

ESF Exploratory Workshop on
**Thinking, Speaking and Gesturing in
two Languages**

Reading (UK), 12-15 September 2012

Convened by:
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SCIENTIFIC REPORT

1. Executive summary

Practical organisation

The workshop was held at the University of Reading over three days from Thursday 13th September 2012 (arrival) until Saturday 15th September 2012. Participants arrived on Wednesday 12th September during the day, which made an early start on the 13th September possible. Participation numbered 18 people from 9 European countries and the US. Professor Hanne Ruus from the University of Copenhagen (Denmark) took part as the rapporteur for ESF.

All participants (except two Reading-based researchers) stayed on campus in newly built ensuite student accommodation, with wireless access to the internet. The presence of all participants on site made it possible to continue discussions when the official programme was over, for example during meals or breaks on site or during the conference dinner, which was held off-site. The workshop took place during the student vacation, so that the campus was quiet and there was no disruption to the work of the group.

The surroundings of the Whiteknight campus, with lots of green spaces, helped to create a friendly and supportive atmosphere and this, in turn, made it possible to have frank discussions about a wide range of issues, which helped move the agenda forwards.

Scientific objectives

The workshop aimed to bring together a multidisciplinary team of researchers interested in exploring how language affects cognition both in terms of structuring information for the purpose of communication (« thinking-for-speaking »), and in terms of non-linguistic categorisation and perception of reality and the world (« linguistic relativity »). It is now established that one's native language affects cognition both when thinking for speaking and when perceiving and classifying entities such as objects, colours, and dynamic motion events, but research to date has concentrated mainly on monolinguals. The meeting aimed therefore at studying in depth what the specific implications of studies of bilinguals are for our current understanding of the ways in which language affects cognition. In addition, more general implications of new research into these issues for our understanding of the organisation of the lexicon and language processing would be discussed. Finally, the meeting aimed at reviewing and analysing which methods allow us to uncover how the language affects cognition outside explicitly linguistic contexts.

The programme and the participants

The programme was organised to allow for extensive discussion of topics raised by the presenters: there were two one-hour discussion sessions on each day where innovative findings, methodological issues and ways forward were discussed. The participants in the meeting constituted an interdisciplinary group of experts from Psychology, Linguistics, Biological Sciences and Education, all of whom specialise in the study of Bilingualism and Second Language Acquisition. The researchers approached the topic of Thinking, Speaking and Gesturing from different angles and used a variety of methods (laboratory experiments, corpus analysis, structured elicitations, etc.).

Agenda

The first day focused on colour perception (how bilinguals and L2 learners differ from monolinguals in the ways in which they see colours) and object categorisation (how bilinguals and L2 learners classify objects (e.g. a variety of containers, such as cups, glasses and mugs) and on general theoretical developments in the field of linguistic relativity. On the second day, we looked at event conceptualisation (how bilinguals and L2 learners talk about motion through space and about static spatial relations). The focus here was on typological

differences between languages and on how factors such as language proficiency in both languages influence the ways in which language affects event conceptualisation. On the last day, the focus was on how gestures can be linked to the way speakers grammatically and habitually encode event components. It was demonstrated that gestures are clearly language-specific, and that L2 learners need to learn new ways of gesturing when they acquire a second language.

2. Scientific content of the event

Thursday 13th September

Colour perception

Uusküla focused on comparing colour-naming and categorisation phenomena in two genetically distant language families, the Indo-European and Finno-Ugric. Results showed a broad variety of inter- and intra-linguistic similarities, indicating that basic colour terms form only a small part of the colour lexicon.

Athanasopoulos asked whether learning and using a second language with different colour categories from the first changes colour perception in Greek-English and Japanese-English bilinguals. Data from semantic mapping, similarity judgements, and an electrophysiological correlate of pre-attentive colour perception showed that bilinguals distinguish less between their native colour categories under the influence of the second language.

Pavlenko examined the performance of Russian-English bilinguals and Ukrainian/Russian-English trilinguals on tasks that examine their categorization of colors, objects, and motion. The findings show that in the context of crosslinguistic differences between English, Russian, and Ukrainian only obligatory lexical and grammatical categories lead to performance differences.

The **discussion** focused on the need to carefully consider bilingualism as a variable that modulates colour perception, as ignoring participants' bilingualism or L2 knowledge may lead to erroneous assumptions of universality, and may obscure interesting variability in indigenously bilingual communities. There was consensus for a need to complement semantic tasks that promote use of linguistic categories with non-verbal cognitive/perceptual tasks and measures of elicitation. The use of electrophysiological techniques was highlighted as one method that can yield highly reliable data of very early pre-linguistic stages of processing. Consideration was also given to the nature of the observed effects, as these may vary depending on the type of linguistic domain studied (lexical vs. grammatical, optional vs. obligatory) as well as the perceptual characteristics of the specific ontological domain (colour vs. objects vs. motion).

