

# Final Report EuroUnderstanding Networking Activity 21-24<sup>th</sup> August 2012 at ESPP, London

## Summary and Assessment of Impact

The main objective of the proposed activity was to identify overlaps and gaps between the different approaches to understanding and misunderstanding represented in the thematic EUROCORES program "Understanding and Misunderstanding: Cognition, Communication and Culture (EuroUnderstanding)." In order to achieve this, members of the three funded projects in this program met at the conference of the European Society for Philosophy and Psychology (ESPP) that took place in London from 28<sup>th</sup> to 31<sup>st</sup> August 2012. The activity consisted of three linked symposia and an integration session that was led by Christopher Peacocke (Columbia University, NY).

The three CRPs 'Communication in Context: Shared Understanding in a Complex World (CCCOM)', 'Understanding the Normative Dimensions of Human Conduct: Conceptual and Developmental Issues (NormCon)', and 'Digging for the Roots of Understanding' (DRUST) were each represented by four speakers. Thus the planned activity was truly cross-CRP and established genuine links between the different research activities by involving an outstanding US expert. The symposia contained a mix of contributions from junior and senior members of the participating research teams.

The proposed activity also successfully disseminated the research activities in the three Collaborative Research Projects that make up the EuroUnderstanding program to European researchers at the European Society for Philosophy and Psychology conference. To sum up, the activity combined a highly successful public integration effort with dissemination of research results at a European conference.

## Final programme and scientific content

### Symposium 1 (Wednesday, 29 August): Concepts Chaired by Åsa Wikforss (CCCOM, Stockholm University)

The symposium explores the interconnections between research in philosophy and psychology on concepts. A further issue concerns the very idea of successful communication, which according to the standard view, requires shared concepts and contents. An interesting hypothesis, underlying the collaborative research project CCCOM, is that this standard account should be resisted, and that successful communication only requires similarity in concepts – overlap, not identity.

#### *1. Concepts from three perspectives James Hampton (City University London)*

Concepts form a bridge between three domains – the real world, the social world and the internal mental world. Different disciplines take an interest in different relations amongst these three domains, with psychology focusing primarily on the mental and social, and, (if we take a language to be a social artifact), semantics focusing on the relation of the social to the real world. I will argue that within the mental realm there is a place for the representation of all three domains, leading to three different models of how concepts have content.

#### *2. Why psychological evidence matters for the content of natural kind terms Daniel Cohnitz (Tartu University) & Jussi Haukioja (Norwegian University of Science and Technology)*

While philosophers tend to focus on the semantic properties of concepts and their role in communication, psychologists focus on the role of concepts in the individual's categorizations and reasoning. This might suggest that it is a mistake to relate questions about semantics of, for example, natural kind terms, to psychological evidence about categorization dispositions of individuals.

Most philosophers are, moreover, externalists about the semantics of natural kind terms and the content of natural kind concepts. The commitment to externalism may also be thought to entail that psychological evidence about categorization dispositions is of quite limited value to philosophical questions concerning reference and content: according to externalism, reference and content are determined partly by factors that are external to our psychology.

We disagree with this conclusion: we believe that psychological evidence about categorization dispositions is directly relevant for theorizing about reference and content, externalist

commitments notwithstanding. To get clear about these matters, we think two different internalism/externalism distinctions have to be made, and clearly kept apart.

The familiar internalism/externalism distinction about reference and content concerns the question of what kinds of facts determine what a given term or concept refers to. Let us call these views first-order internalism and externalism. According to first-order internalism, the referents of our terms and concepts are determined by factors that have to do with our individual psychology, while first-order externalism denies this, claiming that the referents of at least some terms and concepts are partly determined by external facts.

But we can and should also make an internalism/externalism distinction at the metalevel. Meta-internalists hold that the question of whether first-order internalism or externalism is true is determined by facts concerning our individual psychology, while meta-externalists hold that this is determined by external facts.

We will argue that meta-externalism is an inadequate position: it makes it impossible to make sense of the role of reference and content in communication. At the same time, we are convinced by the familiar arguments for externalism about natural kind terms and concepts. We are, thus, meta-internalists and first-order externalists: the reference of natural kind concepts is determined partly by non-psychological features of the world, but the fact that such non-psychological features do enter into the determination of reference, is due to factors that have to do with our psychology. First-order externalism about natural kind concepts is true, roughly, because we have psychological dispositions to shift the burden of determining their extensions to external factors.

