dynamics precede collective movement. By combining theory-driven frameworks with machine learning models trained on human-highlighted texts, we identify the mechanisms by which language aligns individual intentions with shared goals, mobilizing people and turning scattered behaviors into coordinated collective momentum.

Who Leads, Who Follows? Motion, Brain, and Gaze in Mother–Child Interaction Across Neurodiversity

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Who Leads, Who Follows? Motion, Brain, and Gaze in Mother–Child Interaction Across Neurodiversity

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Relational Depth in Action

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In psychotherapy research, the relationship quality between therapist and client is consistently identified as a central factor in therapeutic effectiveness. Mearns and Cooper (2005) introduced the concept of relational depth, which is defined as a state of profound contact and engagement in which both participants experience each other as fully real and present. This resonates strongly with Buber's notion of the I-Thou encounter, in contrast to the more objectifying I-It stance (Buber 1970/1923).

Relational depth was originally conceptualized to describe the therapeutic relationship. Yet both everyday experience and recent research have shown that it is also a meaningful factor in close personal relationships – such as friendships, romantic partnerships, and family ties – where it significantly predicts subjective well-being, thereby underscoring its broader relevance for everyday human interactions (Di Malta et al., 2024).

Existing measures of relational depth, such as the Relational Depth Frequency Scale (Di Malta et al., 2020), capture some aspects of this phenomenon through self-report questions (e.g., 'I felt deeply connected to my client' or 'I felt we were fully present with each other'). Qualitative approaches, such as semi-structured interviews (Knox, 2008), have also been used to explore how people describe and make sense of such experiences. Yet relational depth often transcends words, and its most transformative qualities may manifest in subtle, embodied coordination—rhythms of speech, posture shifts, breathing patterns – that unfold independently of verbal content, and sometimes even in shared silence.

In this presentation, I will explore the potential of non-questionnaire methods to study relational depth both within and beyond psychotherapy. I aim to open a dialogue on better capturing these deeply human moments of connection – treating movement, interaction, and felt experience as inseparable aspects of relational presence. I also hope that reflecting on indicators of relational depth that go beyond self-report can enrich our theoretical understanding of the very nature of this phenomenon.

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Humans in Motion: Phase transitions and their relevant manifestations

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Movement reveals values and knowledge that in-form our behavior. But movement is complex: it can be captured and described at multiple levels (individual, dyadic, group) and multiple timescales (minute twitches, actions from milliseconds to minutes to hours, and rhythms of the days, months or years). We are getting better at capturing movement at its multiple levels and timescales and it seems that moments of transition in movement patterns are especially informative about the variables that characterize a system-in-change and possible control parameters. Yet physical movement is only one time-series that we can observe.

In search for useful research practices I will explore relation of movement to other time series (physiology (breath heart rate), language, changes in experience, brain signals) and ask about their usefulness in detecting and understanding patterns and their transitions. Perhaps meaningful relations among them are a way to study experience and behavior as what they really are, that is, processes.

The impact of active movements on body ownership and simultaneity perception

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The temporal binding window defines the interval within which multisensory signals are integrated, shaping simultaneity perception and the sense of body ownership. While wider TBWs predict greater tolerance of asynchrony in body ownership illusions, it remains unclear how active movements, where sensory input is modulated by predictive forward models, affect these processes.

In this study, 28 participants received tactile stimulation on their right hand from a robotic arm while their left index finger either actively guided or was passively moved by another robotic arm to touch a fake hand. Touches were delivered with delays of 0–300 ms, and participants completed two tasks: (i) simultaneity judgments, reporting whether the touches on the fake and real hand occurred at the same time, and (ii) body ownership judgments, indicating whether they felt as if they were touching their own right hand, thereby experiencing the somatic rubber hand illusion.

Results showed that active movements significantly enlarged the TBW relative to passive movements across both tasks (^{2}p = .717). Active movements also diminished sensitivity to both body ownership (^{2}p = .679) and proprioceptive–tactile simultaneity (^{2}p = .482). These findings demonstrate that predictive mechanisms engaged during active movement attenuate sensory input, widening the temporal window of integration and reducing sensitivity to asynchrony. This highlights the role of action in shaping both body ownership and multisensory temporal perception.

Sounds of Joy, Movements of Joy – Next Step of Speech Expression Enhancement

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This presentation initiates an early-stage exploration into a largely overlooked yet vital dimension of human communication: the expressive capabilities, that are usually called non-verbal or paralinguistic, in individuals with atypical speech, particularly those living without a larynx following total laryngectomy, or with other severe speech impairments.

