

End of Grant Report: Grounding Social Action: From Neurons to Shared Cognition and Culture

Despite the considerable progress in investigating the various bases of sociality, little is known about the links between the processes operating at the different (neural, behavioral, linguistic, cognitive, motivational, social-psychological, and cultural) levels. To respond to this challenge, the meeting shall specifically address the interrelations between the different levels at which sociality can be grounded, drawing on distinctions that have been proposed to guide contemporary approaches to the grounding of sociality (see Semin, in press). Are deliberate or goal-driven processes of coordination dependent on or shaped by automatic lower-level processes? What are the constraints that basic biological, neural, and behavioral mechanisms impose upon higher-order processes? For instance, it has been suggested that (the essentially unconscious) embodied simulation, to which the operation of mirror-neurons contributes, translates into conscious experiences, such as the phenomenal awareness of social others as intentional agents. To what extent may reflective, goal-driven coordination, which recruits symbolic, "disembodied" tools, operate on, supplement, interfere with, or even override fast, automatic synchronization processes? How do societal rules, evolved cultural frames, or language systems shape or constrain sociality? Given that individuals often spontaneously imitate or simulate their interaction partner's motor behavior, how and by which means does one distinguish self from other? Is it possible to pinpoint different types of interrelations, such as necessary or sufficient conditioning, multiple cause-effect relations, or complex synergy and dynamic emergence?

Apart from possible associations, dissociations between the different levels are also of great importance: To what extent do processes of grounding sociality on one level operate independent from processes on other levels? For instance, it is plausible that neural and behavioral mirror phenomena, which probably evolved as encapsulated and automatic processes during phylogeny, are not amenable to influence from conscious and more deliberate processes. On the other hand, cultural and societal patterns of sociality may also be fairly robust and insensitive to the varieties of individual-level processes, and large-scale, social entities with long-term trajectories may shield themselves against perturbation by micro-level, short-term influences. These items constitute the main thematic foci that will structure the preparation and discussion at the expert meeting.

Objectives of the Meeting

The main outcome of the proposed meeting was a full research proposal, with the title "Feeling in synchrony: Neural, cognitive, and cultural mechanisms". This proposal has been submitted to the *Brain and Cognition* initiative by the *NWO*. The

meeting was an important crucible for the research synthesis and a catalyst for immediate interdisciplinary dialogue.

Grounding Social Interaction: From Neurons to Shared Cognition and Culture

Günter Knoblich, Natalie Sebanz, Gün Semin

May 6-9, Amsterdam Symposium

Theme:

In modern society, people's fates have become intricately dependent upon the actions of others, many of whom are anonymous and working in different parts of the globe. Consider some of the things that we now take for granted, like cars, cell phones, supermarkets, and the Internet. None of these could be realized –even in principle- by an individual acting alone. Modern society, despite many claims of its individualistic orientation, is thus fundamentally based upon socially coordinated action.

How do individuals coordinate their actions; how are they able to share their inner states; and how do they establish joint representations and relationships? Questions about the nature of social interaction lie at the heart of the social sciences and are of profound importance to all disciplines addressing social phenomena. If one were to conceive of individual organisms as entities operating on their own as autonomous and self-organized neural and cognitive systems, the very possibility of social life might appear like a wondrous feat. Nevertheless, through interlocking biological, neural, behavioural, psychological, linguistic, group-based, cultural, and societal processes, people manage to coordinate their operations and to establish sociality. Unraveling these multiple processes of social interaction constitutes the focus of the proposed meeting.

Recent research has made considerable progress in investigating the neural, behavioral, linguistic, cognitive, motivational, social-psychological, and cultural bases of sociality. Nevertheless, it remains unresolved what are the links between the processes operating at the different levels. What is clear is that cognition and social interaction are functionally intertwined at a very basic level. Burgeoning research on the mirror-neuron system has started to illuminate the neural bases of imitation and social contagion (e.g., Rizzolatti & Craighero, 2004), suggesting direct links between sensory and motor representations (Brass & Heyes, 2005; Heyes, 2001). An immediate connection between social perception and action further drives imitation by human infants (Meltzoff, 2002), human speech (Liberman & Whalen, 2000), conversations (Semin, 2007), and automatic social behavior (Dijksterhuis & Bargh, 2001). Other, socio-cognitive processes that allow interpersonal coordination include joint attention (Sebanz et al., 2006), physically co-present encoding or retrieval of information (Cuc, Koppel, & Hirst, in press), and the formation of shared representations (Hardin & Higgins, 1996).