On this view, psychological evidence about categorization dispositions can be highly relevant for theorizing about reference and content: the question of whether first-order internalism or externalism is true is determined by our psychological dispositions. It is not obvious, however, how we should best study such dispositions. Some support for first-order externalism can be had from surveys that stay fairly close to the standard philosophical thought experiments (Jylkkä, Railo & Haukioja 2009), but we believe that more accurate data could be obtained by other means.

### *3. Vagueness, context dependence, and partial knowledge. Peter Bosch (Institute of Cognitive Science, University of Osnabrück)*

Vagueness has often been regarded as some kind of a disease of natural language and as an embarrassment to reasoning in natural language, and the Sorites Paradox, vulgo Paradox of the Heap, has been told since antiquity as a kind of cautionary tale, to warn about how serious this disease is and how terribly it can infect human thinking. Alternatively it was used to warn about the dangers of modus ponens and logical thinking, or of rationality more generally. On the whole, it seems that more effort has been put into fake remedies, such as regimentation of natural language and logics of vagueness, than into understanding how vagueness phenomena arise and what function vagueness so-called may serve in human communication.

I will start this talk by showing that the cautionary tale, like most cautionary tales, is not only a red herring, but rests on what must now be regarded a straightforward error in natural language semantics: the Sorites argument does not go through unless we take natural language expressions to have constant and context-independent denotations. I will show this by giving a formal reconstruction of the Sorites argument in terms of (a variant of) David Kaplan's (1977) logic of indexicals.

The second part of the talk will elaborate the idea that vagueness phenomena are a by-product of context dependence and partial knowledge, which I regard as central features of any psychologically realistic natural language semantics. I will propose a model for the compositional and context-dependent interpretation of natural language utterances that is based on denotations that are incrementally constructed during utterance interpretation and incorporate all information that is cross-modally available to the processor. Concepts, which are typical denotations of functor expressions in this model, come out as potentially very rich, but are naturally only partially defined, i.e., for the current utterance context. I call these concepts "Contextual Concepts". This model rests in part on ideas I proposed in different forms in earlier work (Bosch 1983, 2009a,b)

I will illustrate the model by showing how it captures common notions of conceptual identity, as operationalized in term of verb phrase ellipsis, and I will show how it applies to the interpretation degree adjectives (Kennedy 2007).

*4. Concept Possession and Conceptions Åsa Wikforss (Dept. of Philosophy, Stockholm University)*  
What is the relationship between concept possession and individual speakers' conceptions or beliefs? There are three lines of reply:

(i) Concepts are determined by S's beliefs in such a way that in order to have a concept C it is necessary that the speaker has a privileged set of beliefs.

(ii) Concepts are determined by S's beliefs but in a holistic fashion – there is no particular set of beliefs S must have to possess C even though two speakers cannot possess the same concept unless there is by and large overlap between beliefs.

(iii) Concepts are not determined by beliefs. Two individuals may share the same concepts despite not sharing any, or very few, beliefs.

In the talk I will evaluate these strategies and relate them to recent research within philosophy and psychology. Psychologists tend to construe concepts as closely connected to the subject's cognitive states, and are therefore more disposed towards (i) and (ii). Many philosophers, by contrast, wish to disconnect the strong links between concept possession and belief (Williamson 2007). One conclusion is that psychologists and philosophers theorize about different things (Machery 2009). However, I argue, this conclusion is problematic: Although there are differences in perspective, we should not take philosophers and psychologists to talk past one another and we should be able to use experimental evidence in support of a philosophical theory of concepts. My proposal is that given this, option (ii) is the most plausible.

**Symposium 2 (Wed, 29th August): Implicit versus Explicit Processes of Understanding in Social Cognition, chaired by Frank Esken (NormCon, University of Salzburg)**

In this workshop we will investigate philosophical and psychological aspects of the up to now highly unclear distinction between implicit and explicit processes of understanding in social cognition. Following the basic assumption of the so called "two-systems" account (e.g., Apperly & Butterfill, 2009), there have to be distinguished between a) lower (i.e. implicit) levels of human cognition which are characterized as fast, more or less inflexible and largely automatic processes (and which develop early in ontogeny and may be shared by humans and non-human animals) and b) higher (i.e. explicit) levels which are characterized as slow, cognitively effortful and inferentially structured (and which may be unique to humans). Up to now very little is known about the relationship between implicit and explicit levels in cognition. Do explicit processes build upon the preexisting implicit processes? Can explicit knowledge directly affect implicit processes etc. (e.g., Frith & Frith 2008)?

