EUROPEAN SCIENCE FOUNDATION
SETTING SCIENCE AGENDAS FOR EUROPE

Exploratory Workshops Scheme

Standing Committee for the Humanities (SCH)

ESF Exploratory Workshop on

Sign Language versus Gesture:

Where is the boundary, and how can we know more?

Rome, Italy, 5 - 7 December 2007

Convened by:

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Scientific Report:

1. Executive summary

The workshop was held at the Institute of Cognitive Sciences and Technologies, State Institute of the Deaf, Rome during 5-7th December 2007. The participants numbered 26 people from 12 countries. This workshop brought together sign language researchers and gesture researchers in a way that has not been done to our knowledge before. There have been workshops and conferences where sign language researchers and gesture researchers are in attendance and both give presentations but the interaction between the two camps is often limited. At this ESF workshop, we had half of the presentations given by sign language researchers and half were by gesture researchers. After each sign language presentation, a discussion session about that paper was prepared and led by a gesture researcher, and vice versa. This pushed the different camps to really engage with each other. This engagement was evident throughout the workshop, where during breaks and meals groups (at times, fairly large groups) of different researchers were convening informally to further discuss the issues in a way that we have never seen before.

Scientific background

Attitudes about the relationship between sign language and gesture have changed dramatically over the last 60 years. Historically sign languages were seen as nothing more than rudimentary gestures, similar in form and function to pantomime. In the 1960s, the work of the American scholar William Stokoe showed that American Sign Language has linguistic structure at the level of phonology, morphology and syntax. Work on other sign languages around the world quickly followed suit. Throughout the 1970s and 80s, sign language researchers worked very hard to validate linguistic research on sign languages. In order to do this, there was a constant need to show that sign languages are not "just gesture" but that they are indeed true languages with the same status as spoken languages.

During a similar time period, research on gesture used by hearing populations was growing as well (e.g. Adam Kendon and David McNeill). While it was (and still is) clear that gesture used by non-signers is not linguistic in the same way that speech is, this growing body of research was showing that gesture is an integral part of human communication systems.

There has been more and more acceptance by mainstream researchers (e.g. linguists, psychologists, etc) that sign languages are indeed true languages. More recently there has been a shift to looking at not just the way that sign languages are the same as spoken languages, but also

the ways in which they differ (Meier, Cormier and Quinto-Pozos, 2002). One clear difference is the modality in which the two different types of languages are produced/perceived - visual/corporal vs auditory/oral. Modality differences lead to all kinds of differences between sign and speech - and, as more and more researchers are recently starting to notice, similarities between sign language and gesture. In a way, we have come full circle in terms of perceptions of how sign language and gesture are related. This concept of a 'circle' was raised quite a few times by various researchers during the workshop.

General conclusions

Gesture is an integral part of human communication and is in fact also integrated into deaf people's sign language. Sign languages are fully complex human languages, but produced in a visual modality that may exploit iconicity in some ways which are not possible in speech. Sign languages have gestural origins but over time this has been gradually eroded towards more abstract and efficient means of expressing ideas. Sign language researchers will need to arrive at a consensus as to how much gesture still exists in the languages they study, come up with a theoretical account of how gesture and sign can be integrated, as well as decide what kind of definition of gesture they are working with. How does gesture become 'linguisticised' was a major question of this workshop.

Gesture researchers currently are enjoying a period of intense growth of interest in their subject, akin to what happened in the 1990s for sign language research. The primary question for gesture researchers is how does gesture and speech work together in communication? What came out of this workshop was hopefully some collaborative effort with sign language researchers on the question of the theme of this workshop - Sign Language versus Gesture: Where is the boundary, and how can we know more?

2. Scientific content of the event

We know now that signed languages are true languages in their own right and are not just gesture as used by non-signers. However, recent research is showing a stronger role of gestural elements within sign language than may have been previously thought. Some of this research is more theoretically rather than empirically driven. In this workshop we addressed this exact question: What empirical evidence can we find to shed light on the role of gesture in sign language?

We set our presenters a list of questions to orientate their presentations at the workshop:

- How are gesture and sign language different and the same?
- What are the constraints on how hearing people use gesture?
- What are these constraints on how deaf people use gesture and sign together?
- How does gesture become more sign-like?
- Where is the line between sign and gesture – is it an important question?
- What ways of thinking about Gesture are modality free versus modality specific?
- Is there an all encompassing theory of communication which can reveal constraints on gesture, sign and speech (vocal gestures)?
- What aspects of spoken language can be considered 'vocal gestures' and how can these help illuminate the relationship between language and gesture?
- What empirical evidence can we find to shed light on the role of gesture in sign language?

