Prosjekt: **Investigating Language Cognition: The View from Multimodality**

Fagmiljø: **ILN; klassiske språk og filosofi**

Kontaktperson: **Pritty Patel-Grosz; Dag Haug fra IFIKK**

Investigating Language Cognition: The View from Multimodality

1. Short project summary

We propose a research group whose agenda is to investigate the human language faculty and its cognitive underpinnings from a multimodal perspective that pushes research and teaching beyond the confines of traditional boundaries on the study of human language. We will pursue the investigation of human language from a perspective that spans other areas of human cognition, such as vision, dance and music; we will apply both linguistic and non-linguistic methodology (such as game theory) to these areas. The overarching idea is that we will thus gain new insights into central aspects of human cognition, as instantiated by natural language.

2. Name and departmental affiliation of the project participants

[1] Pritty Patel-Grosz, ILN (project co-leader)
[2] Patrick Grosz, ILN (project co-leader)
[3] Dag Haug, IFIKK (project co-leader)
[4] Andreas Sveen, ILN
[5] Helge Lødrup, ILN
[6] Marja Irmeli Etelämäki, ILN
[7] Kjell Johan Sæbø, ILOS
[8] Atle Grønn, ILOS
[9] Alexander Jensenius, IMV
[10] Øystein Linnebo, IFIKK
[11] Bruno Laeng, PSI (SV)
[12] Stephan Oepen, IFI (MN)

Potential Project Associates and Collaborators at UiO

[1] Anne Danielsen, IMV
[2] Raino Malnes, ISV (SV)
[3] Geir Kirkebøen, PSI (SV)
[4] Jan Tore Lønning, IFI (MN)
[5] Lilja Øvrelid, IFI (MN)

3. Details about any groups outside HF which are relevant partners

As outlined above, researchers from MN (Oepen) and SV (Laeng) will participate in the proposed group, with additional associates from these two faculties (Lønning/Øvrelid at MN; Malnes/Kirkebøen at SV). External collaborations are planned with a range of institutions:

External Collaborators

[1] Agustin Rayo (MIT)
[2] Daniel Altshuler (Hampshire College)
[3] Gillian Ramchand (UiT)
[4] Arnfinn Muruvik Vonen (HiOA)
[5] Kate Maxwell (UiT Musikkonservatoriet)
[6] Stewart Shapiro (Ohio State University)
[7] Anton Zimmerling (Moscow State Ped. Uni.)
[8] Salvatore Florio (Birmingham University)

4. Description of both the research and instructional components

Our research program investigates a breadth of topics pertaining to multimodality, such as (but not limited to) the syntax/semantics of dance and music, and the psychological/ philosophical analysis of subjectivity, perception and perspective in natural language (compared to other modes of communication). The underpinnings of such research will be formed by research in the core linguistic fields of syntax, semantics, pragmatics and their interfaces. Connections to areas such as dance and music will be explored in close collaboration with Alexander Jensenius and his team of researchers at IMV. Together with colleagues at PSI (in particular Bruno Laeng), we will explore topics such as the division of labour between vision and language (i.e., the cognitive module encompassing natural language semantics) with regards to phenomena such as referent-tracking and disjoint reference in visual narratives (e.g., narrative dance / wordless picture sequences). Connections between language and vision will also be made at the level of how direct vs. indirect perception is linguistically encoded. Collaborations with philosophers at IFIKK allow us to explore the representation of abstract objects and abstract reference in iconic meanings (as constituted by different sequences in dance and music), including topics such as plurality and how it is conceptualized / realized at the intersections of philosophy, linguistics, and logic. Our planned collaborations extend to a comparison of language with strategy games such as

chess, which we view as two manifestations of human cognition. Both allow us to learn about the differences between the human mind and artificial intelligence. Potential research areas not only include a comparison of how game-theoretic considerations play out in chess vs. language, but also questions concerning a possible compositional semantics of chess moves.

On the teaching side, we plan to introduce research-based cross-disciplinary classes at the BA and MA level. These will integrate current research, spanning departments such as ILN and IMV/PSI (in addition to other departments with a language focus). Participants in this FP3 project will co-teach classes on topics such as *music and language cognition* (ILN/IMV), or *meaning in vision and language* (ILN/PSI), as well as the philosophical underpinnings of pragmatics in natural language research, psycho- and neurolinguistics. Project members are flexible with respect to the department host for such cross-disciplinary classes.

5. Description of the project objectives (challenges that it will help to resolve)

This project not only aims at furthering our core understanding of human cognition in its manifestations (e.g., language, music, and dance); by doing so, it also addresses fundamental issues that our society faces in the current day and age, where artificial intelligence is more strongly integrated into daily life and research on human-robot interaction is gaining in importance. Our research will shed insights on the differences between the human mind and artificial intelligence, as well as pave new roads in our understanding of the emerging needs in human-robot interaction (including areas such as speech act encoding, gestures, aesthetic discourse, non-linguistic communication, subjectivity, emotivity, and sentiment analysis).

6. Description of cooperation and interdisciplinary aspects of the project

This FP3 project has an interdisciplinary orientation, covering, in particular, the fields of Linguistics (ILN/ILOS/IFIKK), Musicology (IMV), Psychology (PSI), Philosophy (IFIKK) and Informatics (IFI). It is, by its very design, geared towards interdepartmental collaboration. There is a significant potential for co-teaching across departments (e.g. a course on language and music co-taught by Alexander Jensenius and Pritty Patel-Grosz, or a course on the philosophy of language co-taught by Øystein Linnebo and Dag Haug or Kjell Johan Sæbø).

7. Description of the project's innovative potential

The topics that this project will cover are, as of now, largely underresearched and unexplored. The last decade has seen a surge in applying linguistic methodology to other areas of human cognition (such as music and dance), generating the hope that we can thus achieve a deeper understanding of the human mind. The group of collaborators at UiO (and beyond) gives rise to a unique bundling of competencies, which forms the basis for true progress in these areas.

8. Description of the project's potential for attracting external funding

This project will provide its members with essential infrastructure and resources to prepare successful ERC Starting/Consolidator Grant proposals. It would also create foundations for an application for a new centre of excellence, which project members have shown an interest in.

9. Plans for how funding will be used, including activities, measures and new positions

While this will be a cutting-edge group that aims at pushing the boundaries of language research, we adopt a student-centred approach that truly unifies research and teaching. It is our designated goal to intergrate outstanding BA, MA and PhD students into the FP3 group, much in line with the recent white paper on the humanities (*Stortingsmelding om humarniora*). This will aid us in producing sucessful and internationally oriented students, who can then further their academic careers at other international world-class institutions, thus contributing to a further gain in international recognition of UiO and the departments that are involved. In line with these goals, we plan to use the allotted 20 million NOK for the financing of 1 permanent position, 1 postdoc, 2 PhD positions, and research assistantships / scholarships for BA/MA students, in addition to research-related project expenses.