*1. Systems for Theory-of-Mind Ingar Brinck, Dept. of Philosophy and Cognitive Science Lund University, Sweden*

There are many ways to understand the implicit-explicit distinction, e.g., as distinguishing processes that are consciously aware from such that are not or cognitively penetrable processing from impenetrable. Sometimes the differences between low-and high-level or fast and slow processes are invoked to explain it. In their account on belief reasoning, Apperly & Butterfill (2009) focus on the trade-off between processes that are either efficient and robust or flexible and complex. They suggest that there are two systems for theory-of-mind, one that relies on propositional inferences, another that exploits perceptual tracking of belief-like states via encounters with and registrations of objects at locations. The question is how productive the dualist framework is for explaining the mind. Not only is the underlying distinction ambiguous. The dual approach also requires accounting for how the two distinct and independent systems interact. Moreover, recent research in psychology and neurophysiology has revealed processes that cannot readily and systematically be mapped onto any of the distinctions mentioned above, as exemplified by the many varieties of attention found in social cognition. It is an open question whether and how Apperly & Butterfill's belief-tracking system can do justice to this diversity. To increase the explanatory power of their model, it may be desirable to extend the sensitivity of belief tracking to other factors than physical entities and locations. Slors, de Bruin & Strijbos (2011) suggest an enactivist version that track objects-at-locations together with the actions they afford. Two further possibilities are to distinguish between different types of action affordances,

e.g., instrumental, social-communicative, and epistemic, and introduce normative properties into the model. Such enriched models have both drawbacks and advantages for the dual approach.

*2. Understanding belief from infancy to childhood: Implicit-explicit? Josef Perner, Beate Priewasser, University of Salzburg; Johannes Roessler, University of Warwick*

There is increasing evidence that young infants in their second year are sensitive to an agent's false belief, anticipate her erroneous actions, and adjust their behaviour accordingly. However, when they are asked to predict the mistaken agent's future action, correct predictions can only be made by about 4 years. We will discuss data that speak in favour of the earlier understanding being based on implicit knowledge and the later on explicit knowledge. We further propose that the earlier, implicit understanding consists of causal knowledge of how belief inducing circumstances lead to erroneous actions, while the explicit request for prediction triggers a theory in terms of reasons: the agent will do what he should do. Here the children use objective teleology, which leads to the wrong prediction that the agent will do what he objectively should do. Around 4 years children become able to use their teleological reasoning within the agent's perspective (teleology in perspective) and reason correctly that the agent will do what he should do if the world were like he sees it.

*3. Ontogenetic Early Forms of Rule-Following and the Implicit-Explicit Distinction (Frank Esken, University of Salzburg)*

For the last several decades, much work in social cognition has been driven by the assumption that mindreading is our default way of engaging with and understanding others. Mindreading is said to consist of an ability to infer the existence of mental states in others and to use these inferences to explain and predict their behavior. Recently, however, phenomenologically-motivated critics have argued that mindreading is by and large unnecessary since our perception of others is sufficiently rich or "smart" (Gallagher 2008) enough to deliver the information we need to interact fluently with others. Apperly and Butterfill (2009) have recently proposed an account of belief reasoning that appears to offer a middle way between mindreading and perceptual approaches to social cognition. They propose that mindreading involves two systems: an early-developing, cognitively efficient but inflexible capacity for perceptually tracking belief-like states; and a later-developing, more flexible capacity subserving theory of mind abilities. I critically evaluate this proposal. I raise questions about the kind of social perception this view presupposes –as well as the belief-desire psychology it tacitly assumes—and consider the role of affectivity in this process, a mechanism this model seems ill-suited to account for.

*4. The Character of Social Perception Hannes Rakoczy (University of Göttingen)*

Short-term replacement for Joel Krueger, no abstract provided.