Preliminary findings from our ongoing research suggest that alaryngeal speakers experience a significant loss of access to a broad spectrum of affective and expressive vocalizations, such as laughter, crying, sighs, moans, whispers, or shouting. This limitation of their acoustic output causes frustration and social withdrawal and may significantly decrease quality of life.

I want to discuss how we might reconstruct or simulate these expressive modalities, brainstorm on control interface. Moreover, I am extremely curious if or how we can design proprioceptive feedback, to support emotionally resonant interactions for speakers as well.

I will share selected audiovisual materials, including recordings of typical speakers in joyful interactions, sounds corpora, and early trials of generated expressions. We can collectively explore design directions for reintroducing joy into the communicative repertoire of people.

Does everybody? Does anyone? Do they always? Prevalence and temporal dynamics of (numerical) cognition effects

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Cognitive psychologists generalize a lot: not only from samples to the population, but also from group-level effects to believing that these effects are present and stable in all individuals. Such generalisations have important implications for theory building – most theories of cognitive / experimental psychology assume universality of observed phenomena. Work on individual prevalence of numerical cognition phenomena: the SNARC effect, the Numerical Distance Effect, the Size Effect, and the Unit-Decade Compatibility effect, shows that robust group-level effects can be driven by a minority of participants revealing them above chance level. The said effects differ with regards to individual prevalence and proportion of individuals who reveal reliable reverse effects. Knowing individual prevalence of a phenomenon, one may wonder whether revealing a reliable effect is an individual characteristic, which is stable across time. Following up on this, our later work focuses on stability of cognitive effects in time. This converges to a preliminary framework of looking at cognitive phenomena by lens of individual prevalence and opens discussions on whether their presence / absence in an individual should be seen as stable trait or transient state.

Dreams and Creative Cognition in Dialogue

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Dreams are often thought of as private experiences, yet they may serve a social function. Social simulation theories of dreaming suggest that dreams are rehearsals for waking life. Dream characters, although created by the dreamer alongside their dream self, often behave autonomously and appear to possess a kind of sentience external to the dreamer. In this way, dreams become a stage for rehearsing movement anddialogue that resembles waking-world interactions. In my doctoral research, I explored how such dream experiences support creativity through four studies, including an 8-week intervention with fiction writers, and a 6-week intervention with poets combined with a sleep lab study. These interventions revealed that engaging creativity through the continuity of dream and wake states represents a cognitive system in motion, where creativity arises from the dynamic interplay of conscious control and hyper-associative dream cognition. Building on this, I collaborated with therapists to explore dream drama, a Gestalt-inspired group technique in which participants embody and reenact characters from each other'sdreams. This practice transforms intrapsychic interactions into interpersonal, creating both synchrony and character autonomy within the group. In dialogue with the Peripatetic Conference 2025 theme, I suggest that these findings highlight how dreamwork maycontribute to the study of human experience and interaction,by studying dynamics across systems: between dreamer and dream characters, among participants in dream drama, and across different cognitive states.

Movement of the Creative Mind: Tracing the Neurodynamics of Different Stages of the Creative Process

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Creativity unfolds as a multidimensional, dynamic process and is often described as an essential operator of human development and achievement. In scientific research, creativity was usually reduced to divergent thinking in opposition to convergent thinking. However, contemporary theories recognise that both styles are necessary, operating sequentially across different stages of the creative process and engaging cognitive flexibility and persistence. In this project, we track the "movement of the creative mind" by combining EEG neuroimaging with performative tasks concerning everyday creativity (Alternative Uses Task), artistic creativity (poetic composition), and cognitive functioning (verbal fluency). The employed tasks are divided into stages of idea generation, evaluation, and improvement. We intend to use EEG microstate analysis, which could allow us to track brain network dynamics: the Default Mode Network during spontaneous idea generation, the Central Executive Network during idea evaluation, and the Salience Network mediating transitions. This methodology captures creativity as a process in motion rather than focusing on static, singular outcomes of the creative process. As a result, it can provide new insights into how ideas emerge spontaneously, are critically assessed, and subsequently improved.

