

Review of the doctoral dissertation “The Role of Pragmatic Competence and Ostensive Communication in Language” submitted by Angelo Delliponti

Düsseldorf, 29.03.2025

The cumulative dissertation under review investigates the role of pragmatic competence and ostensive communication in language, and consists of three publications that are accompanied by an introductory and a summary and conclusion chapter, as well as an appendix containing a fourth, currently unpublished paper.

Heinrich Heine University
Düsseldorf
Universitätsstraße 1
40225 Düsseldorf
Building 24.53
Level U1 Room 94

The key question of the dissertation, formulated at the beginning of the introductory chapter, is: “does the basic pragmatic competence for ostensive communication rely on advanced, higher-order cognitive processes (thus, being necessarily uniquely human)?” (p. 1) The four papers that the thesis is comprised of are discussed and contextualized against the background of the overarching research question, with the author making the case that “basic ostensive communication is related to fast, automatic processes that rely on low-level mechanisms rather than high-level, inferential reasoning” (p. 16), questioning the assumption that ostensive communication is an exclusively human capacity.

Secretary's office:

Claudia Franken-Stemmler
Universitätsstraße 1
40225 Düsseldorf
Gebäude 24.52
Ebene U1 Raum 23

The three published papers included in the thesis have appeared in peer-reviewed academic journals; one of them is co-authored, with Angelo Delliponti being the lead author. The paper in the appendix is also co-authored, with Angelo Delliponti being joint first author together with Francesco Ferretti, having made significant contributions to planning, conducting, and writing up the study.

www.hhu.de

The first of the three published papers is entitled “**Motor simulation and ostensive-inferential communication**”, published in the journal *Avant*. The key contribution of this paper to the scientific discussion about the origins of language is that it combines different strands of research that have largely been pursued independently so far, and shows that they are highly compatible: Sperber & Wilson's relevance theory, Arbib's Mirror Systems Hypothesis (which in turn is grounded in the discovery of mirror neurons), as well as the concept of embodiment that keeps playing a key

role in philosophy and cognitive science at least since the last quarter of the 20th century. Delliponti focuses on one particular aspect, motor simulation. He argues that the expression and recognition of communicative and informative intentions is what made both ostensive communication and language possible; that mirror neurons are involved in the recognition of intentions through motor simulation; and that motor simulation in turn is involved in language understanding and language acquisition.

Theories of embodiment and motor simulation often focus on semantic simulation, i.e. the mental simulation of entities and actions encoded by linguistic units – for instance, simulating the act of kicking when hearing or reading the verb *kick*. However, Delliponti also points to another crucial aspect of motor simulation, phono-articulatory resonance, whereby the motor system simulates the production of the utterance. He argues that this mechanism plays a role in the recognition of communicative intentions, especially in the process of language acquisition. But he also argues that semantic simulation is involved in the recognition of communicative intentions: “through associative learning, it is possible to create a correspondence between the recognition of the goal of the action and the word intended to express the content of that action.” (p. 13) In sum, he concludes that both phono-articulatory and semantic simulation play a role in the understanding and evolution of vocal communication, with the former pointing the recipient to the sender’s *communicative* intention and the latter pointing the recipient to the sender’s *informative* intention.

The second paper, entitled “**Motor Simulation and Ostensive-inferential communication: insights and clarifications**”, was published in *Theoria et Historia Scientiarum* and is a direct follow-up to the previous paper. In this article, Delliponti pursues three goals: firstly, he revisits the role of phono-articulatory simulation, proposing a model of its role in baby talk; secondly, he revisits semantic simulation, focusing on its role in the acquisition of action words; and thirdly, he compares different models of mindreading to check which fit the available evidence regarding the role of motor simulation best. As for the first aspect, he argues that the peculiarities of infant-directed speech, or “baby talk”, are crucial for helping infants to recognize linguistic communicative intentions, and that they help activate the phono-articulatory system; as a side effect, this helps with language acquisition. As for the second aspect, semantic simulation, he hypothesizes that the learning of action words relies on a the mapping of a (newly encountered) word to knowledge of the action that is already present via associative learning when recognizing the communicator’s intention. In this way, “an association is formed between the intention behind an action and the intention behind the word” (p. 43). Regarding the third aspect, viz. different theories of mindreading, Delliponti compares two main models, “theory-theory” (TT) and “simulation theory” (ST), where TT

can be subdivided in two different models that have been proposed in the literature, full-blown vs. minimal theory of mind, whereas ST can be divided into high-level and low-level simulational mindreading. He argues that phono-articulatory simulation processes can partly be explained by low-level mindreading alone, while semantic simulation must involve a mix of low-level and high-level mindreading (e.g., low-level plus high-level simulational mindreading, or low-level simulation plus minimal theory of mind), but he also concedes that various different hypotheses are in line with the available data, which is why “only future studies could shed light on the role that the part of semantic simulation relating to low-level activation may have during everyday understanding of action verbs.” (p.48)