### **Symposium 3 (Thursday, 30th August): Routes to Understanding, chaired by Günther Knoblich (Radboud University Nijmegen)**

In this symposium we will address a number of basic and inferential processes that form important component of understanding and misunderstanding. This will include predictive processes that support non-linguistic and linguistic communication at multiple levels (Kiverstein), verbal and nonverbal cues to forming first impression about communication partners (Bojana Kuzmanovic), communication of confidence for difficult judgments during decision making (Olsen), and the role of mutual agreements (Satne) in the action domain as well as in the language domain.

*1. The role of prediction, coordination and context in communication Julian Kiverstein (Institute of Logic, Language and Computation, Universiteit van Amsterdam)*

You are at a noisy party talking with a friend. As you listen the speech signal your brain is processing is changing at roughly the same time scale as the speaker's syllable production. The rhythms and changes in the amplitude (or intensity) of what you are hearing are coupled with the oscillations in auditory regions of the listener's brain. Seeing your friend's lip movements help you hear what he is saying because the mouth movements you are seeing are tightly coupled with the changes in the speech signal's amplitude you are hearing. Coordination in the form of an entrainment between speaker and hearer is in this case playing a crucial role in communication. Garrod and Pickering (2004) show how successful communication depends upon unconscious processes of linguistic alignment in which speaker and hearer will imitate choices of speech sounds, grammatical forms, and choices of linguistic expression. They argue that this process of linguistic alignment happens because language production and language comprehension share

common representations. As a final example, Stephens et al 2010 used a method of analysis of fMRI data called intersubject correlation analysis to show that speaker and hearer's brains exhibit temporally coupled response patterns while the speaker tells an unrehearsed story. I'll argue that these examples of coordination, entrainment, and imitation play a crucial role in setting up common ground necessary for communication. Common ground is often understood (following the influential work of Robert Stalnaker) in terms of shared presuppositions that are implicit in a speaker's utterances. While of course we shouldn't underestimate the importance of this form of background knowledge, I will argue that the kinds of shared representations I've just pointed to may also play a necessary role. The question I'll take up is why? I will suggest that predictive coding models of the brain may hold part of the answer. The mechanism of minimization of predictive error may play a crucial role in establishing the tight coupling and linguistic alignment we find in cases of successful communication. If I have time I also make some speculative suggestions about the role of shared contexts of activity in minimizing predictive error and so in establishing common ground necessary for communication.

## *2. Distinct paths to first impressions via verbal and nonverbal information Bojana Kuzmanovic (Department of Psychiatry and Psychotherapy, University Hospital Cologne, Germany)*

First impressions profoundly influence our perception of and attitudes and behavior toward others. In parallel to Watzlawick's idea that "one cannot not communicate" (Watzlawick et al., 1967), we cannot not form an impression of social others we encounter, even if that means that we are not interested in them. Thus, impression formation is fundamentally influential on the common ground between people and can crucially modify their communication.

However, little is known about whether and to what degree the cognitive processes that underlie impression formation depend on the domain of the available information about the target person. Based on constitutional differences between digital verbal and analog nonverbal information, it has been suggested that nonverbal cues have a stronger effect on the affective relational level of interpersonal communication (Watzlawick et al., 1967). To investigate neural bases of the influence of verbal as compared to nonverbal information on interpersonal judgments, we identified brain regions where the BOLD signal parametrically increased with increasing strength of evaluation based on either short text vignettes or mimic and gestural behavior (Kuzmanovic et al., 2012).

While for verbal stimuli the increasing strength of subjective evaluation was correlated with increased neural activation of precuneus and posterior cingulate cortex (PC/PCC), a similar effect was observed for nonverbal stimuli in the amygdala. These findings support the assumption that qualitatively different cognitive operations underlie person evaluation depending upon the stimulus domain: while the processing of nonverbal person information may be more strongly associated with affective processing as indexed by recruitment of the amygdala, verbal person information engaged the PC/PCC that has been related to social inferential processing.

