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Interacting Bodies
Corps en Interaction



Colloque organisé par le laboratoire ICAR
à l'Ecole normale supérieure Lettres et Sciences humaines

Résumés
Abstracts

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PRESENTATION DU CONGRES / CONFERENCE PRESENTATION

Organisé par le Laboratoire ICAR (CNRS, Univ. Lyon 2, ENS LSH), *Interacting Bodies / Corps en Interaction* est le deuxième congrès de l'*International Society for Gesture Studies (ISGS)* dont la première édition se tint à Austin en juin 2002.

Son premier objectif est d'accroître et de renforcer le réseau international des scientifiques qui mènent des travaux en lien avec l'étude des gestes, la recherche sur la multimodalité dans les interactions sociales et l'analyse de données vidéo.

Il réunit des chercheurs issus de différents horizons disciplinaires et culturels et constitue un forum international dédié à l'ensemble des thèmes se rapportant à la gestualité et à ses effets structurants sur le langage, la cognition et l'interaction humaine.

Plus précisément, la thématique *Corps en interaction* souligne l'importance d'étudier les multiples façons dont les gestes et les diverses formes de comportements corporels signifiants sont coordonnés par les participants à l'interaction : comment se synchronisent-ils avec les autres dimensions du comportement humain, telle la structure linguistique des énoncés, et comment s'articulent-ils avec les traits spécifiques du contexte situationnel, et en particulier spatial, des interactions humaines.

Le congrès porte également une attention particulière sur les questions méthodologiques relatives aux différentes approches théoriques et disciplinaires de la gestualité, ainsi qu'aux diverses pratiques d'analyse de la vidéo, ou aux aspects techniques du traitement des images et de l'annotation des mouvements corporels.

Organized by the ICAR Lab (CNRS, Univ. of Lyon2, ENS LSH), *Interacting Bodies / Corps en Interaction* is the second conference of the *International Society for Gesture Studies (ISGS)*. The first edition was held in Austin in 2002.

The primary aim of this conference is to enlarge and to strengthen the international network of scholars working in fields related to gesture studies, research on multimodality in social interaction and video analysis. Moreover, it aims at bringing together researchers from various disciplinary and cultural backgrounds and offer an international forum on topics broadly covering the different aspects of gestures and their structuring effects on language, cognition, and human interaction.

More specifically, the main focus of *Interacting Bodies* is to examine the different ways in which gestures and the various forms of signifying bodily conduct are coordinated by interaction participants, how they are synchronized with other dimensions of human conduct, such as the linguistic structure of utterances, and how they are organized with regard to the specific features of the situational and, in particular, the spatial context of human interactions. The conference will also put a special emphasis on methodological questions focussing on the different theoretical and disciplinary approaches to gesture, as well as on the various ways of doing video analysis or the technical aspects of image processing and the documentation of body movement.

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KEYNOTE LECTURES /



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Shape-shifting: The Effects of Social Context on Qualitative Features of Gestures

Although experimental studies typically focus on the quantitative rates of gestures, their qualitative aspects may be more sensitive to the social nature of conversations. There is growing evidence that varying some aspect of social context changes the form of participants' gestures: (a) When actively collaborating (rather than merely listening to each other), interlocutors insert more gestures oriented directly to the addressee. (b) When the speaker is describing something that is highly visual to a co-present addressee (rather than on the phone or to a tape recorder), the speaker's gestures are larger, more oriented to the addressee, depict information that is not put in words, and often marked by deictic expressions. (c) When the speaker and addressee are sitting at a distance from each other, they reach out to make their gestures closer to each other. (d) When they do not share common ground about an object, the speaker's gestures are judged more informative or complex than when they know they share common ground. (b) Speakers' gestures for information that has become "given" in the conversation are briefer and qualitatively sketchier than when the same information was new.

Aunque los estudios experimentales sobre gestos en general se interesan por medidas cuantitativas tales como la proporción de gestos, sus aspectos cualitativos pueden ser más sensibles a la naturaleza social de la conversación. Existe evidencia creciente que indica que variando algún aspecto del contexto social, la forma de los gestos que los participantes producen se modifica: (a) Cuando los participantes colaboran activamente (en lugar de solo permanecer escuchándose mutuamente), los interlocutores insertan mas gestos orientados directamente al destinatario. (b) Cuando el hablante esta describiendo algo que es predominantemente visual a un destinatario co-presente (en lugar de hacer su descripción a través del teléfono o en una grabadora), los gestos del hablante son mas amplios, mas orientados al destinatario, representan información que no es puesta en palabras, y esta información es frecuentemente marcada

con expresiones deícticas. (c) Cuando el hablante y el destinatario están sentados a distancia, cada cual extiende sus brazos para hacer sus gestos visibles entre sí. (d) Cuando los participantes no poseen conocimiento compartido acerca de un objeto, los gestos del hablante para describir este objeto son juzgados más informativos o complejos en comparación a los gestos que los participantes producen cuando ambos comparten el conocimiento acerca del objeto. (b) Los gestos producidos por los hablantes cuando proveen información que se ha vuelto dada en la conversación son más cortos y cualitativamente menos detallados, en comparación con los gestos producidos por los participantes cuando la misma información es reciente.

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Interlocutors do get the message: how imagistic gestures add crucial meaning in narrative

This talk will review research at Manchester, which has repeatedly demonstrated that participants who hear samples of speech and see the accompanying imagistic gestures do obtain significant amounts of semantic information, particularly about the semantic features 'size' and 'relative position', compared to those who just hear the speech. But this research has been characterized by an emphasis on carefully controlled stimuli, restricted samples of speech and imagistic gesture and explicit experimental procedures. It left many questions unanswered. For example, it did not attempt to analyze the significance of the additional information received from the gesture for the narrative as a whole. Our new research addresses this and other questions. Focusing on the semantic feature 'size' we isolated every single instance of size information in our corpus and identified whether this size information was encoded in speech, in gesture, or in speech *and* gesture. Crucially, it considered the judged relative importance of each instance of size information. It found that high importance size information was significantly more likely to be encoded in gesture rather than in speech, and suggests that speakers may vary what information is encoded gesturally, according to its salience for the overall meaning to be conveyed. In a second study we investigated whether the information in the imagistic gestures was represented linguistically elsewhere in the narrative. It found that two thirds of the semantic information, previously thought to be carried by gesture, was, in fact, represented either implicitly or explicitly elsewhere in the linguistic discourse. However, one third of the additional semantic information contained in the gestures was not represented linguistically, even when the whole narrative was considered. These new results, going beyond the original experimental paradigm, do demonstrate conclusively the communicative power of those imagistic gestures that accompany talk.

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Trading spaces: Gesture Morphology and Semantics in Humans and Virtual Humans

It is a commonly held belief in the gesture research community that gestures differ from language in that they have no syntax (meaning structure over the individual gesture) nor morphology (meaning structure within the individual gesture). In this talk I challenge that belief with data from a study on the sub-parts of gesture, and multi-part gestures, during direction-giving. On the basis of these data, I propose a framework to analyze gestural images into semantic units (*image description features*), and to link these units to morphological features (hand shape, trajectory, etc.).

Such a feature-based framework has an additional benefit, which is to allow one to *generate gestures and language together* in a virtual human. I will describe work on an integrated computational micro-planner for multimodal descriptions that derives the form of both natural language and gesture directly from communicative goals.

The outcome of the empirical work and the computational modeling is a direction-giving virtual human - an embodied conversational agent that can perform appropriate speech and novel gestures in direction-giving conversation with real humans.

Une opinion répandue veut que les gestes soient différents du langage verbal, n'ayant ni syntaxe (structure de signification rassemblant les gestes individuels), ni sémantique (structure de signification où chaque forme est liée à une signification fixe), ni morphologie (structure de signification subdivisant les gestes individuels). Dans cette conférence, je remets en question cette idée. Je présente les résultats d'une étude des composantes de gestes et des gestes composés de multiples parties observés dans des dialogues d'indication d'itinéraire. Me basant sur ces résultats, je propose d'analyser les images tracées par les gestes en termes d'unités sémantiques (*image description features*, attributs de description d'images) et de lier ces unités sémantiques aux attributs morphologiques des gestes (la forme de la main, la trajectoire, etc.)

Une telle approche basée sur attributs a aussi l'avantage que, dans

l'implémentation d'un humain virtuel autonome, on peut générer, en même temps et de façon intégrée, les gestes et le langage. Je vais décrire un micro-planificateur intégré générant des descriptions multi-modales qui déduit la forme du langage ainsi que la forme des gestes directement des objectifs communicatifs.

Le résultat du travail empirique et de la modélisation computationnelle est un humain virtuel qui peut indiquer le chemin --- un agent conversationnel autonome qui peut mener des interactions où des indications d'itinéraire sont produites pour des interlocuteurs humains, en utilisant un mélange approprié de langage et de gestes nouveaux.

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Orchestrating competition: gestured interaction in auctions of fine art and antiques

Despite the burgeoning body of research concerned with interaction in institutional settings, the ways in which complex forms of organisational activity are accomplished in and through gesture and others forms of bodily conduct remain relatively neglected. In this paper, we consider auctions of fine art and antiques and examine the ways in which auctioneers deploy an organisation that creates competition and enables the price of goods to be rapidly escalated in a systematic and transparent manner. We explore the ways in which gesture and other forms of bodily conduct are used, with and within talk, to elicit, juxtapose and publicly reveal the actions of potential buyers and enable participants to have a sense of the source and integrity of the various contributions. We consider how the gesturing hands, and the artefacts they point to or clutch, serve to simultaneously accomplish different actions and engender distinct forms of participation from those within the sale-room. In various ways therefore, the paper is concerned with addressing how gesture and other form of bodily conduct are interactionally articulated so as to accomplish a highly specialised and contingent form of organisational activity; an activity that enables the price of goods to be rapidly escalated and then sold on the fall of a hammer.

Malgré le bourgeonnement des recherches portant sur l'interaction dans les contextes institutionnels, la manière dont des formes complexes d'organisation de l'activité sont accomplies grâce aux gestes et à d'autres conduites corporelles reste relativement peu étudiée.

Dans cette conférence, nous allons nous pencher sur des mises aux enchères d'objets d'arts et d'antiquités: nous allons examiner la façon dont les commissaires-priseurs déploient une organisation de l'interaction qui crée de la compétition et qui permet aux prix des objets de grimper d'une manière systématique et transparente. En particulier, nous montrerons comment les gestes et autres formes de conduite corporelle sont utilisés avec la parole pour provoquer, juxtaposer et révéler publiquement les actions d'acheteurs potentiels,

de sorte à permettre à tous les participants d'avoir une idée de la source et de la qualité des différentes contributions. Nous observerons comment la gesticulation des mains et les artefacts qu'elles pointent ou qu'elles serrent servent à accomplir simultanément plusieurs actions et à engendrer différentes formes de participation de la part des présents dans la salle.

La conférence traite donc de différentes façons dont les gestes et autres formes de conduite corporelle sont articulées interactionnellement de manière à accomplir une forme d'organisation de l'activité hautement spécifique et contingente - une activité qui permet aux biens de voir leur prix augmenter vertigineusement pour être ensuite vendus à la tombée du marteau.

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Body and action cues both contribute to the self/other distinction

How do we recognize ourselves as an agent and how do we distinguish ourselves from other agents? In this lecture, we examine theoretical and experimental evidence for a set of mechanisms by which we attribute our own body and our own actions to ourselves. These mechanisms are interesting to consider, for the reason that the ability to recognize oneself as the owner of a body –the sense of ownership- and the agent of a behavior –the sense of agency- is the way by which the self builds up as an entity independent from the external world and from other selves. One of the main outcomes of this chapter will be that our body is a behaving body, and that self-identification and the self/other distinction is largely dependent on the recognition of one's own actions. Thus, the distinction between self generated actions and actions produced by other agents, and the corresponding ability to attribute an action to its proper agent will appear to be key functions for self-identification.

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Gesture and the acquisition of language in children with typical and atypical development

In the present talk I explore the role of gesture in the early stages of language acquisition and development: First, I will briefly summarize previous research conducted by our group. These studies have highlighted interesting parallels between symbolic play and first words, relevant similarities between representational gestures and representational words and the function of gesture in the transition from the one-word to the two-word stage. These findings, which illustrate the tight relationship between language and gesture, are compatible with recent work carried out in the study of adult language, as well as with recent neurophysiological discoveries regarding the “mirror neuron system”. In light of this new perspective, I will review a set of more recent studies conducted by our laboratory exploring the links between action, gesture and word in early infancy. Finally, recent data on the relationship between spoken and gestural modalities in children with atypical development (Down and Williams syndrome) will be reported and discussed. All of these studies provide evidence on the continuity between prelinguistic and linguistic development and on the interplay between gestural and vocal modalities, both in children with typical development as well as in children whose development proceeds in an atypical fashion.

Nella presentazione verrà esaminato il ruolo del gesto nelle prime fasi di acquisizione e di sviluppo del linguaggio. Verranno brevemente riassunti precedenti lavori condotti dal nostro gruppo che evidenziano interessanti parallelismi tra gioco simbolico e prime parole, importanti somiglianze tra primi gesti e prime parole rappresentative e la funzione del gesto nella transizione dallo stadio di una parola allo stadio della combinazione di due parole.. Questi risultati relativi ad uno stretto collegamento tra linguaggio e gesto sono compatibili sia con recenti studi condotti in ambito linguistico sugli adulti (Mc Neill, 2000) che con recenti scoperte neurofisiologiche

relative al “sistema dei neuroni specchio” (Rizzolatti e Arbib, 1998).
Descriverò alcuni studi attualmente condotti dal nostro laboratorio
nell’ambito di questa nuova prospettiva teorica e volti ad esaminare
come si crea nella prima infanzia il legame tra azione, gesto e
parola. Infine verranno riferiti alcuni dati sulla relazione tra modalità
gestuale e vocale in bambini con sviluppo atipico (Down and Wil-
liams syndrome). I risultati di tutte queste ricerche evidenziano una
importante continuità tra comunicazione gestuale e vocale e una
stretta interrelazione tra le due modalità in bambini con sviluppo
tipico e atipico.

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Seeing scientific representations through body engagement

To study multimodal interaction I observe, videotape, and analyze work of two groups of cognitive scientists. The first group uses functional magnetic imaging technology (fMRI) to produce images of brain function. If the image is obtained while an experimental participant is engaged in a particular cognitive task, the image can indicate which parts of the brain are most active in that task. The second group designs computer programs to model human social behavior. The main interests are the emergence of social attention and deficits in shared attention in autism. The modeling group experiments with computer animated models of *caregivers* and *infants*.

Here I analyze two instances of practice where scientists interact with each other and with computer screens. I discuss how the interpretation of scientific images is produced through the interaction of various semiotic modalities, and how a virtual world acquires meaning through its embodied enactments in the social world of action. Particular attention is directed toward the human body. The body is not just an envelope for internal, abstract thought, but a critical component of meaning-making. In addition to semiotic functions of body orientation, positioning, and gesture, I focus on how the body enacts scientific representations. For example, an fMRI practitioner while observing digital brain images can use her own body as a semiotic tool that comments on behavior of the experimental subject's body, or a general human body. At the same time the practitioner can also use her body as a signifier for such bodies. Similarly, while observing the modeling group I noticed a pervasive pattern where practitioners engage their own bodies to model the behavior of virtual caregivers and infants.

Employed in this fashion, the body is not a stable sign, but a trace able to quickly assume very different and multiple semiotic roles. In addition to this extreme flexibility, the body enhances collaborative viewing, and a first person understanding of the experimental data. Furthermore, the analysis focuses on how such embodied models interact with various scientific representations such as hand drawn charts, graphs, and digital models that co-exist in the environment of practice.

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Embodiment, Social Action and the Construction of Semiotic Artifacts

This presentation describes some of the results of a research project that studied the design practices of technological systems in an Internet company. The company manages a portal that provides services to a mass audience (personalized homepage, news, e-mail, sms, thematic channels, e-commerce, etc.). The company employs 40 people divided in two main work groups: producers and engineers. The former manage the editorial content while the latter manage the portal's systems and applications. The research was conducted using an ethnographic method supported by tools of conversational analysis.

The research takes place within the perspective of workplaces studies (Luff, Hindmarsh & Heath, 2000) who's main objective is analyzing social and cultural aspects of work activity systems, with particular attention to the role played by technology.

In the "high technology" work setting in which this research project was conducted, technology acts as both the instrument of mediation which supports the shared realization of work practices and as the "product" of that work activity. Design is a particular kind of social activity that relates the present to the future, in which the object of work is missing by definition because is what is going to be created. Results show that designers rely on professional practices that allow them to think and jointly construct objects, which, at that very moment, are physically and materially absent. These practices integrate resources in different semiotic fields (discourse, body, structures of the material environment), each playing a specific, contingent role. I will provide prototypical examples of these practices and I will examine in particular the specific role played by the body in the organization of the collective design action.

Micro-ethnography of self-adaptor in narrative communication

Although researchers have related self-adaptors to internal expression (Ekman and Friesen, 1969) or thinking (Fujii, 2000), it is generally accepted that self-adaptors are not related to the social situation or speech. This paper investigated the effect of the existence of a listener on the speaker's self-adaptors, and the relationships between self-adaptors and the content of speech.

Ten pairs of female students talked with each other about two animated films under both face-to-face (FtF) and non-FtF conditions. They were videotaped to measure self-adaptors. Brief self-adaptors were cut-up using the software "mivurix", and their characteristics were examined. Continuous self-adaptors were excluded because of the difficulty in judging their beginning and end.

(1) The effect of the existence of a listener on the speaker's self-adaptors: The mean number of self-adaptors was 4.84 in the FtF condition and 3.68 in the non-FtF condition. Adaptors were more frequent in the FtF condition than in the non-FtF condition according to Wilcoxon's rank sum test. This suggests that a self-adaptor is not a simple expression of internal feelings, but is affected by the social situation.

(2) The relationships between self-adaptors and speech content: The analysis using "mivurix" showed that self-adaptors synchronized with the following types of utterance: (1) disfluencies (*e.g.*, filled or unfilled pauses; 51/162), (2) reference to vagueness (*e.g.*, "how do you say"; 52/162), (3) sentence connectors (*e.g.*, "and then"; 51/162), and (4) laughing (41/162). The examination of the position of sentence adaptors showed that self-adaptors were less frequent at the beginning of a sentence than in the middle or at the end. This shows that the production of self-adaptors is affected by the content of speech.

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A neo-Gricean framework for understanding music conducting

This research presents the results of a long-term project into the way in which ensemble musicians interpret conductor's gestures and facial expressions in musical contexts. Our materials were videos of master conductors, conjoined either with the "congruent" original soundtracks they were conducting, or carefully constructed "mismatches." In the "congruent" condition, brief video excerpts, along with the accompanying soundtracks, of conductors were shown on videotape to highly experienced ensemble musicians. The "incongruent" condition presented the same video excerpts to another group of participants, with different audio excerpts, where some aspects of the music--principally those of rhythm and timing--were kept constant with the original, but some others--such as the rise and fall of melodic contour (ups and downs) or dynamics (loudness)--were mismatched. More subtly, in some combinations, all was kept the same but the degree of change in loudness. The participants were called upon, at specified moments, to judge the "fittingness" or "appropriateness" of the conductor's behavior. Analysis of the results reveals that a neo-Gricean framework of scalar implicature explains much of the respondents' reactions to the fittingness of the conductors' behaviors, supporting a Gricean approach to nonverbal as well as verbal activities.

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French Cued Speech production: giving a hand to speech

Human speech is multimodal by nature: it is now generally accepted that the perception of the acoustic speech signal is largely enhanced by visible speech face and lips gestures. In addition, non-verbal spontaneous gestures are an integral part of language (McNeill, 1992). The coproduction of sound, face and manual gestures allows optimal communication and understanding. The mechanisms underlying the relationships between gestures and speech are at the center of many studies. Concerning timing, the gestures onset is found to precede speech emission.

This study aims to extend the “sound-gestures” timing relationship retrieved for spontaneous speech as detailed previously to additional hand gestures necessary to improve oral speech reception for deaf people. This work focuses on French Cued Speech production. Cued Speech (CS; Cornett, 1967) is an effective system that uses hand cues placed near the face of the speaker to disambiguate lip shapes. While uttering, the speaker codes each consonant-vowel (CV) syllable with a manual cue: the shape of the hand distinguishes among consonants and its position around the face is devoted to vowel disambiguation. In order to enlarge the understanding of CS effectiveness (demonstrated for speech perception and for language acquisition), it is important to know how CS is produced.

Four trained French CS speakers have been video recorded while uttering and coding CV syllabic sequences. Data are obtained by video tracking of hand and oral gestures in order to extract signal features related to lip contours and hand movements. Lip area, x and y hand position and acoustic signal are manually labeled at onsets and offsets times. Results reveal a similar temporal pattern for the 4 subjects: the hand gesture onset precedes the syllable onset and the hand reaches its cue position during the first part of the consonant, so well before the vowel labial target.

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Gesture and interaction formation in the blind

In order for an interaction to take place multiple conditions have to be met: the interactants must recognize each other, show interest in each other, acknowledge that interest, and take turns in minutely orchestrated fashion. Considering the multiple conditions that have to be met, it is surprising that it ever takes place—especially when the participants have no visual access to one another because they are blind.

Studies focused on communicative behavior of the blind have usually studied their ability to produce spontaneous facial expressions and gestures. The findings so far suggest that blind individuals do gesture and when they do they do so at the same rate and the same manner as sighted individuals (Iverson & Goldin Meadow, 1997). Goldin Meadow does mention however, that more work is required to determine the breadth of the blind individual gestural repertoire (2004). Blind individuals are also capable of producing spontaneous facial expressions (Eibl-Eibesfeldt 1973, 1975; Pitcairn & Eibl-Eibesfeldt 1976, Galati et al., 1998; 2001) and of controlling their spontaneous expressive behavior (Cole et al., 1989).

The studies conducted on blind individuals so far have tried to determine whether the blind are capable or not to produce certain behavior. While we know now that they can, we know little about the resources that the blind use in coordinating their interaction with one another. This research is a part of an ongoing study that attempts to understand the interaction of blind in a more holistic way. The study is conducted in the School for the Blind and Visually Impaired in a mid-sized city in the U.S. and involves videotaping of classroom interaction and naturally occurring dialogues of various age groups within the school. The findings are analyzed frame by frame in order to capture the complexity of the interaction.

The main topics that we will address in our presentation are:

- the synchronization of gestures and speech within individuals and between individuals;

- the creation of focused interaction in naturally occurring conversations and in a classroom setting;
- the organization of audience attention by means of audible gestures;
- reliance on the tactile sense in explaining ideas and in teaching children “how to feel” and categorize the world;
- fear as an emotion that predominates in the blind individual’s life: its embodiment gait, the reaching out for materials in unfamiliar environments, and talk to unseen audiences.

Le corps dans la parole

La communication orale est caractérisée par la présence du corps dans la parole. Parler est un processus physiologique, bien qu'il ne soit pas perçu ainsi, bien que le corps en tant que base matérielle de la parole disparaisse en faveur de la production et de l'interprétation du sens. Lorsque, pour une raison ou une autre, ce processus physiologique regagne une place plus importante dans la communication, nos sociétés occidentales considèrent cette démonstration de la «corporéité» de la parole en général comme pour le moins inappropriée. Pour pouvoir comprendre cette inhabituelle présence du corps, il faut la placer dans un cadre spécifique qui permet une interprétation.

Dans cette étude, je m'intéresse plus particulièrement à certaines expressions vocales non-verbales (tels que crier, soupirer, gémir etc.) et leur rôle en tant que 'vocal contextualization cues'. Mes analyses se basent sur un corpus en langue allemande de propos tenus entre téléspectateurs. Je voudrais d'abord montrer comment ces expressions font entrer la «corporéité» de la parole dans la communication. Dans une deuxième partie, mon intérêt principal se concentre sur la question de savoir comment une présence contrôlée du corps en tant qu'incontrôlable se révèle comme indice d'informalité, de confiance et de convivialité.

The Corporeity of speech

"Corporeity" can be considered as an essential characteristic of oral communication. The act of uttering is a physiological process, even if we don't perceive it like this, even if the body as material resource of speech disappears behind the screen of the production and interpretation of sense. When nevertheless the physiological process happens to get a more important place in communication, our western societies consider such a demonstration of the corporeity of speech generally as offensive or at least as inappropriate. If we want to understand this unusual presence of the body, we have to place it in a special frame which allows for interpretation.

In this paper I am particularly interested in some vocal non-verbal

expressions (like screaming, groaning, sighing etc.) and their function as 'vocal contextualization cues'. My analysis is based on a German corpus of utterances between television viewers. I want to show first how the "corporeity" of speech manifests itself within communication through these expressions. In the second part I shall focus on the question of how a controlled presence of the body as something beyond control indicates informality, confidence and sociability.

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Evidence for Grounding with Non-redundant Gestures: Co-constructing Virtual Spaces

Dyads designing the layout of an apartment together spontaneously used their gestures to describe the location and other features of rooms in their plan (mean gesturing time = 82%). Strikingly, 97% of their gestures were not redundant with words, that is, the gesture was an essential component of the speaker's meaning, yet indications of not understanding were rare. We demonstrated their mutual understanding by analysing the grounding (Clark, 1996) that began with a non-redundant gesture. The typical grounding cycle was

- (1) The speaker named a room but described it gesturally instead of verbally, often with a deictic expression (e.g., "here").
- (2) The addressee provided evidence of understanding the speaker; 61.7% of evidences were explicit (e.g., nodding) and 38.3% were implicit (e.g., letting the speaker continue).
- (3) The speaker acknowledged the addressee's understanding implicitly, by simply continuing (76.7% of the time).

In sum, all participants co-constructed a detailed space that only existed through their shared understanding of, and responses to, each other's gesture. We propose that studying gestures in dyadic interaction is a better way to demonstrate their communicative value than by separate studies of encoders and decoders.

Díadas diseñando conjuntamente el plano de un apartamento usaron sus gestos para describir la localización así como otras características de los espacios en su plano (promedio de tiempo gesticulando = 82%). Sorprendentemente, 97% de sus gestos no fueron redundantes con las palabras, esto es, cada gesto fue un componente esencial del significado del hablante, sin embargo, indicios de no entendimiento

fueron poco frecuentes. Demostramos la manera en que los participantes establecieron entendimiento mutuo analizando el proceso por el cual los participantes establecieron este entendimiento (Clark, 1996). El ciclo de entendimiento mutuo típico fue

- (1) El hablante nombraba un espacio pero describiéndolo con gestos, en lugar de hacerlo verbalmente, frecuentemente con expresiones deícticas tales como "aquí".
- (2) El destinatario del mensaje daba evidencia de entendimiento; 61.7% de estas evidencias fueron explícitas (por ejemplo, moviendo la cabeza en señal de aprobación) y 38.3% fueron implícitas (por ejemplo, dejando al hablante continuar en el turno de habla).
- (3) El hablante reconocía el entendimiento implícito del destinatario del mensaje simplemente continuando en su turno de habla (76.7% del tiempo).

En suma, todos los participantes co-construyeron un espacio detallado que solo existía a través de su entendimiento de, y sus respuestas a, los gestos mutuos. Proponemos que estudiar los gestos en la interacción diádica es una mejor forma de demostrar su valor comunicativo en comparación con diseños que aíslan hablantes y destinatarios en diferentes estudios.

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Gazing, pointing and modality expression in conversations

This study explores the interactional functions of gazing and pointing gestures in the interactive presentation conversations. Kendon (1967) claimed that the speaker's gaze shift toward the hearer in a conversation tends to accompany with turn change. Bavelas (1992, 2002) proposed that certain types of gestures, e.g., beats, have interactive functions.

We propose, by extending the notion of proposition-modality structure for sentences first proposed by Fillmore (1969), the bipartite structure of the information presentation function (proposition) and the interaction management function (modality) for verbal and non-verbal actions in conversations. We then attempt to identify interaction management functions of gazing and pointing actions that take place in conversations from their temporal co-occurrence relationships with the utterances of modality expressions.

Sentence and phrase endings of Japanese can be expressed by adding auxiliary verbs, conjunctions, or final particles (e.g. *kara*, *darou*, *desukara*, *deshou*, *yone*, *ne*), after propositional contents expressed by subjects, verbs and objects. These modality expressions are used to serve common-ground establishment, turn management, and other interaction management functions.

We collected interactive poster presentation conversations in Japanese, and examined the temporal relationships between gaze shifting, pointing gesture occurrences and the modality zone in which one or other modality expressions are uttered. We found that gaze shift toward the hearer tends to occur in the modality zone, whereas pointing gesture initiation tends not to occur in the modality zone. We also found that pointing gesture hold often signifies topic continuity. These findings suggest that gazing and pointing play different interactional management functions in conversation.

Amphibolous Gestures: An Examination of Method and Principles in David McNeill's Gesture Classification System

This study examines the accuracy and completeness of a gesture classification system developed by David McNeill. The objective of this investigation is to assess the validity of McNeill's definitions and procedures, and ultimately to establish a sound methodological basis for future research into gesture and spoken-narrative. Data collection consisted of interviewing and digitally-recording subjects. In the data analysis portion of our study, we transcribed these interviews and, in accordance with McNeill's method, separated the utterances into narrative clauses. McNeill's gesture transcription model was used to describe the movement phase of each gesture, and to isolate these movements within the temporal structure of the narrative. We then analyzed each gesture in accordance with the remaining classificatory criteria designed by McNeill. This allowed for statistical comparison with McNeill's results. Discrepancies between our respective studies led us to propose the need for descriptive refinements of McNeill's schema. Some of the divergences arose from his inconsistent position regarding certain theoretical principles (e.g., the manner by which a gesture conveys abstract concepts, etc.). This study demonstrates that McNeill's system needs further development. In this regard, our research outlines the practical and theoretical consequences of McNeill's apparatus, and proposes a more comprehensive methodological foundation.

Die vorliegende Arbeit untersucht die Genauigkeit und Vollständigkeit des von David McNeill entwickelten Systems der Klassifikation sprachbegleitender Gesten. Das Ziel der Untersuchung ist es, die Gültigkeit der Definitionen und Vorgehensweisen von McNeill für die Beziehungen zwischen gesprochener Erzählung und Gestik zu überprüfen. Wir haben sein System untersucht, um eine akkurate methodische Basis für zukünftige Forschungen im Bereich Gestik und gesprochene Erzählung zu etablieren. Das hierbei verwendete Material bestand aus Interviews und digitalen Aufnahmen der Antworten

von Personen, die gebeten wurden, persönliche Erfahrungen wiederzugeben. Im analytischen Teil der Arbeit haben wir diese Interviews transkribiert und die Äußerungen in Erzählabschnitte aufgeteilt. McNeills System der Klassifikation von Gesten wurde benutzt, um die Bewegungsphasen zu beschreiben und diese Bewegungen innerhalb der zeitlichen Struktur der Erzählung zu isolieren. Wir haben dann jede dieser Bewegungsphasen nach McNeills übrigen klassifizierenden Kriterien analysiert. Danach haben wir die Häufigkeit der Gesten, ihre räumliche Position und ihre Korrelation mit Erzählabschnitten beurteilt. Diese Analyse erlaubte einen statistischen Vergleich mit McNeills Ergebnissen. Statistische Abweichungen veranlaßten uns dazu, einen Bedarf an deskriptiver Verfeinerung seines Systems zu postulieren. Unsere Forschung skizziert also die praktischen und theoretischen Konsequenzen von McNeills Klassifikationssystem und schlägt darüber hinaus eine umfassender methodische Fundierung vor.

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***Amagama amathathu* 'The three letters' (HIV): The emergence of a quotable gesture**

The gesture for HIV (Human Immunodeficiency Virus), in which the last three fingers are extended with thumb and forefinger held together at the tips, emerged in 2002 in South Africa. Before May 2002, it appeared mainly to accompany and illustrate phrases such as *amagama amathathu* 'the three letters' a common euphemism for HIV. In May 2002, we observed this gesture being used as an accompaniment to metaphorical spoken phrases using the concept of 'three' to refer to HIV. Although observed in everyday conversations simultaneously with speech, native speakers insisted there was no gesture for HIV and that this gesture meant 'three' when used independently of spoken language. However by July 2002, native speakers readily glossed this gesture as meaning HIV and produced the gesture if asked for the gestural equivalent of HIV. Examining instances of use independently of speech, its most common uses appear to be to communicate secretly about a person's status in situations where a person might be overheard, or to substitute the gesture in preference to saying a person may be HIV positive when communicating in private. Implications for the origin and development of gestures in terms of conventionalization and detachability from spoken language are discussed as well as methodological challenges in capturing the emergence of quotable gestures.

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What Gestures Do: Some Communicative Functions of Quotable Gestures in Conversations among Black Urban South Africans

Using video-recordings of spontaneous conversations among black urban South Africans, the use of three quotable gestures/emblems is analyzed. Characteristics of their use in relation to speech are established showing that quotable gestures are multifunctional fulfilling substantive, interactive, and discourse functions simultaneously. Implications for theories on the relationship between gesture and speech and processes of speech-gesture production are discussed. Data presented suggest that the Growth Point model of speech-gesture production has the most explanatory power, but needs to extend the central notion of context to fully explain the nature of gestural behavior. Questions related to the emergence of quotable gestures in terms of origin, conventionalization, and detachability from speech, the relationship of quotable gestures to other forms of gesture, and the categorization of gestures into gestural typologies are also addressed.

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Interactions between dual language systems in a single mind: Evidence from gesture

In Second Language Acquisition research, there is evidence that, during L2 production, gestures can reveal underlying L1 conceptual representations of events (Stam, 1999; Kellerman & van Hoof, 2003). This preliminary study complements the above by demonstrating how underlying L2 conceptual representations can also be seen in the gestures of speakers during L1 production. Narratives based on the cartoon *Canary Row* were elicited from 10 Japanese monolinguals, 10 English monolinguals, and 16 high-intermediate Japanese learners of English. Analysis focused on the wing event, in which *Sylvester* swings across a street. The data reveal systematic variation among language groups in the composition, i.e. direction, handedness, and viewpoint, of arc trajectory swing gestures. The majority of arc trajectory gestures produced by Japanese monolinguals were sagittal, bi-manual gestures taking character viewpoint. In contrast, the majority of arc trajectory gestures produced by English monolinguals were lateral, single-handed gestures without character viewpoint. Most striking, however, was the mixed pattern displayed by Japanese learners of English when performing narratives in their L1 (Japanese) with production of both gesture types. These preliminary findings will be discussed with reference to what gestures reveal about the nature of interactions between language systems in the minds of non-monolingual speakers.

Les recherches en acquisition de la L2 ont montré que, pendant les productions en L2, les gestes peuvent révéler la représentation conceptuelle des événements propre à la L1 (Stam, 1999 ; Kellerman & van Hoof, 2003). Notre étude a pour but de compléter ces travaux et de montrer comment la représentation conceptuelle de la L2 transparaît dans les gestes des locuteurs pendant les productions en L1.

L'étude est basée sur les textes narratifs élicités à partir du dessin animé *Titi et gros minet* auprès de 10 locuteurs monolingues du japonais, 10 locuteurs monolingues de l'anglais et 16 locuteurs japonais apprenant l'anglais, tous de niveau intermédiaire. L'analyse porte sur un événement particulier qui représente un balancement, dans lequel Sylvestre traverse la rue en se balançant sur une corde. Les données montrent une variation individuelle systématique entre les trois groupes linguistiques dans la composition gestuelle, c'est-à-dire dans la direction, le choix de main et la perspective adoptée pour représenter gestuellement le balancement. Chez les locuteurs monolingues japonais, la majorité des gestes représentant le balancement sont sagittaux, produits avec deux mains et adoptent la perspective du protagoniste. En revanche, chez les locuteurs monolingues anglais, la majorité des gestes sont latéraux, produits avec une seule main et sans adopter la perspective du protagoniste. Le plus frappant cependant est le double pattern déployé par les japonais apprenant l'anglais qui décrivent cet événement dans leur L1 (le japonais) en produisant les deux types de geste. En se basant sur ces résultats, nous discuterons ce que les gestes révèlent de la nature des interactions entre les systèmes linguistiques dans la pensée des locuteurs non-monolingues.

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Gestes sur-/dé-réalisants : la gestion somatique des topoi

Les notions de modificateurs réalisants (MR) vs déréalisants (MD), définis par leur fonction de renforçateur vs atténuateur de topoi, ont été appliqués jusqu'ici à des objets purement verbaux. Or l'analyse de corpus oraux suggère que de telles fonctions peuvent être supportées par des unités non-verbales. Des MR et MD gestuels, partiellement analogues aux modificateurs verbaux, auraient pour fonction de gérer la force d'application des topoi linguistiquement convoqués, mais cette gestion en serait davantage co-construite, empathiquement. À partir d'enregistrements vidéo de français parlé en interaction, on inventoriera et classera ces MR et MD gestuels en fonction de trois axes :

- argumentation : description des MR ou MD gestuels
- intégration multimodale : degré d'autonomie vis-à-vis de MR et de MD verbaux, interactions avec le matériel verbal
- dynamique de l'interaction : effets des modificateurs sur l'éthos du parleur et sur la « lisibilité » des topoi.

On se propose d'étendre ainsi des notions élaborées dans un cadre issu de la linguistique de l'écrit (théorie de l'argumentation dans la langue) à une analyse de l'oral en interaction, en étudiant les réalisations corporelles des fonctions argumentatives qui (re)configurent l'orientation de la parole tout en agissant sur la relation même entre les interactants.

Realising /de-realising gestures: topoi somatic management

The concepts of realising modifiers (RM) vs de-realising modifiers (DM), defined as strengthening vs attenuating topoi, has been so far applied to describe linguistic units. But interactional data analysis

suggests that non-verbal units may carry out realising/de-realising function as well. Vocal or body motions may have a RM/DM function partly similar to the one of speech modifiers (managing the force with which lexical topoi are to be applied), but such a management would in that case be more co-elaborated, elicited through empathy. From the analysis of videotaped French interactional data, we draw up an inventory of such modifiers and we classify them according to three criteria:

- argumentation: description of RM or DM gestures
- multimodal integrated perspective: autonomous degree towards spoken RM/DM, interactive procedures with speech phenomena
- interactive dynamic process: how modifiers are involved in speaker's ethos as well as in topoi « legibility ».