Object categorisation

Ameel and **Storms** investigated object naming convergence in French-Dutch bilingual children between 8 and 14 years old. Naming patterns of bilingual and monolingual children were compared. Results show that at each age bilingual children agree better upon naming than monolingual children. Over age, the convergence in the bilingual naming data gradually increases.

Thierry presented neurophysiological evidence from French-English bilinguals, demonstrating spontaneous access to grammatical gender during a semantic decision task on visually presented objects. He also showed that Spanish-English bilinguals fail to show early discrimination between a cup and a mug image, probably because the two objects are described using the same word 'taza' in Spanish. Together these results illustrate that the languages of bilinguals can creep into early perception outside of conscious awareness.

Lucy explored some of the conceptual issues regarding the relationship between linguistic relativity and bi/multilingualism. Considering developmental data from middle childhood, he noted increasing difficulties in some aspects of second language acquisition, setting up the question of whether the difficulties in acquiring second language might have some principled relationship to relativity effects.

The **discussion** revisited fundamental concepts in the domain of bilingualism, such as the need to consider bilinguals as individual speakers/hearers/thinkers, and not as two monolinguals in the same body/mind. This is borne out both by the fact that bilinguals develop naming patterns unlike those of their monolingual peers of either language, but also because both languages are constantly activated and accessed during object perception. In this context, bilingualism was highlighted as an ideal empirical domain to draw evidence that illustrates that our perception and conception of the world surrounding us is shaped by lexical and grammatical properties of the languages we speak, thus providing support for a strong version of the linguistic relativity theory. Deeper philosophical questions were also considered, such as what it means to have a language, how it is that a language could shape nonlinguistic cognition, and what distinct sorts of influences there might be between languages.

Friday 14th September 2012

Event conceptualisation

Hickmann and **Hendriks** focused on the conceptualisation of motion in first and second language acquisition, and showed how typological factors constrain both types of acquisition. The authors illustrated their findings with an overview of a wide range of projects, involving experiments and elicitation tasks, they had carried out in this field.

Treffers-Daller and **Calude** studied the effect of a range of background factors in the production of motion verbs in L2 French, and showed how learners of different levels struggle with the target-like expression of motion event construal in narrative tasks. The results reveal that the differences in the use of motion verbs between learners and native speakers are mediated by frequency-of-use of the verbs in corpora of native speech.

Ibarretxe focused on intra-typological differences in the expression of motion in verb-framed languages in narrative tasks, with a specific focus on the Path component. She showed that within the Romance languages French is different from other languages with respect to the expression of path and ground elements in motion events.

Flecken and **von Stutterheim** introduced a variant of Slobin's Thinking for Speaking framework, namely Seeing for Speaking. They reported on studies in which they measure speakers' patterns in gaze movement during language production tasks. They reported on new research in which they investigated the earliest phases of visual processing in language production, using eye-tracking, trying to answer the question whether or not this phase is language-specific.

Bylund reported on experiments involving a triads task, in which participants looked at a target scene that had an intermediate degree of endpoint orientation. After looking at this target task they were asked to say which of two alternates (with low and high degree of endpoint orientation) were most similar to the target scene. Judgements given depended to a large extent on typological differences between languages: speakers of aspect languages are more likely to base their judgements on ongoingness, whilst speakers of non-aspect languages based their judgements on endpoints.

Berthele summarized his work on the convergence in semantic categories in spatial relations. He focused on crosslinguistic variation between and within multilingual speakers of Romansh and (Swiss) German, and showed how speakers cope with different spatial systems by constructing converging representations.

The **discussion** focused on the comparability of results from different studies. It is often difficult to compare the results of studies because different tools are used to study the phenomena or we do not know enough about a range of factors that may have affected performance of informants (e.g. well-known factors, such as the informants' proficiency in each language, but also less well known factors such as informants' mood, which may affect processing too). We also discussed the fact that the effects of language on cognition are not uniform across different domains. Space is a good domain to investigate these effects because spatial relations are both basic and highly variable across languages. It then becomes possible to investigate whether children set out with one (universal) system which is later adapted to the specific system that is in use in the language spoken in the environment. General perceptual and neurocognitive constraints interact with language development and this needs to be taken into account. In children the cognitive and the language systems develop together, whilst in adults who learn an L2 the cognitive system is already in place and perhaps less flexible. The relationship between the domains of space and time are also relevant and the interaction between these two may deserve to be studied in more depth.

Saturday 15th September

Özyürek looked at crosslinguistic and crossmodal differences in gestures and showed how gestures provide a window into language-specific event conceptualizations during speaking but do not provide a direct window into speakers' imagery of events independently of linguistic encoding.