Social interaction constrains cognition, just as cognition constrains social interaction. To address to this mutual dependency, an integrative multi-level approach to the grounding of social interaction is required. An integrated understanding of the grounding of social interaction is likely to uncover new ways of facilitating social coordination across different social spheres, including interpersonal relations, organizations, and society at large. For instance, once the neurobiology of social interaction is sufficiently understood, it may be

possible to develop or refine medical treatments for social interaction problems such as autism or violent conflicts. Likewise, understanding the grounding of social interaction may permit the design of socially skilled robots or digital immersive environments that allow people to practice social interaction skills.

The planned meeting will bring together leading scientists from different fields to present their own pertinent research and to discuss avenues to an integrated perspective on the grounding of social interaction. The four applicants will constitute the core group with a number of invited speakers to the workshop (6 to 8), which will take place over a period of 4 days. The main outcome of the planned meeting is a full research proposal, ready for submission.

Location for Symposium: The meeting will take place at the Vrije Universiteit Amsterdam from 6th May (evening arrival) to 9th May (departure after lunch). Vrije Universiteit Amsterdam (Details will be available upon arrival)

Hotel:

Accommodation is reserved at the City Garden Hotel (<http://www.hotelcitygarden.nl/>). Travel costs will be refunded according to NWO guidelines.

Program

Speakers:

Peter Beek (p.beek@fbw.vu.nl)
Stephen Butterfill (s.butterfill@warwick.ac.uk)
Beatrice de Gelder (degelder@uvt.nl)
Ludwig Huber (ludwig.huber@univie.ac.at)
Gyorgy Gergely (gergelyg@mtapi.hu)
Sotaro Kita (s.kita@bham.ac.uk)
Günther Knoblich (g.knoblich@donders.ru.nl)
Daniel Richardson (dcr@eyethink.org)
Andreas Roepstorff (andreas@cfm.au.dk)
Natalie Sebanz (n.sebanz@donders.ru.nl)
Gün Semin (G.R.Semin@uu.nl)
Frederique de Vignemont (dv208@nyu.edu)

PROGRAM

Wednesday, May 6th 2009

Arrival

7pm Welcome Dinner

Thursday, May 7th 2009

9.30-10.15	TALK 1: Gün Semin
10.15-10.45	DISCUSSION
10.45 – 11.00	<i>Coffee Break</i>
11.00 – 11.45	TALK 2: Peter Beek
11.45 – 12.15	DISCUSSION
12.15-13.30	<i>Lunch</i>
13.30 – 14.15	TALK 3: Daniel Richardson
14.15 – 14.45	DISCUSSION
14.45 – 15.00	<i>Coffee break</i>
15.00 – 15.45	TALK 4: Sotaro Kita
15.45 – 16.15	DISCUSSION
16.15 – 17.00	TALK 5: Andreas Roepstorff
17.00 – 17.30	DISCUSSION

Friday, May 8th 2009

9.30-10.15	TALK 1: Beatrice de Gelder
10.15-10.45	DISCUSSION
10.45 – 11.00	<i>Coffee Break</i>
11.00 – 11.45	TALK 2: Frederique de Vignemont
11.45 – 12.15	DISCUSSION
12.15-13.30	<i>Lunch</i>
13.30 – 14.15	TALK 3: Ludwig Huber
14.15 – 14.45	DISCUSSION
14.45 – 15.00	<i>Coffee break</i>
15.00 – 15.45	TALK 4: Stephen Butterfill
15.45 – 16.15	DISCUSSION
16.15 – 17.00	TALK 5: Natalie Sebanz
17.00 – 17.30	DISCUSSION
17.30 – 18.15	TALK 6 Gyorgy Gergeli
18.15 – 18.45	DISCUSSION

Saturday May 9th 2009

9.30-11.30	General Discussion
Discussant:	Günther Knoblich