We, thus, propose that concepts, built within a framework pertaining to written linguistics (theory of argumentation within language), may be extended to the description of talk in interaction, by pointing out the way body gestures accomplish argumentative functions that formate speech orientations as well as the relationship of the participants to each other.

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Nonverbal and Verbal Indicators of Truth and Deceit in Interpersonal Interactions

In interpersonal interactions, people must implicitly assess whether the messages of others are to be trusted. Research on reliable indicators of deception has (1) been primarily noninteractive, (2) looked at verbal or nonverbal cues independently, (3) not considered temporal changes, and (4) not considered how deceivers adapt their displays in response to interlocutor actions. In the experiment to be reported, participants conduct interviews during which interviewees alternate between giving deceptive and truthful responses across 12 questions. Numerous kinesic and proxemic gestures are coded by trained raters, verbal indicators are machine coded, and temporal and adaptation patterns are analyzed. Results show differences within and between interviewees in nonverbal immediacy,

number of illustrator and adaptor gestures, nonverbal and verbal involvement, and adherence to Gricean principles for cooperative discourse. Convergence between deceptive and truthful patterns over time reveals how communicators parlay initial interaction difficulties into successful performances through integration of nonverbal and verbal actions. Reciprocal versus compensatory responses to interviewer involvement patterns also reveal responsivity to the interlocutor. Results cast doubts on claims derived from noninteractive experiments, results from experiments utilizing very brief behavioral samples, and experiments that examine limited subsets of nonverbal or verbal behaviors.

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Embodied conduct in emergency teamwork

Emergency situations demand fast, effective collaboration between diverse actors. Police, fire services, and medical personnel need to secure the scene, create access routes and ensure they are kept free, categorise, treat and transport victims, handle hazardous materials or deal with contamination, and coordinate work with emergency service personnel in emergency vehicles, dispatch centres, and hospitals. Communication is crucial, but often difficult under immense time pressure, in extremely complex and often very dangerous settings. On the scene, embodied conduct plays an important role. The victims' embodied action (or inaction) allows response teams to quickly understand, and to react flexibly to changes in, the situation, while the embodied conduct of emergency personnel—their movements, orientations, gestures, facial expressions in relation to often chaotic and in themselves highly expressive spatial, material and technological forms of embodied conduct—is a crucial resource for effective collaboration. Based on ethnographic observations with emergency service professionals during training exercises for major incidents, I present an analysis of embodied conduct in emergency teamwork.

La négation : son symbolisme physique

L'exposé est centré sur trois variantes gestuelles de la négation également étudiées par Kendon: geste A, le secouement latéral de la tête (Kendon, 2002) ; geste B, la main verticale en pronation ; geste C, le mouvement transversal de la main horizontale en pronation (Kendon, 2004).

La question est de savoir si leur nuance sémantique est apportée par le contexte d'énonciation, le geste lui-même, leur association ou leur interaction.

De l'analyse d'exemples français, il résulte que les nuances sémantiques constatées en contexte verbal sont en partie apportées par le geste et que le locuteur a le choix entre deux modes de négation, l'un défensif (gestes A et B) et l'autre agressif (geste C). Sur le mode défensif, il se contente d'éviter ou d'arrêter un échange avec l'extérieur, c'est le refus d'une assertion. Sur le mode agressif, il élimine du tranchant de la main ce qu'il dit-fait ne plus exister. C'est l'assertion d'une inexistence. Les modes physiques de négation diffèrent selon le contexte : nier une proposition s'exprime par une opposition tandis que nier une existence s'exprime par une destruction. Si ces modes de négation sont physico-symboliques, on peut imaginer une dérivation sémantique tributaire du mode. Effectivement, l'assertion positive par double négation n'apparaît possible qu'à partir des expressions de refus passif, réversible.

Negation and its physical symbolism

The paper focused on three gestural variants of negation as well studied by Kendon : the headshake (gesture A, 2002), the prone vertical palm (B) or the rapid lateral movement of prone horizontal palm (C, 2004). The question is whether the semantic variants are due to either context, to gesture, or to their interaction ?

The analysis of French examples shows that gestural semantic nuances observed in verbal context are brought by gesture and that the speaker chooses between two ways of negation, a defensive one (gestures A and B) and an aggressive one (gesture C). In a defensive

way, he simply stops an exchange with outside, it is the *refusal of an assertion*. In an aggressive way, he cuts off with the edge of one's hand what he says-and-makes not longer exist. It is the *assertion of a non-existence*. The physical negations vary with the context: denying a proposition is performed by an opposition while denying an existence is performed by an elimination. If these modes of negation are both corporal and symbolic, one can conceive of a semantic derivation depending upon the mode. In fact, it seems that the positive assessment, by way of an implied double negative can only be performed by the defensive or passive way, by the reversible act.

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Gestures to think or gestures to communicate? Explore the function of gesture by studying gestures on the phone

Do gestures primarily have a communicative or a cognitive function? Do we use them mainly for our interlocutor or for ourselves, to communicate or to help our thought?

Among gesture scholars (Rimé, 1982; Krauss et al., 1995; 2000; McNeill, 1992; Poggi & Magno Caldognetto, 1997; Kendon, 2004), some stress the cognitive function of gesture as a device to help the speaker think and a symptom of wording processes; others point at the communicative function of gestures which provide referential and discourse information by adding to, replacing, contradicting words; others maintain they serve both cognitive and communicative functions.

This work explores the use of gestures on the phone. If gesture only had a communicative function, to help the interlocutor understand the speaker, we should expect people not to gesture on the phone, when the interlocutor cannot take advantage of the visual information conveyed by gestures. But they do. Yet, does gesturing differ in quantity, function and meaning when on the phone as opposed to face-to-face interaction? To answer these questions, 18 subjects in spontaneous phone conversations were videorecorded, and their gestures analysed as to meaning, type of gesture, and relationship to the verbal behaviour. The results of the study are presented.

La funzione prevalente dei gesti è cognitiva o comunicativa? Gesticoliamo più per gli altri, per facilitare la comprensione, o per noi stessi, per aiutare il nostro pensiero?

Fra gli studiosi del gesto (Rimé, 1982; Krauss et al., 1995; 2000; McNeill, 1992; Poggi & Magno Caldognetto, 1997; Kendon, 2004), alcuni ne evidenziano le funzioni cognitive di aiuto al pensiero e

sintomo del processo di ricerca lessicale; altri ne rimarkano la ricchezza comunicativa e mostrano come essi forniscono informazioni referenziali e metadiscorsive aggiungendo significati, sostituendo o contraddicendo le parole; altri ne sostengono la funzione sia cognitiva che comunicativa.

Il lavoro esplora questo tema studiando l'uso dei gesti al telefono. Se il gesto avesse solo una funzione comunicativa, di aiutare l'interlocutore a capire, le persone non dovrebbero gesticolare al telefono, dove l'interlocutore non le vede. Eppure lo fanno. Ma forse il gesto al telefono potrebbe differire in quantità, funzione e significato rispetto al gesto nell'interazione faccia-a-faccia. Il lavoro presenta metodologie e risultati di una ricerca su 18 soggetti impegnati in conversazioni spontanee al telefono, i cui gesti sono stati analizzati quanto a significato, tipo di gesto e relazione col comportamento verbale.

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Concrete versus abstract reference and the schematicity of gesture

Calbris (2003) suggests an important role for image schemas in gesture production and interpretation. In a forthcoming study, I report that participants were reliably able to use image schemas as descriptors for abstract referential (AR) gestures, and for a group which encompassed discourse structuring gestures and those performing a speech act (henceforth, “other” or O gestures).

For the present study, 20 concrete referential (CR) gestures and 20 O gestures were selected from those coded for the previous study of conversations in American English. Twenty participants will see the 40 gesture video clips without sound, 20 will see the gesture clips with sound and transcribed utterances, and 20 will be given the transcribed utterances and hear the clips, but will not see them. Each group will be asked to characterize each item by circling one of the names of six image schemas or “none of the above.”

The study will test whether CR gestures can be categorized using image schemas more reliably than AR and O gestures (perhaps because of image schemas’ connection to concrete experience), less reliably (perhaps because of CR gestures’ idiosyncratic forms), or equally reliably (because of similar schematic abstraction found in both AR and CR gestures).

Calbris (2003) suggère que l’image schéma joue un rôle important dans la production du geste et son interprétation. Dans une étude à paraître, je démontre que les participants étaient capables d’utiliser de manière sûre des images schémas comme descriptifs de gestes référents abstraits (RA), et ce pour un groupe comprenant le discours les gestes structurants et certains énonçant un acte de langage performatif (désormais, « autre » ou gestes A).

Dans la présente étude, 20 gestes concrets référentiels (CR) et 20 gestes A furent sélectionnés parmi ceux, déjà codés, de l’étude précédente au sujet de conversations en anglais américain. Vingt participants veront les 40 extraits vidéo sans son, 20 les extraits avec son et mots transcrits, et 20 auront les mots transcrits et entendront les

extraits, mais sans pouvoir les voir. Il sera demandé à chaque groupe de repérer chaque élément concerné.

Cette étude démontrera si les gestes CR peuvent être mieux catégorisés du fait de l'utilisation de l'image schéma que les gestes RA ou A (en raison du rapport de l'image schéma à l'expérience concrète), moins bien (en raison de l'idiosyncrasie des formes des gestes RC), ou tout aussi bien (en raison d'une abstraction schématique identique, partagée à la fois par les gestes RA et CR).

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The role of contact implicative sounds, actions and involvements on retail shoppers' pre-verbal encounter conduct

This presentation reports the findings from a study, based on real-life video recordings, of the 'nonverbal' conduct via which shoppers routinely occasioned or avoided verbal encounters with salespersons in a showroom retail store.

Typically, shoppers entering this store would find all the sales staff either involved in encounters with other shoppers or on their own but engaged in some task. For those shoppers seeking verbal contact with a salesperson, one option was to wait near a salesperson until the latter had ended his/her current involvement. Another option was to look at display goods. Such shoppers tended to project high levels of involvement with respect to the display goods they looked at via the manner of their gaze and their body configuration, alignment and proximity to those goods. Verbal contact was often occasioned on this basis.

However, most verbal encounters were occasioned as a result of these shoppers reacting to sounds and actions in the store (cash register noises, encounter ending utterances etc.) that projected a salesperson coming to the end of his/her current involvement. At these junctures such shoppers often heightened their level of involvement in display goods and/or oriented to the salesperson ending his/her current involvement, doing so to solicit attention from and contact with that soon to be free to serve salesperson.

In contrast, shoppers avoiding contact with the sales staff often reacted to contact implicative sounds/actions in the exact opposite manner - changing their bodily conduct etc. in a way which discouraged contact by lowering their level of involvement in display goods just before a salesperson both ended his/her current involvement and could thus more easily witness that conduct. Interesting differences in such conduct were also evident between those persons shopping on their own and those shopping in groups.

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Les coverbaux de l'explication chez l'enfant âgé de 3 à 11 ans

Deux études exploratoires portant sur le développement des conduites de parole monogérées, l'une auprès d'enfants âgés de 6 à 11 ans scolarisés à l'école élémentaire, l'autre auprès d'enfants dans des classes de maternelle, nous ont permis de constituer un vaste corpus audiovisuel de conduites explicatives.

L'explication dont il est ici question est l'explication en réponse à un « pourquoi » et non en réponse à un « comment », cette dernière relevant plutôt de la description. L'explication en propre porte sur un *explanandum* (fait, phénomène ou comportement à expliquer) et fournit un *explanans* (une cause, une raison ou un motif) à celui-ci (Veneziano et Sinclair, 1995).

Afin de garantir la fiabilité de nos observations, les explications en provenance des deux corpus ont fait l'objet de transcriptions contrôlées par au moins deux personnes, et la gestualité coverbale accompagnant ces explications et décrite sur les transcriptions a également fait l'objet de procédures d'identification et de catégorisation par différentes personnes (Colletta, 2004).

Dès le départ, nous avons fait l'hypothèse que l'âge devrait avoir un effet non seulement sur les aspects verbaux et discursifs de l'explication parlée, mais aussi sur ses aspects non verbaux. L'effet attendu de l'âge sur ces derniers est postulé à partir de la thèse de la multimodalité de la parole et des observations relatives à cette thèse. En premier lieu, nous savons que la parole s'accompagne de gestes qualifiés de « coverbaux », et que parole et gestes entretiennent d'étroites et subtiles relations séquentielles, fonctionnelles et sémiotiques (Kendon, 1980 ; McNeill, 1992 ; Cosnier et Vaysse, 1997). En second lieu, bien que la communication au cours de la période préverbale soit essentiellement et nécessairement vocale et non verbale, un système associant parole et geste semble fonctionner dès la seconde

année de l'enfant (Goldin-Meadow et Butcher, 2003) et perdue vraisemblablement par la suite (Iverson et Goldin-Meadow, 1998). En troisième lieu, nous savons que chez l'enfant, l'explication parlée s'accompagne fréquemment de gestes référentiels (Goldin-Meadow, 2000). En conséquence, si le développement de la parole est réellement multimodal, les ressources corporelles devraient, comme les ressources verbales et discursives, être utilisées de façon croissante par l'enfant engagé dans des conduites d'explication.

Pour tester cette hypothèse, nous avons mesuré non seulement la durée des explications, leur teneur en informations verbales (syllabes) et discursives (propositions, connecteurs) et le débit de ces informations, mais aussi leur teneur en gestualité coverbale et le débit coverbal lui-même.

Les indicateurs non verbaux font apparaître une évolution régulière et parallèle aux indicateurs verbaux et discursifs, qui atteste d'un développement multimodal (affectant les ressources kinésiques en même temps que les ressources linguistiques) des conduites de parole. Par ailleurs, les coverbaux les plus employés à partir de 6 ans sont les gestes référentiels, en particulier les gestes de l'abstrait, qui prennent le pas, à partir de cet âge, sur les gestes du concret employés par les enfants plus jeunes.

Cet ensemble de résultats et d'observations est discuté dans la perspective tant des recherches sur le développement gestuel que des travaux relatifs au développement conceptuel et langagier.

Explanation gestures in children aged from 3 to 11

Following two investigations on the development of discourse and gesture abilities in speech production, a video corpus of 500 explanations was built. This corpus was performed by children in a French primary school aged from 6 to 11, and by children in French nursery schools aged from 3 to 6.

Explanation behaviour occurs when the speaker answers to a why-question, whether this question was explicitly asked or not. More precisely, explanation behaviour occurs when the speaker talks about an *explanandum* (event or behaviour needing an explanation) and is actually performing an *explanans*, i.e. giving a cause or finding a reason to explain this event or behaviour (Veneziano & Sinclair, 1995). Every occurrence of such behaviour was transcribed by at least two different persons as a mean to control the exact words pronounced

by children. Coverbal gestures were also described on these transcriptions, after identification and classification (Colletta, 2004). It was hypothesized that age should have an effect coverbal behaviour as well as on verbal behaviour. This effect on coverbal behaviour was expected on the basis of gesture and non verbal development research. First, adult speech is frequently accompanied by gesture, and gesture and speech do have very close timing, functional and semiotic relationships (Kendon, 1980 ; McNeill, 1992 ; Calbris, 1997 ; Cosnier et Vaysse, 1997). Second, although the young child mainly expresses meanings through non verbal and vocal behaviour, a word-gesture system starts to work from the age of 18 months (Goldin-Meadow & Butcher, 2003) and probably develops through the following years (Cosnier, 1982 ; Iverson & Goldin-Meadow, 1998). Third, the child often gestures while giving an explanation during maths or physics problem solving (Goldin-Meadow, 2000). Thus, if speech development means multimodal development, an increasing ability to generate explanations should go hand in hand with an increasing use of coverbal gesture.

In order to test this hypothesis, we measured the effect of age not only on the duration, textual structure, amount and flow of verbal information of these explanations, but also on the amount and flow of coverbal information.

All these measures show a regular evolution of explanation behaviour, both on its non verbal and verbal components, from the age of 3 to 11. Among coverbal gesture, abstract gesture are widely used by children aged 6 or more, while younger children rather use gesture of the concrete.

These results are discussed from the point of view of research on gesture, conceptual and discourse development.

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Conventionalized gestures of hearing Nicaraguans

Socially constituted gestures embody form-meaning mappings that have been conventionalized within a community, nation, or region (Perez, 2000; Müller & Posner 2004; Kendon/Di Jorio 2000). Many signs in sign languages are derived from such socially constituted gestures (Newport & Supalla, 2000). The current study systematically examines the gestures used by the Spanish-speaking Nicaraguan community in order to understand the origins of lexical items in Nicaraguan Sign Language (NSL). NSL is a new, indigenous sign language that has emerged from the Nicaraguan Deaf community (Senghas & Kegl 1994; Senghas 1995; Polich 1998; Senghas & Coppola 2001).

I developed a list of Spanish words and phrases to elicit conventional gestures from hearing, native speakers of Nicaraguan Spanish (3 women and 2 men) who had no contact with deaf people. The list included states, acts, commands, and temporal relations (e.g., *afraid, pay, come here, and after*).

Forty items showed substantial overlap in gesture form across informants. About half of these common gesture forms are very similar to lexical items in NSL (López Gómez et al. 1997). In accord with historical changes observed in American Sign Language (Frishberg 1975), some forms change as a consequence of their adoption into NSL. Further, some forms show a more restricted meaning as lexical items in NSL.

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Contract: tact in contact

“The body is private. No one other than me has the right to touch me where s/he wants, how s/he wants, and whenever s/he wants, without my consent” (Varda Dascal, “Art as Therapy”, 1995).

To say this sounds like stating a triviality. Indeed it is. However, many people either are not aware of it at all, or forget it all too often. Yet, in order to conduct a life in common (in a community, in a couple, in a therapist-patient interaction, in any kind of group), it is quite often necessary to make this implicit truth explicit. It is necessary to re-learn to respect the other – with one’s gestures, one’s touching, and one’s tact.

For this purpose, I have developed in my clinical practice a “contract” that will be presented and, if possible, also experienced in this presentation. What we will see and experience is what fascinates and surprises me every time I undertake to apply this contract, namely, the variety and depth of the interpersonal and intrapersonal aspects of ourselves we discover at the very moment we pay the required attention to the tact needed in contact.

«Le corps est quelque chose de privé. Personne autre que moi n’a le droit de le toucher là où il/elle veut, comment elle/il veut et quand il/elle veut, sans mon accord» (Varda Dascal, «Art as Therapy», 1995).

Dire cela semble affirmer une trivialité. C’est vrai. Cependant, il y a beaucoup de gens qui, ou bien ne le savent pas, ou bien l’oublient – hélas, trop souvent! Néanmoins, pour bien mener la vie en commun (dans une communauté, un couple, un rapport patient-thérapeute, un groupe quelconque), il est souvent nécessaire de transformer cette vérité implicite en un accord explicite. Il faut re-apprendre à respecter – avec ses gestes, avec le toucher, et avec tact – le prochain.

Pour l’achever j’ai développé dans ma pratique clinique un «contract» que sera présenté dans mon exposé et, si possible, aussi éprouvé. Ce que nous verrons et sentirons c’est ce qui me fascine et surprend chaque fois à nouveau, lorsque j’applique ce contract. Voire, la variété

et la profondeur des aspects interpersonnels et intrapersonnels que nous découvrons en nous au moment même où l'on porte l'attention nécessaire au tact requis pour le contact.

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The “activity of engaging into an activity” as a local, distributed and gestural accomplishment. The embodied management of multiple streams of activity in office situations

Contemporary flexible knowledge-intensive work contexts are subject to an increasing pressure towards fragmentation of tasks and multi-activity. Managers and office workers react by opportunistic, context-sensitive handling of multiple ongoing open-ended streams of activity while longing for a chance to put an end to all open file, take a step back to mull things over and try to grasp a bigger picture. This is not necessarily what happens when they are given the chance, for a particular activity, whose relevance is quite specific to such work contexts, “the activity of engaging into an activity” may become prominent.

Our data come from a set of video extracts showing several office situations in which a manager has to manage multiple courses of activity. We will discuss in more detail a video showing a minute crisis in the management of those multiple engagements. After closing a series of ongoing activities, the subject hesitates to commit herself and checks successively and simultaneously several lists of potential things to do that are available for inspection (her notebook of ongoing tasks, the lists of incoming emails, the voicemail of the landline phone, and the list of incoming text messages on her mobile phone). Such artefacts constitute external tools through which the “activity of engaging into an activity” is made salient, and on which it is distributed.

She constructs that situation as the setting for a specific activity, “the activity of engaging into an activity” in several ways:

- attempts of anchoring herself by briefly touching objects (which also makes more relevant the activity that such artefacts afford in the setting)

- verbalizations which mark the ongoing activity as separate from what preceded it, and make it reflexively accountable as the activity of engaging into an activity

The situation is resolved by the use of a standard device in multi-party interactions, body torques to produce parallel engagements and manage them in an orderly way by projecting a sense of how a particular arrangement of ongoing actions is bounded in time.

Une tendance à la fragmentation des tâches et à la multi-activité se dessine dans les formes contemporaines de travail intellectuel intensif et flexible. Les managers et autres cols blancs gèrent avec opportunisme leurs multiples séquences d'activité ouvertes en fonction des variations de leur environnement de travail, tout en aspirant à clore les dossiers en cours afin de se donner le temps de penser et de construire une vision d'ensemble. Ce n'est pourtant pas nécessairement ce qui se passe lorsqu'ils en ont l'opportunité, « l'activité d'engager une activité » pouvant devenir alors prééminente.

Nos données proviennent d'extraits vidéos où un manager est aux prises avec la multi-activité. Nous nous attacherons plus particulièrement à une séquence critique. Après avoir clos une série d'actions en cours, la personne hésite à s'engager et vérifie à la fois séquentiellement et simultanément les différentes listes d'actions à entreprendre disponibles (son cahier où elle note les tâches en cours, la liste de ses messages électroniques, la messagerie vocale de son téléphone fixe et la liste de SMS entrants sur son téléphone mobile). Distribuée sur ces différents artefacts, « l'activité d'engager une activité » devient par là-même saillante.

La personne construit la situation comme le cadre de cette activité spécifique - « l'activité d'engager une activité » - de deux façons :

- ses tentatives d'ancrage quand elle touche furtivement les artefacts (ce qui illustre le rôle de ces derniers dans le façonnement de l'activité)
- les verbalisations qui thématisent cette activité comme distincte de ce qui précède, et qui la ratifient réflexivement

La situation se dénoue par le recours aux torsions corporelles, ressource par ailleurs utilisée de manière routinière dans le cadre d'interactions multipartites. Ces torsions permettent de séquencer et de hiérarchiser des engagements parallèles, en rendant visible la priorisation sous-jacente.

Delaying gestures as an interactional resource

Research has shown that, in interaction, the social actors often anticipate by means of physical movements (gestures, gaze, body posture) an action, which they are about to accomplish. These physical movements make it possible for them to structure the ongoing interaction and to make the orientation, which they project for the continuation of the interaction, recognizable to the other participants. Basing on the theoretical framework of conversation analysis I will propose to not only consider these anticipating movements as simple announcements of forthcoming actions, but also as «turns in suspension». The sequential analysis of a video sequence will show that the suspension of a gesture, its «pausing», is articulated with other – convergent or divergent – activities (prosodic, grammatical) accomplished by the social actors. The aims of this contribution are to show how participants manage in coordinating their orientation towards various semiotic fields, and how they succeed in locating possible turn-transition places.

The corpus on which the analysis is based was collected in a supermarket and allows to study customers' action when shopping, as well as the interactions between customers and employees of the shopping centre.

Il a été observé par différents chercheurs que souvent, dans l'interaction, les acteurs sociaux anticipent par des mouvements physiques (gestes, regard, positionnement du corps) une action qu'ils s'approprient à accomplir. De cette manière, il leur est possible de structurer l'interaction en cours et de rendre reconnaissable et disponible aux autres interactants l'orientation projetée pour la suite de l'interaction. Dans ma communication qui se sert des outils qu'offre l'analyse conversationnelle je proposerai de considérer ces mouvements anticipateurs non seulement comme des simples annonces d'actions imminentes, mais aussi comme des «tours en suspension». Une analyse séquentielle de données vidéo permettra de voir comment la suspension d'un geste, sa «mise en pause», s'articule avec les autres activités (prosodiques, grammaticales) que les acteurs sociaux

accomplissent dans l'interaction et qui peuvent constituer des activités convergentes ou divergentes. Il s'agira de voir notamment comment les interactants arrivent à coordonner le recours qu'ils font à différents champs sémiotiques et comment ils réussissent à repérer les points de transition potentiels assurant par-là l'alternance des tours.

Le corpus sur lequel je baserai mon exposé a été recueilli dans un supermarché et permet d'étudier les activités auxquelles se livrent les clients pendant leurs courses, ainsi que les interactions entre clients et employés du centre commercial.

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Discourse Factors in Gesture and Speech Prosody

The great variability of gestures in natural discourse suggests the shaping influence of many factors and poses a challenge to the search for systematic patterning. Many researchers meet this challenge in one of three ways: (1) a 'case study' approach of explicating all gestures in a single discourse segment, (2) experimental elicitation of gesture-plus-speech productions isolated from context, (3) excerpting gesture-speech productions from natural discourses for comparison, the contexts that shaped them being considered a source of statistical 'noise' and left unexamined. In this study, instead, we systematically manipulate the extended discourse context of gesturing, across a large number of narrations, and demonstrate that gestures and speech prosodic emphasis work to highlight points of contrastive discourse focus in an unfolding narration. Instrumental analyses of the speech prosodic variables of pitch, loudness, and syllable duration show discourse effects on speech prosody correlated with the observed effects on gesture.

Die große Variabilität von Gestik in natürlichem Diskurs suggeriert den formgebenden Einfluss zahlreicher Faktoren und stellt eine Herausforderung für die Suche nach systematischer Musterbildung dar. Zahlreiche Forscher stellen sich dieser Herausforderung auf einer von drei Arten: (1) mittels eines Fall-Studien Ansatzes in Form der Beschreibung aller Gesten in einem einzelnen Diskurssegment, (2) mit Hilfe experimenteller Erhebungen von kontextisolierten Kombinationen von Gestik und Sprache, (3) durch das Herauslösen von Geste-Sprache-Produktionen aus einem natürlichem Diskursrahmen zum direkten Vergleich, wobei die Kontexte, die zur Formung dieser

Produktionen beigetragen haben, lediglich als Quelle einer statistischen Störung angesehen und nicht mit in die Untersuchung mit einbezogen werden. Im Gegensatz dazu haben wir in der jetzigen Studie den erweiterten Diskurskontext des Gestikulierens über eine große Zahl von Erzählungen hinweg systematisch manipuliert und zeigen, dass Gesten und sprachprosodische Betonung für die Hervorhebung von Textstellen mit kontrastivem Diskurs-Fokus in einer sich entfaltenden Erzählung sorgen. Instrumentelle Analysen der sprachprosodischen Variablen Tonhöhe, Lautstärke und Silbenlänge stellen Diskurseffekte auf Sprachprosodie korreliert mit den beobachteten Auswirkungen auf Gestik dar.

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Le cheikh panoptique : Analyse d'une interaction pédagogique dans une école coranique de Haute-Egypte

L'école coranique est traditionnellement présentée comme un lieu de recours à la coercition physique à des fins pédagogiques. L'image du cheikh administrant des coups de baguette sur la plante des pieds de ses élèves relève des lieux communs sur l'islam. Foucault, pour sa part, a fait de l'institution scolaire un des lieux par excellence de la disciplinarisation totalitaire des corps et des âmes. A l'image de l'asile ou de la prison, l'école aurait pour fonction de dénaturiser le corps par le codage instrumental de ce dernier. Notre propos ne consiste pas à conforter ou contester un point de vue foucauldien sur l'école coranique, mais d'analyser dans le détail et en contexte d'interactions courtes mettant aux prises un maître (*shaykh*), les enfants qui assistent aux cours et les autres personnes présentes sur les lieux au moment de l'enregistrement. Nous observerons en action une série de phénomènes propres aux pratiques d'apprentissage à l'intérieur d'une école coranique prise pour elle-même et non comme ressource explicative de théories interprétatives de l'islam. En d'autres termes, nous chercherons à décrire : (1) la relation des positions du corps et de l'apprentissage ; (2) la relation du corps et de divers instruments (baguette, ardoise, craie, livre) ; (3) le développement d'un corps-instrument ; (4) les rapports entre différentes formes de rythme (corporel, vocal, scriptural) et l'apprentissage ; (5) la géographie pratique de l'action pédagogique ; (6) la production du contexte (le *kuttâb*) et de sa pertinence ponctuelle et spécifique ; (7) les relations entre activités (l'instruction, son contenu et ses modalités) et émotions (pleurs, rires) ; (8) la question de l'attention, de son orientation et de sa focalisation.

The Panoptical Sheikh: Analysis of a pedagogical interaction in a Koranic school in Upper-Egypt

Koranic schools are classically presented as a place where bodily coercion is used for pedagogical purposes. The picture of a sheikh hitting with a stick his pupils' sole belongs to stereotypes concerning Islam. Foucault, on his side, considered educative institutions as the place par excellence of totalitarian disciplining of bodies and souls. Like asylum or prison, school has the function of denaturalizing the body by its instrumental coding. This presentation does not aim at supporting or contesting the Foucault viewpoint on Koranic schools, but to produce a detailed and contextual analysis of short interactions associating a master (*sheikh*), his pupils and the many persons present at the same time. We observe in action a whole series of phenomena specific to learning practices within one single Koranic school taken in its own right and not as some explicative resource for the theoretical interpretation of Islam. In other words, we seek to describe: (1) the relationship between bodies positions and learning; (2) the relationship between bodies and various instruments (stick, writing slate, chalk, book); (3) the development of a body-instrument; (4) the relationship between different forms of rhythm (bodily, vocal, scriptural) and learning; (5) the practical geography of pedagogic action; (6) the production of context (the *kuttab*) and its local and specific relevance; (7) the relationship between activities (teaching, its content and modalities) and emotions (cries, laughs); (8) the issue of attention, its orientation and focusing.

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Gestures and intonation in English narratives

A narrative is defined in the literature as a sequence of past events told by a protagonist of these events (or another person to whom the events have been reported). After a short background corresponding to an introduction, the dramatic intensity of the narrative then progressively increases until it reaches a climax, the actual point of the narrative. The intensity then decreases in an anti-climax. Only the background and climax are necessary to produce a narrative though.

In our video recording samples (15 narratives varying in length between 2 British speakers), we observed that there are regularly gestures of turn-taking in the background. When the narrative includes an increase of the tension phase the speaker employs a growing number of beats and discourse organisation gestures, to mark the different elements added to increase suspense. At the climax point, all beats and gestures of discourse organisation cease and the speaker changes to interactive gestures: in most cases, just before the climax, the speaker turns both head and eyes towards the listener while smiling and both mutual gaze and smile remain all through the utterance of the climax. It is often accompanied by a shift of the body towards the listener. Immediately after the climax, the body gets back to a rest position and the speaker's gaze shifts away from the listener as well in most of the cases. It is to be noticed though that the smile often remains and even more often changes into open laughter either before or after the anti-climax when there is one.

At the intonation level, we also noticed that whereas the background is produced with a 'normal' voice intensity and rate of speech for the speaker, the climax is on the contrary uttered with higher voice intensity and a much slower rate of speech.

From this we can conclude that both intonation and gestures help understand the pragmatic structure of narratives in English conversations.

Where is here? An analysis of the German deictic *hier* with co-speech pointing gestures

Two different interpretations of *hier* [here] with accompanying pointing gesture exist in modern deixis theory: Klaus Sennholz (1985) proposes that *hier* with co-speech pointing is an example for the origo-exclusive use of an origo-inclusive deictic expression on the level of the language system. The term *origo* is introduced by Bühler (1934) and is defined as the origin of a coordinate system which is used to organize the personal, temporal, and local structure of utterances. Wolfgang Klein (1978), on the contrary, maintains the interpretation of *hier* as an origo-inclusive deictic on the level of language use. In his view the co-speech pointing gesture displaces the deictic origo. Both interpretations are not satisfying. In my paper, I will argue for a third possibility: The pointing gesture that accompanies the verbal deictic *hier* refers to a spatial point *within* the area the verbal deictic *hier* refers to. The lexical affiliate remains implicit. This concept allows the consistent analysis of different types of utterances with *hier* and co-speech pointing. It will be illustrated by various examples from face-to-face interactions that are taken from videorecordings of route descriptions at *Potsdamer Platz* in Berlin.

Die Interpretation von *hier* mit begleitender Zeigegeste ist in der neueren Deixistheorie durch zwei einander entgegengesetzte Positionen bestimmt: Sennholz (1985) interpretiert die Äußerung von *hier* mit begleitender Zeigegeste als den origoexklusiven Gebrauch eines auf der sprachlichen Systemebene origoinklusiven Deiktikons. Der Terminus *Origo* geht auf Bühler (1934) zurück und ist definiert als der Ursprung eines Koordinatensystems, das die personale, zeitliche und räumliche Struktur von Äußerungen organisiert. Wolfgang Klein (1978) hingegen nimmt eine Versetzung der *Origo* durch die Zeigegeste an, die die Äußerung von *hier* begleitet. Dabei bleibt für *hier* auf der Ebene des Sprachgebrauchs das semantische Merkmal origoinklusiv gewahrt. Beide Interpretationen sind unzureichend und führen zu Widersprüchen. In meinem Vortrag argumentiere ich für folgende Lösung: Die Zeigegeste, die das Verbaldeiktikon *hier* beglei-

tet, referiert auf einen Punkt innerhalb desjenigen Raumbereichs, auf den die Äußerung von *hier* referiert. Die verbale Bezugsgröße bleibt dabei implizit. Dieses Konzept erlaubt eine in sich konsistente Analyse verschiedener Äußerungstypen von *hier* mit begleitender Zeigegeste, wie an verschiedenen Beispielen von Wegbeschreibungen am Potsdamer Platz gezeigt wird.

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What do gestures reveal about causal event representations across languages and ages?

We examined the development of linguistic and gestural encoding of direct causation (i.e. a direct relation exists between the causer and the causee) in motion events in American and Turkish adults and 3-year-old children. 20 participants in each group watched and narrated two short animated video clips of direct causation incorporating both manner and path (a triangle object hits a round object and round object rolls up the hill into the sea). Speech and gestures were coded as depicting either the cause, or the result or both in one gesture or in one clause.

English-speaking adults conflated cause and result in one clause (e.g. *the triangle guy pushes the tomato guy up*) more than Turkish adults who depicted the event as two events (e.g. Eng. tr. *green pushes tomato. tomato ascends the slope while rolling*). While English-speaking children's speech looked adult-like, Turkish 3-year-olds collapsed the subevents to one event (e.g. Eng. tr. *he threw the tomato by the sea*), unlike their adults.

Gestural representations also changed crosslinguistically. English-speaking adults were more likely than Turkish ones to conflate cause and result in their gestures and to use gestures representing only result. Turkish speakers used fewer conflated gestures and focused more on cause. Children's gestures in both groups reflected the adult patterns, showing gestures early sensitivity to linguistic descrip-

tions of causal events. However, children also had a tendency to conflate cause and result or to represent only result more than adults.” Our results show that gestural and linguistic expressions of direct causation differ across languages. They also point out to a universal developmental tendency to represent direct causation as a single event or to focus on the result in gesture. Results will be discussed in relation to cognition of direct causation (Wolff, 2003) as well as the expected typological differences in speech (Talmy, 1985) and gesture (Kita & Özyürek, 2003).

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A Study on Simultaneous Interpreter Gesture

Theorists in the gesture-research field have agreed that gesture is an integral part of utterance production, but there are fields where gestures should not be used when utterance is produced. One of them is simultaneous interpretation. In a typical formal training, trainees are encouraged not to use gestures when simultaneously interpreting into the target language. Despite this anti-gestural policy, however, some simultaneous interpreters and trainees do produce gestures in their simultaneous interpretation. Many speech-gesture researchers have so far investigated only one stream of speech mostly produced by the gesturer herself, and addressed questions about how her gestures are related to her accompanied speech. Simultaneous interpretation is a cognitively demanding and highly skilled work: Interpreters listen to the presentation in one language and simultaneously interpret into their target language. They comprehend one stream of speech and produce their stream of speech such that the flow and the content of the latter be well organized to reflect that of the former. When and what kind of gestures do simultaneous interpreters produce? Do gestures help them interpret? If so, in what way they are helpful? Are these gestures employed to overcome problems in simultaneous interpretation? With these in mind, we began building a corpus of videotaped data of simultaneous interpreters. We are planning to discuss these issues at the conference, with some examples of preliminary data analyses. The present study would be both beneficial for simultaneous interpretation studies and speech-gesture research.

Les théoriciens de la recherche sur les gestes s'accordent pour dire que les gestes font partie intégrale de la production d'expressions vocales mais qu'il y a des domaines où les gestes ne devraient pas être utilisés quand de telles expressions sont produites. L'un de ces domaines est la traduction simultanée. Dans une formation formelle typique, les stagiaires sont encouragés à ne pas utiliser de gestes lors de l'interprétation simultanée dans la langue cible. Cependant, malgré cette politique anti-gestes, certains interprètes et stagiaires produisent des gestes lors de leur interprétation simultanée. Beaucoup de chercheurs en discours et gestes ont jusqu'ici examiné un seul flot de discours, principalement produit par la personne faisant les gestes, et ont abordé des questions relevant du lien entre ces gestes et le discours qui les accompagne. L'interprétation simultanée est une tâche cognitivement exigeante et demandant de grandes compétences: les interprètes écoutent la présentation dans une langue et l'interprètent simultanément dans une langue cible. Ils comprennent un flot de discours et en produisent un autre de telle façon que le flot et le contenu de ce dernier soient bien organisés pour refléter le premier. Quand et quels types de gestes les interprètes simultanés produisent-ils ? Les gestes les aident-ils à interpréter ? Si oui, de quelle façon sont-ils utiles ? Ces gestes sont-ils utilisés pour vaincre des problèmes d'interprétation simultanée ? Avec ces questions à l'esprit, nous avons réalisé un corpus de données vidéos d'interprétations simultanées. Nous prévoyons de discuter ces points lors de la conférence, avec quelques exemples d'analyses de données préliminaires. L'étude présente peut bénéficier aux études d'interprétation simultanée et à la recherche sur discours et gestes.