Gullberg focused on what gestures can tell us about restructuring of event conceptualisation in bilinguals. Monolingual adult native speakers of different languages are known to gesture in systematically different ways: they select different kinds of information (path or manner) for their gestures, depending on the language they speak. Investigations of gestures can reveal to what L2 speakers and functional bilinguals restructure underlying representations in the process of learning another language.

The **discussion** focused on the different outcomes of restructuring: under some conditions, bilinguals and L2 learners are able to keep different systems separate, but under other conditions, convergence between systems and transfer in both directions (from L1 to L2 and vice versa) are more likely. An important question is how we can determine which factors need to be controlled for to ensure the outcomes of studies are comparable. Whilst gestures are often seen to be "iconic" they are in fact language-specific and do not provide direct information about non-linguistic cognitive processes.

A considerable amount of the **final discussion** focused on methodological issues. One of these was whether analyses should start with a comparison of grammatical structures in different languages and investigate how these shape non-linguistic cognition in speakers of these languages (as in the work of Lucy 1992), or do we start from a particular cognitive domain (e.g. object categorisation) and investigate how different languages carve up this domain, as in the work of Athanasopoulos, Ameels & Storms and Pavlenko?

The most pressing need was to find new ways to measure the effect of language on non-linguistic cognition. While many experiments (e.g. categorisation experiments) involve tasks in which language is not explicitly involved, verbal encoding processes may still be implicitly activated in carrying out the tasks. For example if a label exists for a particular object in a language, informants may access these labels even if they are not asked to name objects during the experiment. Therefore measurements may not exclusively reflect the effect of

language on non-linguistic cognition. Verbal suppression tasks (e.g. tasks where informants count aloud or need to memorise digits during an experiment) may offer a solution, but these appear to have a negative effect on overall performance on tasks.

The issue of referential indeterminacy was also discussed: what is called “blue” by one speaker is not necessarily the same for other speakers and this may affect measurements in different ways. Finally we discussed the role of age in informants’ ability to restructure cognitive domains. Further research needs to be done to investigate whether there are absolute differences between children and adults in this respect or whether the changes are incremental.

3. Assessment of the results, contribution to the future direction of the field, outcome

The exchange between specialists of a range of fields was felt to be very positive and conducive to finding ways forward in this specific research field. In particular, it was decided to share experimental tools, so that researchers can use the same tools in different settings, which increases the comparability of research results (which currently is an issue, as flagged up under 2). The participants in the workshop have already exchanged such tools during and after the workshop, but they have also expressed a willingness to contribute to repositories for tools such as the Language Archive Domain (<http://www.mpi.nl/research/research-projects/the-language-archive/tools/lat-tools>) or the Instruments for Research in second Language (IRIS; <http://www.york.ac.uk/education/research/cllr/digital-repository/>).

As explained under 2, the need to further develop research methods in this field was seen as a key avenue for further work the group could undertake. Marianne Gullberg (Lund) offered to organise a Methods workshop on this topic at the University of Lund in 2014.

Jeanine Treffers-Daller will look into applications to the COST scheme (Domain: Individuals, Societies, Cultures and Health for further meetings of the group

http://www.cost.eu/domains_actions/isch. The meeting in Lund could potentially be paid through this scheme. Alternatively an

AHRC Research networking scheme would be an option. <http://www.ahrc.ac.uk/Funding-Opportunities/Pages/Research-Networking.aspx>.

Panos Athanasopoulos has already started collecting abstracts for a special issue of Language and Cognitive Processes, which could contain some work from the workshop.

4. Final programme

Wednesday, 12 September 2012

Afternoon	<i>Arrival</i>
19.00	Drinks reception, Whiteknights campus (room tbc)
20.00	Dinner, Whiteknights campus (room tbc)

Thursday, 13 September 2012

09.00-09.20	Welcome by Convenors Panos Athanasopoulos (Newcastle University, Newcastle upon Tyne, UK) Jeanine Treffers-Daller (University of Reading, Reading, UK)
09.20-09.40	Presentation of the European Science Foundation (ESF) Hanne Ruus (Standing Committee for the Humanities (SCH))
09.40-12.30	Morning Session: Colour perception
09.40-10.10	Presentation 1 "Colour naming and categorisation in some Indo-European and Finno-Ugric languages: language-specific or universal?" Mari Uusküla (Institute of the Estonian Language, Tallinn, Estonia)
10.10-10.40	Presentation 2 "Seeing the world through the lens of more than one language: Colour categories in the bilingual mind and brain" Panos Athanasopoulos (Newcastle University, Newcastle upon Tyne, UK)
10.40-11.00	<i>Coffee / Tea Break</i>
11.00-11.30	Presentation 3 "Now you see it, now you don't: Conceptual restructuring in color, object, and motion categories of Russian-English bilinguals" Aneta Pavlenko (Temple University, Philadelphia, USA)
11.30-12.30	Discussion
12.30-14.00	<i>Lunch</i>
14.00-15.30	Afternoon Session: Object categorisation
14.00-14.30	Presentation 4 "Development of cross-language lexical influence" Eef Ameel and Gert Storms (University of Leuven, Leuven, Belgium)
14.30-15.00	Presentation 5 "Bilingualism or bicognition? How knowing two languages affects our conception of objects and their properties" Guillaume Thierry (Bangor University, Bangor, Wales)
15.00-15.30	Presentation 6 "Bilingualism and linguistic relativity (tbc)" John Lucy (University of Chicago, Chicago, USA)
15.30-16.00	<i>Coffee / tea break</i>
16.00-18.30	Discussion
19.00	<i>Dinner</i>