The first presenter was David McNeill (University of Chicago). McNeill described what he has termed the 'growth point' and how gesture allows a concept to be expanded on compared with that message in speech alone. McNeil looked at gesture productions in people's recounting of Sylvester and Tweety Pie cartoons. He included some analysis of a sign language narrative where he attempted to describe the signer's use of gesture within the narrative. Bencie Woll (UCL) discussed McNeill's paper by highlighting the multimodal nature of human communication. She also raised the issue of gesture becoming more linguistic over time. The discussion in this session focused on how the two modalities (speech and gesture) combined to map out information about motion and location.

The second presenter was Richard Meier (University of Texas). Meier compared pointing between sign languages and co-speech gesture and convincingly showed that the use of pointing in sign languages with pronouns has many properties (e.g. conventionality and compositionality) associated with language, as well as other evidence e.g. historical and from language acquisition

suggesting that pointing in sign languages has the same constraints as language. The areas covered by Meier were discussed in more depth by Miriam Vermeerbergen (Belgium), who stepped in as discussant to replace Adam Kendon (Naples, Italy), who was not able to attend. The main points of her discussion were based on notes provided by Kendon beforehand, which focused more on pointing used in co-speech gesture, and argued that pointing gestures also have properties such as conventionality, and that iconic/indexic gestures such as points should not necessarily be considered to be easy or primitive.

The afternoon session involved a presentation on the gesture and sign language interface by Asli Ozyurek and Pamela Perniss (MPI, Netherlands). Ozyurek has carried out seminal work into the role of co-speech gesture in hearing speakers using narrative vignettes. Ozyurek & Perniss's main points were that co-speech gesture and sign languages differed in how they encoded motion and location predicates and further different sign languages (in this case German and Turkish) offered different options for how motion and location predicates were encoded. There was some lengthy discussion of this paper by Elena Pizzuto (Italy), which was carried on in the discussion period by the whole group. A salient point raised by some of the sign language researchers concerned the methodology used in comparing sign languages and gesture.

The final presentation of the workshop was given by Elisabeth Engberg Pedersen (Denmark). Pedersen's main point concerned foregrounded and backgrounded information in sign language as linguistically constrained. The discussion for this paper was led by Sotaro Kita (Birmingham). The main points of the discussion were about the extent to which many of the foregrounding/backgrounding constructions that Engberg-Pedersen described within sign languages also occur within co-speech gesture.

The conclusions from the workshop focusing on the questions raised in the outline were the following:

1. Gesture and sign language both use the manual articulators in coordination with prosodic information carried on the rest of the body. Gesture is subservient to speech while sign is autonomous of gesture. Signs are rule governed by a grammar while gesture is more fluid and part of a general cognitive system aimed at communication.
2. Gesture appears to influence speech and hearing people, when they gesture, sometimes use more or less gestural elements. Mime and co-speech gesture are very different.
3. Sign languages may have slots in their discourse structure where deaf people can exploit gesture e.g. role shift. It is still not resolved how sign language grammars use/integrate gestural elements e.g. in classifier predicates.
4. Through time and the child's analytical stance during sign language development, gesture can become "linguisticised".
5. The division between sign and gesture is one of theoretical importance for the debate about modularity and the architecture of cognition. However the divide is also one made based on theoretical viewpoint. More empirical evidence is needed. If one considers communication to include gestural elements, then there can be a blend of gradient and categorical elements in sign language.
6. Possibly only psycholinguistic and neurological data can address the question of how sign language and gesture are integrated. Linguistics is still theory biased to view gesture and sign language as part of one system or separate systems. Linguists of one or the other persuasion can view the same data in different ways.

However it is apparent that each group (sign and gesture researchers) needs to understand more about what the other does, and especially how research data is collected. There are very few researchers who do leading research in both gesture and sign language or understand the techniques, theory and participants in both areas of research. It is problematic for gesture researchers to underestimate the complexity of sign language and for sign language researchers to downplay the importance of gesture for human communication.