Pulse periodicity in Para-Linguistic Coordination

Joint or collective action (Clark, 1996) involves grounding in understanding of the communicative situation. In this paper, the process of grounding is explored as the emergence and movement of paralinguistic pulse periodicities, of bodies interacting during the building of a concept in a joint task. These emergent temporal patterns are explored as musical accents of change. The analysis develops upon earlier work on body movement coordination (Gill, Kawamori, Katagiri, Shimojima, 2000) that revealed sequential and parallel rhythmic patterns but did not analyse their temporal structure, and considers these structures as possibly isochronous and polyphonic respectively. It is proposed that the structures of pulse periodicities facilitate tacit transformation in unfolding understanding and enable joint action to be maintained (Gill, 2004). Musicality allows for ambiguity and fluidity of meaning states in the interaction situation, and it is suggested that body rhythms and the sensory dimension of body motion in interaction expresses and reflects this. The analysis is of video data of collaborative conceptual design sketching undertaken by dyads. This is work in progress and is part of a larger project to investigate how aspects of rhythm and entrainment are manifested in linguistic (phonology) and paralinguistic interaction (gesture, movement) and comparing ways in which these are manifested in music (Cross, 2004).

Gemeinsame oder kollektive Aktion (Clark, 1996) beinhaltet Verständniss der kommunikativen Situation. In diesem Artikel wird der Prozess des Verstehens als Entstehung paralinguistischer Puls-Periodizitäten von interagierenden Körpern dargestellt. Die entstehenden zeitlichen Muster werden als musikalische Betonung der Veränderung untersucht. Die Analyse bezieht sich auf eine Untersuchung der Koordination von Körperbewegung (Gill, Kawamori, Katagiri, Shimojima, 2000), welche sequenzielle und parallele rhythmische Muster zeigte. Diese Untersuchung betrachtete die Struktur der rhythmischen Muster als isochronisch beziehungsweise polyphonisch. Wir schlagen vor, dass die pulsperiodischen Strukturen Verständniss ermöglichen und

dadurch auch gemeinsame Aktionen (Gill, 2004). Musikalität ermöglicht darüber hinaus auch die Behandlung von Mehrdeutigkeiten, die durch körperlichen Rhythmen und Bewegungen widerspiegelt wird. Videoaufnahmen von kollaborativen Zeichenaufgaben werden analysiert, als Teil eines grösseren Projektes, welches rhythmische Aspekte der linguistische (Phonologie) und paralinguistische (Bewegung) Interaktion im musikalischen Zusammenhang untersucht (Cross, 2004).

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Gestures in the blackboard work of mathematics instruction

Eric Livingston (1986, 1999) has argued that the heart of mathematics is work at the blackboard. In this paper we will exhibit how university lecturers work at communicating mathematical ideas to graduate students. The topic thus is how mathematical arguments are made visible through the use of gestures in relation to what is written on a blackboard and what is said.

Lectures in mathematics consists almost entirely of the lecturer writing definitions, theorems, and proofs on the blackboard (often reproducing word-by-word what is distributed in advance in lecture notes) while simultaneously commenting on what is being written. The writing, talking, and gesturing conjointly formulate the cohesive logic of the mathematical argument that the formulae instantiate.

In the first part we examine the *blackboard organization of the exposition*: what is written is not just written 'anywhere', but the physical structure of the blackboard is organized into segregated fields so as to re-order the formulae on the board in a way that displays their mathematical role amongst the interrelated constituents of the mathematical argument put forward.

The second part focuses on how gestures are used *in conjunction with and coordination of* what is being written on the blackboard and what is being said. Following McNeill's (1979, 1992) early work on gestures of mathematicians, we explore the way that gestural work is embedded in the organisation of the spoken commentary – and thus both articulated with, and used to capture, the progression of the course of the mathematical reasoning under construction. In particular, we show how gestures are used to exhibit the *structure* and *integration* of the mathematical argument.

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To mean what you say: Gestures, placement events, and advanced second language acquisition

Second language (L2) acquisition studies assume that when L2 speech looks target-like, meaning is also target-like. This study investigates whether and how L2 learners adjust their L2 meaning representations towards the target language. We examine expressions for placement events ('put something somewhere') in Dutch and French. Dutch habitually uses two positional verbs (*zetten*, *leggen*, 'set', 'lay'), the choice of which hinges on properties of the located object. French instead typically uses a general placement verb (*mettre*, 'put'). A first study shows that language-specific semantic granularity is systematically reflected in the iconic gestures of native Dutch (N=10) and French speakers (N=10). Dutch gestures typically reflect the object focus in specific hand-shapes, whereas French gestures display only path elements. We further examine 10 Dutch learners' production of L2 French. While learners' L2 speech is target-like, their gestures reveal traces of both perspectives: a lingering Dutch object focus, but also an adjustment towards a French focus on simple paths. The results raise issues for the traditional view of transfer, and will be discussed in terms of enriched representations in the minds of bilingual speakers.

La recherche sur l'acquisition des langues secondes (L2) suppose souvent qu'une forme cible a également un sens cible. Dans cette étude, nous examinons si et comment les représentations sémantiques des apprenants en L2 changent vers un sens cible. Nous étudierons ici le domaine des localisations provoquées ('mettre quelque chose quelque part') en néerlandais et français. Le néerlandais emploie typiquement deux verbes de positions (*zetten*, *leggen*, 'mettre debout', 'coucher') dont le choix est déterminé par les aspects de l'objet localisé. Le français, en revanche, utilise typiquement un verbe général, *mettre*. Une première étude montre que ces spécificités sémantiques sont reflétées dans les gestes iconiques co-verbaux des locuteurs natifs néerlandais (N=10) et français (N=10). Les gestes néerlandais se focalisent sur l'objet en épousant sa forme avec la main, alors

que les gestes français privilégient le parcours spatial. Une deuxième étude porte sur la production des apprenants néerlandais en français L2. À l'oral, les apprenants produisent des formes cibles. Au niveau gestuel, la focalisation sur l'objet propre au néerlandais reste visible, mais on voit également un alignement vers la focalisation sur le parcours propre au français. Les résultats questionnent la conception traditionnelle du transfert dans l'acquisition et seront discutés en termes de représentations bilingues enrichies.

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Repackaging Multimodal Communicative Behavior Across Multiple Discourse Configurations

The synchrony of gesture strokes and speech intonational phrases is a cornerstone to most models of multimodal communicative behavior. We present an animated avatar that tests the proposition that this temporal multimodal packaging is preserved across communication configurations (speaking while pointing into a tablet computer or speaking in front of a projection screen). We show that we can repackage the communication streams to produce believable embodied multimodal behavior using tablet-based behavior and speech as the input package. Our system is a distance tutoring/presentation avatar. In the highly spatial and contextually rich tutor-student interaction, a key to facilitating learning is to provide a sense of situatedness between tutor and student. We employ a strategy of spatial and temporal binding where elements of space and time are attached to generate behavior. Behavior specification is produced by interpreting pen gestures into a tablet-based poster. By binding gestural intent with appropriate template, the system generates multimodal behavior. Temporal situatedness is preserved by binding the execution time activity with the relative timing of the pen activity, whereas spatial situatedness is preserved by binding gestural behavior trajectories/locations with interlocutor behavior detected by a camera and the spatial configuration of the avatar space. We present results of our usability experiments to show the efficacy and applicability of this system.

La synchronisation de la gestuelle et de l'intonation orale est un aspect essentiel de la plupart des modèles du comportement multi mode de la communication. Nous vous présentons un avatar (humain virtuel) animé, qui examine la proposition que cette relation multi

mode temporelle est préservée à travers des configurations de communication (parlant tout en se dirigeant vers un tablette PC ou parlant devant un écran de projection). Nous illustrons que nous pouvons réorganiser les attitudes de la communication pour produire un comportement exprimé en plusieurs modes qui est crédible, en utilisant le comportement vis-à-vis de la tablette et le discours comme données initiales. Notre système est un avatar sur la distance du tutorat/présentation. Dans les interactions grassement riches en espaces et en contextes entre le tuteur et l'étudiant, une solution pour faciliter l'apprentissage est de fournir un sens à la situation entre les deux parties. Nous utilisons une stratégie reliant l'espace et le temps où leurs éléments respectifs sont unis pour générer le comportement. L'exactitude du comportement est fournie en interprétant l'écriture sur une affiche de la tablette de base. En reliant l'intention gestuelle avec le modèle approprié, le système produit un comportement multi mode. L'attitude temporelle est préservée en reliant l'activité du temps d'exécution avec la synchronisation relative de l'activité de stylo, tandis que l'attitude spatiale est préservée en reliant les trajectoires/localisations du comportement gestuel avec le comportement de l'interlocuteur, détecté par un appareil photo, et la configuration spatiale de l'espace de l'avatar. Nous présentons ainsi les résultats de nos expériences pour montrer l'efficacité et l'applicabilité de ce système.

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Positional roots & iconic gestures: relations between gesture and semantic typology in language

Tzotzil, like other Mayan languages, has a class of roots traditionally called “positionals,” distinguished from other word classes both by the morphological properties of its members and by a diffuse semantic coherence. “Positional” roots typically denote positions, shapes, collocations, and other aspects of the arrangement or appearance of objects. Their use is highly expressive and often affectively charged. Speakers of Zinacantec Tzotzil, in conversation and in narrative, characteristically include in their speech words derived from such roots, and often they gesture as well. I explore the relationships between characterizing gestures and spoken positional forms, focussing on semiotic relations between apparently iconic gestures and their evident “positional” affiliates. The issue is how, if at all, typological features of a language’s semantic structure and apparent expressive preoccupations in a speech community are reflected in the corresponding gestural practice.

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The meaning of spontaneous movements of a recipient in a collaborative work in face-to-face interaction

When one finds something sticking on the face of the other in face-to-face interaction, the one often instructs the place of the object with speech and gesture pointing the one's own body, instead of pointing the other's body directly. Such a collaborative work might be evolved before the mirror self-recognition, because others are easier to be found than mirrors in natural situation.

To understand the process of this collaborative work, we simulated it under an experimental situation. Two participants, a recipient and an informant, sit in a room face-to-face. The recipient put on a helmet with a small mark, and the informant with speech and gesture instructed the recipient to move the point finger to the mark.

The spatial formats of the informant's speech and gesture had different tendencies; the informant's speech tended to take the recipient's point of view, but the informant's gesture tends to take informant's own point of view. The difference of the spatial format in the two modalities often causes misunderstanding, but the repair processes were quick when the recipient moved the finger spontaneously.

The informant's instructions were often ambiguous, and spontaneous movements of the recipients helped the informant to utter discourse markers when the recipient's finger came close to the mark.

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Pointing in face-to-face interaction

In pro-drop languages like Chinese, Korean, and Japanese, when pronouns are recoverable in the discourse context, they can be left unexpressed. This paper shows how pointing gestures serve as such a cue in face-to-face interaction in Japanese. In so doing, I will show how zero anaphors (or null pronouns) and gestures pointing to interlocutors interact with one another. In other words, this paper describes that being part of a unified system together with speech, pointing gestures play a pronoun-like role in face-to-face interaction in the pro-drop language, Japanese.

Embodied attention focusing in classroom interaction

In work settings, people draw upon both linguistic and embodied means alongside with the material world in co-constructing meaningful, locally managed interaction (see e.g. Goodwin 1996, Ochs et al. 1996). Goodwin (1999), for example, has illustrated how crucial pointing can be in generating work related meanings through the unfolding interaction within such a work setting as archaeological excavation. Classroom interaction functions alike in that participants co-create meanings through their sequentially organized interaction. However, the institutionality of classroom interaction poses constraints and obligations for the participants as well as defines its inherent purpose (e.g. Heritage 1997, Seedhouse 2004). That is, teacher and students have certain identities that are relevant to the main goal of classroom interaction: the teacher is to teach the students the subject matter. In terms of CA, the participants' actions, both individual and whole group, are derived from this goal (Seedhouse 2004).

In my presentation, I will demonstrate how teachers effectively use embodied as well as instrumental means in order to draw students' attention to relevant aspects of content while aspiring to teach L2 and to guide student participation. That is, I will demonstrate that teachers' embodied devices are an essential part of a network designed to create meaning through the sequential organization of institutional communication. The divergent means that I will concentrate on are pointing, highlighting, gesticulation and displaying and drawing attention to teaching materials such as books and hand-outs. The presentation is based on my on-going doctoral research, in which I examine teacher issued directives as embodied activity in classroom interaction. The research method is conversation analysis. The data for the dissertation consists of a corpus of 30 videotaped lessons (12 English as a foreign language lessons and 18 content based lessons taught in English).

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Gestures performed by Yemenite Jews in study/ reading the Torah

One of the most ancient customs in Jewish prayer is reading from the Torah. This custom was part of the liturgy in the Second Temple of ancient Judea, that is prior to the consolidation of the present prayer version, and is even described in the Bible itself. To this day, every Monday and Thursday during the morning prayers in the synagogue, members of the congregation are invited to read aloud a segment from the Torah. The text of the Torah parchments that every synagogue keeps, has no vowelization or punctuation marks, which makes it very difficult to read. At the same time, Jewish Law demands that the Holy Scripture be read with absolute precision. Children thus learn to read from the Torah from age three, and throughout their lives the men continue to refine their reading expertise.

Attaining this expertise is rather a complex process, and Jewish communities have thus developed various techniques to help its members read the Torah correctly. The Jews of the Yemen, one of the most enduring communities, use the method of hand gestures to assist their reading, a technique that has probably been in existence since Second Temple times. Despite this, there are no clear normative instructions, whether written or oral, for the performance of these gestures. The gestures are not normative (I avoid using the concept "conventional"), yet they are also not spontaneous. Almost unconsciously, people learn the gestures from a very young age as part of traditional religious practices, just as they learn to sit, to walk or to hold a needle. These gestural habits have penetrated the dances of Yemenite Jewry as well as their daily gesticulation. I thus tend to define the reading gestures of Yemenite Jewry as a body technique, in Marcel Mauss's terms. While various aspects of the liturgy of Yemenite Jewry have been examined in detail (for example, ethnomusicology), their gestures have never been researched! I have studied their gestures in two settings:

1) Interaction between teacher and students in studying the Torah (possibilities: the teacher demonstrates and reads aloud while performing gestures; the teacher reads together with the children and

performs gestures; a child or children read and the teacher performs gestures).

2) Interaction between the reader and the assistant in the synagogue during the Torah-reading ceremony.

My research method is simple and effective, similar to the McNeill method: I videotape the scene of different teachers studying/reading the Torah in various synagogues, and I then decode, analyze, and compare the data. In the analysis I examine the relationships among the following layers: the semantics and syntax of a verse, paralinguistics (especially intonation, or the melodic line, in ethnomusicological terms; and occasionally also adaptors of the body and of objects) and kinesics (besides the predominant hand gestures, the performance also combines minor movements of arms, shoulders, and upper body; facial expressions and proxemics can sometimes be included in the analysis).

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The conceptualization load for speaking increases the rate of co-speech representational gestures

This study investigates cognitive factors that influence the rate of representational gestures in order to shed light on the nature of gesture's facilitatory effect on speaking. Participants were told to mentally partition a complex geometric figure in a specific way, and describe the figure part by part. The load on conceptualization was manipulated by two types of figures: Easy and Hard figures. The Easy and Hard figures differed only as to which lines were in bold or in normal thickness. In the Easy condition, bolding of the lines were congruent with how the figures should be partitioned. However, in the Hard condition, bolding was incongruent, and thus it was more difficult to determine what information should be expressed in each utterance. Because the participants were instructed to ignore bolding of the lines in their description, the contents of description, and thus the surface linguistic forms produced, were virtually identical in the two conditions. We found that the participants produced representational gestures at a higher rate (per word) in the Hard condition than in the Easy condition. The result is compatible with the idea that when conceptualization processes have a higher load, speakers produce more representational gestures that facilitate these processes.

Diese Studie untersucht kognitive Faktoren, welche die Rate der repräsentativen Gesten beeinflusst, mit dem Ziel den Erleichterungseffekt von Gestik fürs Sprechen besser zu verstehen. Versuchspersonen wurden instruiert komplexe geometrische Figuren in einer bestimmten Weise mental aufzuteilen und zu beschreiben. Die Last der Konzeptualisierung wurde anhand von zwei Figurentypen manipuliert: Leichte und Schwierige Figuren. Leichte und Schwierige Figuren unterschieden sich nur in der Wahl der Linien, die fettgedruckt waren. In der

Leichten Kondition stimmten die fettgedruckten Linien mit der vorzunehmenden Partitionierung überein. In der Schwierigen Kondition stimmten sie nicht mit der vorzunehmenden Partitionierung überein, d.h. es war schwieriger zu entscheiden, welche Informationen zu äußern. Die Versuchspersonen waren instruiert, die Breite der Linien in ihrer Beschreibung zu ignorieren. Der Inhalt der Beschreibungen und damit auch die linguistische Oberflächenform, die produziert wurde, waren in den beiden Konditionen größtenteils identisch. Die Analyse zeigt, dass die Rate der repräsentativen Gesten (pro Wort) in der Schwierigen Kondition größer war als in der Leichten Kondition. Dieses Resultat stimmt mit der Hypothese überein, dass Sprecher mehr repräsentative Gesten produzieren, die die Konzeptualisierung erleichtern, wenn die Konzeptualisierungsprozesse schwerer belastet sind.

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Les affects partagés dans les situations d'orthophonie et de traitement langage

Une session d'orthophonie est un contexte institutionnel spécifique où la parole est aussi bien l'objet et le moyen de la thérapie. Le but d'une session d'orthophonie est de remédier aux problèmes de parole et de langage, et de traiter les émotions et attitudes liées à ces problèmes. Il arrive souvent que le thérapeute ait la tâche de reconnaître et de verbaliser des questions délicates causées par les problèmes du client.

Nous allons examiner dans cette présentation la façon dont les affects sont partagés dans les situations de thérapie orthophonique. Nous allons analyser des extraits de conversations où le sujet est l'incapacité ou l'incompétence du client dans la réalisation d'une activité. Nos exemples démontrent que l'examen d'une question délicate peut être un événement interactif transcient et rapide où les participants reconnaissent et partagent le problème en question. Plusieurs moyens simultanés de structure de séance paraissent être liés à la capacité de reconnaître et de partager l'affect lié au problème. Ces moyens sont par exemple des emprunts lexicaux des séances antérieures, des motifs prosodiques proéminents partagés par les participants, des gestes miroir et le rire partagé. En utilisant ces moyens les participants peuvent briser les barrières du monde individuel de l'expérience et atteindre l'expérience partagée.

Shared affects in speech and language therapy situations

Speech and language therapy session is a specific institutional context, where speech is both the target and the medium of the therapy.

The aim of speech and language therapy is to reduce and to remedy the problems of speech and language, and to handle the feelings and the attitudes connected to the speech and language problems. It is common that delicate problems connected to client's competence and activity manifest in speech and language therapy situations. If the client is a child with speech and language problems or an adult with severely disordered speech and language, it often occurs that the client her/himself cannot express the nature of problems. In these cases the therapist has the task to recognize and verbalize the delicate issues. However, due to the problems of the client, it is not possible to handle them with complex linguistic expressions. This presentation uses conversation analysis to examine how affects are shared in speech and language therapy situations. We will show and analyse extracts of conversations, where the topic of the conversation is client's disability or problem of competence in performing some activity, and where the frustration linked with these problems is expressed. Our examples show that handling a delicate issue can be a quick and transient interactive event, where the participants recognize and share the problem at hand. Several simultaneous means of turn construction seem to be linked with the experience of recognizing and sharing the affect related to the problem. These means are for example borrowing lexical elements from previous turns, prominent prosodic patterns shared by both participants, mirroring gestures and shared laughing. By using these means the participants can break the barriers of individual world of experience and reach shared experience.

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The Triangle of Doom: “geste dans le contexte”

We will examine in this presentation a specific gesture produced during the performance of a hernia surgery at a teaching hospital. Participants include two medical students, a resident, and an attending surgeon. The attending provided a commentary for the medical students as the surgery progressed and produced an instructive gesture in explaining the safe zone for installation of surgical staples. We will argue that, in addition to its associated talk, the gesture was made meaningful by particular aspects of the built environment (e.g., the scene portrayed on the endoscopic monitor), its superimposition on the surgeon’s own body, and by the unfolding activity within which the talk and gesture were embedded.

Merleau-Ponty (1962) wrote that the gesture meaning “is intermingled with the structure of the world outlined by the gesture” (p. 216). We take this to be consistent with more recent proposals that argue that gesture meaning is “environmentally-coupled” (Goodwin, 2002) or “indexically-linked” (LeBaron & Streeck, 2000). In contrast to views of gesture as semantically-dependent on co-occurrent talk, we will argue that gestures function as meaningful and consequential action precisely in their reflexive relation to the context within which they are performed.

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Manual signs and intensive interaction in building up the communicative competence of a child with Down syndrome

Descriptions of exceptional individual paths to verbal communication may help researchers and clinicians better to understand the nature and role of pre-speech communication in the development of communication and language, both in children with developmental risks and in children who are developing normally. This presentation will follow the development of a boy with Down syndrome up to the age of seven years. As a part of an early intervention programme, his parents were taught to use manual signs to augment his communication and language development. The early communication development of the boy was exceptionally slow. At the age of two and a half years, he still had very poor interaction skills; he needed strong support from his partner to make and maintain contact, and to share attention. From that age, the intervention was built on different games and play which emphasized the active role of the child. In the beginning, all his actions, even small gestures were taken as intentional expressions. With the repetitive, interactive use of his favourite games, his expressive communication forms developed from gestures to manual signs, and gradually to spoken words which he started to put together, first with manual signs, and later also to form spoken sentences.

Kielen kehityksen poikkeavien polkujen kuvaukset voivat auttaa tutkijoita ja kuntoutustyön tekijöitä ymmärtämään puhetta edeltävän viestinnän luonnetta ja roolia viestinnän ja kielen kehityksessä sekä niillä lapsilla, joiden kehityksessä on riskejä, että niillä, joiden kieli kehittyy tyypillisesti. Tässä esityksessä seurataan Downin syndrooma-pojan varhaista kehitystä seitsemän vuoden ikään asti. Hänen vanhempiaan opetettiin varhaiskuntoutusohjelmaan liittyen käyttämään viittomia hänen viestintänsä ja kielensä kehityksen tukena. Pojan varhainen viestinnän kehitys eteni poikkeuksellisen hitaasti. Kahden ja puolen vuoden iässä hänen vuorovaikutustaitonsa olivat edelleen hyvin heikot; hän tarvitsi vahvaa kumppanin tukea kontaktin luom-

iseen ja ylläpitämiseen ja tarkkaavuuden jakamiseen. Tuosta iästä lähien vuorovaikutus rakennettiin erilaisten leikkien varaan, jotka korostivat lapsen aktiivista roolia. Alussa kaikki hänen toimintansa pienimpiä eleitä myöten tulkittiin tarkoituksellisiksi ilmauksiksi. Hänen mielileikkiensä toistavan, vuorovaikutuksellisen käytön myötä hänen ilmaisun keinonsa kehittyivät eleistä viittomiin ja vähitellen myös puhuttuihin sanoihin, joita hän alkoi myös yhdistellä, ensin viittomiin ja myöhemmin myös muodostaakseen puhuttuja lauseita.

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Café counter sociability: gestures between staff, strangers and regulars

Since Cavan's seminal study of sociability in bars in the 1970s, inspired by Goffman's work, there have been few serious studies of this important site of interaction amongst staff, strangers and habitués. Cavan described how a person's presence at the bar carried with it obligations to enter into conversation with others, particularly regulars. In this paper I will examine the counter in UK and US cafés as a different setting with quite distinct conventions and possibilities for encounters amongst unacquainted persons in society. Given that the persons are unacquainted and have limited rights to, and resources for. Talk to one another, gesture is of particular significance in these encounters in initiating, avoiding, declining, pacing and ending encounters. Using three videos of café customers being served at a counter this paper will consider how regulars and strangers display and recognise one another's membership of these categories. In one café regulars are able to remain at counter throughout their stay in the café, drinking their coffee there. In the other two cafés which feature in the clips, customers only remain at the counter while ordering their drinks and waiting for them to be prepared, after which they leave for seats at tables.

The paper will seek to describe how strangers are invited through glances, the handling of cups, cutlery, money etc. and the adjustments of their upper body directions at the counter into ongoing conversations between staff and regulars. Relatedly, we will describe how strangers respond through smiling, glancing, shifts of upper body and handling of cups, money, cutlery etc. Of course staff themselves play a vital part in the handling of encounters through their parallel streams of gestures and talk to customers at the counter, where a part of their responsibilities is toward the production of friendliness, fairness or equally risking their opposites. We will use Charles Goodwin's work to consider the importance of the setting of gestures in locating their sense and Heath et al.s emphasis on the implication of objects in the production of gestures and those gestures' part in the configuration of objects.

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Embodied Grammar

It is generally accepted, and continuously demonstrated, how gesture and bodily conduct are parts of the interactional organization, especially when it comes to the organization of sequences and overall activities.

But when it comes to the linguistic structure of utterances only few researchers (e.g. Streeck (2002); Armstrong, Stokoe & Wilcox (1995)) have so far focused on demonstrating how gestures are also a part of the linguistic structure of utterances in interaction. From a conversation analytic perspective I shall demonstrate not only how gestures are part of the turn constructional unit, but also how gestures are deployed syntactically in the turn construction and turn organization, and how they are used as tying technique, equal to pronouns, to connect utterances over time.

The examples are taken from a large data collection based on video-recordings from everyday conversation and workplace interaction.

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Comportement corporel et alternance de champs discursifs en classe

L'alternance de différents champs discursifs – la conversation plénière et les sous-conversations parallèles – fait partie intégrante du contexte interactionnel de la classe. Dans notre communication nous étudierons comment le comportement corporel des participants est lié au fonctionnement de ces différents modes de conversation. Afin de comparer des cadres d'enseignement différents, notre travail se base sur des vidéos enregistrées dans des classes de finnois langue étrangère au collège en Finlande et à l'université en France. Notre approche se fonde sur l'analyse de conversation.

Nous traiterons d'abord les caractéristiques de la conversation plénière et des sous-conversations. Nous montrerons comment les participants expriment leur orientation par rapport aux champs discursifs par des moyens corporels ainsi que des moyens (para)linguistiques. Nous analyserons également les changements de cadre de participation internes à la conversation plénière et par ce biais la frontière parfois floue entre conversation plénière et sous-conversations.

Ensuite nous considérerons l'alternance des champs discursifs, à savoir les moments d'émergence de conversations ainsi que les transitions d'une conversation à l'autre. Nous montrerons comment les participants modifient les champs discursifs par des indices de contextualisation corporels et comment cette alternance est conditionnée par différents facteurs liés à la situation interactionnelle.

The alternation of different discourse fields – the plenary conversation and parallel subconversations – is an integral part of the classroom interaction. In our presentation we will study how the bodily conduct of the participants is related to the functioning of these different conversation modes. In order to compare different teaching

environments, we work on data consisting of video recordings from Finnish as second language lessons both in lower secondary school in Finland and at university in France. Our approach is based on conversation analysis.

First we will focus on the characteristics of both plenary conversations and subconversations. We will show how the participants express their orientation to different discourse fields by bodily means as well as by (para)linguistic means. We will analyze also the changes in the participation frame of the plenary conversation and thus examine the limit – sometimes blur – between the plenary conversation and the subconversations.

We will then consider the alternation of discourse fields: the moments of emergence of conversations and the transitions from one conversation to another. We will show how the participants modify the discourse fields with bodily contextualization cues and how the alternation of discourse fields is conditioned by different factors within the interaction situation.

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Gestural communication in great apes

Studies of animal communication systems are essential to understand the evolution of human language. The majority of research focused on vocal communication (e.g., Seyfarth 1987), which is mainly due to the analogy to human language. Recent studies however, provide evidence that gestural signaling plays an important role in the communication of nonhuman primates (Goodall, 1986; Maestripieri 1996, 1999; Tomasello, Call et al. 1994, 1997) and emphasize that gestures may be the thread of evolutionary continuity between animal communication and human language. Our presentation summarizes and compares recent experimental and behavioral studies on the gestural communication of great apes (bonobos / *Pan paniscus*, chimpanzees / *Pan troglodytes*, gorillas / *Gorilla gorilla*, as well as orangutans / *Pongo pygmaeus*). The aim was to investigate systematically the gestural repertoire of the different species based on a similar design of data collection and analysis. We focused especially on intentionally produced gestures. This means only those signals were included in the analysis, which appeared to transfer a communicative message, e.g. a request and/or a desired action/event (e.g., play, nurse or ride) and were accompanied by the following criteria: gazing at the recipient with or without waiting after the signal had been produced and persisting in the communicative interaction. Our goal was to (1) compile the general gestural repertoire of each species including different signal categories (auditory, tactile and visual gestures), (2) to investigate the individual variability of this repertoire to determine the main learning process involved, and (3) to investigate the use of gestures in terms of flexibility and audience effects (Tomasello, 1994, 1997). The results are used to draw within and between species comparison and to discuss the results within the framework of the evolution of gestural communication along with the social structure, ecology, and social-cognitive abilities of the different species.

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Mental spaces and Gesture... The dynamics of 'F-space'

In this paper I will discuss the importance of a speaker's 'comfort zone' in which most gestures occur. This physical space functions as what I refer to as 'F-space', and the discussion will show that the boundaries of this space provide additional aspects of speaker-meaning as well as clues about speaker cognition. This approach to gesture makes use of the cognitive linguistics approach called Mental Spaces theory, and the examples provided give evidence of the conceptual mappings needed in discourse processing.

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How teachers use a student's gesture as a diagnostic tool

When students speak about material objects they have at hand, it has been proposed that their metaphorical gestures (gestures narrative in character relating to abstractions) of conceptual and abstract entities are facilitated (Roth & Lawless, 2002). Gesturing, favored by the presence of artifacts is thus seen as scaffolding the emergence of scientific language. Other research has illustrated the notion of gesture and speech mismatch (gesture conveying different information than that conveyed in speech) as being suggestive of receptiveness to learning (Garber, Alibali & Goldin-Meadow, 1998). When learners are acquiring a concept, Alibali & Goldin-Meadow, (1993) suggest that they progress from a stable state in which they produce incorrect gesture-speech matches, through an unstable state where they produce gesture-speech mismatches (perhaps signaling two different problem-solving strategies) and finally to a stable state where they produce correct gesture-speech matches. It is during this unstable state that a learner may be seen as in the process of acquiring a particular concept and more likely to benefit from instruction. But do teachers interpret students' gestures and use them to diagnose students' conceptions? Alibali, Flevares & Goldin-Meadow, (1997) have shown that when teachers describe fourth grade students' problem solving strategies of mathematics equations, these descriptions (be they gestural themselves or verbalized) can indeed be traced to students' gesture. However, with one or two possible exceptions, teachers did not *explicitly cite* gestures as reasons to assess students in the way they did and therefore decoded gestural content into verbal or verbal/gestural assessment in an unconscious way (Alibali, personal communication). In this proposed communication, we show how two French high school physics teachers in training — through their talk and gesture — analyze the recorded and transcribed verbal and gestural activity of a student's problem solving to assess his physics knowledge (Lund, 2003). They explicitly cite his gesture as evidence for his confusion of the concepts of speed and movement. Implications are drawn for wider use of student gesture analysis in teacher education.

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Humanity is in the gaze of the beholder: Experiments with androids and people

The development of androids that closely resemble human beings enables us to investigate many phenomena related to human interaction that could not otherwise be investigated with mechanical-looking robots. This is because more humanlike devices are in a better position to elicit the kinds of responses that people direct toward each other. In particular, we cannot ignore the role of appearance in giving us a subjective impression of presence, charm, or intelligence. However, this impression is influenced by behavior and the complex relationship between appearance and behavior. As Mori [1] observed, a humanlike appearance does not necessarily give a positive impression. In fact, it raises the standard of evaluating behavior in interlocutors because people are highly sensitive to subtle defects in the appearance and behavior of each other. Thus, androids provide a unique means to embody and evaluate bio-behavioral theories in relation to social interaction because of the human-directed responses they elicit. We propose a hypothesis about how appearance and behavior are related and report on experiments that investigate the hypothesis. We then evaluate the appearance and behavior of androids according to how they influence a human interlocutor's gaze fixations. We compare gaze patterns elicited in human subjects by a person with those elicited by a still or gesturing android, and a still or gesturing mechanical-looking robot. For these five cases, we

consider eye contact in general, using an Eyemark recorder, and how subjects break eye contact when lying or under cognitive load, using a coding method. We also explore the age dependent relation of the “uncanny valley” in babies and toddlers. Studies such as these, which integrate the development of androids with the investigation of human behavior, constitute a new research area that fuses science and engineering. We believe androids provide the ultimate test bed for theories from the social and neurosciences and a platform for their eventual unification.

Das Design von Robotern (Androiden), die Menschen täuschend ähnlich sehen, kann uns helfen, viele Phänomene des menschlichen Miteinanders zu untersuchen und zu verstehen, die uns bei Experimenten mit herkömmlichen humanoiden Robotern verborgen blieben. Je ähnlicher ein Roboter dem Menschen ist, desto eher ist er dazu geeignet, Reaktionen hervorzurufen, die dem zwischenmenschlichen Verhalten entsprechen. Eine besonders grosse Rolle spielt das Aussehen, wenn es um den subjektiven Eindruck von Präsenz, von Charm, oder von Intelligenz geht. Allerdings ist dieser Eindruck auch vom Verhalten selbst und dem komplexen Zusammenspiel von Aussehen und Verhalten beeinflusst. So ruft (vgl. Mori [1]) ein menschlicheres Aussehen eines Roboters nicht notwendigerweise eine positive Reaktion aus. Stattdessen, fühlt sich der Gesprächspartner des Roboters kompetenter in der Einschätzung seines Gegenübers, wird kritischer und empfindet eher das gesamte Spektrum der Nuancen der zwischenmenschlichen Kommunikation. Androiden sind daher einzigartige Forschungsinstrumente zur Untersuchung und Verifizierung von Verhaltenstheorien im Zusammenhang mit sozialer Interaktion. Wir nehmen in dieser Arbeit eine bestimmte Zusammenwirken von Aussehen und Verhalten als Modellhypothese an und berichten über Experimente, die diese Hypothese überprüfen. Dabei wird die Wirkung des Auftretens eines Androiden auf die Versuchsperson getestet, indem die Augenfixierungen der Versuchsperson getrackt werden. Es werden die Augenbewegungen von Versuchspersonen bei der Interaktion mit (1) einem Menschen, (2) einem bewegungslosen Androiden, (3) einem gestikulierenden Androiden, (4) einem leicht als Artefakt erkennbaren, bewegungslosen humanoiden Roboter und schliesslich (5) einem als Artefakt erkennbaren, gestikulierenden humanoiden Roboter miteinander verglichen. Dabei werden jeweils der Augenkontakt und das Brechen des Augenkontakts unter psychischer Belastung als ein Indikator für den Kommunikationsstatus

angenommen und untersucht. Darüber hinaus wird die Verschiebung des "uncanny valleys" im Laufe der frühkindlichen Entwicklung untersucht. Es bleibt festzustellen, dass Untersuchungen wie diese, die die Entwicklung von Androiden und die Erforschung von zwischenmenschlichem Verhalten beinhalten, ein neues Forschungsgebiet darstellen, in dem Wissenschaft und Technologie fruchtbar zusammenwirken. Wir glauben, dass Androiden das ultimative Testbett für diese Art der sozio-biologischen Forschung sind.

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Rhetoric of political gesture: a qualitative analysis with Multimodal Score implemented in ANVIL

Traditionally rhetoric isolates and identifies the idiosyncratic linguistic characteristics of a speaker, centering on the persuasive goal of his discourse. As political speech is considered rhetoric, political discourse has the goal to convince the audience and persuasion passes not only through words or rhetoric figures but also gesture.

To study this particular aspect of rhetoric, we use the Multimodal Score implemented in ANVIL. The most distinctive characteristic of this annotation system is that it aims at identifying the meaning of each movement or gesture and translating it into words or sentences: for example the index finger stretched up could mean “attention please”.

In this research we focus on the coproduction of speech and gestures in four samples of political speech, roughly of the same length and with a similar camera perspective, analyzed with the Multimodal Score implemented in ANVIL method. We intend to examine four gestures we meet in political speech: finger bunch, ring handshape and joined or praying hands (Kendon, 1995). Thanks to the Multimodal Score implemented in ANVIL we could capture the visual cues of politicians’ speech and label at the same time both phonetic-prosodic cues and gestures. This permitted us to inspect the time relationship and the coordination of these two aspects of multimodal communication, focusing on coverbal gesture.

Our research procedure is the following: on the lexical level we first transcribe phrases and sentences and point out some particular political terms used by politicians (i.e. *politichese*, Cortellazzo 1994). Secondly, we transcribe and analyze the phones and syllables, as well as the pitch and intensity contours, identifying prosodic aspects of the speech like e.g. on the level of topic-comment structures. Finally, we analyze the relationship between linguistic-prosodic phenomena and gestures, in order to see to what extent gestures may have persuasive and/or metaphoric functions in relationship with rhetoric aspects of speech.