## *3. Failure and success in interactive decision-making and perceptual learning: The importance of how confidence is communicated Karsten Olsen (Aarhus University)*

Humans are inherently social creatures, interacting and communicating intuitively and effortlessly. Despite this, research in collective decision-making have repeatedly demonstrated how individuals miscommunicate valuable information and fail to obtain possible group advantages. The precise reasons for this are unclear. However, our previous research suggests particular circumstances under which it is certainly possible for people to communicate successfully and perform well as a group. In this talk, I will present recent experiments, in which we investigated the role of mode of communication, verbal communication (spoken language) vs. numerical communication (confidence sharing via numerical scales) in interactive decision-making. Moreover, we tested these modes under circumstances where individuals are either equal or unequal in task competence (and thus performance). This way, we successfully induced suboptimal communication and decision-making in the group. Supported by linguistic analysis of the dialogues, the data suggested that equal groups that communicate verbally, and unequal groups that communicate numerically, achieve the most efficient grounding of communicated confidence and, ultimately, better collective performance. In addition, I will discuss the effect of response feedback on group discussions and establishing metacognition, and the accelerating effects on individual perceptual learning. I will conclude that what determines a failure in communicating confidence and collective perceptual decisions depends very much on how it is communicated and the similarity within the group. And, furthermore, successful grounding of

communication and confidence sharing, and the opportunity to introspect about decisions together with others, can have remarkable effects on visual perceptual learning (also on the individual level), even when performing the task without feedback.

*4. 'Shall we agree?' Agreement and the Roots of Understanding. Glenda Satne (Center for Subjectivity Research, University of Copenhagen, DK)*

Agreement - it has been argued - is central for mutual understanding and communication. Sharing common grounds is, it seems, what explains our ability to understand each other in language and action.

Philosophers have accounted for agreement in different ways. The two most popular of them are the communitarian and the interpretationist models of agreement. According to the first one, communities can be characterised by the sharing of different kinds of criteria of assessment and proper behaviour. Agreements in those standards is, according to this model, what makes possible communication among humans (Rorty, Taylor). Theorists defending the second model claim that agreement should not be understood in terms of actual de facto cultural agreements, that vary from community to community, but as the result of mutual interpretation. What makes communication possible is that we apply (and that we are capable of applying) principles of rationality to understand each other's behaviour and that such principles are successful in making communication and life together easy and smoother (Davidson, Quine, Stalnaker and Brandom). What I will argue for in this presentation is that both these models fail to give a proper account of mutual understanding, rather presupposing it at the basis either of the constitution of the community as such, or, of the possibility of grasping shared principles of rationality of any kind.

Secondly, I will present the intersubjectivist model of mutual understanding, a second personal model (Gallagher, Hutto, Zahavi), that describes mutual understanding at a more basic level, specifically in terms of a more primitive form of face to face interactions among humans, that begins at birth, and is based in psychological facts to be found in the interacting agents.

My aim will be to describe the basic traits that such an agreement in language and action exhibits in those basic interactions, namely: (1) directionality, the fact that the attitudes of those involved in the relation are oriented towards each other; (2) symmetry, the fact that the subjects are equally situated – there is no a priori privilege - in relation to reasons; and (3) reciprocity, the attitudes of the subjects involved in the interaction need not to be the same, but they hold a correspondence, for each one's attitude towards the other there is a corresponding one of the other. Finally, I will conclude that thinking of agreement in terms of this basic psychological interactive model offers us with a model of what it is to share a reason or criteria of assessment very different from the two aforementioned. In particular, I will claim, shareability of reasons is exhibited in such interactions as the capability of taking the other person's reasons as relevant for our own conception of what is a reason for what. This capability can be described as the ability to perform two very simple acts: (a) following the same way in the light of approval by others; (b) changing our own conduct in the light of their reasons, both amount to (c) assessing our own conduct in the lights of the assessments of others and the reasons they present to us. Those will prove to be the very basic acts by which we come to share the common grounds that underlie more complex forms of communication.

#### **Integrating Approaches to Understanding and Misunderstanding , Discussant: Christopher Peacocke, Department of Philosophy, Columbia University (Friday, 31st August)**

In this session Christopher Peacocke guided a discussion that identified commonalities and differences between different approaches to understanding represented in the three CRPs (symposia). In interaction with the speakers in CRP1 he identified different notions of concepts that guide empirical work and theoretical work and linked it to the distinction between implicit and explicit (rule) understanding that links several researchers in CRP2. He then turned towards a discussion whether there is a fundamental difference between the conceptual understanding addressed in CRP1 and CRP2 and the lower level processes that assume understanding on multiple levels of alignment in CRP3. The project that was perhaps most discussed as an example for a thought provoking study that was of relevance to all three CRPs was the Aarhus-based research on communicating confidence in interactive decision making.