Tracing the Gist of Numbers: How Memory Relates to Mathematical Cognition

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Despite extensive research on the cognitive foundations of math skills, the links between memory and numeracy remain surprisingly understudied, particularly from a quantitative perspective. In my talk, I will outline our lab's research stemming from Fuzzy-Trace Theory (FTT) — a dual-process account of memory which, in combination with multinomial processing tree modeling, enables the testing of fine-grained processes related to verbatim (exact numerical information) and gist (general magnitude intuition) traces. First, I will present the results of our study on the relationships between numerical long-term memory, approximate number processing, arithmetic fluency, math reasoning, and math self-concept (Obidziński, Bażela, & Hohol, 2025). Second, I will outline our recently launched four-year project aimed at understanding the roles of various types of memory — viewed through the lens of FTT — in the mathematical cognition of both the general population and individuals with math learning difficulties.

The Kinaesthetic Empathy phenomenon in the context of various rhythmic complexities

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Kinaesthetic empathy (KE) is a multidimensional capacity combining affective resonance, cognitive perspective-taking, and direct bodily sensation. Emerging early through kinaesthesia – our proprioceptive and vestibular senses – it enables individuals to perceive and understand others' experiences via movement and bodily awareness. KE is rooted in enactive and embodied processes such as perception-action coupling, motor resonance, and pre-reflective intersubjectivity, and is expressed through mirroring – the imitation of observed movement, and witnessing – attentive, embodied observation with internal

attunement. Both modes act as mechanisms of social co-regulation, fostering connection through nonverbal channels.

This presentation will outline the neurobiological underpinnings of kinaesthetic empathy (KE), focusing on the roles of the Action Observation Network (AON) or the insular network. What is more, special attention will be given to rhythmic complexity as a potential modulator of KE, drawing on the "Pleasurable Urge to Move" (PLUMM) effect, in which moderate rhythmic complexity elicits peak embodied engagement. Integrating theoretical exploration with a pilot study, the research investigates how rhythmic complexity influences core KE processes such as mirroring and witnessing, and identifies potential objective markers suitable for both research and clinical practice. The findings underscore KE's significance as a foundational capacity for human connection, with wide-ranging applications in clinical, therapeutic, and artistic contexts, and point to key directions for future empirical work in neuroscience, neurobiology, and psychoneuroimmunology (PNI).

Beyond transmission: Using CRQA to reveal coordination dynamics in social learning

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Abstract: Social learning—put simply, learning from/with others—has attracted enormous scientific interest in recent decades, partly because it is thought to bridge biological and cultural behaviour in humans as well as nonhuman animals. While studies of social learning have advanced our understanding of the evolutionary origins of human cognition, important shortcomings remain. In particular, the dominant approach conceives of social learning as the "transmission of information" between individuals. This way of thinking, partly inspired by Shannon's model of communication systems, implies an active transmitter and a passive receiver of signals. However, in many social learning situations, individuals adjust their behaviour in real time in response to one another, and these contingent, moment-to-moment adjustments are not captured by the transmission model. Focusing on the dynamics of coordination between individuals may bring new insights about the cognitive processes underlying social learning. To explore these ideas, I will

present the results from two studies. The first study was highly exploratory and focused on the joint attention between individuals engaging in a collaborative making task. The second study experimentally examined the hypothesis that learners must continuously adjust their visual attention relative to the demonstrator's time-evolving behaviour to benefit from it. We eye-tracked learners as they repeatedly watched videos of a demonstrator solving one of three manipulative puzzles before attempting the task themselves. The videos were manipulated to vary the presence of the demonstrator's face and the availability of verbal instructions. We used recurrence quantification analysis to measure the coordination between the demonstrator's actions and the learner's gaze. Results suggest that learners who more strongly coordinated their eye movements with the manipulative actions of the demonstrator had higher learning rates.

Towards a Queer Linguistics: A Case Study of Gesture and Non-Binary Gender Identities

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In this talk, I hope to bring to the forefront the ways of 'queering' linguistic methodology, moving beyond the mere inclusion of queer subjects to a reimagining of how we define and study language and identity. Drawing on Halberstam's (1998:13) idea of queer methodology as scavenger methodology, which "attempts to combine methods that are often cast as being at odds with each other, and it refuses the academic compulsion toward disciplinary coherence", I would like to look for an approach that would de-center spoken language as the sole resource of meaning-making, focusing instead on poly-semiotic, multimodal communication. Central to this is Calder's (2024) concept of cross-modal bricolage, which refers to linguistic and/or visual signs carrying the semiotic load of contributing gendered meaning.

To illustrate some of the relevant ideas and perspectives, I present a case study analyzing gesture in the communicative practices of non-binary* individuals. Using data from sources such as spoken word performances, personal narrative videos (e.g., "coming out" stories), and public awareness content, I want to address three key questions: (1) How do gestures contribute to the

conceptualization of non-binary gender identities? (2) How does gestural content interact with and relate to co-occurring speech? (3) How is gesture employed as a metacommunicative tool to explain and make visible the subjective, often elusive, experience of a non-binary identity to others?