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Hand gestures in speech: some studies on their roles in social interaction

Hand gestures are closely linked to speech (Argyle, 1972; Kendon, 1983, McNeill, 2000, among others); few study have only recently tried to describe and explain the specific intrapersonal and interpersonal functions of different types of gestures in speech (e.g., Beat-tie, Shovelton, 2000; Krauss, Chen, Chawla, 1996, among others). Some studies of a line of research on hand gestures and their functions in speech are here shown.

In the first study a coding system of hand gestures based on literature (Ekman, Friesen, 1969; McNeill, 1985) is validated in different social context ($K > .70$, for each gesture category).

In the second group of studies, different functions (discursive, interactional, rhetorical, or emotion display) of gestures in communication are drawn through correlational and sequential analyses between the different categories of gestures and different linguistic aspects of communication.

The third set of studies regards the role of gestures in persuasive communication, into small group discussion and political speech: ideational and cohesive gestures have a positive effect in interaction with verbal dominance on perceived influence; metaphoric, deictic and rhythmic gestures are typical of gestural communicative style of political leader.

Implications of these results and future lines of research already started by this study group are discussed.

I gesti delle mani sono strettamente legati al verbale (Argyle, 1972; Kendon, 1983, McNeill, 2000, tra gli altri); Solo pochi studi hanno

recentemente tentato di descrivere e spiegare le funzioni intrapersonali e interpersonali dei diversi gesti nel parlato (Beattie, Shovelton, 2000; Krauss, Chen, Chawla, 1996, tra gli altri).

Vengono mostrati alcuni studi di una linea di ricerca sui gesti delle mani e sulle loro funzioni.

Nel primo studio è stato validato in diversi contesti sociali un sistema di categorie dei gesti ($K > .70$, per ciascuna categoria) basato sulla letteratura (Ekman, Friesen, 1969; McNeill, 1985)

Nel secondo gruppo di studi sono state verificate le funzioni discorsive, interazionali, retoriche ed emozionali dei gesti nella comunicazione attraverso analisi correlazionali e sequenziali tra diverse categorie di gesto e diversi aspetti della comunicazione verbale.

Il terzo set di studi riguarda il ruolo dei gesti nella comunicazione persuasiva, nei piccoli gruppi e nel discorso politico: i gesti ideativi e coesivi in interazione con la dominanza verbale hanno effetti positivi sull'influenza percepita; i gesti metaforici, deittici e ritmici risultano essere tipici dello stile comunicativo dei leader politici.

Saranno discusse le implicazioni di tali risultati e le linee di ricerca portate avanti da questo gruppo di studi.

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Représentations visuelles des corps en interaction : quels modèles de l'interprétation ?

Depuis les années 1960, la sémiotique française semble s'être figée à une discipline formelle travaillant par principe sur des artefacts séparés de la vie. Il est temps, selon E. Landowski, de construire une socio-sémiotique du sensible basée sur une conceptualisation de type interactif (*Passion sans nom*, 2004). L'objectif de cette communication se situe dans la continuité de cette proposition.

Dans les publicités de la presse hebdomadaire, des corps en interactions illustrent souvent l'identité des grandes marques de mode. Ces corps figurent des affects (passions, émotions et sentiments) ou, plus précisément, des normes de comportements affectifs. De l'interaction affective représentée, à l'interaction qu'implique le processus d'interprétation, le corps est doublement sollicité.

Or, les modèles d'analyse des identités visuelles, des techniques de l'argumentation et de la persuasion ne prennent pas suffisamment en compte les caractéristiques sémiotiques des corps représentés en interaction signifiant les affects et, lors du processus interprétatif, le rôle des affects du corps.

À partir d'un corpus de publicités de corps en interactions, notre propos sera de tester un modèle d'analyse qui considère le corps comme le *médiateur* de l'opération d'interprétation réunissant les deux plans du langage social des émotions.

Since the sixties, French semiotics seems to remain a formal disciplinary, which deals with artefacts out of real life. According to E. Landowski, it is now time to build a socio-semiotics based on interactive models of communication (*Passions sans nom*, 2004). The purpose of this communication is in continuity with in this proposition.

Bodies' interactions are commonly used in visual advertising in order to embody the brands' identity. These bodies convey emotions or, more precisely, norms of emotional behaviours. In the process of reading and interpreting, body is also used for two reasons: first,

in the space of representation; second during the interaction implicated in the process of reception. Yet models for analysing visual identity, argumentation and persuasion don't consider enough emotional characteristics of body's representations and emotional process. Consequently, in this paper I am going to analyse bodies interactions in advertisings in order to develop a model of analyse with a body totally actor of the process which transforms emotional expressions into signification.

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Gesture and speech in children blind from birth

Data from videotaped interviews of 5 children blind from birth indicate that the blind children produce many occurrences of eyebrow raises that may be considered as 'beats' ('batons') – or as 'underliners' (the emphasis stretches out over more than one word: Ekman 1979). Eyebrow raises are highlighters, emphasis-producing gestures, similar in function to manual beats, although only Ekman's fast eyebrow 'batons' match McNeill's (1992: 15, 81-82) formal criteria for beats ("short and quick" with "just two movement phases- in/out, up/down") - the duration of underliners constituting a special case.

A part of the study investigates the degree of synchronization of brow raises with pitch accents, in reference to Cavé et al. (1996) and Krahmer et Swerts (2004) findings in sighted adults.

Following Iverson and Goldin-Meadow's 1997 findings on gestures used by blind children (mostly iconics in a conservation task), the presence of eyebrow raises in the speech of blind children (who were never saw eyebrow raises or experienced their effect on listeners) confirms the importance of such movements for the speaker. It supports the view of a strong coordination between motor activity and language, and the existence of an integrated system of language and gesture, extending such a coordination, beyond hand gestures, to co-verbal movements in the face area.

L'analyse d'un corpus vidéo de 5 enfants aveugles de naissance montre la présence de beats (paraverbaux rythmiques) sous forme de haussements de sourcils (brefs, ou souligneurs pouvant s'étendre sur plusieurs mots : Ekman 1979). Ils ont la même fonction que les « beats » manuels (McNeill 1992), mais les coups de sourcils brefs satisfont seuls aux critères formels de brièveté-simplicité inadaptés aux souligneurs, incitant à une définition élargie.

En relation avec les données (Cavé & al., 1996, Krahmer et Swerts 2004) concernant les locuteurs voyants, l'étude tente d'évaluer le degré de synchronisation ou d'indépendance entre haussements de sourcils et pitch intonatif, dans leurs rôles de mise en relief.

La présence de haussements de sourcils connotant le discours des enfants aveugles de naissance (n'ayant jamais vu de haussements de sourcils, ni éprouvé leur effet sur l'auditeur), en complément des gestes iconiques mis en évidence par Iverson & Goldin-Meadow (1997), confirme que ces gestes jouent pour le locuteur un rôle important, indépendamment de leur rôle communicatif. Elle conforte l'idée d'une coordination étroite entre motricité et langage, et d'un système intégré verbal-non-verbal, et montre que cette coordination peut impliquer, au delà du cas des gestes manuels, d'autres mouvements co-verbaux au niveau de la face.

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Gesture, Metaphor and Internalization: Material foundations for Second Language Acquisition

In the course of conceptualizing her ideas concerning what constitutes an “ideal marriage” a second language speaker of English, a long-time immigrant to the U.S., materializes her thoughts through a verbal conceptual metaphor (IDEAL MARRIAGE IS A MANUFACTURED PRODUCT) in conjunction with the use of metaphoric gestures. However, her ideas are much better represented through gesture than speech due to difficulties with production in the L2. I argue that with metaphoric gesture, she is utilizing her experience of actions in the everyday world in an attempt to gain control over thinking and speaking in the L2. This argument is based, theoretically, on the Vygotskian construct of *internalization*, following the approach to this process taken by Piotor Gal’perin, who argued that internalization begins with embodied experience on the material plane, that object-related activity in the world forms the basis for the creation of an internal, intrapersonal plane, and that this has much to do with learning. I argue that by extending this perspective to include perceptual actions in the form of gesture it is possible to afford structure for L2 learners in their meaning-making efforts. This perspective on gesture and language learning suggests potentially important implications for L2 pedagogy as well. A second aspect of the study focuses on the possibility of cognitive change with exposure to a new language and culture through the acquisition of different conceptual metaphors than those found in the L1.

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Cognitive Universals: Evidence from Head Movements in the Context of Speech

This paper presents evidence of potential cognitive universals based on identical head movements in the same communicative environments among speakers of African American English, Arabic, Bulgarian, Korean, and Turkana (a Nilo-Saharan language spoken by isolated pastoralists in Kenya).

Identical head movements were observed for lists, inclusivity, and deixis. When identical head movements occur in the same communicative environments among these linguistically and culturally unrelated groups, it is hypothesized that they are indicative of cognitive universals. This research presents physical evidence in support of theories that hold humans conceptualize the non-physical in terms of the physical. Conceptualizing abstract concepts and absent entities as occupying physical space seems to be a cognitive universal.

Diese Arbeit legt den Beweis für potenzielle kognitive Universale dar. Identische Kopfbewegungen wurden in gleichartigen Kommunikationsumgebungen unter verschiedenen Gruppen beobachtet. Diese Gruppen bestehen aus Muttersprachlern von afroamerikanischem Englisch, Arabisch, Bulgarisch, Koreanisch, und Turkana (eine nilo-saharische Sprache, die von abgelegenen Nomaden in Kenia gesprochen wird.)

Identische Kopfbewegungen wurden für Listen, Deixis, und einschließende Konzepte beobachtet. Wenn identische Kopfbewegungen in den gleichen Kommunikationsumgebungen unter diesen sprachlich und kulturell unverwandten Gruppen auftreten, so ist die Hypothese, dass sie kennzeichnend für kognitive Universale sind. Diese Studie liefert handfesten Beweis, der Theorien stützt, die davon ausgehen, dass Menschen das Abstrakte durch das Konkrete konzeptualisieren. Die Konzeptualisierung abstrakter Konzepte und fehlender Einheiten als die Vereinnahmung physischen Raumes scheint ein kognitives Universal zu sein.

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The gesture hold: A look at its forms and pragmatic functions in teaching contexts

Gestures are a comparatively fluid medium: They usually vanish as quickly as they emerge, often melting into one other. In comparison to such an unmarked flow of gestural forms and movements, the gesture hold can be considered as a marked instance of manual communication, standing out by taking on a certain stability in time and space. This phenomenon is particularly interesting in the teaching context, where, by holding a gesture, the teacher makes the represented concept interactively available for longer than usual. Teacher and students can contemplate a gestural form, which may help them keep their attention on the phenomenon in question and reason about it.

On the basis of video data collected in linguistics lectures and beginning language courses, this paper explores how the teachers' linguistic explanations and spontaneous co-speech gestures render abstract concepts and structures, especially those pertaining to grammar, more graspable. The focus is on the gesture hold and its forms and pragmatic functions of gesture holds as observed in the data. Combining cognitive and semiotic approaches to multimodal communication (Bouvet, Calbris, Cienki, Eco, Jakobson, Johnson, Lakoff, Müller, Peirce, Sweetser, Taub), I will illustrate several types of semiotic modes (iconic, indexical, metaphoric, etc.) that may be at work in such semiotic acts. I will also demonstrate to what degree gesture holds may be situated in different kinds of interactions: between gesture hold and concurrent speech information, between gesture, gaze, and head movements, as well as between teachers and students (eliciting feedback, guiding attention, etc.).

Gesture holds, seen as a sort of classroom practice, may serve to compensate for the lack of genuine objects of contemplation and manipulation in linguistics courses where the subject matter consist of abstract categories, relations, functions, and structures. Also, by engaging the body in semiotic activities, language teachers may transgress the students' linguistic limitations and appeal to their conceptual knowledge. The goal is to show that investigations into

the logic and use of the gesture hold can foster our understanding of situated, distributed cognition and the emergence of meaning in interpretive processes (Goodwin, Streeck, van Lier).

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One Action with Two Bodies: Assisting People with Disabilities as Collaborative Work

This paper studies interaction of the instruction for personal assistance work as collaborative one, focusing on membership categorization devices and sequential organization of conversation and body movement.

Personal assistance work, *kaijo* in Japanese, has been central topic in worldwide Independent Living movement of people with disabilities. In IL philosophy, personal assistants are not taking care of the person but assisting activities which the person wants to do. For example, washing his/her mouse is bodily done by the assistant but we can describe that the person with disability is washing mouse. One action seems to be done with two collaborative bodies.

First, using video data, this paper focuses on sequential organization in personal assistance work (*kaijo*) by comparison with care work (*kaigo*), contrasting their category-bound activities.

Second, this paper examines instruction setting for *kaijo*, referring the educational sequence which H. Mehan and others stated, initiation-response-evaluation (IRE), and explicates how the juxtaposition of *kaijo* sequence and IRE one works with categories in the interaction. With some analysis of video data, this paper demonstrates how instructions for proper personal assistance work are accomplished thorough experienced practices using sequential and categorical organization.

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The Notion of Nonverbal Etiquette and Ways of its Classification

The paper investigates etiquette as a complex semiotic system which has not received much attention in modern research. The two parts of this system are verbal and nonverbal etiquette. While verbal or speech etiquette has long been a subject of scientific interest, nonverbal etiquette is still waiting for its turn. The present report thus makes the first attempt to examine nonverbal etiquette as a multi-level system and to describe it using the achievements of various disciplines: linguistics, semiotics, cultural studies, psychology and ethnography. The report gives a definition of nonverbal etiquette, a detailed examination of its levels, their components and the rules which can be applied to different units of etiquette, and it allows us to evoke some further related questions.

The paper offers ten possible ways for classification of nonverbal etiquette according to the type of signs being analyzed: like visual, auditory, olfactory etiquettes, etc.

So the work gives some prospects for further analysis and the development of a comprehensive etiquette theory.

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The non-verbal expression of emotions in interaction: a cross-cultural study of listeners' response cues

In this paper we use a micro-analysis of interaction sequences to identify the major non-verbal configurations (including voice, gestures, mimics and proxemics) of listeners' responses to emotional expression.

Our questions include the following: (1) what are the major non verbal configurations of listeners' responses in relation to the processing strategies adopted within the "social sharing of emotion"; and (2) to what extent are these similar or different across the three cultural groups considered?

Drawing on data collected in Anglo-Australian, French and Italian films, results support the view that although there are variants that pertain to the listeners' discursive and pragmatic competence and their individual ability to empathise, there are common sets of non-verbal features associated to listeners' responses as well as cultural optional variants. For example, the provision of a backchannel cue (vocalization, head nod or shake) appears to be common to all groups to signal the "entering" strategy, whereas touching is optional as it may be considered culturally inappropriate.

This study contributes to the constitution of social knowledge on emotion and adds to a growing body of data regarding the non-verbal expression of emotion within a cross-cultural perspective.

Dans cette présentation nous nous livrons à une micro analyse de séquences interactionnelles (incluant voix, gestes, mimiques et proxémique) pour déterminer s'il existe des configurations non verbales de réception concernant l'expression émotionnelle. Les questions que nous tenterons d'élucider sont les suivantes : (1) Quel type de

configuration apparaît par rapport aux stratégies adoptées par les récepteurs en situation de partage social des émotions ? (2) Quelles sortes de similarités ou de différences existe-t-il entre les trois groupes culturels considérés : anglo-australien, français et italien ?

Les résultats de notre analyse montrent qu'en dépit de variantes manifestes qui reflètent la compétence discursive et pragmatique et la disponibilité affective du sujet interprétant, il existe des similarités mais aussi un choix de variantes culturelles. Par exemple un marqueur vocal, ou un hochement de tête semble correspondre à la stratégie de « disponibilité à l'écoute », identifiée dans une phase préliminaire de notre étude, commune aux trois groupes ; par contre les *haptics* est une catégorie optionnelle, car ces gestes peuvent être considérés comme culturellement inappropriés.

Cette étude contribue à l'élaboration d'un savoir social et culturel sur l'expressivité émotionnelle dans la régulation des échanges dans une perspective transculturelle.

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Pointing in the airline cockpit: witnessing, and making space

This paper examines pointing in the routine work of airline pilots, and uses transcriptions and video recordings of pilots interacting on actual passenger flights. First, to direct attention and establish shared sites of reference, the timing of pointing can make maximally visible the non-talk activity for some task or the evidence of its completion, or occurrence of a flight event. So pointing realizes accountability for seeing: activities and events should be jointly witnessed. Second, the manner and location of pointing shows how pilots interpret and treat as significant relevant spaces in the cockpit, and the positioning of their bodies within it, relative to the activities required for different tasks. Pilots enact a professional orientation to task-sensitive particularities of the cockpit's layout, including seating arrangements and placement of instruments (e.g. displays): pointing is a means for making space. The paper furthers research drawing on ethnomethodology and conversation analysis to consider pointing as situated in social action and collaborative work. It considers the role of pointing as pilots develop and demonstrate to one another their moment-to-moment understandings of what they are doing and what is going on. Pointing is examined as a local competency for a specific professional group.

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Modal Density and three hierarchical positions of hand-arm gestures in everyday interactions

Gestures, or hand and arm movements, often co-occur with and are interdependent upon -- and usually have been described as being subordinated to -- the spoken language (McNeill, 1992). However, not all gestures take on a subordinate position to the co-occurring language (Norris, 2004).

This paper utilizes the notion of "modal density," which can either be created through modal intensity or modal complexity (Norris, 2004), and investigates when gestures are actually subordinate to language, when gestures take on an equal hierarchical position to language, and when gestures take on a superordinate position to the accompanying spoken discourse.

Drawing on real-time video taped examples taken from several studies in diverse settings such as a music lesson, two web-designers at work, and a dentist-patient interaction, the paper delineates that the hierarchical position of a gesture depends upon its modal environment. While some gestures are clearly subordinated to the concurrent spoken discourse of the participant; other gestures may be part of modal aggregates, in which the gesture takes on an equally important position as the spoken discourse (such a modally collective message for example can be a posture-proxemics-head movement-spoken language-gesture aggregate); and again other gestures may take on the superordinate role, exceeding the accompanying language of the participant in a hierarchical structure.

In this paper, I exemplify these three hierarchical positions of gestures in relation to the accompanying spoken discourse... First, I explicate the notion of modal density, which allows us to distinguish the hierarchical structures among modes that participants utilize in an interaction. Then, I show three brief video clips of the moments in which the gestures (with concurrent spoken discourse) are performed, and illustrate the hierarchy of each gesture in relation to the language with a multimodal transcript.

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Effects of speech load (L1 and L2) and manner on gesture production

Oh and Saito (2004) required 64 “Korean” subjects (L1 Korean, L2 Japanese) to narrate an animation in L1 or L2 to an unknown listener presented on a monitor. The results of the two experiments conducted in Japan and Korea showed Korean speakers with L1 produced fewer beat and representational gestures in the L2 setting than in the L1 setting, while no such pattern of results was shown when L2 was spoken.

We followed up Oh and Saito (2004) with 64 “Japanese” subjects (L1 Japanese, L2 Korean) to examine whether speakers modify their production of beat and representational gestures when they speak in L1 and L2 settings. The results showed Japanese speakers with L1 produced fewer beat and representational gestures in the L1 setting than in the L2 setting, while they showed the same pattern of results as Korean speakers when they spoke with L2.

Taken together, these results suggest Japanese speakers produce fewer representational gestures in the L1 setting when they speak with L1, while in contrast Korean speakers produce fewer gestures in the L2 setting.

The findings suggest Japanese speakers have acquired gesture suppression manners when they speak in Japanese, and gestures serve both facilitative and inhibitory functions.

Oh et Saito (2004) ont demandé à 64 sujets «coréens» (L1 coréen, L2 japonais) de raconter un dessin animé en L1 ou L2 à un auditeur inconnu présenté par un moniteur. Les résultats des deux expériences menées au Japon et en Corée ont montré que les orateurs coréens avec L1 ont produit moins de battement et de gestes figuratifs en L2 qu'en L1, alors qu'aucun tel modèle de résultats n'a été montré quand la L2 est parlée.

Nous avons suivi Oh et Saito (2004) avec 64 sujets «japonais» (L1 japonais, L2 coréen) pour examiner si les orateurs modifient leur production de battement et gestes figuratifs quand ils parlent en L1 et en L2. Les résultats ont montré que les orateurs japonais en L1 produisent moins de battement et de gestes figuratifs en L1 qu'en L2, alors qu'ils montrent le même modèle de résultats que les orateurs coréens quand ils parlent en L2.

Pris ensemble, ces résultats nous montrent que les orateurs japonais produisent moins de gestes figuratifs quand ils parlent en L1, contrairement aux orateurs coréens produisent moins de gestes en L2.

Les conclusions démontrent que les orateurs Japonais ont acquis des manières de la suppression du geste quand ils parlent en japonais, et les gestes servent de fonctions aisées et inhibitives

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**Mimicry in collaborative interaction:
the impact of entrainment in speech and gesture
on perception and event representation.**

This paper examines the effects of perception of mimicry on an observer's speech and gesture, via an experimental manipulation of these variables in a video stimulus. Participants watched a constructed video in which two people interacted. The degree of mimicry in speech (lexical, syntactic) and gesture (handshape, motion, location) across the two interactants was varied. Participants then described the stimulus, and their speech and gesture were analyzed. Observers who saw the stimuli with a greater degree of mimicry were more likely to reproduce the actions and speech of the stimulus. Furthermore, high-level cognitive effects also emerged: mimicry in the stimulus resulted in descriptions which were qualitatively different, and in fewer errors in describing the actions taken in the stimulus. These results suggest that uptake of meaning and form in the two expressive modalities shapes the observer's representation of the event.

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Gestures in Active Presentations

Gestures represent a functional component in human communication within verbal and visual modalities. They contribute to delivering and conveying meaning, intention, affect and empathy in Active Presentations. Active Presentations are short multimodal presentations that use a coherently integrated multi-modal mode for the delivery of educational material. Such presentations foster the cognitive learning process by integrating human natural speech and visual content with the aid of an integrating object. The integrating object, represented by the natural human hand, is a gesture bearing element that integrates the visual and verbal modalities. It enriches the semantics of the narrative by deploying semantic integration, elaboration of meaning and gesture articulation.

In this paper we investigate the role of human gestures in learning environments. Our early research has shown that gestures can be an important factor in communicating meaning and intention. They can sub link the illustrative force and enhance the comprehension effects of the educational narrative. We distinguish a semiotic framework of gestures and a classificatory scheme that lead to identifying main functions of gestures. These functions are represented by icon, trajectory and referent in respect to other modalities in the communicative act. The integration of modalities in the communicative acts results into the establishment of a Multimodal Communication Act to form an organic process within the presentation.

Les gestes représentent un élément fonctionnel dans la communication humaine au niveau des modalités verbales et visuelles. Ils contribuent

à transmettre la signification, l'intention, l'affect et l'empathie dans les Présentations Actives. Les Présentations Actives sont des présentations courtes multimodales qui emploient un mode multimodal intégré de façon cohérente pour la transmission du matériel éducatif. De telles présentations stimulent l'apprentissage cognitif en intégrant le discours humain et le contenu visuel naturels à l'aide d'un objet d'intégration. L'objet d'intégration, représenté par la main humaine naturelle, est un élément porteur de gestes qui intègre les modalités visuelles et verbales. Il enrichit la sémantique de la narration par le déploiement de l'intégration sémantique, l'élaboration de la signification et l'articulation du geste.

Dans ce papier nous étudions le rôle des gestes humains dans les contextes pédagogiques. Notre recherche initiale a prouvé que les gestes pouvaient être un facteur important dans la communication de la signification et de l'intention. Elles peuvent sous-tendre la force d'illustration et augmenter les effets de compréhension du discours éducatif. Nous distinguons un cadre sémiotique des gestes et un plan de classification qui mène à l'identification des fonctions principales des gestes. Ces fonctions sont représentées par l'icône, la trajectoire et le référent par rapport à d'autres modalités dans l'acte communicatif. L'intégration des modalités dans les actes communicatifs aboutit à la création d'un Acte de Communication Multimodal pour former un processus organique dans la présentation.

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‘How would your order a beer?’ Cultural differences in the use of conventional gestures for numerals

Counting up to ten by using finger gestures can be found in every human culture. These finger gestures belong to the category of so called *conventional gestures* and are said to be transferred by the conventions of the specific community. They should therefore imply standards of form that must be met if the gestures are to be recognized, indicated by low levels of individual differences within the community. Therefore, it should be possible to guess an individuals’ cultural origin by observing her way of counting up to ten on the fingers. In the present study, we tested this hypothesis investigating the use of finger gestures of 20 English-Canadians, 20 French-Canadians, 20 Cantonese-speaking Canadians, 20 Germans, 20 Mexicans, and 20 Swedes in ten different hypothetical scenarios. First, we analyzed whether participants differentiated between ‘counting’ and ‘signalling’. Second, we investigated the consistency and uniformity of gesture techniques in more detail, focusing especially on concordances within and between groups. Third, we analyzed how participants depict the numeral 1.

Our results showed that only the finger gestures of Germans and English-Canadians can be characterized by a high degree of uniformity, whereas all other groups showed high degrees of individual variety. Interestingly, the relatively high degrees of concordances between immigrant groups to Canada (Cantonese and Mexicans) and the traditional groups (English-Canadians and French-Canadians) support the view that gestural ‘characteristics’ of a culture disappear with the

social assimilation of the individual to the 'new' community and new conventions are adopted.

Reasons for these cultural differences and limitations to this study are addressed and discussed.

Phrasal verbs or words? Towards the analysis of gesture and prosody as indexes of lexicalisation

The classification of languages according to the strategy adopted for the expression of *Motion Events* (Talmy, 1985) is to be considered as most interesting for what concerns gesture studies.

According to this classification, languages can be classified into *verb-framed*, and *satellite-framed*. *Verb-framed* languages, in fact, express both Motion and Path by means of lexical morphemes, while *satellite-framed* languages express Motion by means of lexical morphemes and Path by means of “satellites” such as prepositions, postpositions, or adverbs.

This classification was adopted by gesture scholars in a number of studies which revealed that the *iconics* tend to synchronize with the satellite in *satellite-framed* languages, and with the verb in *verb-framed* languages (McNeill, 1992). A further study showed also that L2 learners, whose mother language is *verb-framed*, tend to synchronize their gestures with the verb when speaking English, which is *satellite-framed* (see Stam, 1999).

Nevertheless, a recent study on Dutch speakers learning English as L2 (Kellerman & Hoof, 2003) provides evidence that even in the case of a *satellite-framed* mother language, speakers tend to synchronize their iconics with the verb when speaking a *satellite-framed* second language.

Although no explanation of the phenomenon was attempted, this finding seems to contrast with the hypothesis of gesture-speech synchronization.

A possible solution to this apparent discrepancy may perhaps be found if one hypothesizes different levels of lexicalisation for phrasal verbs in different satellite-framed languages.

If this is so, the analysis of synchronization patterns – together with the analysis of prosodic phenomena - may be regarded to as an index of lexicalisation.

In particular, I hypothesise 3 levels of lexicalisation:

- first level: verb and satellite are clearly separated. The

speaker perceives them as distinct words forming a phrasal verb. In this case, some hesitations between verb and satellite will be possible and the iconic will be synchronised with the satellite;

- second level: the boundary between verb and satellite is less clear cut. In this case, the incidence of hesitation pauses between verb and satellite will diminish, while the gesture will synchronise alternatively with verb and satellite;
- third phase: complete lexicalisation: The gesture will plausibly synchronise with the lexical item. When the lexicalisation process is consolidated, the absence of co-occurring gesture may be observed.

This model has been applied to Italian, which, although a Romance language, may adopt both a satellite-framed and a verb-framed strategy for the expression of Motion events. In particular, satellite-framed strategies are recorded in expressions of colloquial use. In order to record this double strategy, an experiment was conducted with 20 subjects of different age, provenience, and education, who were asked to watch an episode of Canary Row and retell the story to a listener. The results show the coexistence of the two strategies in all the subjects who partook of the experiment.

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Iconic Mouth Gestures in a Sign Language

The discipline of sign language research has fostered a schizophrenic attitude toward the relationship between sign language and gesture. Many of the more formal linguistic approaches have eschewed reference to gesture in studying sign language, in an effort to demonstrate the primacy of grammatical properties in these languages, irrespective of their gestural origins. Some investigators have taken the opposite approach, looking for explicitly gestural explanations of the synchronic organization and structure of sign languages.

The theoretical context of the present paper ascribes to sign languages many modality-independent universal properties that are explicitly linguistic. Within that context, the paper provides new evidence for the existence of a component that is strictly gestural. Specifically, the study extracts from the panoply of complex nonmanual signals found in Israeli Sign Language (ISL) a particular category of mouth gestures that corresponds to the iconic co-speech hand gestures described by McNeill (1992).

As in other sign languages, articulations of the face in ISL perform many roles, some of them conventionalized into a grammatical system – such as facial intonation, and adverbial morphemes articulated on the face. Other nonmanual behaviors, however, are not part of the linguistic system per se. One is emotional facial expressions, and another is the iconic mouth gestures that make up the core of the present study.

The mouth gestures convey physical properties or sensations, such as dimension, weight, contact between objects, and vibrations or sounds. Like their counterparts in co-speech hand gesture, and unlike the units of the linguistic system, these co-sign mouth gestures are global in form and idiosyncratic in use, and their interpretation is context-dependent. And like the iconic subset of co-speech gestures, the form of a mouth gesture bears a clear and direct relationship to its meaning. Each of these properties is exemplified with data from four ISL signers retelling an animated cartoon story.

Two conclusions can be drawn from these findings. First, human communication is universally comprised of two components operating simultaneously and complementarily. One is a formal system of

standardized, discrete, combinatoric, hierarchically organized units, and the other component is idiosyncratic, imagistic, gradient, and global. The second conclusion is that we have evolved to convey one of these systems with our hands, and the other with our mouths.

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***Die Froschgeschichte* – Redebegleitende Gesten im Spanischen und Deutschen als L1 und L2**

Dass bei Wortfindungsschwierigkeiten der Gestikgebrauch steigen kann, dürfte außer Frage stehen. Dass dies im Fremdsprachegebrauch besonders häufig auftritt, wohl auch. Aber ist das die einzige Differenz zwischen dem Gestikulieren in der Mutter- bzw. Fremdsprache? Und inwieweit spielen einzelsprachliche Unterschiede hier eine Rolle? Im vorliegenden Korpus sind die Muttersprachen Spanisch/Katalanisch und Deutsch. Es handelt sich um Interviews, die innerhalb des interuniversitären und interdisziplinären Projektes VARCOM (Variation, Multimodale Kommunikation und Mehrsprachigkeit) mit Studenten der Universität von Barcelona bzw. Erasmusstudenten jeweils in der L1 und L2 durchgeführt wurden. Die Interviews setzen sich aus zwei Teilen zusammen, einem halbstrukturierten Teil für die experientielle Elizitation und einem Teil mit klar umrissenen Produktionsaufgaben für die experimentelle Elizitation. Bei der von mir ausgewählten Aufgabe handelt es sich um die Erzählung einer Bildergeschichte, der Froschgeschichte, die den Probanden mehrere Schwierigkeiten bereitet: Zum einen sind das lexikalische Herausforderungen, zum anderen auch das Umgehen mit der Textsorte der Narration. Ausgehend von den zahlreichen Bewegungsereignissen einem nachgewiesenen typologischen Unterschied zwischen den romanischen und germanischen Sprachen möchte ich zeigen, wie die Probanden jene Schwierigkeiten lösen und vor allem welche Rolle dabei die körperliche Kommunikation spielt.

There is little doubt that the use of gestures rises whenever speakers encounter word retrieval difficulties. This is even more obvious in foreign language use. But is this the only existing difference between gesturing in the mother tongue and gesturing in a foreign language? And to what extent do differences between one language and the other affect this phenomenon?

In our corpus the native languages are Spanish/Catalan and German. Interviews have been held within the interuniversity and interdisciplinary project VARCOM (Variation, Multimodal Communication and

Plurilinguism) with students from the university of Barcelona and Erasmus students in L1 and L2. The interviews are divided into two parts: a half-structured part for experiential elicitation and a second part with clearly given tasks for experimental elicitation. I chose one of these tasks, „The Frog Story“, a narration containing several difficulties for the tested person: lexical challenges on the one hand, and handling the problems of text-type narration on the other. Taking the numerous motion events as a starting point – where a typological difference between Romanic and Germanic languages exists – I will show how the subjects solve these difficulties and above all which role nonverbal communication plays. _

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The 0-level of emblematic gestures

While earlier observers of gestures were impressed by the iconicity of it and saw in gestures a potential *lingua franca* – see, for example, Francis Bacon's *The Advancement of Learning*, 1605) – modern research (Efron 1941, Ekman & Friesen 1969, Morris et al. 1979, McNeill 1985) strongly revised this conception and established a special category of gestures – emblems – which differentiates itself from other gestures on the basis of its arbitrary coding. On the other hand, anthropologists and ethologists (La Barre, Firth, Eibl-Eibesfeldt, Leach) have analyzed the motivatedness of many gestures, especially gestures of greeting (which one could classify as emblems) and in some cases have suggested a hypothesis of universal basic forms which are applicable everywhere independently of cultural context.

The empirical data collected during the work on the Berlin Lexicon of Everyday Gestures (Berliner Lexikon der Alltagsgesten, BLAG) as well as further research have shown that children are capable of recognizing emblematic gestures on the basis of the practical function (the 0-level or the basis of their motivatedness), despite the metaphorical meaning of these gestures remaining alien.

The present contribution presents this data and formulates hypotheses regarding the ontogeny of gesture competence, especially with regard to the understanding of metaphorical meaning.

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Action Repair in Mediated Environments: Presence Displayed through Bodily Orientation

A human place is shaped by action (Johnston, Gregory, Pratt, Watts, 2000) so when a course of action changes, the actor's local place undergoes a redefinition as well. To explore this phenomenon, we relied on a corpus of video-recorded sessions in immersive virtual reality (Gamberini, Spagnolli, 2003) and collected 84 episodes in which the actor stopped her course of action after a spontaneous technical anomaly. We adopted the approach of conversation analysis and examined these episodes with special attention to non-verbal actions to see whether interruptions produced a shift from the virtual to the real place. It emerged that interruptions were often followed by new actions performed on physical objects external to the digital environment. However, like verbal repairs, they set the conditions for the interrupted action to be resumed and were then pragmatically subordinated to the main action in the virtual environment (Sacks, Schegloff and Jefferson, 1974); in addition, participants' bodies were oriented to both virtual and physical objects. We argue that depending on the relationship between interrupted and new courses of action, interruptions do not necessarily generate the dissolution of the previous presence in a place, but rather its reconfiguration via the opening of a secondary course of action sharing resources with the former.

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Gesture Interlanguage

In first language acquisition, speakers learn a particular way of thinking-for-speaking (Slobin, 1996; Berman and Slobin, 1994), and in second language acquisition, learners must learn a different pattern of thinking-for-speaking (Stam, 1998).

The process by which learners acquire a second language is complex, gradual, nonlinear, and dynamic (Larsen-Freeman, 1991), and learners progress from one level of proficiency to another with varying degrees.

Selinker (1972) has termed the second language (L2) systems learners develop "interlanguage." From the perspective that speech and gesture form a single system (McNeill, 1992), the presenter proposes that learners also develop gesture interlanguage systems when they acquire a second language. She will discuss a study she conducted to investigate how patterns of thinking-for-speaking change linguistically and gesturally with L2 acquisition and demonstrate that learners' interlanguage systems include gesture interlanguage.

Interlanguage has characteristics from learners' previously learned languages, characteristics from the new language, and characteristics common to all interlanguage systems, such as simplification (Lightbown and Spada, 1999). These mixtures of features also appear in learners' gestures when they speak their L2.

Learners' interlanguage systems are not static. As learners progress from zero competence to more native speaker competence in their L2, they construct a continuum of interlanguage systems.

En la adquisición del primer idioma los hablantes aprenden una manera particular de pensar-para-hablar (Slobin, 1996; Berman y Slobin, 1994), y en la adquisición del segundo idioma, los principiantes deben aprender una manera diferente de pensar-para-hablar (Stam, 1998).

El proceso mediante el cual los principiantes aprenden un segundo idioma es complejo, gradual, no lineal, y dinámico (Larsen-Freeman, 1991), y los principiantes progresan de un nivel de habilidad al siguiente en forma gradual.

Selinker (1972) ha llamado los sistemas del segundo idioma que desarrollan los principiantes “interlanguage.” Desde la perspectiva que el discurso y el gesto forman un solo sistema (McNeill, 1992), la presentadora propone que los principiantes también desarrollan sistemas de interlenguaje del gesto cuando aprenden un segundo idioma. Se discutirá un estudio que ella condujo para investigar cómo los modelos de pensar-para-hablar cambian lingüísticamente y gestualmente con la adquisición de L2 y demostrará que los sistemas del interlenguaje de los principiantes incluyen interlenguaje del gesto.

El interlenguaje tiene características de los idiomas previamente aprendidos de los principiantes, características del idioma nuevo, y características comunes a todos los sistemas de interlenguaje, tal como la simplificación (Lightbown y Spada, 1999). Estas mezclas de características también aparecen en los gestos de los principiantes cuando hablan su L2.

Los sistemas de interlenguaje de los principiantes no son estáticos. Mientras los principiantes progresan de la capacidad cero a la capacidad del casi-nativo en su L2, van construyendo un continuo de sistemas de interlenguaje.

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Standardisation in the Making: The Work of *ad hoc* Street Interviewing

In the last decade the debate about survey interviewing in social sciences has turned from a critical and rejecting attitude to an interest into the understanding of standardized interviewing as scientific instrument and cultural artefact. Whilst research into standardized interviewing has mainly been dealing with conversation in telephone survey this paper studies video recordings of a face-to-face delivery of a questionnaire in the largely uncontrolled and also uncontrollable setting of an open urban space. Attention will be paid on co-orientation of paths and bodies and how pen and clipboard become constitutive features of the interaction. This will be exemplified on behalf of a *front end* of an interview. It will be examined how one of the main rules of standardized interviewing, “The interviewer reads the questions as they are written on the questionnaire sheet”, is produced and how the partners take a ‘reading position’. The paper will then discuss how passers-by are asked about their perception of open urban spaces and how the ‘object’ of quantitative research (in this case normative urban planning) is produced *in situ*. Amongst others, the paper will take into consideration gestures such as ‘pointing at the floor’ to understand how the interview partners shape a spatial and standardised grammar of the urban environment.