The paper in the appendix, entitled **“Which mindreading for ostensive communication? An event related potentials study of how the brain processes communicative and informative intentions”**, elaborates on the notion of mindreading and its role in ostensive communication, which is why it makes sense to discuss it here before moving on to the third publication, which touches upon a related but still notably different topic. In particular, this paper addresses the question that is also highlighted in the dissertation’s frame text (introduction and conclusion), namely whether ostensive communication is uniquely human. The paper surveys the debate between so-called classical and deflationary perspectives on ostensive communication (OC): while the classical view considers OC uniquely human and holds that it requires high-level mindreading, the deflationary view suggests basic forms of OC exist in infants and non-human primates, supported by simpler mindreading. In order to investigate these conflicting hypotheses, the study uses event-related potentials (ERP), a state-of-the-art neurolinguistic method that uses neuroimaging to measure brain responses to (e.g. linguistic) stimuli. In their theoretical considerations, the authors make a connection between the two levels of ostensive communication proposed in Sperber and Wilson’s recent revision of Relevance Theory and the idea that mindreading may be a two-stage process. This hypothesis is tested in the ERP study: Participants are shown visual stories in which one person makes a request, manifesting a communicative and an informative intention via eye contact (which conveys the communicative intention) and gestures (which convey the informative intention). The authors compare three conditions: “congruent, in which both intentions [= communicative and informative, S.H.] are satisfied; semi-congruent, in which the informative intention, but not the communicative intention, is satisfied; and incongruent, in which neither the communicative intention nor the informative intention are satisfied.” (p. 10) While not all of the hypotheses put forward by the authors are confirmed, a post-hoc analysis of the N170 component shows that “the incongruent condition had a more pronounced negative amplitude compared to the congruent condition” (p. 21), which seems to “indicate that the detection

of both communicative and informative intentions takes place within the 200-millisecond window" (p. 23). This in turn is taken as an indication that that low-level cognitive processes are sufficient for the initial detection of communicative and informative intentions.

Finally, the third published paper that forms part of the dissertation is a systematic literature review documenting the current state of the art in the field of experimental semiotics (ES). Entitled "**Experimental Semiotics: A Systematic Categorization of Experimental Studies on the Bootstrapping of Communication Systems**", it has appeared in the journal *Biosemiotics* and is co-authored by Renato Raia, Giulia Sanguedolce, Adam Gutowski, Michael Pleyer, Marta Sibierska, Marek Placiński, Przemysław Żywicznyński, and Sławomir Waciewicz. ES is a field of experimental research in which participants are asked to bootstrap novel communication systems, usually without being allowed to use language. Delliponti and his co-authors systematically selected 60 papers that can be considered representatives of the field of ES and coded them for a number of dimensions in order to get an overview of different study designs, and to find out how different aspects of the study design correlate with one another. Also, they investigate developments over time – among other things, they find that coordinational paradigms, which focus on the *means* of communication, become less frequent in favor of referential paradigms, which focus on the *ends* of communication.

In sum, the dissertation makes valuable theoretical and empirical contributions to the field of language evolution research and strengthens the often neglected link between evolutionary linguistics and pragmatics. The two theoretical papers develop a useful theoretical scaffolding for bringing together relevance theory, developmental research and language evolution research. Given the current lack of empirical evidence, the discussion of some conflicting hypotheses must necessarily remain inconclusive, but this makes these papers all the more interesting as a starting point for future work. The ERP paper shows a first step in this direction and contributes to filling the research gaps in this area. Thematically, the experimental semiotics review paper is the odd one out among the four articles that the dissertation is comprised of, but both the introductory chapter and the summary do a good job at showing how it is complementary to the other papers, and contributes to answering the overarching research questions: After all, experimental-semiotic studies also underscore the importance of ostensive communication – as Delliponti puts it in the summary, "[a]n important feature of experimental semiotics studies is that without forms of cooperation between participants, it is difficult or impossible to bootstrap and maintain a communication system, when trying to build it from scratch." (p. 2)

All four papers make significant contributions to the scientific debate. Three of the papers have already undergone peer review, and I have no doubt that the fourth paper will soon be published in a peer-reviewed journal as well. In the unpublished paper, some passages could perhaps be clarified to make them more accessible to readers less familiar with pragmatics; e.g. on p.4, the authors state that "it is possible to satisfy Grice's clause regarding communicative intentions (Clause II) without having to invoke meta-representational processing systems", but the "clauses" in question have not been introduced, and unlike the Gricean maxims, they are not common knowledge in linguistics. Also, Section 1.2 promises "A deflationary proposal", but while one specific deflationary proposal (by Richard Moore) is indeed what the paper focuses on, this is embedded in a broader discussion of different models, and the authors do not seem to take a clear stance regarding the model they favor, which makes it harder to understand the point of departure of their empirical study.

Given the cumulative nature of the dissertation, there are some overlaps between the different papers, but this is hard to avoid as e.g. key terms have to be introduced and defined in each individual paper; nevertheless, all papers contain new and original thoughts and findings. The frame text, i.e. the introduction and conclusion, do not only summarize the key points of the individual papers but also spell out the theoretical framework proposed by Delliponti in some detail. As such, they also serve as an excellent guide to the reader that contextualizes the individual studies, putting together the individual pieces of the puzzle represented by the individual papers to a full picture.

All in all, the dissertation clearly satisfies the requirements for a doctoral thesis. It shows that the candidate is intimately familiar with both the theoretical discussions and with methodological approaches in his field, and it makes substantial contributions to the scientific debate in language evolution research, linguistic pragmatics, and related fields.

Jun.-Prof. Dr. Stefan Hartmann
Heinrich-Heine-Universität Düsseldorf
Philosophische Fakultät
Lehrstuhl für Germanistische Sprachwissenschaften