Friday, 14 September 2012

09.00-12.30 **Morning Session: Event conceptualisation I**

09.00-09.30 **Presentation 7 "Typological constraints on the expression and conceptualisation of motion during language acquisition. Part 1: A crosslinguistic study of child language"**

Maya Hickmann (CNRS and University of Paris 8, Paris, France)

09.30-10.00 **Presentation 8 "Typological constraints on the expression and conceptualisation of motion during language acquisition. Part 2: A crosslinguistic study of adult second language learners"**

Henriëtte Hendriks (University of Cambridge, Cambridge, UK)

10.00-10.30 **Presentation 9 "Can L2 learners reconceptualise motion in their second language? Evidence from L2 learners of French and English"**

Jeanine Treffers-Daller and Andreea Calude (University of Reading, Reading, UK)

10.30-11.00 *Coffee / Tea Break*

11.30-12.30 **Discussion**

12.30-14.00 *Lunch*

14.00-15.30 **Afternoon Session: Event conceptualisation II**

14.00-14.30 **Presentation 10 "Why are intratypological differences in motion events important for typology and L2?"**

Iraide Ibarretxe (University of Zaragoza, Zaragoza, Spain)

14.30-15.00 **Presentation 11 "Typological constraints on event conceptualization: implications for L2processing"**

Monique Flecken and Christiane Von Stutterheim (University of Heidelberg, Heidelberg, Germany)

15.00-15.30 *Coffee / tea break*

15.30-16.00 **Presentation 12 "Cognitive restructuring among L2 speakers in the domain of goal-oriented motion events"**

Emmanuel Bylund (Stockholm University, Stockholm, Sweden)

16.00-16.30 **Presentation 13 "Convergence in the domains of static spatial relations and events of putting and taking. Evidence from bilingual speakers of Romansh and German"**

Raphael Berthele (University of Fribourg, Fribourg, Switzerland)

16.30-16.45 *Break*

16.45-18.30 **Discussion**

19.30 *Dinner*

Saturday 15 September 2012

09.30-12.00 **Morning Session: Gestures and conceptualisation**

09.30-10.00 **Presentation 14 "Cross-linguistic cross-modal differences in gestures"**

Asli Özyürek (Radboud University, Nijmegen, The Netherlands)

10.00-10.30 **Presentation 15 "What gestures can tell us about second language acquisition and bilingualism"**

Marianne Gullberg (Lund University, Lund, Sweden)

10.30-11.00 *Coffee / Tea Break*

11.00-12.00	Discussion
12.00-13.30	Lunch
13.30-15.30	discussion on follow-up activities/networking/collaboration
15.30	<i>End of Workshop and departure</i>

5. Final list of participants

Convenors:

1. Jeanine TREFFERS-DALLER (University of Reading)
2. Panos ATHANASOPOULOS (Newcastle University)

ESF representative:

3. Hanne RUUS (University of Copenhagen)

Participants:

4. Eef AMEEL (University of Leuven)
5. Raphael BERTHELE (University of Fribourg/Freiburg)
6. Emanuel BYLUND (Stockholm University)
7. Andreea CALUDE (University of Reading)
8. Monique FLECKEN (University of Heidelberg)
9. Marianne GULLBERG (University of Lund)
10. Henriette HENDRIKS (University of Cambridge)
11. Maya HICKMANN (CNRS & Université Paris 8)
12. Iraide IBARRETXE-ANTUÑANO (University of Zaragoza)
13. John LUCY (University of Chicago)
14. Asli ÖZYÜREK (University of Nijmegen)
15. Aneta PAVLENKO (Temple University)
16. Gert STORMS (University of Leuven)
17. Guillaume THIERRY (Bangor University)
18. Mari UUSKÜLA (Institute of the Estonian Language)

6. Statistical information on participants

Participants:

Age brackets	n
30-40	6
41-50	5
51-60	4
61-70	2

Eleven females and five males participated in the workshop.

The participants came from the following countries: Belgium, Denmark, Estonia, France, Germany, the Netherlands, Spain, Sweden, the UK and the US.