3. Assessment of the results and contribution to the future direction of the field.

This workshop, as the first of its kind, will have established the framework for future attempts to do gesture and sign language comparison work. There was some discussion at the end of the workshop about some of the participants applying for further funding (perhaps from the ESF to do more work) in this area. This topic of this workshop (the relationship between sign language and gesture) is very timely which is evident from other conferences/workshops that are being held on the same topic in other locations - for instance there will be a workshop on a similar topic as part of German Linguistics Society annual meeting, 27-29 February in Bamberg, Germany.

A research objective to come out of the workshop is to publish the proceedings as a special issue of a mainstream Psycholinguistics journal. Arrangements for this special issue are now underway. Morgan is also planning a follow-up ESRC workshop on methodologies by sign language and gesture researchers to take place in may 2008 in London.

4. Final programme

Wednesday 5 December 2007

Evening Arrival

Thursday 6 December 2007

09:30-09.45 *Tea & coffee*

09.45-10.30 **Welcome and Opening remarks**
Presentation of the European Science Foundation (ESF)
K Cormier, G Morgan

Session 1

10:30-11:15 Closing the circle
D McNeill (U Chicago)

11:15-11:45 Discussion
led by B Woll (DCAL, UCL, UK)

11:45-12:15 Coffee break

Session 2

12:15-13:00 Linguistic status of sign language pronouns
R Meier (U Texas)

13:00-13:30 Discussion
led by M Vermeerbergen (replacement for Adam Kendon)

13:30-14:30 *Lunch*

Session 3

14:30-15:15 Boundaries between signs and gestures: Insights from cross-linguistic comparisons
A Ozyurek & Pamela Perniss (MPI, Netherlands)

15:15-15:45 Discussion
led by E Pizzuto (CNR, Rome)

15:45-16:15 *Coffee break*

Session 4

16:15-17:00 Internal structure: Backgrounding in classifier constructions
E Engberg-Pedersen (U Copenhagen, Denmark)

17:00-17:30 Discussion
led by S Kita (U Birmingham, UK)

17:30-19:00 **Closing remarks and discussion of follow up activities**
led by K Cormier, G Morgan

Workshop Dinner

Friday 7 December 2007

Morning Departure

5. Final list of participants

(deaf participants are bolded)

Name	*Discipline*	*Institution*
Sotaro Kita	Gesture	University of Birmingham
Christian Rathmann	Sign	University of Bristol
Myriam Vermeerbergen	Sign	Free University Brussels
Pamela Perniss	Gesture/sign	Max Planck Institute
Joni Oyserman	Sign	University of Amsterdam
Johanna Mesch	Sign	University of Stockholm
Rachel Rosenstock	Sign	Westsaechsische Hochschule Zwickau
Marion Blondel	Sign	University of Rouen
Kearsy Cormier	Gesture/sign	University College London
Gary Morgan	Gesture/Sign	City University
Onno Crasborn	Sign	Radboud University, Nijmegen
David McNeill	Gesture	University of Chicago
Elisabeth Engberg-Pedersen	Gesture/sign	University of Copenhagen
Richard Meier	Gesture/Sign	University of Texas at Austin
Asli Ozyurek	Gesture/Sign	Max Planck Institute
Virginia Volterra	Gesture/Sign	Institute of Cognitive Sciences and Technologies, Italian National Research Council (CNR), Rome
Elena Pizzuto	Gesture/sign	Institute of Cognitive Sciences and Technologies, Italian National Research Council (CNR), Rome
Olga Capirci	Gesture	Institute of Cognitive Sciences and Technologies, Italian National Research Council (CNR), Rome
Maria Caselli	Gesture	Institute of Cognitive Sciences and Technologies, Italian National Research Council (CNR), Rome
Bencie Woll	Sign	University College London
David House	Gesture	KTH
Silvia Sottofattori	Gesture	University of Naples
Inge Zwitserlood	Sign	Radboud University, Nijmegen
Ivani Fuselier	Sign/Gesture	Unviersity of Paris
Lorraine Leeson	Sign	University of Dublin
Penny Boyes Braem	Sign/Gesture	Centre for Sign Language Research, Basel

6. Statistical information on participants

Age: 50-60 – 6

40-50 – 12

20-40 – 8

Gender: Female: 19 Male: 7

Countries of origin (work):

British	5
Danish	1
Dutch	5
Belgian	*1*
French	*2*
German	*1*
Swedish	*2*
Swiss	*1*
Irish	*1*
Italian	*5*
USA	2