Novel method of description of phenomenological bodily space and Rubber Hand Illusion strength measurement

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I will present a novel self-report measure of the RHI based on inverse multidimensional scaling, developed using an approach grounded in the theory of illusion strength measurement. The method allows us to obtain individual proximity data on multiple body-related experiences (including the RHI) and to represent them as distances between experiences in multidimensional bodily space. Euclidean distances separating individual points in this space can be calculated regardless of the underlying data structure, providing an index of dissimilarity between points. The method also enables the description of the multidimensional space of bodily experiences, allowing for the identification of dimensions and the extraction of clusters.

This measure proved to be reliable, sensitive to differences between experimental and control conditions, and more conservative than traditionally used questionnaires. The RHI was characterized by a moderately high degree of embodiment and a low level of perceived stimulation, and it clustered with experiences associated with undisturbed feelings of body ownership. We believe that the proposed method can be widely adopted in body ownership research as a self-assessment tool, as it is relatively easy to implement yet likely less confounded than simple questionnaire measures of RHI strength.

"Compositionality" in research on language emergence – text mining study

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Abstract: I will present partial results of a study on how the notion of "compositionality" is used in language emergence research.

Compositionality is a central principle of contemporary semantics, widely used in the study of syntax, artificial intelligence, neuroscience, and beyond, including the research on language emergence (Werning, Hinzen, and Machery 2012). As such, it is a central notion in the study of linguistic structure. Compositionality states that "the meaning of a compound expression is a function of the meanings of its parts and of the way they are syntactically combined" (as formulated by Barbara Partee, see Werning, Hinzen, and Machery 2012, 19).

In our previous work (Rorot and Rączaszek-Leonardi 2023), we have argued that existing theoretical frameworks of compositionality are not well-suited for the field of language emergence and that capturing the many components of the structure of language requires a greater conceptual diversity in the views of semantic structure.

The reported study aims to test this hypothesis through a text-mining investigation of a large corpus of scientific articles, relying on the methodology of digital philosophy of science (see Pence and Ramsey 2018; Rorot in preparation).

Physiological synchrony of lonely people: a planned research presentation

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Loneliness as a "subjective unpleasant or distressing feeling of a lack of connection to other people, along with a desire for more, or more satisfying social relationships." (Badcock et al., 2022) is rising globally across many populations (Kannan & Veazie, 2023; Twenge et al., 2021) and carries serious health costs (Holt-Lunstad et al., 2015). Contemporary accounts recast loneliness as a dysfunction of social alignment: lonely individuals anticipate fewer interpersonal rewards (Gable, 2006), struggle to regulate emotion (Di Tella et al., 2023) and exhibit hostile attribution bias (Okruszek et al., 2021).

At the Conference, I will present ideas for my PhD research. The big-picture claim is simple: the more an encounter depends on shared meaning and emotion, the more loneliness will disrupt alignment. I will therefore contrast social contexts that range from externally paced motor coordination to conversation-based exchange, asking whether dyads that include lonely individuals show diminished interpersonal synchrony. In doing so, I will try to link chronic loneliness to interpersonal aspects of real-time social interactions.

The anticipated contribution is threefold. Conceptually, the proposed research situates loneliness within a unified framework of social coordination, clarifying when and why interactions derail. Empirically, it treats interpersonal synchrony as a barometer of shared mind and body, capturing the choreography of interaction as it unfolds. Translationally, by pinpointing contexts in which alignment falters, the project aims to inform interventions, from structured synchrony-building activities to conversational scaffolds, that rebuild a felt sense of co-presence. Ultimately, understanding how loneliness weakens the glue of social life can guide prevention, clinical support, and public-health responses that foster connection and mitigate risk.

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From Joint Movement to Coordinate Perception: Mixed-Methods Analysis of a Collaborative Tabletop Game

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In my presentation, I will share early findings from the analysis of a two-player digital tabletop game (O THO) designed to help players make sense of the Cartesian coordinate system through joint action. In this game, each player controls one axis of a shared object's motion, requiring continuous coordination to keep the object on track. Using a mixed-methods approach, we analyse the interaction both quantitatively and qualitatively to understand how joint action can lead to conceptual understanding of the Cartesian system. To support that, we use the DIMS dashboard—a visualization tool for exploring multimodal interaction data that integrates quantitative measures with synchronized video to make the unfolding dynamics of joint activity visible.