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Hip-Hop Gestures: The Conduct of the M.C.

This paper describes some of the shared and differentiating features of a new gestural practice that has evolved as part of hip-hop culture: the one-handed, repetitive, often angular gestures by which m.c.'s (rappers) "conduct" their verbal delivery. We analyze the gestural patterns of a number of freestyling m.c.'s: their role as visual and kinesthetic representations of prosodic and syntactic formats in terms of which verses are composed in the process of improvisation, as well as their participation in the "entrainment" of rhythmic delivery.

Hip-hop gesticulation is often modeled after hip-hop-typical instrumental practices, notably the motion-pattern of spinning records. Hip-hop specific motion patterns are also found in the conversational gestures of many young Americans.

The data for this study are video-recordings of "open mic" freestyling events and amateur hip-hop battles at the University of Texas at Austin. We show samples of individual performances and of turn-transitions between successive soloists. We furthermore discuss ways in which gestures individualize m.c.'s; and conclude by comparing hip-hop gesture to accounts by classicists of the performance practices of the Homeric poets in ancient Greece- practices called *mousiké* by their practitioners-and discuss their function in scaffolding memory and lexical searches.

The gestural structuring of the world at hand

Gesture serves human activities, including conversation, in a number of different capacities that can be conceived as *alignment-types*: ways of aligning people, gesturing hands, and the situated world within which people interact. Alignment types are distinguishable on the basis of the framework of participant orientation within which gestures are perceived and understood, i.e. in terms of their alignment and coordination with gaze, speech, action, and the setting or landscape within which the interaction takes place. In one of these alignment-types, gestures aid in the structuring and making sense of the *world-at-hand*. Among the 'jobs' that gestures do in the world-at-hand are: to structure the participants' perception of objects; to disclose intrinsic, invisible features and affordances of things; to analyze, abstract, and exhibit action; and to 'mark' up the setting. In this paper I distinguish and describe several gestural practices that serve to make a setting intelligible and highlight its features; these include *tracing*: an index finger, set of fingers, or hand is moved along a surface, thereby drawing a line, but also gathering tactile information; *exploratory procedures*: patterned actions by which hands systematically explore and at the same time disclose and broadcast intrinsic object properties and affordances; and *highlighting action and its accessories* in which practical actions or their stages are elaborated through formal operation such as exaggeration, repetition, and segmentation, to disclose their logic, components, and characteristics to coparticipants.

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Are Beat Gestures Contingent upon Disfluent Speech in the Animation-narration Task?

Saito et al. (2004) indicated that beat gestures could be produced to recover disfluent speech. Further, Tanaka et al. (2004) confirmed that the number of fillers (e.g., «uh») shows the same tendency as beat gestures.

The purpose of this study is to investigate the functional relationship between beat gestures and fillers in terms of the number of beat gestures produced before or after each filler.

Eighteen university students participated in the experiment. They were required to watch all four parts of an animation, and then to narrate each part of the content to a video camera (half part are under Delayed Auditory Feedback / DAF condition, and the rest are under Natural Auditory Feedback / NAF). Half of them were instructed to produce gestures, and the remaining half was not.

We compared the rate of two types of gesture, with and without the filler. The result suggests that beat gestures under the DAF condition are not contingent upon fillers. The result showed that the gesture rate after the filler is higher than before it.

In conclusion, the results were interpreted that fillers production has an important role in speech planning, and accordingly it leads to gesture production intermediated by temporal suppression.

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How do the teacher's gestures help the young children in second language acquisition?

In the teaching of foreign languages to young children, gestures (iconics, mimes) are widely used by the teacher to translate the meaning of the lexicon without using the mother tongue. The study of such a professional gesture which we call "educational gesture" raises a methodological question: how can we assess its impact on both the understanding and memorising of the lexicon by young learners?

Through experiments involving French children (aged 4-6) learning English, our research tries to suggest ways to analyse this particular phenomenon.

On the one hand, we have a teacher whose gestures are influenced by his identity, his cultural background and his own perception of the world and on the other hand, we have children with their own conception of the world and different backgrounds. How can these two understand each other through gestures? The whole problematic is in the creation of *educational gestures*. The teacher has to chose the most prototypic and stereotypic representation of a word, the one which is likely to be the children's.

Children need to learn in a multimodal dimension: listening, visualising, gesturing are important actions in the process of memorising. How can gestures help the young students to remember new items of vocabulary? Is learning words with gestures more efficient than learning without any motion? This is what our current work is about. We are testing children in short term and long term memory tasks in order to assess if they remember better words when they are illustrated by gestures.

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Speaking Bodies: Social Values as Expressed by Two Spanish Homesigners

Language acquisition influences how children come to conceptualize and negotiate the social world into which they are born, but what happens when children don't have access to the language spoken around them? By joining a growing body of gesture research in psychology with ethnographic material, this project calls for a broadened formal understanding of linguistic performance as both spoken *and* embodied, specifically by identifying locally-specific nonverbal communication styles that may influence how children learn to conceptualize the world around them when they have incomplete access to a conventional language. We know that adult communicative performance (conversation, narrative, etc.) plays a key role in the socialization and maintenance of beliefs and values from one generation to the next. But an unspoken assumption in socialization research is that in order for children to benefit from exposure to values expressed in everyday talk, they must have access to a shared language. This project challenges that assumption by examining the communicative structure and content of two orally educated deaf children in Spain who use homesign to communicate with their hearing families. We demonstrate how they access and convey values and norms traditionally assumed to be learned through language socialization by comparing their language activities in homesign with the speech-accompanying gestures that their parents use when speaking to them and engaging them in co-constructed discourse. These results are situated against previous findings that demonstrate the American and Taiwanese homesigners incorporate culturally specific values for personhood in homesigned discourse despite their isolation from a conventional language model. Therefore, all children, hearing or deaf, may take advantage of multiply encoded meanings—spoken or not—to enter their community's meaning systems and to adopt local discursive norms for constructing experience and personhood.

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Gestes, artefacts et asymétrie interactionnelle dans la communication visiophonique entre agents et usagers d'une administration

L'interaction interpersonnelle se déroulant à travers des systèmes de communication visiophonique a fait l'objet de nombreuses études ces dernières années, dans différents contextes (professionnels, domestiques). Ces recherches ont notamment montré que ces systèmes engendrent des formes d'interaction spécifiques impliquant des asymétries interactionnelles qui peuvent fragiliser l'intercompréhension. A travers l'analyse vidéo de séquences d'interaction issues d'entretiens visiophoniques et d'entretiens en co-présence entre agents d'une administration et ses usagers en situation naturelle, nous examinons les asymétries propres à ce cadre communicationnel visiophonique. Plus précisément, il est possible de distinguer trois dimensions de l'asymétrie interactionnelle: l'asymétrie du point de vue de la perception du couplage action/environnement, l'asymétrie du point de vue de la perception de l'environnement de l'interlocuteur, et l'asymétrie relative à la perception des actions de celui-ci. En se focalisant sur la première dimension, l'analyse montre comment le découplage entre l'action et l'environnement, introduit par le système de visiocommunication, génère des difficultés interactionnelles tant au niveau de la compréhension des actions que de la coordination mutuelle des interactants. Dans ce sens, l'analyse souligne l'importance des gestes et des artefacts comme ressources interactionnelles non seulement pour l'intelligibilité de l'activité en cours mais aussi pour la réalisation des missions des agents.

In recent years, a large body of studies explored the interactional properties of video mediated communication devices and the ways in which participants interact through such medium in different settings (professional, domestic). One of the interesting observations

made by these studies is that video communication technologies involve specific forms of interaction by introducing interactional asymmetries that may undermine mutual intelligibility of actions. Based on video observations and the detailed analysis of naturalistic video mediated interactions and face to face interactions issued from interviews between administrative officers and administration users, we examine the asymmetries related to the video communication in this particular setting. We distinguish three dimensions in these interactional asymmetries: the perception of action/environment coupling, the perception of each other's environment, and the perception of each other's actions. Focusing on the first dimension, the analysis shows how the dissociation of action from its environment, introduced by video communication system, engenders interactional difficulties for participants in understanding and coordinating their actions. It highlights how gestures and artefacts are used as interactional resources which contribute both to the mutual intelligibility and to the achievement of the officers' task.

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Linguistic and gestural introduction of inanimate referents in L2 narrative

In this presentation, we discuss the inter-relationship between speech and co-speech gesture in the introduction of inanimate referents in narrative by learners whose native and the target languages differ typologically, in this case Dutch and Japanese. In narrative, inanimate referents are usually introduced as reference points to describe the orientation of an animate character. In Dutch, this typically occurs in prepositional phrase in VPs, where the contrast between a character's static location and his/her direction of movement is indicated by the choice of preposition. Furthermore, some introductions of inanimate referents are accompanied by gestures depicting an entity, particularly when an animate character is contained in an object. Alternatively, mention of new inanimate referents may synchronize with *Figure*-oriented deictic gestures or post-stroke holds of gestures depicting direction of movement. On the other hand, while Japanese speakers may introduce inanimate referents in postpositional phrases in VPs, they also use existential and presentative constructions. The contrast between location and direction is not clearly made by the choice of particles. In Japanese, the introductions of inanimate referents are accompanied by gestures which depict or trace the outline of objects. They are *Ground*-based. Gestures depicting a direction of a movement hardly ever occur. Comparison of native and non-native narratives reveals a tendency for Dutch learners to map their source-language-based knowledge onto narrative production in Japanese. However, the grammatical constraints of the target language force learners to adjust straight mapping from the source to the target language. This subtle adjustment is reflected in gesture behaviour, suggesting the integrated nature of speech and gesture.

PANELS /



SESSIONS THEMATIQUES

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Panel presentation

Machine Learning Technology for Recognition and Analysis of Suspicious Behavior from Human Gestures and Movement

Overview: In this age of heightened concern for terrorism, those charged with protecting a country's citizenry against individuals and groups with hostile intentions are often handicapped by untimely and incomplete information, overwhelming flows of people and materiel, and the limits of human vigilance. The complexity of detecting and countering hostile intentions defies a completely automated solution. However, it may be possible to augment human efforts with automated tools for behavioral analysis, the end goal being a system that singles out individuals for further scrutiny in a manner that reduces false positives and false negatives. In this panel, we will report recent developments in a program of research conducted jointly between the University of Arizona's Center for the Management of Information (CMI) and Rutgers University's Center for Biomedical Imaging and Modeling (CBIM) on automating recognition and analysis of gestures and other kinesic movement. This research builds on (1) three decades of work by members of the research team studying interpersonal deception and deception in mediated communication, (2) 20 years of experience by CMI developing collaboration systems and software, (3) a five-year multi-institutional and multi-disciplinary project funded by the U. S. Department of Defense on Detecting Deception in the Military Infosphere: Improving and Integrating Human Detection Capabilities with Automated Tools (Judee Burgoon, CMI, Principal Investigator; Jay Nunamaker, CMI, Co-Principal Investigator; Joey George, Florida State University, Co-Principal Investigator; Frank Horvath, Michigan State University, Co-Investigator), (4) an ongoing program of research at CBIM funded by the DOD and others in gait analysis, facial imaging and behavioral modeling, and a multi-year, multi-institutional project funded by the U. S. Department of Homeland Security on Automated Intent Determination (AutoID): Extracting Meaning from Gestures and Body

Movement (Burgoon, Nunamaker and Metaxas, Principal Investigators). The three individual communications will cover (1) the theory and model underlying the gestural behaviors being tested, (2) the technology employed to automate recognition of gestures and movements from video, and (3) the testbeds and testing procedures being used to validate the technology.

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Linking Intentions to Human Gestures and Movement

In this panel, we report on a multi-institutional research program on automating recognition and analysis of gestures and other kinesic movement. We discuss the mapping problem between internal states and observable behaviors and note the need for a multi-cue and probabilistic rather than deterministic approach to selecting reliable indicators. We then present a theory-guided taxonomy for clustering nonverbal behaviors into appropriate profiles of suspicious and non-suspicious behavior in order to identify those with the highest probability of signaling hostile intent and with the greatest potential to be recognized and analyzed automatically from videotaped interactions.

Dans cette session, nous rendons compte d'un programme de recherche multi-institutionnel sur automatiser l'identification et l'analyse des gestes et de tout autre mouvement kinesic. Nous discutons le problème traçant entre les états internes et les comportements observables et notons le besoin de multi-sélection et probabiliste plutôt que l'approche déterministe à choisir les indicateurs fiables. Nous présentons alors une taxonomie théorie-guidée pour grouper des comportements non-verbaux dans des profils appropriés du comportement soupçonneux et non-soupçonneux afin d'identifier ceux avec la probabilité la plus élevée de signaler l'intention hostile et avec le plus grand potentiel d'être reconnu et analysé automatiquement des interactions enregistrées en vidéo.

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Analysis and Recognition of Nonverbal Behavior Using 2D Visual Cues and Machine Learning

This research effort attempts to build automated systems to augment humans in detecting *deception* by analyzing nonverbal behavior on video. Objective behavioral indicators of deception can be isolated, extracted and synthesized, by tracking faces and hands of individuals. Blob analysis, a method for analyzing the movement of the head and hands based on the identification of skin color is used. We extract visual cues and events, throughout the examined videos, and we integrate them using a hierarchical Hidden Markov Model for behavioral state recognition. Our recognition scheme mainly involves the detection of agitated and over-controlled behaviors.

Das vorliegende Forschungsprojekt versucht, automatisierte Systeme zu entwickeln, die es vermögen anhand von Video-Analysen non verbalen Verhaltens *Enttäuschung* zu identifizieren. Objektive Verhaltensindikatoren von Enttäuschung können lokalisiert, extrahiert und synthetisiert werden, wenn Gesichter und Hände menschlicher Individuen analysiert werden. Die hier vorgelegte Studie verwendet Verfahren der Blobanalyse, welche aufgrund farblicher Charakteristika Bewegungen des Kopfes und der Hände analysiert. Wir extrahieren visuelle Indikatoren und Ereignisse und wir integrieren sie mit Hilfe eines hierarchischen Hidden Markov Modells zur Verhaltenszustandenerkennung. Unsere Erkennungsschemata beziehen sich hauptsächlich auf Identifikation aufgeregten und überkontrollierten Verhaltens.

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Validating an Automated System for Identifying Suspicious Behavior from Videotaped Gestures and Movements

We discuss how machine learning tools are used to analyze a rich data set for the behavioral profile of suspects during interviews. The digital test bed consists of textual, auditory and visual data from a mock theft experiment in which thieves and innocents were interviewed and videotaped. Behaviors from the videos were cross-validated against a sample of actual criminal suspects. A machine learn-

ing training set was created by manually segmenting and labeling data, subjecting them to “blob” analysis, training support vector machines to automatically classify interviewees as truthful or deceptive. Features yielding high accuracy in discriminating interviewee states are discussed.

Nous discutons comment des outils automatiques sont utilisés pour analyser un Modem riche pour le profil comportemental des suspects pendant les entrevues. Le banc d’essai numérique se compose des données textuelles, auditives et visuelles d’une fausse expérience de vol dans laquelle des voleurs et les innocents ont été interviewés et enregistrés en vidéo. Des comportements des vidéos croix-ont été validés contre un groupe des suspects criminels réels. Un ensemble de formation d’étude de machine a été créé par des données manuellement de segmentation et marquantes, les soumettant à l’analyse d’“goutte”, formant des machines de vecteur de soutien pour classifier automatiquement des interviewés comme véridique ou trompeur. Des dispositifs rapportant l’exactitude élevée dans les états distinctifs d’interviewé sont discutés.

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Panel presentation

Gesture, affect, and time in language: A neurophenomenological approach to psychotic and other non-aphasic language disorders

Recent debates concerning the relationship between language and motor and cognitive dysfunction have implications for language theory. Gallagher extends Husserl's retentional-protentional model of time consciousness to account for cognitive and motor abnormalities in schizophrenia, formalizing our understanding of schizophrenic thought disorder. On the basis of discourse data from individuals with schizophrenia, Parkinson's Disease, bipolar disorder, and right hemisphere brain damage, we link the Husserl-Gallagher model to facts of on-line language processing. These are analyzed within McNeill's 'Growth Point' theory of language production to create a framework that accounts for a range of non-aphasic disorders of language use.

Aktuelle Debatten, die sich auf die Relation zwischen Sprache und motorischen wie auch kognitiven Funktionen beziehen, haben Implikationen für die Sprachtheorie. Gallagher erweitert Husserls retentional-protentionales Modell zum Zeitbewusstsein, um kognitive und motorische Abnormalitäten in der Schizophrenie zu erklären und formalisiert unser Verständnis von schizophrenen Gedankstörungen. Auf der Grundlage der Daten von Individuen mit Schizophrenie, Parkinson, bipolarer Störung und Schäden der rechten Hemisphäre, verbinden wir Fakten über on-line Sprachverarbeitung mit dem Husserl-Gallagher Modell. Diese werden mit Hilfe von McNeills "Growth Point" Theorie zur Sprachproduktion analysiert, um einen Rahmen zu schaffen, der eine Vielzahl von nicht-aphasischen Störungen der Sprachbenutzung einbezieht.

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Protention, schizophrenia, and gesture

Analysis of the temporal structure of experience (Husserl 1991) provides a model for how things can go wrong in pathologies like schizophrenia (Gallagher 2005). Some schizophrenics experience no sense of agency in regard to their thought processes/ body movements. Empirical evidence shows schizophrenic patients are surprised by their own instrumental actions (Frith & Done 1988). This suggests the “protentional” aspect of experience, which allows subjects to anticipate their thoughts/actions, breaks down, and leads to the sense that they do not control their actions. Studies show that temporal structure, and specifically the protentional aspect and its affective expression (Varela & Depraz 2000) is ubiquitous across cognition and action (Berthoz 2000; Gallagher 2004), and breaks down in schizophrenia (Singh 1992). Psycholinguistic studies suggest that the same protentional structure operates in the formation of normal gesture (McNeill 1992). It is natural to ask whether gesture in schizophrenics (and other pathologies, such as bipolar disorder) might suffer the same fate as thought and action.

L’analyse de la structure temporelle de l’expérience (Husserl 1991) fournit un modèle des perturbations pouvant être rencontrées dans les pathologies comme la schizophrénie (Gallagher 2005). Certains schizophrènes ne font pas l’expérience de l’agentivité de leurs processus de pensée / mouvements corporels. Des données empiriques montrent que des patients schizophrènes sont surpris par leurs propres actions instrumentales (Frith & Done 1988). Cela suggère que l’aspect “protentionnel” de l’expérience, qui permet aux sujets d’anticiper leurs pensées/actions, s’effondre, ce qui entraîne l’impression qu’ils ne contrôlent pas leurs actions. Des études montrent que la structure temporelle, et spécifiquement l’aspect protentionnel et son expression affective (Varela & Depraz 2000) est omniprésent à travers la cognition et l’action (Berthoz 2000; Gallagher 2004), et s’effondre dans la schizophrénie. Des études psycholinguistiques (Singh

1992) suggèrent que la même structure protentionnelle est à l'œuvre dans l'établissement de la gestuelle normale (McNeill 1992). Il est naturel de se demander si la gestuelle des schizophrènes (et d'autres pathologies, tels que les troubles bipolaires) pourrait subir le même sort que la pensée et l'action.

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Spatiomotor imagery, affect, and time in discourse

Language production makes use of speakers' ability to shape, direct, and locate their hands and bodies in space and in relation to interlocutors and the physical environment. Gestures are "material carriers" of linguistic conceptualizations that contribute to cohesion in discourse. Healthy individuals are compared to individuals with Parkinson's Disease, right hemisphere damage, and schizophrenia—illnesses with effects on motor function and temporal cognition. The discourses of the impaired are impoverished and fragmentary in ways correlated with diminished robustness and complexity of coverbal gestures. This is discussed as evidence in favor of models of language production as an embodied cognitive process.

La producción del idioma utiliza la habilidad de oradores para formar, dirigir, y localizar las manos y los cuerpos en el espacio y en relación con interlocutores y el ambiente físico. Los gestos son portadores materiales de las conceptualizaciones lingüísticas que contribuyen a la cohesión en el discurso. Los individuos sanos están comparados con individuos que tienen la enfermedad de la parálisis agitante, el daño del hemisferio derecho, y la esquizofrenia las enfermedades que afectan la función motriz y la cognición temporal. Los discursos de las personas con estas enfermedades son disminuidos y fragmentarios en maneras que tiene correlación con la disminución del vigor y de la complejidad de los gestos coverbales. Se discute este fenómeno como evidencia a favor de modelos de la producción del idioma como un proceso cognitivo personificado.

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The poetics of bipolar speech pathology

Affect is rarely considered an important variable in formal models of language production, but its inclusion is warranted in order to explain the key role that affect appears to play in the verbal behavior found in bipolar affective disorder. Bipolar affective disorder is similar to schizophrenia in that it can produce aberrant speech and psychotic thought. In bipolar affective disorder there is a strong correlation between the underlying affective state - depression, hypomania, or mania - and linguistic and cognitive performance. Additionally, emotional dysfunction is increasingly seen as a core component of schizophrenia, and this may be a critical source of the disruption in the temporal flow of thinking for speaking (Gallagher & Varela 2001). As such, a diachronic psycholinguistic approach to the dynamics between language, thought, and emotion in bipolar disorder and schizophrenia based on David McNeill's concept of a "Growth Point" would provide a parsimonious account of bipolar and schizophrenic language and thought (2000).

In addition, the intensified focus on the poetic or material aspects of language in psychotic discourse, including wordplay and puns, will be theoretically integrated with the loose semantic associations found in bipolar disorder and schizophrenia.

Generalmente, la emoción no se considera una variable importante en los modelos formales de la producción del idioma, pero su inclusión se justifica para explicar el papel clave que afecta tiene en la conducta verbal que se encunetra en el disturbio bipolar. El disturbio bipolar y la esquizofrenia pueden producir discurso aberrante y pensimientos psicopáticos. En el disturbio bipolar hay una correlación fuerte entre el estado afectiva fundamental - la depresión, hypomania, o la manía - y el desempeño lingüístico y cognitivo. Adicionalmente, disfunción emocional se ve cada vez más como un componente central de la esquizofrenia, y esto pueden ser una fuente importante de la interrupción en el flujo temporal del pensamiento para hablar (Gallagher & Varela 2001). Un enfoque psicolingüístico y diacrónica a la dinámica entre el idioma, el pensamiento, y la emo-

ción en el disturbio bipolar y la esquizofrenia, basado en el concepto de David McNeill de un Punto del Crecimiento puede proveer una explicación tacaña al idioma y pensamiento esquizofrénico y bipolar (2000).

Además, el foco intensificado en los aspectos poéticos o materiales del idioma en el discurso psicopático, inclusive el juego de palabras y retruécanos, se integrarán con las asociaciones semánticas se encuentran en el disturbio bipolar y la esquizofrenia en esta teoría.

Gestualité, corporéité et multiactivité dans les interactions en situation de travail

Qu'elle soit thématifiée comme telle ou convoquée de manière implicite, la notion de « multiactivité » joue incontestablement un rôle de première importance dans les théories de l'interaction et les champs disciplinaires qui y contribuent. Dans son modèle du *cadrage de l'expérience*, Goffman (1991:34) rappelle par exemple que l'interprétation de la réalité nécessite bien souvent la mobilisation d'une pluralité de « cadres » ou « prémisses organisationnelles ». En complément à cette affirmation, il observe que certaines situations d'interaction – telles des réceptions ou des cocktails – se structurent autour d'une pluralité de « foyers », qu'elles « sont constituées de noyaux distincts ou de groupes d'interaction verbale », et qu'elles sont donc, de ce point de vue, « multifocalisées » (voir Goffman 1973:105). Dans une perspective à certains égards différente, Habermas (1987) montre pour sa part que le fonctionnement des formes communicationnelles d'actions sociales doivent être considérées comme intrinsèquement multidimensionnelles dans le sens où elles ne se ramènent pas à des processus *téléologiques* (i.e. l'orientation de moyens vers des fins), mais comportent également des implications à la fois *normatives* et *dramaturgiques* qui ne doivent pas être ignorées. Cet ensemble disparate de propositions permet de rendre compte d'une réalité empirique aujourd'hui largement thématifiée dans les recherches contemporaines sur l'interaction : les situations d'interaction s'organisent bien souvent autour d'une imbrication d'enjeux ; les interactants s'orientent dans des configurations de participation instables, dans lesquelles ils font bien souvent plus d'une chose à la fois ; les interactants négocient conjointement les conditions de leur participation à ces configurations d'actions complexes. C'est cet ensemble de manifestations que nous regroupons autour de la notion de « multiactivité », et à propos desquelles nous souhaitons questionner les ressorts non verbaux et plus spécifiquement gestuels/corporels.

Les interactions verbales et non verbales attestées en situation de

travail n'échappent pas à cette logique de la multiactivité. Comme n'ont pas manqué de le souligner plusieurs travaux récents, les interactions professionnelles font souvent l'objet d'un cadrage complexe et stratifié, dans lequel s'imbriquent des pratiques multiples, qui agissent comme des déterminations hétérogènes sur le déroulement de l'interaction (voir Joseph 1995 ; Burger & Filliettaz 2002 ; Filliettaz & Plazaola Giger 2004). De plus, ces situations reposent dans bien des cas sur des formats de participation instables, dans lesquels l'éclatement de l'activité suppose, de la part des travailleurs, une capacité de réorienter en permanence leurs foyers d'attention (voir Grosjean & Lacoste 1999 ; Mondada 2004 ; Filliettaz 2004).

Dans le prolongement des considérations ci-dessus, le présent atelier vise à décrire et à mieux comprendre le rôle des conduites gestuelles et plus généralement de la dimension corporelle de l'interaction dans la manière dont les individus s'orientent dans les configurations d'actions complexes et instables dans lesquelles ils se trouvent engagés. Plus particulièrement, les contributions regroupées ici thématiseront l'un ou l'autre des axes suivants :

- ⊙ les statuts sémiotiques variables dont jouissent les conduites corporelles dans la réalisation collective des activités de travail ;
- ⊙ les rapports complexes que ces conduites corporelles entretiennent avec les mécanismes verbaux ;
- ⊙ les fonctions multiples que ces conduites corporelles assument dans les mécanismes de coordination de l'action en général et dans l'accomplissement des processus de contextualisation en particulier.

Les données empiriques sur lesquelles se fondera l'atelier émanent de pratiques professionnelles variées : l'enseignement des langues en milieu scolaire ; la conduite de chantiers ; la relève de poste en milieu industriel ; les interactions de soins en milieu hospitalier. Elles consisteront en des enregistrements audio-vidéo présentant des travailleurs engagés dans la réalisation d'une tâche collective et serviront de point de départ à une approche multimodale des processus d'interaction.

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Gestualité iconique et (re)contextualisation de l'interaction dans des séances de relève de poste en milieu industriel

Un des apports non négligeables des approches anthropologiques, cognitives et conversationnelles récemment développées dans le champ des théories de l'interaction réside dans le fait d'avoir mis en évidence les limites d'une opposition stricte entre les *actions instrumentales* (la manipulation d'objets matériels) d'une part et la *gestualité communicative* (les pratiques symboliques) d'autre part. A partir de données empiriques variées, en lien avec des domaines professionnels divers (la conception industrielle, l'activité d'un garagiste, les opérations chirurgicales), Streeck (1996a et 1996b) et Mondada (2004) soulignent par exemple le *continuum de symbolisation* qui existe parfois entre des actions non verbales (croquer dans un biscuit, tourner la clef de contact, effectuer une incision) et des pratiques communicatives (exprimer une opinion, accompagner une explication, identifier une entité référentielle).

Dans la continuité de telles propositions, cette communication s'intéressera à un sous-ensemble de conduites gestuelles communicatives attestées dans les interactions en milieu professionnel, et dont la signification semble étroitement indexée à des activités manipulatoires avec lesquelles les travailleurs sont familiers. Plus particulièrement, nous chercherons à mettre en évidence les fonctions « contextuelles » de ce type de gestes et à mieux comprendre les rapports qui se tissent, à l'occasion de leur effectuation, entre les situations de communication dans lesquelles ils sont produits et les activités auxquelles ils font référence.

Notre communication se fondera sur une analyse audio-vidéo de séances de relève de poste enregistrées dans une entreprise de type industrielle spécialisée dans la fabrication de matériel pharmaceutique (poches à perfusion, liquides nutritifs) à l'usage des hôpitaux. Sur chaque ligne de production, les changements d'équipes qui interviennent toutes les 8 heures s'accompagnent d'une brève séance d'information (désignée par les opérateurs comme « l'info-minute »)

qui rassemble entre 6 et 8 opérateurs dans une salle de réunion séparée du site de production, mais attenante à celui-ci. A cette occasion, les représentants de l'équipe « descendante » transmettent aux représentants de l'équipe « montante » diverses informations concernant le fonctionnement de la ligne (état du cycle de production ; planification pour les heures à venir ; état de l'équipe ; état du fonctionnement des machines, etc.).

Nous nous intéresserons en particulier à un sous-ensemble des conduites corporelles des opérateurs durant ces réunions de travail : les fréquents *gestes iconiques* (McNeill 1992) qui accompagnent leurs productions verbales et qui « miment » tantôt des éléments du processus de fabrication (ex : le fonctionnement d'une machine), tantôt l'activité manipulative de l'opérateur sur son poste de travail. Après avoir souligné le caractère indexical de ces conduites gestuelles avec les activités productives qu'ils représentent, nous nous interrogerons sur les fonctions de ces conduites et plus particulièrement sur leur capacité à « rendre-présent » (Brassac 2004) un « contexte déplacé » (Auer 1988, Auchlin *et al.* 2004) dans l'action située qu'est la réunion de travail. Ce faisant, nous viserons à questionner de manière plus générale les phénomènes de « migration contextuelle » ou de « recontextualisation » qui s'opèrent en permanence dans les séances de relève de poste, et qui semblent en constituer un ressort déterminant.

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Gestes, pratiques, corporéité et polyfocalisation de l'action dans le travail de techniciennes de surface

Depuis quelques années, les approches multimodales du discours se multiplient, tant dans le domaine anglophone (Kress & al.2001, Scollon & Scollon 2003, Erickson 2004) que francophone (Filliettaz & Bronckart, à paraître, Mondada, 2004). Ces approches soulignent entre autre la nécessité de dépasser « une vision logocentrique du discours » (Filliettaz, à paraître) pour rendre compte des interactions sociales dans toute leur complexité sémiotique et matérielle. En lien avec ces orientations, notre contribution s'intéressera aux rapports entre langage, conduites gestuelles et corporéité dans le travail de jeunes femmes en formation au métier de « techniciennes de surface ». A partir de l'analyse de deux séquences d'enregistrement audio-vidéo, nous nous attacherons à étudier un type d'action récurrent dans le travail des nettoyeuses : l'action de « préparer un chiffon de nettoyage », préfigurative de l'action de « dépoussiérer ou de laver ». Sur la base d'un découpage moment après moment des différentes phases de cette action, nous comparerons d'abord la réalisation des gestes constitutifs de cette action par les expertes (les formatrices) et les novices (les stagiaires). Nous nous interrogerons ensuite sur le côté répétitif de ces gestes et sur la manière dont cette dimension répétitive permet l'engagement dans plusieurs activités simultanément. Enfin, nous nous intéresserons aux fonctions du langage quand il médiatise ces conduites corporelles dans des situations de « polyfocalisation » de l'action (Filliettaz 2002). Au travers de notre analyse, nous chercherons à établir le rôle joué par ces différentes modalités productrices de sens (le discours, les gestes) dans la construction ou la reconstruction des identités professionnelles des stagiaires. Enfin, sur le plan méthodologique, notre recherche contribuera également à nourrir la réflexion concernant les problématiques du découpage de l'action et de la transcription des conduites corporelles.

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« Usages du corps » et construction anamnétique : la prise en charge infirmière d'un patient aux urgences

Si la consultation médicale et la relation médecin-patient ont déjà fait l'objet de nombreuses études (notamment Heath 1993, Lacoste 1993, Vaysse 1993), la relation soignante infirmière-patient dans le cours de l'action de soin l'a été beaucoup moins et demeure actuellement encore largement sous exploitée et sous étudiée. La spécificité de ce type de relation est encore souvent à discuter.

Dans cette communication appuyée sur une recherche en cours, nous nous centrerons sur les rapports entre les « usages du corps » et la construction de l'anamnèse telle qu'elle peut être menée par une infirmière dans le cadre de sa prise en charge de soin. Le terme d'anamnèse, entendu classiquement comme l'ensemble des renseignements que le médecin recueille en interrogeant le malade sur l'histoire de sa maladie, est ici par extension transposé à la pratique infirmière.

Nous aborderons cette problématique de la construction anamnétique et des usages du corps à partir de l'analyse de l'enregistrement audio/vidéo d'une prise en charge de patient réalisée par une infirmière dans une service d'urgences d'un grand hôpital genevois. Dans cette séquence filmée, un patient âgé, accompagné de sa femme, vient consulter aux urgences pour des plaintes multiples (état fébrile, vomissements etc.). Il est accueilli et pris en charge par l'infirmière, qui tout en procédant aux premiers bilans sanguins s'enquiert de son histoire et l'interroge longuement sur ses symptômes.

A travers cette situation concrète de prise en charge, nous inter-rogerons le rapport qui est fait entre un certain usage du ou des corps (celui du patient et / ou de l'infirmière elle-même) et la nature de l'urgence qui détermine le mode de prise en charge. Nous analyserons le rôle du rapport au corps dans l'élaboration de l'anamnèse, dans la compréhension du problème et de l'histoire du patient (Strauss 1992). Nous examinerons en quoi le corps, à la fois psychologique et social, devient un instrument d'élaboration de l'histoire du patient, dans le cadre complexe d'une situation où se mêlent plusieurs activités de soins parfois concurrentes.

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La gestualité prosodique au service de l'objet enseigné

Dans son projet de rendre compte de l'objet enseigné (Canelas-Trevisi *et alii*, 1999, Schubauer-Leoni & Leutenegger, 2002), la didactique s'intéresse aux ressources par lesquelles l'enseignant met en scène son objet d'enseignement. Cette mise en scène se réalise sous le régime d'une double sémiotisation (Schneuwly, 2000) : par la première opération, l'enseignant rend présent son objet, par la deuxième, il le déplie, l'élémentarise, le transforme en unités séquentielles et hiérarchisées.

Dans le prolongement de ces positions, nous voudrions montrer comment l'objet d'enseignement est « saisi » et incarné au moyen des ressources prosodiques. Plus particulièrement, nous voudrions identifier le rôle de la prosodie dans ces gestes de présentification et de pointage de l'enseignant, en prenant en compte le caractère polyfocalisé d'une leçon et en montrant comment l'enseignant, par sa gestuelle voco-prosodique, « fait émerger » (énonce) différentes activités didactiques (successives ou simultanées) et certaines facettes de l'objet à enseigner.

Dans notre optique, les réalités prosodiques (rythme, variation du registre, unités intonatives, accents de focalisation) ne sont pas prises comme des morphèmes ou des signes ayant une valeur sémiotique précise et univoque, mais bien comme des « gestes » (voir Simon & Auchlin 2004), au sens où ces phénomènes prosodiques ne sont interprétables qu'en contexte, contribuent à créer le contexte (Auer & di Luzio 1992), et permettent de pointer vers différentes activités (polyfocalisation) ou d'assigner les parties de l'objet à enseigner à différents foyers de l'activité générale en cours (gestion de la multiactivité).

Nous conduirons nos observations sur des leçons extraites du corpus

constitué par l'équipe du GRAFE dans le cadre de la recherche (FNRS 1214-068110). Le corpus se constitue de 32 leçons captées dans des classes du secondaire des cantons de Vaud, Jura, Valais et Genève. Ces leçons portent sur deux objets d'enseignement contrastés : la relative et le texte d'opinion.

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Les rôles spécifiques de la gestualité et ses implications psycho-corporelles en clinique

La nature multimodale des échanges dans les situations de face à face de type conversationnel est classique, mais elle mérite d'être approfondie dans le domaine de l'entretien clinique, là où le corps est à la fois moteur énonciatif, et référent du discours .

A partir d'un panel de patients en consultations médicales (vidéos et observation participante), la gestualité la plus sollicitée dite "corpo-centrée" est explorée :

- intègre-t-elle les systèmes habituels de la gestualité conversationnelle ?
- a-t-elle des liens directs avec la perception des troubles somatiques pour les exprimer et a-t-elle une valeur communicative ?
- a-t-elle un contenu propre, conduisant à discuter de son rapport à la verbalité ?
- quelle conséquence a-t-elle sur la compréhension des troubles par le médecin ?

Les mécanismes observés font discuter le rôle de la référence au corps dans les processus identificatoires, dans l'ancrage corporel de sa propre pensée, dans les processus empathiques permettant au médecin des inférences sur la disposition psycho-corporelle du patient.

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Panel presentation

Formes graphiques de la Langue des Signes : méthodologie, modélisation, représentations pour la communication gestuelle

On projette d'élaborer une forme graphique de la langue des signes française (LSF). Les exposés correspondent aux actions envisagées :

1. Un bilan des pratiques et attentes des locuteurs sourds de la LSF en matière d'écriture de leur langue, visant à spécifier les fonctions à assigner au système graphique.
2. La validation, sur le lexique, de l'hypothèse d'une organisation physiologique du geste (physiologie articulaire) devant aboutir à une notation économique.
3. L'élaboration de représentations informatiques des signes, de l'espace et du visage, permettant l'analyse de corpus vidéo, l'aide à la transcription, le codage du formalisme, des éditeurs d'aide à l'écriture et un avatar signeur d'aide à la lecture.

Our aim is the creation of a graphical form for French sign language (FSL), presented in the following stages :

1. Assessing the practices and expectations of FSL signers relative to a graphical representation of their language, so as to define the functions to attribute to a graphical system.
2. Confirming the hypothesis of a physiological organisation of gesturing through the lexicon, with the goal of an economical notation.
3. Developing digitalized representations of signs, of signing space and of the signer's face to allow the analysis of a video corpus, aid in transcription, encoding of the formalization, writing editors and reading assistance with a signing avatar

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**« Quelles formes d'écrit pour la Langue des Signes (LS) ?
Résultats d'une enquête qualitative auprès de locuteurs
sourds de la Langue des Signes Française (LSF) »**

La question posée est celle des moyens, pour les sourds locuteurs d'une LS, d'accéder aux différentes fonctions cognitives, sociales, pédagogiques de l'écrit.

On exposera les résultats de l'enquête menée sur ce sujet auprès d'adultes et d'enfants sourds locuteurs de la LSF. L'objectif était d'investiguer leur rapport à l'écriture et au français écrit, leurs usages et pratiques graphiques et leurs attentes, mais aussi le rôle des technologies visuelles en fonction d'écrit pour la LSF.

Outre le constat, chez ces personnes, de tous niveaux en français écrit, de nombreuses pratiques graphiques spécifiques, on mettra en évidence les fonctions de l'écrit que ni le français écrit, même maîtrisé, ni les nouvelles technologies visuelles ne permettent de satisfaire. Entre autres, ses fonctions de support :

- à une élaboration cognitive (en LSF) ;
- à la formulation de requêtes dans une banque de données en LSF ;
- et, dans l'enseignement de et en LSF, à une « composition » en LSF.

Intégrant le point de vue de ces locuteurs sur l'éventualité d'une formalisation graphique de leur langue, cette étude permet de préciser les bases fonctionnelles qui, couplées à l'analyse linguistique, orienteront la forme du système graphique projeté.

Which written forms are adequate to Sign Language (FSL) ? The Results of a qualitative survey of French Sign Language (FSL) signers

The question here is to ascertain the means, for deaf signers, of adopting various cognitive, social, and pedagogical functions of writing. We will present the results of the survey conducted with

children and adult FSL signers, our aim being not only to investigate their relationship to writing and to written French - their uses and practices of graphical representation, as well as their expectations - but also in order to determine the role of visual technologies as a writing tool for FSL.

Beyond the observation that this group, regardless of their level of French, have specific graphical practices, we will identify those functions of writing that neither a mastery of French, nor any of the new visual technologies can satisfy. Among other things this includes, its functions of support for cognitive elaboration (in FSL) ; for the formulation of requests in a database in FSL ; and, in the teaching of - and in - FSL, for "composition" in FSL.

By integrating the viewpoint of signers on the possibility of a graphical formalization of their language, our study allows us to specify the functional bases which, together with a linguistic analysis, determine the form this graphical system will take.

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« Exploitation d'une base de données physiologiques du lexique standard de la LSF »

L'objectif ici est de réduire le nombre de symboles d'une notation de la LSF de sorte à pouvoir mettre au point un formalisme se rapprochant de systèmes graphiques monolinéaires. Pour cela, on a besoin de noter les phénomènes syntactico-sémantiques de la langue et les lexèmes. Une première phase de recensement et de notation de tous les mouvements effectués fournit un socle complet à partir duquel une étude globale est heuristique pour l'objectif fixé.

L'ensemble du lexique standard de la LSF est noté selon des critères de physiologie articulaire dans une base de données. Cette base une fois renseignée, permet, d'une part, de réaliser des études quantitatives afin de réduire le nombre de traits descriptifs et/ou pertinents des signifiants et des signifiés pour tous les signes et, d'autre part, de recenser les continuités qui existent entre les mouvements pour chaque signe.

Même si les paramètres stokiens sont pris en compte dans la base de données, nous privilégions une conception continuiste du substrat gestuel ; conception pour laquelle une forte interdépendance entre les segments apparaît de fait.

Nous exposerons quelques résultats, notamment sur les rapports qu'entretiennent les paramètres entre eux. Une lecture non paramétrique du lexique standard de la LSF ouvre sur des schématisations en nombre restreint, combinables et susceptibles de donner une base structurante pour les symboles d'une forme graphique à concevoir.

Exploitation of a physiological database of the standard FSL lexicon

Our aim is to reduce the number of symbols used in FSL notation, in order to perfect a formalization approaching monolinear graphical systems. To this end, we must identify the syntactico-semantic make-up of the language and its lexemes. An initial phase involving

the inventorying and notation of all movements produced provides a solid basis allowing a global study to better contribute to our goal. The standard lexicon is entered in a database using articular physiological criteria. Once this database is complete, it becomes possible to carry out quantitative studies designed to reduce the number of descriptive and/or pertinent features for signifiers and signifieds of all signs. Also, it is possible to identify the continuity existing between the movements for each sign.

Even with Stokoe notation parameters integrated in the database, we favour a continuist conception of the gestural substratum, in which a strong interdependence between segments appears as a matter of course.

We will present several results, particularly concerning the relationships between parameters. A non-parametrical reading of the FSL standard lexicon opens onto a limited number of schematic forms which can be combined, and which may provide a basis for structuring symbols of a graphical form yet to be conceived

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Traitement informatique de la LS : modèles, représentations, outils d'analyse vidéo, d'animation d'avatar et de communication

L'objectif est d'étudier des outils facilitant l'écriture d'énoncés en LSF, par analyse de vidéos, ou assistant leur lecture à l'aide d'avatars signants. L'espace de signation, où sont placés tous les éléments auxquels le signeur et son interlocuteur pourront faire référence, sert de cadre à la structuration du discours. Sa modélisation permet à un système d'analyse d'images de prédire et d'interpréter les événements visuels en termes linguistiques et de produire une description syntactico-sémantique du discours. Inversement, un éditeur graphique exploitant cette représentation permet de générer le cadre structurel d'un énoncé destiné à être réalisé par un avatar signant.

Au niveau de la réalisation manuelle des signes, le module d'analyse associe des indices visuels à la représentation articulaire des signes, pour les reconnaître et en fournir une représentation dans un codage permettant l'utilisation d'outils standard d'édition. Ce nouveau formalisme articulaire sera aussi exploité en synthèse.

Ces travaux sont complétés par une modélisation des expressions du visage, qui jouent avec le regard un rôle syntaxique essentiel, et par l'étude d'outils d'analyse et de synthèse correspondants. Les applications étudiées concernent l'exploitation d'une écriture de la LSF dans le cadre scolaire, dans la communication à distance et dans l'utilisation d'internet.

Sign language processing: models, representations, tools for video analysis, for signing avatars and for communication

The aim is to study tools facilitating the writing of utterances in FSL through the analysis of videos, or aiding in their comprehension using signing avatars. The signing space, which contains all the

elements to which the signer and his addressee make reference, is the framework for structuring discourse. Its modellisation enables an image analysis system to anticipate and interpret visual events in linguistic terms and produce a syntactico-semantic description of discourse. Conversely, a graphic editor using this representation allows us to generate the structural framework of an utterance produced by a signing avatar.

At the level of the manual production of signs, the analysis module associates visual clues with the articular representation of signs, in order to recognise them and to provide a representation in a code allowing the utilisation of standard editing tools. This new articular formalism will also be utilised for synthesis.

This undertaking is supplemented by a modellisation of facial expressions which - together with the signer's gaze - play an essential syntactic role, and by the study of corresponding analysis and synthesis tools. The applications under study concern the exploitation of a written form for FSL in schooling, in distance communication and in internet use.

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Panel presentation

L'intervention et le devenir des connaissances antérieures des élèves dans la dynamique des apprentissages scolaires.

Dans le cadre d'un projet financé par l'ACI Ecole et Sciences cognitives réunissant des didacticiens (mathématiques, physique, chimie, technologie, économie) et des psychologues, nous présentons 2 recherches dont l'objectif commun est de mieux comprendre le rôle des connaissances préalables des apprenants dans leur apprentissage en situation scolaire. Ces connaissances peuvent provenir de leur vie courante, de situations d'enseignements passées ou, dans le cas des formations professionnelles, de stages sur des lieux de travail. Elles peuvent être disciplinaires, professionnelles, relatives à la culture scolaire, à des pratiques de la vie quotidienne, etc. Une récente synthèse (Tiberghien, 2003) a montré que peu de recherches traitaient de la dynamique d'articulation des connaissances préalables avec des connaissances nouvelles proposées lors d'une situation d'enseignement, et des actions enseignantes qui la prendrait en compte.

Sur un plan méthodologique, la question du repérage de ces connaissances se pose donc de manière vive. Elle est liée aux observables dont on peut disposer pour les inférer à partir des verbalisations et des comportements des apprenants et de l'enseignant : expressions verbales, gestes signifiants, gestes de manipulation, d'utilisation ou de production d'artefacts (en particulier des écrits). Plusieurs recherches du projet font appel aux enregistrements vidéo et à des techniques de montage et de compression pour enrichir les observables. L'analyse articule ensuite ces données vidéos avec d'autres sources : productions écrites des élèves, préparation de l'enseignant, etc.

Cet atelier sera pour nous l'occasion de présenter :

- d'une part, une recherche en didactique de la chimie (communication 1), qui s'appuie sur l'analyse des gestes en complément de celle des productions verbales pour étudier les

- connaissances mobilisées dans un enseignement sur la réaction chimique,
- d'autre part, une recherche en didactique professionnelle (communication 2), qui étudie le rôle du contexte et des interactions dans le transfert de connaissances et de proposer des extraits vidéo pour une discussion sur l'apport de l'analyse des gestes à l'étude de l'apprentissage.

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Utilisation de gestes pour affiner l'analyse de connaissances mises en jeu dans des interactions au cours d'un apprentissage scientifique

Le langage comme facteur essentiel de l'apprentissage a eu son importance largement documentée dans les travaux ayant adopté une approche socioconstructiviste. Cependant, seule sa composante verbale est généralement utilisée. Peu d'étude prennent en compte les gestes comme indicateur de connaissance dans l'interaction entre apprenants. Roth et Lawless (2002) en ont pourtant montré l'intérêt lors d'études de cas en didactique de la physique, en constatant que l'écart entre le geste exprimant un concept en cours d'apprentissage et sa verbalisation diminue avec le temps.

En didactique de la chimie, nous avons exploré le caractère métaphorique de certains gestes d'élèves scientifiques de 17 ans pour explorer l'évolution des connaissances antérieures des élèves lors d'un apprentissage, au niveau microscopique, d'une réaction chimique mettant en jeu des ions en solution aqueuse. Nous avons pu constater que les connaissances préalables des élèves les conduisaient à raisonner comme si chaque ion n'était présent en solution qu'à un seul exemplaire, alors qu'il est connu, à ce niveau scolaire, qu'il y en a une multitude. L'évolution de ces connaissances a pu être observée chez un élève, suite à l'intervention du professeur, les gestes métaphoriques accompagnant le discours devenant différents.

Une telle prise en compte de la composante gestuelle du langage ouvre un champ nouveau en didactique en constituant une nouvelle observable encore inexplorée. Il devient possible de conforter certaines hypothèses sur l'interprétation des connaissances impliquées dans les interactions ; cela constitue une avancée importante. Il faut cependant trouver des situations qui favorisent une gesticulation cognitivement riche, ce qui n'est pas le cas habituel en sciences. En effet, les apprenants en situation de manipulations expérimentales ou de calculs accompagnent leurs interactions de gestes essentiellement

déictiques, peu informatifs sur le plan cognitif. Nous avons pu cependant introduire, dans ces situations, des questions de réflexion qui favorisent une discussion accompagnée de gestes métaphoriques ou de battements, également riches en métaphores (Mc Daniell, 1992).

The importance of language as a fundamental factor in learning has been extensively documented throughout socioconstructivistic approaches. Nevertheless, only the verbal aspect of language is most often used. Little research in science education takes into account gestures as indicators of knowledge imbedded in learners' interactions. Roth and Lawless (2002) proved such interest in physics education case studies. They pointed out that the laps of time between the gesture corresponding to a concept and its corresponding utterance decreased with learning.

In chemical education, we observed 17 years old students' metaphorical gestures to understand their previous knowledge about microscopic aspects of chemical reactions whenever ionic solutions are involved. We found out that such knowledge forced students to behave as if only one ion of each kind were in solution even if they do know that they are numerous. The evolution of one student's knowledge could be observed after his teacher intervention. Metaphorical gestures became different then.

Such an account of gestures opens wide a new area in science education. It becomes possible to comfort hypotheses about the interpretation of knowledge imbedded in interactions. It is necessary to find situations that favour cognitively rich gesticulation, which seldom happens in science indeed. Learners use most deictic gestures during experiments or calculus. Such gestures have little cognitive interest. Nevertheless, we could question students in a way that favoured metaphorical gestures and beats, which happen to have a large metaphorical content (Mc Daniell, 1992).

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Le rôle des interactions dans le transfert et l'articulation de différents types de connaissances par des étudiants en formation professionnelle

Notre étude se situe dans le champ de la didactique professionnelle. Elle porte sur un enseignement réalisé dans le contexte d'une formation professionnelle en alternance pour de futurs techniciens supérieurs dans le domaine de la gestion de production. L'objectif de cette séquence est d'amener les étudiants à re-mobiliser des connaissances enseignées dans des modules précédents de leur formation ou issues d'expériences vécues en entreprise pour résoudre le problème qui leur est posé. Il s'agit donc pour les étudiants de faire des transferts de connaissances d'une situation de formation à une autre. La plupart des recherches sur le transfert ont été réalisées en psychologie selon un paradigme méthodologique qui limite fortement l'étude du rôle du contexte, le sujet étudié étant soigneusement privé, dans la situation cible, de toute aide humaine et de tout support externe pouvant l'aider à réutiliser les connaissances de la situation source (Bransford et Schwartz, 1999).

Dans notre étude nous cherchons au contraire à étudier le rôle des interactions avec l'enseignant, les autres élèves et les artefacts sur le transfert et l'articulation de différentes connaissances. D'un point de vue théorique, nous nous appuyons sur la théorie de l'activité (Leontiev, 1979 ; Engeström et al., 2003) qui permet de considérer la séquence d'enseignement étudiée comme une activité dans laquelle se déploient des actions et des interactions situées socialement et spatialement. Sur le plan méthodologique nous utilisons deux caméras pour filmer les séances (une dizaine d'heures d'enregistrement en tout) : 1 caméra pour le plan du tableau et 1 autre pour le plan de la salle avec les élèves. Après avoir fait un montage de ces 2 plans, nous compressons les films selon un format (divx) qui nous permet de garder une très bonne précision de l'image, indispensable aux analyses faites ensuite à l'aide d'un logiciel développé spécialement par des didacticiens pour l'analyse de vidéos de classes (vidéographe).

Ces enregistrements vidéos s'avèrent dans un premier temps indispensables pour effectuer un repérage des locuteurs successifs, visualiser les gestes signifiants qui accompagnent parfois l'expression de certaines connaissances et identifier certains artefacts qui jouent un rôle dans la mobilisation de ces dernières. Les vidéos sont aussi essentielles pour pouvoir prendre en compte les positions et les déplacements successifs des acteurs de la situation (en particulier l'enseignant) qui modifient les rôles et l'engagement des uns et des autres par rapport à la tâche proposée par l'enseignant.

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The role of gesture, signs and instruments in mathematical conceptualisation

In Mathematics Education, recent studies analyse gestures in the teaching-learning context, as a means for gaining information about the cognitive processes of a subject (Edwards, 2003; Arzarello & Robutti, 2004; Arzarello, 2005; Núñez, in press). Developing from the work of McNeill (1992), a classification of different kinds of gestures has been created; furthermore, they are considered as a bridge between action and discourse (Roth, 2002).

Our interest is on the role that gestures play in constructing meaning for mathematical objects.

The main points of our research are:

1. A dynamics between the two following types of gestures:
 - quick, incomplete, sometimes just sketched, used for exploring and looking for meanings;
 - more defined and complete, used to communicate meanings.

The analysis of such dynamics, consisting in a back and forth transition between the previous two kinds of gesture, allows us to conclude that gestures act as thinking tools, necessary to construct a meaning for mathematical situations.

2. How using an artefact supports the production of gestures.

3. What kind of role gestures has in generating signs during a problem solving activity.

In the specific context of mathematics learning, our aim is to analyse the role of gestures according to the points mentioned above.

Lavori recenti nel campo della ricerca in didattica della matematica prendono in considerazione l'analisi dei gesti nei contesti di insegnamento-apprendimento come strumento per ottenere informazioni sui processi cognitivi che i soggetti mettono in atto (Edwards, 2003; Arzarello & Robutti, 2004; Arzarello, 2005; Núñez, in stampa). A partire dal lavoro di McNeill (1992) si è sviluppata una classificazione delle differenti tipologie di gesti, considerati come un ponte tra l'azione e il discorso (Roth, 2002).

Il nostro interesse si concentra sul ruolo che i gesti giocano nei processi di costruzione di significato degli oggetti matematici, con particolare riferimento ai seguenti punti:

1. La dinamica tra i due seguenti tipi di gesti:
 - veloci, incompleti, talvolta appena accennati, utilizzati come strumento di esplorazione e di ricerca di significato;
 - più definiti e completi, utilizzati per comunicare significati già costruiti.

L'analisi di tale dinamica, che consiste in una continua transizione tra queste due tipologie gestuali, consente di concludere che i gesti agiscono come strumento di pensiero, per costruire significati in situazioni matematiche.

2. L'influenza che l'uso di un artefatto può avere sulla gestualità.
3. Il ruolo che i gesti possono giocare nella generazione di segni durante l'attività di risoluzione di problemi.

Più in sintesi, il nostro obiettivo è quello di analizzare, nello specifico contesto dell'apprendimento in matematica, il ruolo dei gesti relativamente ai punti sopra menzionati.

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Panel presentation

The Teacher's multimodal communication

The panel deals with the cognitive impact of the teacher's multimodal communication.

The first paper (Merola) deals with the effects of the teacher's prosody, facial expression and gaze over the comprehension of narratives and the short-term memory of words in primary school pupils; the second (Cristilli) investigates the cognitive strategies of kindergarten and primary school teachers in gesturing to foster the children's communicative competence; the third (Taeschner et al.) analyses the different multimodal communication of "magic" and "non-magic" teachers teaching English as a second language. The importance is stressed of the teacher's multimodal communication for enhancing the students' cognitive, communicative and linguistic competence.

Il panel indaga l'impatto cognitivo della comunicazione multimodale dell'insegnante.

Il primo lavoro (Merola) studia gli effetti di prosodia, espressione facciale e sguardo sulla comprensione di narrazioni e sulla memoria a breve termine di parole in studenti di scuola primaria; il secondo (Cristilli) individua le strategie cognitive sottostanti ai gesti usati da insegnanti di scuola dell'infanzia per sviluppare le capacità comunicative dei bambini; il terzo (Taeschner et al.) analizza le differenze di comunicazione multimodale fra insegnanti «magiche» e «non magiche» che insegnano Inglese come L2.

I lavori evidenziano l'importanza della comunicazione multimodale come strumento dell'insegnante per sviluppare le capacità cognitive, comunicative e linguistiche dei bambini.

Panel papers

PP1

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Effects of the Teacher's multimodal communication over the Students' memory

This work investigates the effects of the quantity and quality of the teacher's multimodal communication over the students' comprehension and memory.

In study 1, ten years old students in three fifth grade classes listened to a brief story told by their teachers and finally wrote a summary of it. The teachers' multimodal communication was videorecorded and analysed through the "Musical Score" (Poggi & Magno Caldognetto, 1997).

Then the analyses of the students' summaries were compared to those of the story told by their respective teachers.

The class whose teacher used the highest amount of facial expression, but not of nonverbal signals in general, showed a clear improvement in the story retrieval. This shows the importance of the teachers' facial communication in enhancing students' attention, comprehension and memory.

Study 2 investigated the effects over the students' short term memory of the multimodal signals produced by different teachers while reading lists of words. The teacher's communication was videorecorded and analysed as in study 1.

The class whose teacher made the least use of nonverbal signals performed worst at the memory test. The results also point at the semantic and cognitive characteristics of nonverbal signals that have a higher effect over word memory.

Questo lavoro studia gli effetti della quantità e qualità della comunicazione multimodale dell insegnante sulla comprensione e il ricordo degli alunni.

In una prima ricerca studenti di tre quinte elementari (10 anni) hanno ascoltato una breve storia raccontata dalle rispettive insegnanti e poi ne hanno fatto un riassunto. La comunicazione mul-

timodale delle insegnanti è stata videoregistrata e analizzata con la Partitura del Parlato (Poggi & Magno Caldognetto,1997). Poi le informazioni contenute nei riassunti sono state confrontata con quelle presenti nelle narrazioni delle maestre.

La classe dell insegnante che ha usato la maggior quantità di segnali facciali, ma non di segnali non verbali in generale, ha mostrato i risultati migliori nel ricordo delle storie. Questo suggerisce l'importanza del comunicazione facciale dell insegnante nel facilitare l'attenzione, la comprensione e la memoria degli alunni.

Il secondo studio indagava gli effetti, sulla memoria a breve termine degli alunni, dei segnali multimodali prodotti dagli insegnanti nel leggere liste di parole. La classe della maestra che ha usato meno segnali non verbali ha ottenuto il peggior risultato medio nel test di memoria. I dati evidenziano fra l'altro le caratteristiche cognitive dei segnali non verbali che hanno maggiore effetto sul ricordo di parole.

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The relationship between speech and gesture in teachers' communicative strategies

To develop children's linguistic and communicative competence teachers employ several communicative strategies. This paper is focused on the way in which teachers integrate speech and gesture in relation to the nature and the scope of each of the strategies we identified. This integration is evaluated on the basis both of the formal and functional coherence between speech and gesture and of the way in which the two modalities interact semantically, syntactically and pragmatically. The reciprocal attention paid by both teachers and children to each other's gestures was also observed.

We analysed 2.5 hours of video-recorded interaction of 8 kindergarten and 2 first-grade elementary school teachers with 51 children from 3 to 6 years old. We compared the verbal and the gestural expressions the teachers produced when they employed each of 4 different communicative operations: expansion, focussing, confirmation, correction. Gestures were divided into 3 categories: representational, deictic and pragmatic (these were further classified as meta-linguistic and discourse-oriented).

The analysis shows a strong coherence and integration between speech and gesture in relation to the nature and function of each operation and strategy employed. The attention paid both by teachers and children to each other's gestures was revealed by some significant feedback phenomena

Per sviluppare la competenza linguistica e comunicativa dei bambini le insegnanti ricorrono a diverse strategie comunicative. Questo lavoro analizza il modo in cui le insegnanti integrano la loro espressione verbale e gestuale in relazione alla natura e agli scopi di ciascuna delle strategie che abbiamo identificato. Tale integrazione è valutata sulla base sia della coerenza formale e funzionale fra lingua e gestualità sia della maniera in cui le due modalità interagiscono a livello semantico, sintattico e pragmatico. È stata inoltre osservata

L'attenzione che sia le insegnanti sia i bambini rivolgono alla reciproca gestualità.

Abbiamo analizzato videoregistrazioni di 2.5 ore di interazione comunicativa fra 8 insegnanti di scuola materna e 2 di I elementare con 51 bambini dai 3 ai 6 anni. Abbiamo comparato le espressioni verbali e gestuali che le insegnanti producono quando impiegano ciascuna delle 4 seguenti operazioni: espansione, focalizzazione, conferma, correzione. I gesti sono stati divisi in 3 categorie: rappresentativi, deittici e pragmatici (questi ultimi ulteriormente distinti in metalinguistici e orientati sul discorso).

L'analisi ha messo in evidenza una forte coerenza e integrazione fra espressione verbale e gestuale in relazione alla natura e alle funzioni di ciascuna operazione e strategia impiegata. L'attenzione rivolta sia dalle insegnanti sia dai bambini alla reciproca gestualità è stata rivelata da alcuni significativi fenomeni di feed-back.

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**Analysing teacher's behavior in the classroom
with special attention to gestures,
face expressions and body movements.**

This research analyses classroom behavior in the context of an innovative foreign language teaching model for small children (Taeschner, 2004). The model uses a narrative approach, with pupils acting in theater scenes. The teachers obtained different results in spite of their equal high motivation: the successful ones had something "magic". To classify "magic", videorecordings of were collected and analysed: a system of micro-behaviors was created (Bruner, 1975; Stern, 1995) including gaze direction, verbal behavior, body position, actions (mimic, command, instructional gestures etc.). Continuous recording (with Observer Video Pro Analog System) of 10 teachers (15 minutes each) in teacher-pupils group interaction was done, signaling beginning and ending for each behavior.

Results showed that the "magic" teachers, as opposed to the "non magic" ones, alternate gazing at imaginary objects with gazing at the children, do not switch from narrative language to commands, produce fewer commands and more declaratives. As to body position and actions, the "non magic" teacher stays frequently close to one pupil and uses exhortative, instructional and command gestures, while the "magic" teacher frequently mimes and gazes at children and imaginary objects, alternating between the two, prefers to stand still instead of making gestures useless for the narration, and shows praise gestures.

La ricerca analizza il comportamento in classe nella sperimentazione di un modello innovativo di insegnamento di Lingua 2 per bambini piccoli (Taeschner, 2004). Il modello usa un approccio narrativo in cui i bambini recitano scene teatrali. Gli insegnanti nella sperimentazione hanno ottenuto risultati diversi, nonostante l'uguale alto livello di motivazione: vi erano insegnanti "magiche" e "non magiche". Per spiegare questa "magia", sono state videoregistrate (con Observer Video Pro Analog System) le interazioni insegnante-alunni di 10 insegnanti, per 15 minuti l'una. E' stato utilizzato per l'analisi un sistema di micro-categorie (Bruner, 1975; Stern, 1995) fra cui: direzione dello sguardo, comportamento verbale, posizione del corpo, azioni (gesti mimici, di comando, di istruzione...). I risultati mostrano che l'insegnante "magica", rispetto a quella "non magica", alterna gli sguardi ad oggetti immaginari con sguardi agli alunni, non passa dalla narrazione ai comandi, produce meno comandi e più dichiarativi. Quanto alla posizione del corpo e ai gesti compiuti, l'insegnante "non magica" spesso sta vicino a un alunno e usa gesti di esortazione, istruzione e comando, mentre l'insegnante "magica" mima e guarda più spesso, alternativamente, bambini e oggetti immaginari, preferisce star ferma piuttosto che fare gesti inutili alla narrazione, ed esibisce gesti di lode.

Mondada, Lorenza (coordinator)

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Panel presentation

Video analysis and the interactional relevance of bodily details

Video recordings of naturally occurring activities have made available for closed analytical scrutiny an enormous amount of details, which are, to rephrase Harvey Sacks, not *imaginable* but only *discoverable*. In front of the infinity of possible observations made possible by video, a double question arises :

a) how to select the relevant details to take into account in the analysis ?

b) how to represent these details either for working on them in the analysis or for presenting its results ?

Within a Conversation Analytical framework, the question of the relevance of details is considered by taking into account members' orientations to these details and not by virtue of a theoretical *a priori* decision. Participants orient to the multimodal details of interaction in order to produce its intelligibility both in the organization of their adequate conduct and in the interpretation of other's action. Orientation to details and situated exploitation of these details produce the accountability of action. The panel - focussing around the INcorporACTION project - will discuss relevancing procedures as members' orientations and practices, and the way in which research practices can take them into account, making them a topic of inquiry.

Ce panel est inspiré des travaux actuellement menés au sein du projet INcorporACTION, dont le but est de discuter les conséquences analytiques, méthodologiques et technologiques de la prise en compte de la dimension corporelle dans l'organisation des pratiques sociales et linguistiques.

Le panel se focalisera sur la question des détails rendus observables par les enregistrements vidéo ainsi que sur les procédés par lesquels les participants eux-mêmes, en s'orientant vers certains détails de l'action et du contexte, les rendent pertinents pour la production et

interprétation de l'intelligibilité de l'action. Le panel s'intéressera aussi aux pratiques par lesquelles les chercheurs reconnaissent cette pertinence, que ce soit dans leurs manières de filmer, de transcrire ou de présenter leurs matériaux d'étude.

with
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Panel papers

PP1

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Multiscope video and the continuous access to relevant details

In this paper, we argue that conversation analysis - with its requirement to work on naturally occurring activities and on the details to which members are actually orienting - entails particular ways of conceiving and of realizing video recordings. We show that single camera views are often limited in offering a continuous access to the relevant details organizing the interaction. In this case, multiple source recordings (with various video cameras as well as various microphones) are necessary : we will show how *multiscope videos*, i.e. videos edited with a split screen containing 3 or 4 views on the same event, allow a better detailed understanding of action.

The paper will be based on a series of corpora we realized at the ICAR lab, consisting in multi source recordings of ordinary conversations during meal time. These recordings were edited in order to synchronize the various views in a multiscope video : we will show the relevance of such edited data for the analysis of particular phenomena such as exchanges of gazes, trajectories of gestures and body movements. Multiscope video secure a continuous access to these details which would otherwise be covered by the relative positions of the participants or by other perspective effects. In this sense, it allows a transcription and a description of the relevance of glances, gestures and bodily postures during entire stretches of talk, independently from recording limitations.

In the paper we will stress the importance, for this kind of analysis, of a specific « professional vision » of the analyst, reflexively embodied in the way in which interaction is recorded and records are edited and then read-interpreted during the enquiry.

L'analyse conversationnelle - avec son exigence de travailler sur des données dites « naturelles », i.e. sur des interactions telles qu'elles se déroulent dans leur contexte social ordinaire, sans avoir été orchestrées par le chercheur - implique une manière spécifique de concevoir et de réaliser les enregistrements vidéo qui constituent son fondement empirique.

Nous allons donc discuter de différentes manières de filmer une activité, en insistant sur les limitations des prises de vues uniques et sur les potentialités des prises de vues multiples. Celles-ci, une fois montées en une « vidéo multiscopie » offrant simultanément plusieurs perspectives sur une même scène, permettent de travailler les détails pertinents de l'interaction d'une manière continue, non interrompue par des problèmes de cadrage ou de changement de posture des participants. Nous insisterons dans cette communication sur le type d'analyse spécifique que ces vidéos multiscopes permettent de réaliser.

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**Aspects of activity coordination between
two cooks in a professional setting**

In this paper, we analyse data from a multi-view video recording (with two or three cameras) of two cooks preparing meals in the kitchen of an Italian restaurant.

The research program focuses on the verbal and non verbal modalities that the two cooks use for coordinating the activity of preparing a single dish or a sequence of dishes. The level of their coordination changes along with the different phases of the activity. The minimum level of coordination consists in a mutual attention which permits them to accomplish independent activities in sharing the different working emplacements of the kitchen. The maximum level of coordination corresponds to the co-accomplishment of a phase in sequence of actions. And between the two, various configurations can occur. Besides these cases, there are occasions in which one of the participants begins an action which is then interrupted or suspended by the intervention of the other participant or by her becoming available for accomplishing a particular task at that moment. The intervention of the other participant changes the configuration of the whole initiated action . The analyses will focus on those particular cases, which permit us to investigate the transition between individual actions and coordinated activity.

Dans cette communication, nous analysons un corpus d'enregistrements multi-vues (deux ou trois caméras) de deux cuisinières au travail dans la cuisine d'un restaurant italien.

La recherche porte sur les modalités verbales et non verbales utilisées par les participantes pour coordonner l'activité de préparer un plat ou une série de plats. Leur degré de coordination change en

fonction des différentes phases de l'activité. Le degré minimal de coordination consiste en un état d'attention mutuelle qui leur permet d'accomplir des activités indépendantes tout en partageant les différents emplacements de travail dans la cuisine. Le degré maximal correspond à l'accomplissement conjoint d'une phase dans une séquence d'actions. Entre les deux, différentes configurations sont attestées. Parallèlement, se produisent des cas dans lesquels une des participantes commence une action qui est ensuite interrompue ou suspendue du fait que l'autre y intervient ou devient disponible pour réaliser une tâche particulière à ce moment-là. L'intervention de l'autre change la configuration de l'action totale, telle qu'elle était engagée. Dans les analyses nous nous concentrerons sur ces cas particuliers, qui permettent de questionner la transition entre les actions individuelles et l'activité coordonnée.

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Participants' discovery and treatment of visual disarrangements in videocommunication

Video-mediated interactions through large screens have often been compared to ordinary, co-present interactions. In this paper, we adopt a conversation analysis perspective to examine how participants themselves assess the interactional capabilities of a videocommunication device.

Based on a detailed video analysis of a multi-camera recording of a professional meeting, our contribution focuses on how participants gain access, from the detailed organisation of their embodied activity, to some accountable features of the videocommunication device, and make visible, through their bodily activities and conversational work, the device capabilities to sustain interactional visual adjustments.

Montes, Rosa Graciela (coordinator)

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Panel presentation

Deictics and indexicality in shifting contexts

This panel examines complex referential accomplishments through deictic use. *Deictics* usually index their referents in the actual interactional context. However, many pointing gestures seem to have no concrete referent in the physical context but rather establish their referents in more abstract spaces, constructing fictional contexts related to the events that are being retold or narrated. The shifts between actual space and reported space and the often non-transparent relationship between what is pointed at and what is said is the thematic problem addressed from different theoretical perspectives by these three papers, based on spontaneous interactions between Mexican or Mexican-origin speakers of Spanish.

Este panel examina los complejos logros referenciales a través del empleo de deícticos. Los deícticos usualmente señalan sus referentes en el contexto físico. Sin embargo, en muchos casos de empleo el referente no parece estar en el contexto físico y se establece en espacios más abstractos relacionados a lo enunciado. Los desplazamientos entre el espacio real y los espacios narrados o la relación no-transparente entre lo señalado y lo dicho es el problema enfocado por estos tres trabajos que desde diferentes perspectivas teóricas analizan interacciones entre hablantes de español, mexicanos o de origen mexicano.

Panel Papers

PP1

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Gestes déictiques et narration

Partant de l'analyse gestuelle de récits d'expériences personnelles, cet exposé décrira comment les gestes déictiques sont utilisés pour délimiter les différents espaces du récit. Nous montrerons de quelle manière, dans le discours narratif intersubjectif, le caractère quotidien ou extraordinaire du récit peut déterminer la fréquence dans l'emploi de gestes déictiques concrets, dans le premier cas, ou de gestes abstraits, dans le deuxième cas. La gestuelle déictique spatiale du narrateur d'une expérience quotidienne revêt un caractère différent de celle du narrateur d'événements extraordinaires.

On the basis of the gestural analysis of narratives of personal experience, in the present paper we describe the particular way in which deictic gestures are used as markers of different spaces. We will show how in intersubjective narrative discourse, everydayness or extraordinariness of the narrative being told may determine the frequency of use of *concrete pointing gestures*, in the first case, and *abstract pointing gesture* in the second. The spatial deictic gesturing of the narrator of an everyday experience configures the spaces required by the thread of the story in a different way than the recounter of "supernatural" events.

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When 'back' is 'left'. Evidence for the gestual and verbal co-construction of indexicality at the digital interface

This paper analyzes the organization of talk-in-interaction, during collaborative computer activities, by examining the interrelation between gestures and verbal features, as embodied practices manifest in on-going activity. Informed by conversation analysis and sociolinguistics, indexicality is conceived of as a locally accomplished phenomenon, manifest in Latino participants' verbal, visual and bodily references to virtual and lived spaces. Microanalyses illustrate how certain spatio-temporal indexes reference both the computer activity *and* the constitutive moment-to-moment interactions. Findings suggest that indexicality is not only contextually sensitive, but also contingent on the transfer and synergy between language and the available symbolic contexts.

Este trabajo analiza la organización del habla-en-interacción, en actividades colaborativas en la computadora. Examina la interrelación entre los gestos y aspectos verbales, como practicas apropiadas corporalmente y manifestadas en la actividad en proceso. Informado por el análisis de la conversación y de la sociolingüística, se concibe la indexicalidad como un fenómeno realizado de manera local y evidenciado a través de la referencias en el habla, la visión y los cuerpos de los latino-participantes, hacia los distintos espacios virtuales y habitados. Los microanálisis muestran como los índices se refieren tanto a la actividad en la computadora como a las interacciones constitutivas del momento-al-momento. Se sugiere que la indexicalidad no sólo es sensible hacia el contexto, sino que depende también de una transferencia y sinergia entre el lenguaje y los contextos simbólicos inmediatos.

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Pointing gestures and subjective stance

Deictics have a basic function as indexical forms pointing out referents in the spatio-temporal context of an interaction. However, researchers have indicated that often they are used in a non-transparent way “pointing” at nothing specific or else indicating a referent which has a non-obvious relationship to the talk expressed. This paper examines deictic uses where there is an apparent mismatch between the verbal utterance and the referent established by the deictic, including pointing to self. I discuss the ways in which utterance and deictic referent are related, based on the context of interaction and the speaker’s evaluative alignment or subjective stance.

Los déicticos cumplen con una función primaria indexical de señalar referentes en el contexto espacio-temporal. Sin embargo, se ha visto que frecuentemente se utilizan de maneras no-transparentes señalando a algo no-específico o bien indicando un referente concreto que no guarda una relación obvia con lo enunciado. En este trabajo se examinan casos de aparente incongruencia entre el enunciado y el referente señalado déicticamente, incluyendo la auto-indicación. Se discuten las formas en que el enunciado y el referente se relacionan usando el contexto interaccional y el posicionamiento subjetivo del hablante.

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Panel presentation

What does the brain reveal about the relations between speech and gesture?

During fluent spontaneous speech, speakers' hand gestures are temporally and semantically coordinated with their verbal message. Listeners/viewers also perceive information from both modalities in a similar coordinated way. There have been opposing views in the literature with regard to underlying cognitive processes of how speakers and listeners/viewers produce and comprehend information involving these two modalities during communication. While some theories have suggested that speech and gestures are integrated and coordinated at a conceptual level, some others have suggested that the two are conceptually separate but parallel systems or one is an artefact of the other.

In the recent years there have been some new studies that investigate the neural underpinnings of cognitive processes that underlie speech and gesture coordination both in production and comprehension using ERP, fMRI techniques as well as using split-brain patients. The four separate talks in the proposed symposium will present recent findings from all three types of neurocognitive investigations both in speech-gesture production and comprehension. These studies reveal information about the relative timing of processing, the brain areas involved in production and comprehension of information from each modality as well as the role of intentionality involved in processing during communication. The symposium will also involve a discussion talk about what neurocognitive findings can tell us about the nature of relations between speech and gesture, that is as integrated or separate but parallel systems.

with

Feyereisen, Pierre (discussant)

Dept. of Psychology, University of Louvain

Panel papers

PP1

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Does a Communicator's Intent Play a Role in the Brain's Comprehension of Speech and Gesture?

Hand gestures are tightly integrated with speech during the brain's comprehension of language (Kelly, Kravitz & Hopkins, 2004). Furthermore, research has demonstrated that gestures play a "special" role with speech during language comprehension; the brain processes gesture differently than other visual information that accompanies speech (Kelly and Kravitz, 2004). The present study investigates whether an interlocutor's belief that speech and gesture are *intentionally linked* is one explanation for why gesture plays a special role during language comprehension.

Ten adult participants watched videos of speech and gesture while ERPs recorded brain responses to the speech. ERPs are averaged, time-locked segments of the ongoing electrical activity generated by the brain (EEG), which can be recorded from the scalp using a non-invasive electrode net. The gestures on the video had varying relationships with the accompanying speech: matching, complementary and mismatching (see Kelly et al, 2004). In addition, there were two "intentionality" conditions. Half of the stimuli were comprised of gestures that were *intentionally* produced with the speech and the other half were gestures that were produced *unintentionally*.

Replicating previous studies, we found that gestures influenced the brain's processing of speech both in early (N1) and late (N400) ERP components for mismatching versus matching and complementary conditions. We are currently analyzing the intentionality effects, but we hypothesize that the gesture effects will be more significant in the "intentional" versus "unintentional" condition.

The finding that gesture influences early and late neural processing of language supports claims that gesture and speech form an integrated system of communication (McNeill, 1992). Moreover, the

hypothesized intentionality result suggests that a communicator's intent may be an important component in an interlocutor's integration of speech and gesture at comprehension.

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Localization and processing of semantic information from speech and gesture in the brain

Previous behavioural research has shown that hand gestures are produced simultaneously with the semantically relevant speech segment suggesting a high level of binding between the two modalities (e.g., a rolling gesture is usually produced with the bracketed part of speech in the following sentence: “the ball fell and [rolled down] the street”) (McNeill, 1992, Kita & Ozyurek, 2003). How does the brain integrate the semantic information coming simultaneously from the two modalities during online comprehension?

ERP and fMRI data were gathered while subjects heard spoken sentences and saw co-speech gestures time-locked to the verbal information in each sentence as shown in the above example. Either verbal (i.e., roll down) or gestural content (rolling gesture) matched or mismatched to the previous context in the utterance (i.e., the ball fell).

ERP (n=16) measures time locked to the onset of both the verb and the gesture revealed N400 effects both for language- mismatch and gesture -mismatch compared to a baseline of matching speech and gesture. The effect for gesture-mismatch was relatively lesser than that of language. However the onset of N400 was similar in both types of mismatch.

The fMRI (n=16) results showed that both types of mismatches recruited left inferior frontal cortex (i.e., Broca’s area). However modality specific areas were also observed; stronger activation in parietal and right temporal regions were found for gesture- mismatch and left inferior frontal and left temporal activation for language-mismatch.

We argue that semantic information from speech and gesture are processed simultaneously and in an integrated way in relation to previous context of the utterance. However the processing of seman-

tic information also involves modality specific brain areas and activation levels for processing. Further research is needed to investigate the interactions between the modality specific and shared areas of processing during speech and gesture comprehension.

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Left-hand preference for co-speech gestures in patients with complete callosal disconnection

The finding that right-handers with left hemisphere language dominance prefer the right hand for co-speech gestures is a fundamental argument for neuropsychological, psycholinguistic and recent evolutionary theories on language and gesture that propose a close association between speech and co-speech gesture production. However, several studies have reported an equally frequent use of the right and left hands in co-speech gestures, thus underlining the need to establish an alternative hypothesis to explain this association.

The hand preference for spontaneous co-speech gestures during two personal interviews was investigated in three right-handed patients with complete callosotomy, one left-handed patient with complete callosal infarction, and as control groups, five right-handed patients with partial callosotomy and ten right-handed healthy subjects.

Three of the four patients with complete callosal disconnection, all with left hemisphere speech and motor dominance, exhibited a reliable left-hand preference for co-speech gestures despite their left hand agraphia and apraxia. The fourth patient with presumed bilateral language production revealed a reliable right-hand preference for co-speech gestures. No significant right hand preference was found in the two right-handed control groups but reliable individual patterns, ranging from right hand preference to left hand preference were observed.

It is concluded that the patterns of hand preference cannot be explained by speech lateralisation nor by handedness. Co-speech gestures can be generated in the right hemisphere, independently from speech production, and may directly express different right hemispheric functions such as emotional processes. In contrast to

the traditional neuropsychological and psycholinguistic theories on co-speech gesture production, the present findings suggest a separability of speech and gestural systems.

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Speech-gesture discoordination in split brain patients' left-hand gestures: Evidence for right-hemispheric generation of co-speech gestures

This study concerns hemispheric specialization for production of co-speech gestures. We examined Lavergne and Kimura's (1987) hypothesis that the linguistically dominant (left) hemisphere is obligatorily involved in production of gestures. More specifically, we investigated gestures in three patients with complete callosotomy (two with left-hemisphere language, and one with bilaterally represented language) and nine healthy control participants. We examined which hands were used to produce gestures and how well gestures were synchronized with speech for each hand. The latter question was addressed by assessing proportion of gesture strokes produced during silence: when gesture and speech are synchronized well, this proportion should be low. It was found that all three patients gestured with both hands. Furthermore, unlike healthy controls and the patient with bilaterally represented language, the two patients with left-hemisphere language synchronized their gestures with speech better with their right hand than with their left hand.

This indicates that the two patients' left hand gestures were generated in the linguistically non-dominant right hemisphere, leading to relatively poor coordination with speech. It is concluded that linguistically non-dominant hemisphere alone can generate co-speech gestures, just as the linguistically dominant hemisphere can.

Parrill, Fey (coordinator)

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Panel presentation

Collaboration, common ground and concealment: a multimodal investigation of interactive language use

Students of language believe it to be an essentially face-to-face interactive phenomenon, but this belief is rarely reflected in linguistic research, which takes constructed examples, text, or spoken language reduced to a written transcript as primary objects of analysis. There are exceptions, of course -notably the research program of Clark and colleagues, which treats interaction as fundamental (e.g., Clark 1992). This body of work demonstrates that the collaborative nature of language has consequences for every aspect of the system.

Our research additionally takes the face-to-face nature of language use as fundamental, by adopting a model of language which includes gesture as well as speech. In this panel, we present 3 experiments, all involving narrations of cartoon events, which investigate the use of language in dyadic situations. We argue that the collaborative, interactive nature of language use is reflected in both modalities.

We explore the ways in which both the structure of discourse and the discourse management strategies employed by speakers and addressees are impacted by shared knowledge, in a comparison of narrations between friends and strangers. We assess the impact of shared knowledge on the discourse status of elements in speech and gesture, by manipulating both presence/ absence of an addressee during viewing of the stimulus, and the speaker's construal of which element is discourse-focal. In addition, we investigate the impact of concealment on collaboration by asking speakers to deceive their addressees with respect to certain aspects of a cartoon-event description, exploring changes in dyadic interaction in both speech and gesture when normal expectations of cooperation are violated.

Panel papers

PP1

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Common ground is in the hands of the speaker: a multimodal investigation of information packaging

This paper reports on research investigating the relationship between common ground (Clark & Haviland 1977) and the semiotic features appearing in gesture, as part of continuing work on gesture's role in information packaging. *Information packaging* describes how speakers shape utterances to meet the expected needs of interlocutors (Chafe 1976). Levy & McNeill (1992) have shown that gestures correlate with aspects of information packaging -more complex representational gestures tend to occur with discourse-new elements, e.g.. Thus, while information packaging has syntactic reflexes, gesture serves as a non-linguistic index of a speaker's communicative decisions, information missed by considering the verbal channel alone. Information packaging interacts with *common ground*, or knowledge/beliefs shared by interactants (Clark 1992). This project addresses the extent to which common ground impacts gesture production.

Participants watched cartoon events and described target motion events within them to an experimenter, or to a friend who was either present or absent while the participant watched the video. In addition, when asked to describe the events, participants received different prompts which functioned to manipulate the discourse status of elements in the event. This permitted an exploration of the influence of shared knowledge on speech and gesture while also manipulating the speaker's construal of the event.

Encoding in speech and gesture changed as a function of both addressee and prompt, showing an interaction between the speaker's construal and shared knowledge. This work provides insight into pragmatic constraints which operate in the packaging of information in both modalities.

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Collaborating to deceive: the role of interaction in the creation of a lie

This paper reports on research investigating the ways in which speech and gesture function in dyadic interactions when one partner is deceiving the other. In conversation, interlocutors collaborate to establish mutually acceptable referring expressions, which represent entities in a model of the discourse (Clark & Wilkes-Gibbs 1986). However, under deceptive conditions, speakers must manage multiple discourse models (truth & lie content, and, crucially, what information is part of shared knowledge). Furthermore, addressees play a key role in the construction of the deceptive discourse: whether or not the deceiver can continue (thus succeeding in her deception) depends on the addressee's willingness to assert acceptance (*ibid.*), and in addition, addressees influence structure the lie itself, by suggesting referent descriptions in both speech and gesture. Participants, who were friends of long standing, selected one member of the dyad as storyteller. The storyteller watched a cartoon separately from the listener. Prior to rejoining the listener and describing the cartoon, storytellers were given four false details to substitute for previously viewed cartoon content. During the narration, listeners contributed to the deception by correcting problems with antecedent reference, using gesture to sort spatial relations, and by requesting necessary contextual details omitted by the mentally-taxed deceivers. This work provides insight into both the maintenance and the breakdown of discourse coherence when assumptions of cooperation are violated.

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Collaboration and Narration: The role of shared knowledge in the speech and gesture production of friends and strangers

This presentation explores the ways in which both the structure of discourse and the discourse management strategies employed by speakers and addressees are impacted by shared knowledge, in a comparison of narrations between friends and strangers. While prior research in this area has not considered the nonverbal aspects of dyadic communication, this study demonstrates that speakers employ both speech and gesture differently depending on their relationship with the addressee.

Participants in this study watched an elicitation stimulus (either a cartoon or a short video), which they then narrated to either a friend or a stranger. The roles were then reversed, each participant serving as the speaker and listener.

Friends come to the narration task with a body of mutual knowledge, which is critical for arriving at common referring expressions (Clark 1992). Shared knowledge is also used in creating conventions for reference and when asking for help with discourse planning. Strangers lack this shared background. Thus, speakers talking to a stranger have more difficulty with lexical search, while their listeners also struggle to appropriately intervene with assistance. Strangers appear to more rigidly adhere to the rules of turn-taking (Sacks, Schegloff, & Jefferson, 1978), as manifested in offers of assistance/ repairs, interruptions, turn length, etc., while friends permit greater overlap and freedom in these categories. Non-verbal behaviors, such as the use of interactive gestures, gaze patterns, and treatment of the discourse space also index the participants' level of shared knowledge.

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Panel presentation

The sequential localization of gestures in interactions involving communicative impairments

This panel extends research on the design and delivery of gesture in ordinary interaction orientation (e.g Goodwin, 1980, 1986, Streeck, 1993, 1994) to interactions involving persons with communication impairments. Savarit et al. examines interactions involving an aphasic man; Stribling et al. and Dickerson et al. examine interactions involving children with an autistic spectrum disorder. The communications address is the sequential location of gestures. The following features emerge from these analyses:

- monitoring coparticipant's attention
- securing coparticipant's attention
- he placement of gesture within other interactional events
- the spatial positioning of gesture.

Ce panel propose une analyse extensive de l'élaboration et de la réalisation de la gestuelle au cours de conversations normales (e.i. Goodwin, 1980, 1986 ; Streeck, 1993, 1994) et au cours de conversations concernant des personnes souffrant de problèmes de communication. Savarit et coll. examinent des interactions impliquant une personne aphasique; Stribling et coll. et Dickerson et coll. examinent des interactions impliquant des enfants atteints de trouble du spectre autistique. Les communications suivantes présentent la localisation séquentielle de la gestuelle. Les caractéristiques qui ressortent de ces analyses sont:

- le contrôle de l'attention du co-participant.
- la surveillance de l'attention du co-participant.
- le placement du geste au sein de l'interaction.
- le placement visio-spatial du geste.

Panel papers

PP1

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The Organisation and Orientation of gestures in interactions involving a man with aphasia: A Conversation Analysis

This paper examines how a man (JS) with a Broca's aphasia communicates. The aim of this paper is to show how gestures are organized and orientated towards his co-participant(s) and how the co-participants orientate their own body and gaze in return. Developing on previous CA work, it will explore how gesture is delivered and spatially located with respect to addressees. This analysis emphasizes that gesture does not stand by itself, it occurs in juxtaposition with verbal and non-verbal resources. The orientation of the gesture, its placement in a sequence is carefully organized. Prior to delivering the gesture, the aphasic participant both elicits and obtains his selected co-participant reciprocity (e.g. gaze and body orientation).

Cet article explore la façon dont communique un homme aphasique (JS) présentant une aphasie du type BROCA. L'objectif de cet article est de démontrer comment des gestes sont organisés et orientés vers ses interlocuteurs (co-participants), et comment ceux-ci en retour orientent leur corps et leur regard en direction de l'aphasique. Inspiré de l'analyse conversationnelle, cet article explore la façon dont un geste est élaboré et spatialement positionné, tout en tenant compte du champ visuel de son adressé. Cette analyse montre que la production et la compréhension de la gestuelle ne sont pas limitées au geste lui-même, il est élaboré en juxtaposition avec d'autres

ressources verbales et non-verbales. L'orientation et le placement du geste sont soigneusement organisés. Avant d'élaborer un geste, l'aphasique attire et obtient la disponibilité visuelle et corporelle du participant choisi.

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**How Children With Autistic Spectrum Disorders
Design and Place Some Gestures in Relation
to Activities in Progress**

This paper builds upon previous CA research involving a child who secures his mother's orientation to a topic a 'touching gesture' (Local & Wootton, (1995). Here we will highlight the competencies displayed by two boys with ASD, one in marking his orientation to a co-participant's initiations and the other referencing an event in an experimental trial involving a mobile robot platform. We will indicate how the design, placement & delivery of gestures reflect recipient needs and local contingencies, highlighting their role in researching gesture

Cet article est inspiré de la recherche concernant l'analyse conversationnelle par Local & Wootton, (1995), impliquant un enfant qui attire et sécurise l'orientation de sa mère vers un topique à travers une gestuelle du toucher. La présente recherche a pour objectif de mettre en avant les capacités exercées par deux garçons atteints de troubles du spectre autistique, le premier de ces garçons s'oriente en direction de son co-participant lorsque celui-ci le sollicite. Le second se réfère a un essai expérimental mettant en oeuvre un robot mobile. Nous indiquerons comment la construction, la mise en place et l'exécution des gestes reflètent les besoins de sujet au cours de l'interaction. Nous mettrons aussi en évidence le rôle des enfants autistes concernant leurs recherche de gesture.

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The co-ordination of gaze and gesture in autistic children's interactions

Previous work has demonstrated that gestures are recipient designed (Goodwin, 1986, 2003, Streeck, 1993, 1994). Drawing on interactions involving autistic children interacting with each other and non-autistic adults in a range of settings this paper explores how the children produce gestures in a way that is sensitive to the visual orientation of their co-participants. It is argued that autistic children can therefore be found to produce gestures which are recipient designed. The implications of these findings are considered for both certain conceptions of autism and for our understanding of gesture.

De précédents travaux ont montré qu'un geste est élaboré en direction d'un récepteur (Goodwin, 1986, 2003 - Streeck, 1993, 1994). Cet article s'appuie sur des interactions réalisées dans des situations différentes et impliquant des enfants autistes soit entre eux, soit avec des adultes non autistes. Il explore la façon dont ces enfants effectuent des gestes délicats afin d'attirer l'attention visuelle de leurs adresses. Notre argumentation étayée par nos résultats, montrent que les enfants autistes effectuent des gestes orientés vers une cible choisie. Ces résultats ont des incidences, à la fois sur certaines conceptions de l'autisme et sur la compréhension de sa gestuelle.

Stivers, Tanya (coordinator)

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Panel presentation

The use of the body in displaying alignment and disalignment

People make use of a wide variety of vocal and kinesic resources to display alignment and disalignment in social interaction. Most of the current research on alignment behaviors has focused on the vocal modality. For instance, upgraded assessments (Pomerantz, 1984), Oh-prefaced responses with assessments (Heritage, 2002), and the interjection of assessments between TCUs in extended turns of talk (Goodwin, C., 1986) are all examples of verbal resources for dealing with alignment between speakers. Müller (1996) has shown that prosody can differentiate the same verbal continuer as affiliative or disaffiliative. Relatively little work has examined the role of the body in affiliating or disaffiliating with a speaker. This panel will address this issue focusing on extended tellings in a variety of contexts. Asmuss paper will examine story tellings and the ways in which the kinesic and vocal modalities are brought together to do affiliation. Ruusuvoori and Peräkylä will examine the provision and reception of evaluations in an everyday context and show how facial displays are used both to secure and display affiliation. Finally, Stivers will examine the differential use of vocal and kinesic response tokens as displays of reciprocity in tellings. Together these papers extend our understanding of the role of the body in the organisation of social interaction and the resources relied on to display alignment and disalignment in social interaction.

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Affiliation and disaffiliation in story-telling: on the interconnectedness of talk, facial expressions and gaze

One of the crucial places in story-telling activities is where the punchline is presented and where in the following sequence the story evaluation takes place. Here, the participants regularly mark alignment or disalignment. A study of the verbal interaction gives interesting insights into the regularities of these sequences: The participants seem to orient to a two-step procedure. First the story's modality is addressed and then the understanding of the story is negotiated in greater detail (Asmuss, & Kjaerbeck, in press). This paper will examine everyday and institutional multiparty conversations and show that looking at the verbal aspects alone, does not give full insight into the resources story-participants make use of when negotiating alignment and disalignment in these sequences. Gaze and facial expressions seem to interconnect tightly with the verbal interaction (Laursen, 2002).

In this study I will examine in detail how nonverbal resources such as facial expressions and gaze go together with the nonverbal interaction taking place in these sequences thereby contributing to the participants' sense-making process. As I will show, facial expressions and gaze can perform interactional activities themselves, they can foreshadow upcoming verbal activities, and they can differentiate ongoing verbal activities.

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Facial Expressions in Evaluations

The role of facial expression in the dynamics of conversational interaction will be examined. We will focus on a specific action, evaluation, by examining the different tasks that the facial expressions manage in producing the evaluation, and the interplay of the speakers and the hearer's facial expressions. It will be argued that the facial expression has two functions in the delivery and reception of evaluation. One is to modify the meaning and valence of the evaluation. The other is to manage the momentary social relation between the participants.

The data consists of three 30 minute lunch conversations between two students, videotaped and transcribed. The data are quasi-natural, as their collection was initiated by the researchers. The conversations were recorded with three video-cameras, through a splitter, to result in a three-part picture where the faces of both participants and an overall view are shown simultaneously.

Two single cases will be presented. With the help of these cases, we will show how facial expression can both strengthen and modify the meaning expressed in the lexical content of the evaluation. These cases will also illustrate some ways in which the face can produce closeness or distance between the participants.

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Recipient Stance Towards a Telling: The Use of Vocal and Kinesic Response Tokens

Within the research on social interaction, vocal response tokens such as “Mm hm,” and “Uh huh” have typically been discussed as performing roughly the same function as head nods in the environment of extended turns such as story tellings (Bavelas, Coates, & Johnson, 2000; Goodwin, C., 1986; Goodwin, M. H., 1980; Schegloff, 1982; Yngve, 1970). Duncan (1974) asserts that they occur in the same sequential position as well. A primary finding of these studies has been that response tokens take a stance towards the ongoing turn at talk as not yet complete (e.g., Schegloff, 1982). That is, they decline to take a fuller turn and thereby collaborate with the projected and in-progress course of action (e.g., a telling).

This paper will extend this line of research by suggesting first that nods and vocal response tokens “Mm hm,” and “Uh huh,” do have a similar “continuer” function in that they pass on the opportunity to take a fuller turn (Schegloff, 1982). However, whereas vocal continuers take a stance only to the structure of the ongoing turn as incomplete, nods align with the content of the speaker’s talk and thus affiliate with the speaker. Additionally, this paper shows that nods are often used in environments where the speaker’s telling has in some way “stalled” or is failing to progress, and through this particular form of alignment in this position, recipients push speakers to move forward with their tellings.

Thus, this paper suggests that although vocal and kinesic response tokens can both function as continuers, they can be differentially used resources to either take a stance towards the structure or the content of the talk and to either passively treat the turn as ongoing or to actively encourage the speaker to move forward.

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Panel presentation

The Candor of the Candidates: Embodiment in the 2004 U.S. Presidential Campaign

This project panel investigates gesture and bodily action in televised political communication during the 2004 U.S. presidential campaign. We cast our research in terms of a “Neo-Quintilianist” heuristic, seeking to integrate the rigorous description of embodiment and talk with critical assessments of the quality and credibility of enactment.

Our presentation addresses the following themes, among others:

- the shared “Quintilian” gesture code of the Democratic;
- Howard Dean’s “didactic” gesticulation;
- G.W. Bush’ facial actions and his televised behavior in the listener’s role; and
- aspects of the delivery and sequencing of Bush’s and Kerry’s embodied actions during their debates.

The panel concludes with a discussion of the contemporary relevance of Quintilian’s work on embodied political communication and of the possibilities for defining critical standards by which a candidate’s embodiment might be judged.

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Comparison of Multimodal Annotation Tools

Numerous tools are available for annotation of digital video. Yet it can be difficult for a gesture researcher to determine ease of use, strengths/weaknesses, and the type of data or analysis the tool is designed for. The goal of this workshop is to present information about and demonstrations of some of these tools. Experienced users of eight tools will discuss their annotations on both a common dataset and analysis (to identify tools' potential weaknesses) and a dataset/analysis of their own choosing (to display tools' strengths). There will also be a hands-on session for the audience to try out each tool.

Für die Annotation digitaler Aufzeichnungen gibt es bereits zahlreiche Werkzeuge. Für an Gestik interessierte Wissenschaftler kann es jedoch schwierig sein, sich über die Bedienungsfreundlichkeit, die Stärken und Schwächen des Werkzeugs ein Bild zu machen sowie zu wissen, für welche Datentypen oder welche Art von Analyse sich welches von diesen zahlreichen Werkzeugen am besten eignet. Das Ziel des Workshops ist daher, einige der Programme vorzustellen. Erfahrene Benutzer werden über die Annotation eines vorgegebenen Datensatzes (um potenzielle Schwächen herauszuarbeiten) und über die Annotationen eines eigenen Datensatzes berichten (um Stärken herauszustellen). Darüber hinaus wird es für die Teilnehmer des Workshops möglich sein, selbst verschiedene Werkzeuge auszuprobieren.

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MacVisSTA: An Extendible Annotation and Data Visualization Tool for Analysis of Human Communication and Interaction

Advancement of a science is tied to the advancements of its tools. To understand the intricate relationships among human communication in body and speech, it is important to be able to visualize the temporal relationships among multiple 'modality streams'. Technological advancements in speech and video processing provide the researcher access to such data as motion traces, head orientations, and speech prosody. Because the coding process is integral to research in embodied communication, we combine data visualization and time-accurate annotation in the same interface of MacVisSTA (Macintosh Visualization for Situated Temporal Analysis). The system uses animated graphical windows and a moving strip-chart metaphor to display multiple data streams co-temporally with audio/video playback. The system permits creation of multiple annotations that can be assembled, viewed and edited graphically together with time-series data layers using a multi-tier, music-score representation. MacVisSTA has been designed as a principled interface in consultation and iterative refinement with psycholinguists. We will present results of usability studies involving benchmark tasks. To support the broader research community, MacVisSTA is open-sourced and publicly available.

Le progrès d'une science est relatif aux progrès de ses outils. Pour comprendre les rapports complexes de la communication humaine dans le corps et la parole, il est important de pouvoir visualiser les rapports temporels parmi les différents flux de modalité. Les avancements technologiques dans le domaine de la parole et du traitement visuel fournissent l'accès du chercheur à des données telles que le

mouvement trace, les orientations principales, et la prosodie de la parole. Puisque la programmation est intégrale pour rechercher la communication incorporée, il est nécessaire de combiner la visualisation de données et l'annotation temps-précise dans la même interface de MacVisSTA (visualisation de Macintosh pour l'analyse temporelle située). Le système utilise des fenêtres graphiques animées et une métaphore graphique à barres mobile pour montrer les flux de données multiples et co-temporel avec le playback audio/video. Le système permet la création des annotations multiples qui peuvent être assemblées, regardées et éditées graphiquement avec des couches données de série de temps en utilisant un à plusieurs niveaux et une représentation de musique-points. MacVisSTA a été conçu comme interface principale après l'avoir améliorée itérativement et après consultation de psycholinguistes. Nous allons présenter les résultats des études de rentabilité impliquant le repère charge. Pour soutenir une plus large communauté de scientifiques, MacVisSTA est publiquement disponible.

DATA SESSIONS



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Bodily coordination of air traffic control team work

Air Traffic Control systems manage the flow of air traffic. We study the work practices of a single cell of such a complex system, that is, the Tampere Air Traffic Control Centre (TATCC) that handles flights when they are in its area. It is responsible for producing the air traffic flight information and communication services, and managing airspace coordination and supervision while aircrafts move in its area. The airspace of the centre is divided into six sectors. Within TATCC, there are four radar suites each of which is responsible for controlling one or more sectors of the airspace. Work in most of the radar suites is organized into teams consisting of three members: Executive Controller, Planning Controller, and Air Traffic Control Assistant.

In our presentation we will show a piece of data that presents the bodily co-ordination of team work between the Executive Controller and the Planning Controller based on video-taped materials collected January-April 2003 in real work situations at the Tampere Air Traffic Control Centre. We will show how gestures, like pointing, gaze directions and bodily postures form a part of the intersubjective orientation of the practical achievement of the air control team work. Pointing allows a party to highlight an aspect of the information flow as a shared focus for the organization of action. It turns out to be significant in that it contributes toward controllers recognizing a potential problem that subsequently may be defined and resolved. The data will demonstrate the way in which gestures and bodily coordination form an inseparable part of the air traffic control team work.

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Forms of address in accomplishing live TV-interviews

The data for this session comes from multiple video-recordings from within the control room of what is going on during the production of a series of french-speaking TV-interviews (*Rideau Rouge*, which is broadcast live over the TV5 international network. I would like to focus on the practices though which participants, on stage (the interviewer and his guests) as well as within the production crew (mainly the director, the script and the cameramen), accomplish a mutual understanding of with whom one is communicating at a given point in time. This implies an analysis of how participants are addressed, and also of how participants display or don't display recipientship to what somebody else is doing. What forms of address are chosen and how recipientship is displayed is clearly responsive to the local interactional and material contingencies, and include verbal identifiers, gaze, gesture and camera movement. What form is chosen might, however, also be associated with the accomplishment of different kinds of actions. During the session, I will show examples representing collections of different forms of address and display of hearership.

Les données utilisées pour cette session proviennent de plusieurs enregistrements de ce qui se passe en régie lors de la production d'une série d'interviews télévisées (*Rideau Rouge*, transmises en direct sur le réseau de TV5 international). J'aimerais focaliser sur les pratiques par lesquelles les participants, sur le plateau (l'animateur et ses invités) aussi bien qu'au sein de l'équipe de réalisation (principalement le réalisateur, le script et les cadreur), accomplissent une compréhension partagée de la question de savoir avec qui on communique à un moment donné. Ceci implique une analyse de la façon dont les participants s'interpellent, et aussi de la façon dont les participants se catégorisent comme récipiendaires d'une action faite par un autre participant. La forme d'adresse choisie répond visiblement aux contingences interactionnelles et matérielles du moment, et peuvent se constituer des identificateurs verbaux, du regard, des

gestes et des mouvements des caméras. La forme choisie peut sans doute également être mise en relation avec l'accomplissement de différents types d'actions. Pendant la session, je montrerai des exemples provenant de collections de différentes formes d'adresse et de façons de montrer le statut de récipiendaire.

La coordination dans une perspective interactionniste et multimodale

La coordination est une tâche basale et permanente de toute interaction sociale, elle en est la condition et non l'objectif. D'un point de vue psycholinguistique, les acteurs coordonnent leurs actes pour en faire des contributions à ce que Clark (1996) appelle une action jointe, les actes autonomes devenant ainsi des actes participatoires. Au niveau cognitif, Pickering/Garrod (2004) ajoutent la notion d'alignement pour modéliser la coordination (plus ou moins routinière et automatisée) des représentations situationnelles et linguistiques des participants d'un échange verbal. Dans notre atelier, nous allons préciser, de façon empirique, le concept de coordination à partir d'une collection de données authentiques, prise de l'enregistrement vidéo d'un aménagement auquel participent trois personnes. Notre perspective sera celle de l'analyse conversationnelle. Nous partirons de l'idée que la coordination sert à régler un certain nombre de problèmes, à savoir le fait de la présence sur scène de plusieurs acteurs (rôle et statut par rapport à la participation), l'organisation temporelle de l'interaction (séquentialité et/ou simultanéité des actions), et la multimodalité systématique de chaque interaction en face-à-face. C'est ce dernier aspect qui nous permettra de concevoir la coordination au-delà du seul verbal en intégrant les gestes audibles (prosodie, voix, articulation) et les gestes visibles (mimique, gestulation, posture, direction du regard).

Multimodal and interactional aspects of coordination

Whenever a social interaction takes places, coordination has to be done as a necessary condition, and not as a goal of the interaction. In an interactional psycholinguistic framework, Clark (1996) suggests that actors coordinate their acts in order to make contributions to joint actions, instead of being autonomous, their acts are participatory. In their cognitive model of dialogue, Pickering and Garrod (2004) propose a second type of coordination which explains the interactive alignment of representations on different levels,

from phonological to situation model. In our workshop, we will try to precise empirically the notion of coordination by starting from a “naturalistic” data collection, taken from the video recording of three people moving into a new flat. We propose to adopt a conversation analysis approach : coordination is done in order to solve a number of basic problems which arise in social interaction, namely the co-presence of several actors and their participatory status, the temporal organisation of subsequent or simultaneous actions, and the multimodality of face-to-face interaction. This latter aspect can give rise to a broader concept of coordination by integrating audible (prosody, voice, articulation) and visible gestures (gesticulation, mimics, posture, gaze direction) into the analysis which usually is mostly based on verbal aspects of communication.

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The child handling the topic with a gesture

The aim of the study is to analyse conversational interaction between adult and normally developed child at preverbal stage. During that period, gestures, especially pointing, is the child's method to take part in the conversation. But, how far the child can go, topically, by using gestures, especially when talking about not-noticeable objects?

The data base for the study is composed of videotaped mutual free picture book conversations between adults and normally developed children at preverbal stage. The data presented here concerns one case, a boy, at the age of approximately 18 months. The transcription is a score-like transcription, which includes data relevant to the research objectives: mainly the child's gestures and other actions and adult's speech.

I will do the microanalysis, how the two language users, differing in their linguistic competence, co-operate topically. Thereby, some aspects of context and co-operative sequential structures, for example those of repair, are discussed. Due to the topical negotiations, even the non-noticeable topics, can be achieved before the child can talk.

L'objectif de cette étude est d'analyser l'interaction entre un adulte et un enfant en phase de développement préverbale (un enfant normal qui ne parle pas encore). L'enfant participe à l'interaction avec des gestes, en particulier en montrant du doigt.

La méthode utilisée est l'analyse conversationnelle qualitative basée sur des données. Les données vidéo ont été obtenues en enregistrant des situations de lecture de livres d'images entre un adulte et un enfant. Les données ont été transcrites sous forme de partitions contenant notamment les gestes et les autres activités de l'enfant et le discours de l'adulte. Les exemples évoqués dans cette présentation proviennent tous d'un cas, celui d'un garçon âgé d'environ 18 mois. J'examine à travers l'analyse conversationnelle la coopération topicale des interlocuteurs. Ce qui est particulièrement intéressant, c'est la transition topicale des référents du livre aux expériences vécues

par l'enfant dans sa vie quotidienne, produite à travers le geste de l'enfant et l'expression verbale de l'adulte. J'observe les différents niveaux de contexte (séquentiel, physique et extrasituationnel) servant à construire les différents topiques.

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Bodily (kinesic) displays of affiliation/disaffiliation in everyday conversation between friends and acquaintances

The purpose of the data-session is to explore the intertwined character of kinesic and vocal resources used in displaying affiliation and disaffiliation in everyday conversation. Observations will be made on the ways in which facial expression and other kinesic resources (such as nodding) figure in displays of affiliation and disaffiliation.

The data used will include 1-3 extracts of the closing section of a story-telling sequence with the following evaluation sequence. The duration of the extracts to be shown will be approximately one minute each. The participants will be provided handouts where the talk-in-interaction and the direction of gaze will be transcribed using conversation analytic conventions. For transcription of the kinesic information, specific symbols will be used. The two non-English extracts will be translated into English.

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Vidéo mémoire, vidéo transmission d'une écriture chorégraphique

Comment parvenir à transmettre ce qui touche à la musicalité du mouvement dansé, des dynamiques d'attaques, de l'espace « autour », de l'espace « entre », les nuances de tonicité, les intentions, de l'interprétation, d'une œuvre chorégraphique.

À partir de ses propres vidéos d'étapes « de travail », le chorégraphe François Veyrunes exposera ses méthodes de travail et ses processus d'élaboration d'une chorégraphie. Il abordera les fondamentaux de la danse dans les contraintes et l'historique du passage de la danse de divertissement ou d'ornementation, à la chorégraphie contemporaine : ni abstraite, ni narrative.

How to succeed in transmitting the musicality of the dance movement, the striking up dynamics, the existence of the space « around » and of the space « in between », the nuances and variety of body tonic, the underlying intentions of the dance movement, the interpretation of a choreography work.

Using video images of his own working process, choreographer François Veyrunes, will present his own way of going through the process of writing a piece of choreography. He will introduce the founding principles of dance art as well as their evolution through history up until today.

A video extract of his latest dance work *Entropie* will conclude the presentation.

POSTERS /



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Informatisation de formes écrites des langues des Signes

Nous étudions l'informatisation de la plus connue des formes écrites de la langue des signes : SignWriting (SW). SW consiste en une représentation planaire des gestes réalisés. Les segments corporels et les mouvements sont abrégés en symboles, dont l'addition et le positionnement sur un plan donne un signe SW, porteur de sens.

SW est supporté principalement selon deux méthodes :

- SWML qui représente en XML chaque symbole et ses attributs (direction, rotation, remplissage...). À chaque signe SW correspond une longue page de XML, ce qui augmente la complexité et peut faire perdre la bijectivité : à chaque signe SW peuvent correspondre plusieurs manières de le représenter en SWML.

- une juxtaposition directe d'images, qui empêche toute manipulation simple des phrases par des logiciels usuels (ex: traitement de texte).

Nous proposons une méthode basée sur Unicode permettant par un encodage simple de réduire la taille nécessaire pour encoder chaque signe. Elle présente l'avantage d'être facilement intégrable au sein des moteurs Unicode tel Pango, permettant aux logiciels existants de supporter SignWriting sans aucune modification.

Toutefois, elle ne permet pas encore d'appréhender la tridimensionnalité, l'utilisation de l'espace et l'iconicité, caractéristiques fortes des langues des signes peu prises en compte dans SignWriting.

Computer support for written forms of sign languages

We are studying digitalization of the best known written form of sign language: SignWriting (SW). SW consists in a planar representation

of body gestures realized. Body segments and movements are abbreviated into symbols, which sum and planar position give a SW sign.

SW is supported mostly through two methods:

- SWML, which uses XML to represent each symbol and its attributes (direction, rotation, filling...). A long page of XML correspond to each SW sign, which increases the complexity and may cause of a loss of bijectivity : a single SW sign may be represented in different ways.

- direct juxtaposition of pictures, which prevents any simple manipulation of phrases by standard software (ex: word processor)

We propose a new method based on Unicode, allowing significant size reduction thanks to a simple encoding. An additional advantage is easy integration within the Unicode engine such as Pango, allowing existing software to support SignWriting without any additional modification.

However, it does not yet apprehend tridimensionality, space use, and iconicity, which are strong characteristics of sign languages unsupported by SignWriting.

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Cross-classification of gestural features – the marriage of two gesture families

Gesture families were defined as “groupings of gestural expressions that have in common one or more kinesic or formational features” (Kendon 2004: 227). Most examples so far cluster around one formational aspect, such as hand shape (Kendon 2004, Müller 2004) or motion (Calbris 1990). The research presented here pushes the analysis of formational features of recurrent gestural forms a step ahead: It describes the possibility of building up families on both movement and hand shape at the same time.

The presented study is based on a semiotic analysis of gestures used in several dyadic conversations and different TV-shows. Derived from that, it appears that gestures of the open hand create and locate a virtual object on the palm of the hand. The horizontal movement was observed in several different gestures where the common underlying theme appears to be negation. These two form-meaning patterns can merge in one gesture, which combine those aspects of meaning.

Hence, gestures can be described and organized based on each of their features, hand shape as well as movement, which implies the possibility to cross classify gestural forms. These results finally point toward a combinatoric structure of meaning in recurrent gestures.

Gestenfamilien wurden definiert als “groupings of gestural expressions that have in common one or more kinesic or formational features” (Kendon 2004: 227). Während sich diese Familien bisher i.A. um einen gemeinsamen formalen Aspekte gruppierten, wie z.B. der Handform (Kendon 2004, Müller 2004) oder der Bewegung (Calbris 1990), soll in der hier vorgestellten Analyse die Möglichkeit beschrieben werden, Familien gleichzeitig auf dem Merkmal der Bewegung und der Handform aufzubauen.

Die hier präsentierte Studie basiert auf einer semiotischen Analyse von Gesten aus verschiedenen dyadischen Gesprächen sowie verschie-

dener Fernsehsendungen. Aufbauend auf dieser Datenbasis lässt sich feststellen, dass Gesten der flachen Hand das behandelte (virtuelle) Objekt stets an der Handinnenfläche lokalisieren; und ferner, dass sich bei verschiedenen Gesten mit horizontaler Bewegung der Aspekt der Negation als gemeinsamer Bedeutungskern ergibt. Diese beiden Form-Bedeutungs-Paare können in einer Geste zusammenfallen, in der die jeweiligen Bedeutungsaspekte somit kombiniert werden. Daraus ergibt sich die Möglichkeit, Gesten auf Grund jedes einzelnen ihrer Aspekte, der Handform wie auch der Bewegung, zu beschreiben, woraus wiederum die Möglichkeit der Kreuzklassifikation gestischer Formen resultiert. All dies verweist somit auf eine kombinatorische Struktur der Bedeutung wiederkehrender gestischer Formen.

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Gestural cues for turn management in interactions

This study sought to determine the contribution of gestures in interactions. We focus on the transition of the speaker's gaze direction as a gestural cue for turn management.

Sacks et al. (1974) proposed turn-constructional units (TCUs) for structuring turns. An important characteristic of the unit is its projectability, that is, the features that allow participants to anticipate where the unit will come to an end. It is possible for participants to perceive the potential points of transition relevance places (TRPs).

We statistically analyzed the correlations between gaze shift timing, syntactic forms, and post-utterance pause length at turn endings in Japanese poster session conversations. The results show that when the utterance endings are not syntactically determined to be complete, the feature of gaze shift timing is needed to show whether the utterance ending is complete in Japanese conversation.

Verb-final languages like Japanese does not have high syntactic projectability at the beginning of turns compared to non-verb-final languages such as English. Whether the utterance is complete or continued is partially determined by the syntactic form of an utterance ending in Japanese. We concluded that speakers effectively use gaze cues to indicate to the hearers the possible points of TRPs in Japanese interactions.

La gestuelle, substrat et support : une continuité

La gestuelle peut être appréhendée par le substrat qui la produit et la révèle à la fois. Le cas où le corps révèle la gestuelle, a mobilisé jusqu'alors l'essentiel des travaux. Une étude du mode de production permet de faire émerger des critères formels de différenciation entre les gestes. Le choix se porte ici sur une description articulaire ; les rapports entre les degrés de liberté y sont décrits. En sus de la géométrie statique qui régit constamment la description anatomique, co-existent des rapports dynamiques qui dessinent une géométrie s'apparentant à une topologie. La structure générale de celle-ci sera présentée.

Centrée sur la forme, la description morphogénétique au lieu de situer les gestes dans des plans, les suit dans leurs déploiements. L'intérêt de cette approche physiologique réside aussi dans les contours qu'elle trace pour chaque geste. Des contraintes articulaires créent des liaisons structurelles et dynamiques entre certains degrés de liberté. Des schémas gestuels sont dégagés et développent leur continuité parfois sur plusieurs segments en déposant ainsi une filiation qui acquiert la même valeur que la forme source.

Le recensement de ces variations montre comment le membre supérieur fonctionne : comme substrat structurant des formes gestuelles et comme support anamorphotique des variations morphologiques de chaque geste. On montrera comment des centres organisateurs segmentaux structurent et projettent des unités gestuelles. On présentera certains gestes se différenciant uniquement par le flux de propagation de mouvement.

Gesturing, as substratum and support: a case of continuity

Gesturing can be understood through the substratum which simultaneously produces it and reveals it. Up until now, most research has been motivated by the case where the body reveals gesturing. A study of the means of producing gestures makes it possible to identify the formal criteria that distinguish types of gesture. Our choice is made on the basis of articular description, where the relationship

between differing degrees of liberty is described. Alongside the fixed geometry that typically informs anatomical description, there exist dynamic relationships that trace a topological geometry. We will present its general structure.

Instead of situating gestures in fixed planes, a morphogenetic description centred on form follows them in their movements. The interest of this physiological approach resides also in the contours traced by each gesture. Articular constraints create structural and dynamic links between given degrees of freedom. Gestural schemas are freed and at times develop their continuity over several segments by positing a relation that assumes the same value as the original form.

An inventory of these variations shows how the upper member functions both as a substratum that structures gestural forms and as an anamorphotical support for the morphological variations of each gesture. We will show how segmental organising centres structure and project gestural units. We will present specific gestures which are distinguished solely by the flux in their propagation of movement.

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Analyse du mouvement acrobatique par traitement vidéo

Le domaine sportif est un secteur fortement demandeur en analyse du mouvement et plus particulièrement les sports mettant en action de l'acrobatie. En effet, l'acrobatie mêle des rotations complexes suivant des axes variés combinées avec des postures variées. Cette étude présente une méthode d'analyse de gestes acrobatiques qui se base sur une caractérisation du mouvement. Le principe de l'analyse consiste à réaliser des mesures globales extraites des séquences vidéo ou d'un flux vidéo en direct provenant d'une caméra fixe.

Le modèle décompose le mouvement par quartier de rotation suivant un axe transversal du corps et par demi de rotation suivant un axe longitudinal. Il aboutit à une notation alphanumérique et permet de différencier chaque élément acrobatique. Le système extrait automatiquement en temps réel les informations de rotation transversale et de posture du gymnaste, nous travaillons sur les mesures des rotations longitudinales. Ces données sont exploitables pendant et après un entraînement. Ainsi, le système a été évalué lors d'entraînements de trampoline et de barre fixe pour conduire l'entraînement et améliorer les mouvements. D'autres analyses de vidéos concernent le plongeon et la gymnastique au sol.

Le dispositif est non intrusif, il conserve la naturalité du geste analysé. À terme nous souhaitons réaliser un outil de reconnaissance des figures acrobatiques en utilisant une approche globale.

Gesture and motion analysis is a highly needed process in the athletics field. This is especially true for sports dealing with acrobatics, because acrobatics mix complex spatial rotations over multiples axes

and may be combined with various postures. This study presents a method which is based on a characterization of acrobatic movement. Its principle consists in extracting global measurements from a video sequences or a live video flow coming from a fixed camera. The model is based on chronological and axial movement decomposition. It leads to a numerical notation and makes it possible to differentiate each acrobatic element. The system automatically extracts in real time rotational data (compared to the transversal axis) and posture data. We currently work on the extraction of rotational data compared to the longitudinal axis. These data are useful during and after sport training. Indeed, we evaluate the system on trampoline and gymnastic training to lead coaching and improve movements. Other video analysis concerned diving, floor gymnastic. The system is not intrusive. It preserves the naturality of the analyzed gesture. We want to realize a recognition system of acrobatic gesture by global measurement.

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Cultures et significations de gestes relatifs à l'expression du temps chez des enfants monolingues français et bilingues français-arabe

L'étude traite de la gestualité comme mode d'expression du temps. En français, le sens de lecture et d'écriture va de la gauche vers la droite. La flèche du temps indique alors le passé à gauche et le futur à droite. En parlant, accompagner le discours de gestes vers la gauche ou vers la droite permet de situer l'action évoquée dans le passé ou dans le futur. En langue arabe, le sens de lecture et d'écriture étant inverse, on fait l'hypothèse que la gestualité qui accompagne le discours l'est également. On présente les résultats d'une recherche dont les participants sont des enfants de 10-11 ans. Les uns sont des monolingues français, les autres des bilingues maîtrisant le français et un dialecte du Maghreb. On présente à une moitié d'enfants de chaque groupe une histoire en trois images de la gauche vers la droite, et à l'autre moitié, la même histoire de la droite vers la gauche. Dans une autre salle, on montre aux enfants une vidéo muette sur laquelle un adulte « raconte » l'histoire et fait des gestes qui indiquent les actions successives. Les gestes sont orientés de gauche à droite ou bien de droite à gauche. L'adulte désigne ensuite, par un geste final, l'une des trois actions. On demande à l'enfant de choisir parmi les trois images, dans la première salle, celle qui est désignée par l'adulte, sur la vidéo. Les enfants monolingues tendent à choisir l'image en cohérence avec le sens de la langue française et

Les enfants bilingues tendent à choisir l'image en cohérence avec le sens de la langue présentée.

We examine how spontaneous gestures are an expression of time. In French, the orientation of reading and writing goes from left to the right. The past is then on the left and the future on the right. Gestures that go together with speech locate the actions evoked in the past on the left or in the future on the right. In Arabic, the orientation of reading and writing is reversed. We may therefore assume that temporal gestures are also reversed. The participants of the study are 10-11 years-old. Some are French monolinguals, the others are bilingual children speaking French and a dialect from the Maghreb. Half of the children in each group are presented with a three picture story from the left to the right. The other half are presented the same story from the right to the left. In another room, children are showed a silent video on which an adult «tells» the story and realizes spontaneous gestures which indicate the successive three actions. The gestures are directed from the left to the right or from the right to the left. The adult indicates then, by a final gesture, one of the three actions. In the first room, children are asked to choose from among the three pictures, one of which is pointed out by the adult on the video. Monolingual children tend to choose the consistent picture with the direction of the French writing and bilingual children tend to choose the consistent picture with the direction of the presented story.

Les segments du corps en interaction dans la naissance de la parole

Etude longitudinale de 6 enfants français de 6 à 18 mois

Le problème général que rencontre l'enfant dans ses différents domaines de développement est celui du contrôle des segments du corps. Il en va de même pour la parole où le premier segment supra-glottique contrôlé rythmiquement est la mandibule (Théorie *Frame/Content*, MacNeilage 1998), avant que les *contacts* «consonantiques» et les *postures* «vocaliques» soient maîtrisés (Vilain & Abry 2000). Les coordinations et les couplages reconnus entre systèmes, du type œil-tête-main dans les interactions dyadiques et triadiques, ne doivent pas faire oublier l'interaction entre le contrôle oro-laryngé et le contrôle céphalo-brachial, dans la co-occurrence complémentaire entre geste et parole (Goldin-Meadow, 2003).

Notre hypothèse de travail est qu'il existerait un *rendez-vous développemental* entre ce que nous nommons le *cadre de la parole* et le *cadre du signe*. Tandis que le cadre de la parole (*Speech Frame*) s'établit sous la forme du *babillage canonique*, vers 7 mois, le cadre du signe (*Sign Frame*) se manifeste tout d'abord sous la forme du pointage dit impératif vers 9 mois, avant de donner lieu au pointage dit déclaratif. Ce dernier apparaît avec les premiers mots, tandis que le cadre de la parole permet à ce moment-là de *coproduire* (coarticuler) voyelle et consonne (Sussman *et al.* 1999). Les places respectives des ingrédients de ce rendez-vous développemental autour du premier mot restent encore à explorer.

Dans la présente contribution, nous avons voulu tester l'existence d'un rapport harmonique entre cadre de la parole et cadre du signe. Pour cela, il nous a fallu tout d'abord obtenir la distribution des fréquences de babillage, puis celle des durées des pointers. Nos résultats sur 6 sujets, suivis sur 12 mois, montrent qu'avec un mode de babillage à 3Hz et des *strokes* de pointers de 600-700 ms (1.5Hz), nous pouvons rendre compte du gabarit (*template*) des premiers mots. En effet, ces mots «prosodiques» pouvant varier d'une à deux «syllabes», il est nécessaire de faire appel à la notion de pied (*foot*) comme une unité de contrôle métrique ancrée dans le pointer. Ceci

rendra compte des observations courantes dans la littérature à condition qu'au lieu de compter seulement des syllabes/mot, on mesure le pas des cycles mandibulaires entrant dans le *stroke* des pointers.

Body parts in interaction with speech emergence

Longitudinal study of six French children aged from 6 to 18 months

The general problem children encounter in different areas of development is the control of their body parts. This also holds for the *Speech Frame*, where the first rhythmically controlled supra-glottal body part is the jaw (*Frame/Content Theory*, MacNeilage, 1998), which is controlled before “consonant” contacts and “vowel” postures. Coordination and couplings recognized between systems, of the eye-head-hand type in dyadic and triadic interactions, should not lead us to forget the interaction between oral-laryngeal control and cephalo-brachial control, in the complementary co-occurrence of gesture and speech (Goldin-Meadow, 2003).

Our working hypothesis is based on the idea that there is a “developmental rendez-vous” between what we call the “*Sign Frame*” and what we call the “*Speech Frame*.” While the *Speech Frame* is established in the form of the canonical babbling around the age of 7 months, the *Sign Frame* appears first of all in the form of imperative pointing around the age of 9 months, before giving way to so-called declarative pointing. Declarative pointing appears along with the first words, while the *Speech Frame* allows the child at that stage to coproduce (*coarticulate*) a vowel and a consonant (Sussman et al., 1999). The relative importance of the elements of this developmental “rendez-vous” at the time of the emergence of the first words remains to be explored.

In the present contribution, we wanted to study the existence of a harmonic relationship between the *Speech Frame* and the *Sign Frame*. To this end, we studied the distribution of babbling frequencies, and of the durations of the pointing or “stroke” gestures. Our results for these six children, who were followed for twelve months, show that with a babbling mode at 3 Hz and “stroke” gestures at 600–700 ms (1.5 Hz), we can account for the first words template. Thus, with these “prosodic words,” which can vary from one to two syllables, it is necessary to call upon the *foot* as a metric control unit based in pointing. This will account for current observations in the literature provided that instead of counting only syllables/word, one measures the jaw cycle control embedded in pointing “strokes.”

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Transformations du corps et (re)configurations spatiales : le cas de la grossesse et de la naissance

Ce poster a pour objet la présentation de travaux menés dans le cadre d'une thèse de géographie sur les relations entre le corps et l'espace. Notre objectif principal est d'étudier comment les relations à l'espace des femmes sont transformées par la grossesse et la naissance de leur enfant. Les pratiques, les usages, les représentations spatiales contribuent à leur tour à la construction de l'espace de la naissance (défini comme l'ensemble des lieux médicalisés ou non fréquentés par les femmes à l'occasion de leur grossesse et de l'accouchement). La question des interactions entre corporéité du masculin, du féminin en lien avec les spatialités est déterminante dans la construction, l'élaboration des configurations socio-spatiales individuelles et collectives.

L'enjeu est en effet de comprendre les processus de construction des représentations de l'espace à différentes échelles : celle du corps, du domicile, du lieu de naissance, de l'espace sanitaire... voire de déterminer les territorialités induites par l'élaboration des subjectivités masculines-féminines induites par la situation du corps des femmes dans l'espace et le temps.

Pour cela, Anne Fournand filme des entretiens compréhensifs avec des femmes à différents moments de leur grossesse (un entretien vers 5 mois de grossesse, le second vers 8 mois et le dernier après la naissance de l'enfant). Elle récolte ainsi des données vidéo analysables selon deux axes : les rapports à l'espace exprimés dans le discours et les rapports au corps exprimés par les gestes. Les films sont réalisés de façon très simple en plan fixe et avec assez peu de moyens techniques, ne disposant que d'une caméra amateur.

Néanmoins, lors d'une data session nous aimerions présenter trois extraits d'entretiens d'environ 5 mn chacun réalisés avec une même informatrice afin de les soumettre à l'analyse des participants et de travailler sur les aspects techniques du traitement de ce type de matériaux.

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Conversational functions of verbal and nonverbal signals in Portuguese face-to-face interaction

Based on one single functional theoretical framework, several aspects of verbal (linguistic and prosodic) and nonverbal communication will be described.

A few seconds of a face-to-face interaction between three Portuguese participants will show the importance of considering not only context and the whole factors that are present in a face-to-face interaction (such as participants social and individual characteristics), but also pragmatic aspects of language.

The functions considered for the classification and description of verbal and nonverbal signals were developed at first for verbal pragmatic signals in face-to-face interaction and resulted from a synthesis of principles and categories of the theories of Conversation and Discourse Analysis. In this paper I will prove that the different forms of nonverbal communication can have the same functions as verbal conversational signals.

Movements and positions of body, head, eyes, face, arms and hands will be described not only regarding their form and semiotics, but also their multiple functions in relation to speech production/reception – which includes words, prosody, and what is beyond it: participants expectations, attitudes, motivations and relation to each other.

Besides, this example will emphasize the importance of *when* and *where* a movement is made and *what* it means in interaction, independently of its idiosyncratic aspects.

The moment and the function of each movement, as well as its synchronization with speech and other movements/positions (of the same participant or of the other interaction partners) can offer very important cues regarding speech processing. For instance, what happens before, during and after the growth point, that leads to simultaneous/non-simultaneous activation of the muscles of speech organs and of different parts of the body.

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Interaction visuo-gestuelle avec un mur d'images

L'interaction homme-machine est une problématique majeure en vision par ordinateur, notamment pour le pilotage d'écrans larges au moyen de gestes. Un des enjeux dans ce contexte est d'élaborer des solutions pour l'interaction, depuis le "langage" employé jusqu'aux traitements informatiques et vidéo mis en œuvre.

Nous présentons tout d'abord la conception du langage gestuel à l'aide d'un magicien d'OZ expérimenté sur 10 personnes ; c'est un moyen d'obtenir des gestes non contraints réalisés de différentes manières. Ce magicien d'OZ est utilisé pour la conception des opérateurs de traitements d'images.

Puis nous présentons les cadres d'utilisation : conférences, réunion, salle de crise. Ceci implique la présence de plusieurs personnes utilisateur inclus autour du dispositif, avec les quelles l'utilisateur communique.

Nous détaillons quelques traitements informatiques permettant la reconnaissance et l'interprétation des gestes de commande. En particulier l'utilisation de modèles du corps et des bras, cela nous fournit des informations pertinentes pour la reconnaissance à partir d'un système monovision.

Enfin nous présentons les solutions adoptées pour reconnaître les gestes du langage défini, interpréter leurs paramètres pour exécuter la commande associée et répondre avec un retour visuel : un affichage à l'écran correspondant à l'exécution de la commande ou une signalétique expliquant une erreur de commande ou d'interprétation.

Human machine interaction is a major problem in computer vision, particularly in order to drive wide screen with gestures. One of those stakes in this context is to provide solutions for interaction, from the choice of "gestural language" used, to the computing and the video engineering implemented.

First we present the conception of a gestural language with assistance of a wizard of Oz experienced on ten people ; this is a way to get unconstrained gestures produced in various manners. This Wizard of Oz has been used for the conception of operators of image processing.

Then we present uses of such interaction: conferences, meetings, crisis room. This implies several people including the user present around the interface device with whom the user communicate.

We point out some computing engineering which allow us to recognize and interpret command gestures. Particularly the use of body and arm model providing relevant information for mono-vision based recognition.

Finally, we present solutions used for recognizing gestures of the defined language, for interpreting gestures parameters to execute the associated interface's functions and for replying with a visual feedback : an on-screen display resulting of the command execution or an emblem showing a command or interpretation error.

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Gestures for the listener

Two experimental studies were conducted to investigate whether and how speakers use representational hand gestures in association with verbal ambiguity. In Study 1, participants were asked to read aloud globally ambiguous sentences, and the experimenter would ask for clarification concerning the meaning of each sentence. In response to this the speakers provided utterances similar in construction to naturally occurring 'self-repairs'. In Study 2, participants were asked to produce narratives, without a listener interrupting, while using certain ambiguous words in some of their sentences. The results showed that, indeed, speakers use hand gestures in order to disambiguate what they are saying. Furthermore, it was found that they use gesture to interact with speech in a range of different ways in this context. In many instances, the gestural behaviour was seen as allowing the speaker to comply with Griceian conversational maxims and thus to form part of the speaker's repertoire of cooperative behaviours used in talk. Overall, the findings revealed that the gestures the speakers used were clearly intended for the listener. Observations concerning the form of the gestures were also made and these support the notion of a close tie between a speaker's communicational intent, anticipation of the listener's knowledge and gesture use.

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Representing multiple modalities: A survey and critique

In research on gesture and embodied action, representations of data such as transcripts, drawings, diagrams, photographs, and video clips serve two major functions: they illuminate interactive phenomena and provide evidence for claims. In the presentation of findings, evidence for the existence and importance of the phenomena discussed is to be found in the accompanying transcripts and illustrations. Researchers who study spoken discourse have investigated the practice of transcribing talk in its own right (e.g., Dressler & Kreuz, 2000; Du Bois, 1991; Edwards & Lampert, 1993; Ochs, 1979; Roberts & Robinson, 2004). However, there has been little systematic research on transcription systems for embodied actions.

The growing recognition of the multimodal nature of human communication has led to an increased need to represent multiple aspects of interaction in our written work. This shift in focus to multiple phenomena means that one transcript may no longer be sufficient to represent everything of interest. As a result, different transcription and data representation practices have evolved to serve the needs of different disciplines and research foci.

Our purpose here is to survey a selection of practices used to represent gesture and multimodal interaction, and to offer some recommendations for the presentation of multimodal transcripts.

相互行為におけるマルチ・モダリティ記述方法の概観

ジェスチャーその他の身体的行為の研究において、データの詳細を表すトランスクリプト、絵、図、写真、ビデオなどは、(1) 相互行為における現象を明示・解明する、(2) 分析を裏付けるための材料を提供する、という二つの役割を果たす。研究成果報告の段階では、そこで論じられる特定の現象の存在およびその意味は、トランスクリプトなどに提示された形で確認されることになる。談話研究においては、発話を文字化し、トランスクリプトを作成するということが自身が研究の対象とされてきた (Dressler & Kreuz, 2000; Du Bois, 1991; Edwards & Lampert, 1993; Ochs, 1979; Roberts & Robinson, 2004) が、身体的行為を表記するシステムについては、体系的な研究はほとんど行われていない。

しかし、人間のコミュニケーションは本来複数のモダリティから成るものであるということが広く認識されるにつれ、それらを書き／描き表すことの必要性が痛感されるようになってきた。相互行為場面のマルチ・モダリティに注目するということは、一つのトランスクリプトだけでは、ある研究が分析の対象とする現象に十分に対応できないこともありうるということを意味する。実際、研究の分野や目的に応じ、さまざまなトランスクリプトやデータ提示方法が考案され、用いられてきている。

本ポスター発表では、ジェスチャーその他の身体的相互行為を表記／提示するために用いられているさまざまな方法を概観すると同時に、具体的な実践に関する提言も行う。

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“Who’s Drinking?” Production and Comprehension of Iconic Gestures in Preschoolers

Young children frequently communicate with iconic gestures (e.g., bringing a C-shaped hand toward the mouth to request a drink); but their comprehension of such gestures is relatively poor. The purpose of this study was to test the hypothesis that poor gesture comprehension reflects difficulty appreciating the link between gesture form and its referent. Twenty children (12 females, 8 males) aged 2-5 years participated in two tasks: a) production, in which children were asked to produce gestures for 12 common actions (e.g., drinking); and b) comprehension, in which children were asked to indicate which of two characters performing an iconic gesture in a split screen video was doing so correctly (e.g., “who’s drinking?”). Data indicated that younger but not older children performed better on production than comprehension and that the form of gestures produced predicted comprehension performance. Results are discussed in terms of current theories of symbolic development.

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Child's gestures as constituents in early conversation

The aim of the study is to analyse conversational interaction between adult and normally developed child at preverbal stage. During that period, gestures, especially pointing, is the child's method to take part in the conversation: topically, how far the child can go with the preverbal method?

The method is qualitative and data-driven conversation analysis (CA). The data are collected by videotaping mutual picture book conversations. The data relevant to the research objectives are transcribed, including mainly child's gestures and other actions and adult's speech.

The focus of the micro-analysis will be the topical shift from picture book referents to child's real life experiences. In conveying the shift, an elementary sequential co-operative structure is an adjacency pair consisting of child's gesture and adult's linguistic turn. I will analyse topical negotiations on meaning, which are due to the different levels of context (sequential, physical and extra-situational). Consequently, the topic is achieved, and intersubjectivity between the participants is maintained in the conversation.

L'objectif de cette étude est d'analyser l'interaction entre un adulte et un enfant en phase de développement préverbale (un enfant normal qui ne parle pas encore). L'enfant participe à l'interaction avec des gestes, en particulier en montrant du doigt.

La méthode utilisée est l'analyse conversationnelle qualitative basée sur des données. Les données vidéo ont été obtenues en enregistrant des situations de lecture de livres d'images entre un adulte et un enfant. Les données ont été transcrites sous forme de partitions contenant notamment les gestes et les autres activités de l'enfant et le discours de l'adulte. Les exemples évoqués dans cette présentation proviennent tous d'un cas, celui d'un garçon âgé d'environ 18 mois. J'examine à travers l'analyse conversationnelle la coopération topicale des interlocuteurs. Ce qui est particulièrement intéressant, c'est la transition topicale des référents du livre aux expériences vécues

par l'enfant dans sa vie quotidienne, produite à travers le geste de l'enfant et l'expression verbale de l'adulte. J'observe les différents niveaux de contexte (séquentiel, physique et extrasituationnel) servant à construire les différents topiques.

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Iconic Representational Gestures: Chronicling the Onset of Comprehension in Toddlers

Iconic representational gestures (IRGs) can be of two types. In Body-Part-as-Object (BPO) gestures, a part of the body (e.g., fingers, hand) replaces the object relevant to the action represented by the gesture. In Imagined-Object (IO) gestures, the relevant object must be imagined. There are but a few studies of IRG comprehension that have made this distinction, and these have focused on children much older (3 to 8 years) than the age at which gesture comprehension might be expected to emerge. The current research seeks to identify the age of onset of IRG comprehension in typically developing toddlers. Results presented here are drawn from this study, and focus on 30- and 42-month-old children. Experimenters requested familiar objects by means of either a BPO or an IO gesture. Four distinct possible choices were present on each trial. A subsequent training task made use of gestural feedback on the incorrect and correct objects and offered repeated opportunities to select the correct object. Results reflected an increase in both spontaneous comprehension and trainability as a function of age and gesture form. Findings are discussed in terms of methodological and conceptual factors that make comprehension of empty-handed actions very difficult for young children.

Les gestes représentationnels iconiques peuvent être de deux types. Dans les gestes “Body-Part-as-Object” (BPO), une partie du corps remplace l’objet représenté par le geste. Dans les gestes “Imagined Object” (IO), l’objet pertinent doit être imaginé. Peu d’études de la compréhension du geste représentationnel iconique ont fait cette distinction. Celles qui l’ont faite se sont intéressées aux enfants plus âgés (de 3 à 8 ans) que l’âge auquel l’on doit s’attendre à ce que la compréhension émerge. Le but de notre projet de recherche était d’identifier l’âge du début de la compréhension chez les enfants ayant un développement typique. Les données présentées ici sont tirées de ces recherches, et se réfèrent aux observations d’enfants de 30- et de 42-mois. La tâche de l’enfant était de choisir un seul objet familier demandé par l’expérimentatrice d’un étalage de 4 choix possibles. On a demandé chaque objet, soit d’un geste BPO, soit d’un geste IO. Les résultats ont reflété une augmentation dans la compréhension, et en fonction de la forme du geste, et en fonction de l’âge de l’enfant. On discute ces résultats en considération des éléments méthodologiques et conceptuels qui rendent la compréhension de l’action “mains vides” très difficile pour les jeunes enfants.

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Gestural display of understanding:the practice of viewing commercial film

This research aims at examining the viewers' practical way of understanding commercial films such as "This is a commercial of dishwashing liquid.", "This ad appeals for preserving user's health.", etc. For this purpose, this research focus on their way of visualizing how they figure out what they saw. Above all, my attention is paid to the viewer's gestures in organizing verbal elements of a commercial film into a consistent understanding as advertisement.

However, there are some difficulties in describing clearly what kind of knowledge is practically utilized by viewers during the viewing because they seldom specify by words what kind of images they are watching. Therefore, this research conducted an "experiment" on the viewers which are based on the idea of "breaching experiment" (Garfinkel[1967]) ;setting a situation where they are asked to find the original order of scenes in a commercial film which are randomized by cutting the original film into some parts.

Conversation analysis was applied to the interaction between two viewers who were asked to talk to each other about the task. Especially, the gestures by viewers during the talk were examined.

Analyses of transcript data suggested the process of viewing advertisements as follows; First, viewers identify the actors in advertisement by using MCD (Membership-Categorization Device, Sacks[1972]). Second, they identify the sequence of a film by making use of ordinary knowledge of daily conversation which is constructed as 'adjacency pair'(Scheglof and Sacks [1972]) and 'Q-A sequence'(Sacks[1972]). Thus they find the plot appealing, according to neutrality and universality of advertising discourse.

At this presentation, from the analyses of video data, I focus especially on how gestures of viewers highlighting the transcripts of the film are interrelated to the process of understanding; identifying the categorization of the actors and constructing the sequence of the scenes.

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Apports d'un modèle de l'espace de signation pour l'interprétation d'interactions en langue des Signes

Dans le cadre d'une étude sur l'interaction en langue des Signes, nous présentons une première étape qui consiste à comprendre des requêtes. Il s'agit donc de construire une interprétation de l'énoncé permettant de produire la réponse désirée, c'est-à-dire d'identifier les rôles des différentes entités évoquées et de les mettre en relation. Cet énoncé étant produit en langue des Signes et le périphérique d'entrée étant une caméra, cette représentation peut être construite en étudiant la façon dont le signeur instancie l'espace de signation (ES) qui l'entoure. Ce dernier utilise en effet cet espace pour y positionner les différentes entités qui représentent les concepts du discours et les mettre en relation en fonction de leur rôle dans l'énoncé. Les séquences de gestes régissant la construction de cet espace sont en outre guidées par une grammaire précise.

Nous proposons dans cet article un modèle permettant cette interprétation et nous montrons comment l'utiliser pour répondre à des requêtes concernant un planning, c'est-à-dire mettant en jeu des notions de personne, de lieu, de date et d'action. Nous nous basons pour cela sur une représentation de l'ES sous forme d'un volume discrétisé dans lequel les entités sont positionnées et mises en relation et sur un modèle de la grammaire régissant sa construction. Ce modèle permet de prédire des événements visuels sous forme de descriptions de l'état des composants dont le système d'analyse d'images peut alors vérifier l'occurrence. Ce mécanisme permet d'éviter une reconstruction complète des gestes, trop lourde.

Cette première analyse permet de définir le nombre et le rôle des différentes entités évoquées dans l'énoncé indépendamment du lexique et permet donc d'envisager la reconnaissance des signes proprement

dits dans le contexte très réduit des termes du lexiques susceptibles d'évoquer une entité de ce type.

Using signing space for interpreting sign language interaction

In the field of sign language (SL) interaction, we present an application that intends to understand requests on a database. The goal of such an application is to produce a representation of the utterances that enables the system to answer that question, that is identifying the entities that were evoked and their relationships. When the input language is SL and the input device is a camera, such a representation can be constructed by analysing the way the signer instantiates the signing space surrounding him. This space is used by the signer to position the entities that correspond with the concepts that were evoked and to link them together depending on their role in the sentence. Moreover, the gestures that are used for this construction follow the grammatical rules of the SL.

We propose a model that handles such interpretations and we present how to use it to launch requests on a timetable which includes information on persons, dates, places and actions. In order to do so, we use a representation of the signing space as a discrete volume, where entities can be positioned and linked together, as well as a grammatical model of its construction. This model allows the prediction of visual events as a description of the components of the signer's body. An image processing system is used to verify the occurrence of those events, thus avoiding too complex reconstructions of the gestures.

This first stage of analysis allows identifying the entities that were evoked without taking in account the lexicon. The analysis thus makes it possible to identify the signs proper in the limited context of the terms of the lexicon that may correspond to an entity of that given type.

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Gesture Expressivity in Embodied Conversational Agent

Embodied Conversational Agents (ECAs) are a powerful user interface paradigm, aiming at transferring the inherent richness of human-human interaction to human-computer interaction. ECAs are virtual embodied representations of humans that communicate with the user (or other agents) through different communicative channels (called modalities): voice, facial expression, gaze, gesture, and body movement. Effectiveness of an agent is dependent on her ability to suspend the user's disbelief during an interaction. To increase believability and life-likeness of an agent, we seek to move away from a generic acting agent model and, instead, to simulate individualized agents that portray idiosyncratic behaviors. Human individuals differ not only in their reasoning, their set of beliefs, goals, and their emotive states, but also in their way of expressing such information through the execution of specific behaviors. Based on what we should call "behavioral influences", the same kind of information should be conveyed by the agent using one or more modalities, on which different kinds of signals will be transmitted using the proper degree of intensity. We will use the work "expressivity" to refer to all of these kinds of behavioral differences. In this paper, we present our model of capturing expressivity in human gesturing and propose a set of parameters to characterize this individual variability in a conversational agent generation system. We then suggest a mapping of the identified dimensions of expressivity onto particular sets of animation parameters for gesture animation. We demonstrate synthesized behaviors with different expressivity settings in our existing ECA system and present an out-

look of how to integrate our work with higher-level agent functions such as simulations of personality or emotion. We will also present some evaluation studies we conducted to validate our model and how these results will direct our work on expressivity in the near future.

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Language modality influences the production of iconic gesture

We believe that modality influences the production of iconic gesture. Our lab at the University of Alberta has been exploring iconic gesture produced in narrative situations for the past several years. We propose to present three of these studies as part of a project panel.

Sign language studies have demonstrated the importance of modality in clarifying the relationship between speech, sign, and language. The modality question has not been adequately explored in gesture research. The assumption that anything a speaker does with their hands is a necessary property of gesture has not been questioned.

Our first study, *A comparison of gesture produced by signers and speakers* examines this assumption and finds it wanting. We provide data demonstrating that signers and speakers produce different distributions of types of gestures and examine the implications for our understanding of the function of gesture. Signers use gesture to enhance descriptions of certain types of actions and character traits, but not objects.

In our second study, *Are iconic gestures associated with words or units larger than words?*, we focus on characteristics of speakers' language. Because speech does not encode spatial relationships as well as sign, we predict that speakers who tell detailed stories will produce more iconic gestures. We find that iconic gestures are associated with task difficulty and enhanced recall, rather than the level of the word.

Finally, our third study *Does gesture perspective make some gestures more transparent than others?* directly compares the iconic gestures of speakers and signers. through a gesture comprehension study. We

test the transparency (ability to guess meaning without lexical support) of character and observer viewpoint gestures of English speakers and ASL signers and find that, even when matched for type and content, ASL signers produce more transparent gestures. These studies demonstrate that modality affects the relationship between gesture and language.

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Analyse du visage : identité vs. expressions

Le visage est un des vecteurs d'information de la communication humaine; par ses expressions, il véhicule tout ou partie du sens d'un message : état d'esprit, émotion, intention ou élément structurant d'une langue visuo-gestuelle telle que la langue des Signes.

Nous nous intéressons ici aux deux principaux paramètres de description d'un visage: les indices visuels constituant l'identité et ceux constituant les expressions.

L'analyse du visage par traitement d'images nécessite l'application d'opérateurs robustes aux variations d'un des deux paramètres : analyser l'identité d'un visage doit se faire indépendamment des expressions. De même, l'analyse des expressions doit se faire de manière robuste aux changements d'identité. Nous tentons ici de séparer les deux paramètres d'identité et d'expressions dans le cadre d'une analyse par traitement d'images. en détaillant les différents paramètres de variation d'identité et d'expressions et en explicitant leurs dépendances éventuelles.

Nous proposons une méthodologie permettant de mettre en évidence la séparation des paramètres d'identité et d'expressions et leur interdépendance.

Enfin, nous explicitons les prérequis nécessaires à la conception d'un opérateur d'anonymisation d'une locution en langue des Signes, le but étant de transcrire le message porté par le visage tout en empêchant une reconnaissance de son identité.

Facial analysis : identity vs. expressions

The face is an important medium taking part in the human communication: its expressions are carrying all or part of a message meaning: state of mind, emotion, intention or structural element of a visuo-gestural language like the sign language. We're focusing here on

two main facial description parameters: visual clues defining facial identity and those defining facial expression.

Facial analysis by image processing requires operators which are robust to variations of one of the parameters: identity analysis must be done independently from expressions. And facial expressions analysis must be independent from identity variations. We are attempting to separate these two parameters (identity and expression) in an image processing context, detailing how each one can be separated from each other or their possible dependency.

We are putting forward a methodology able to clarify the separation between identity and expression and their interdependency.

Finally, we are describing the needs for the design of a sign language “anonymous rendering” operator, aiming at keeping the meaning carried by the face and, at the same time, preventing the recognition from its identity.

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Children's gestures tell us more than words can say

This poster summarises studies investigating the role of children's gestures. Our findings reveal that children convey information in their gestures that they cannot express verbally and that children's knowledge emerges in gesture before speech.

When children explained their ideas, their gestures and words did not always match - they expressed *different* information through the two modalities. These mismatches reliably predicted children's learning.

We found gestures helped children with linguistic access. Children were worse at naming items when they were prohibited from gesturing. When in a 'tip-of-the tongue' state (i.e. having difficulty accessing a word) they resolved this state more when they were free to gesture than when they were not.

In a further study we compared 40 children with a Specific Language Impairment (SLI) with normally developing children and found that those with SLI gestured more on the science task. These children also made less progress on the task when they were prevented from gesturing and their verbal dysfluency increased.

Together these studies shed light on the important role of the gestural system in helping children to think, speak and learn

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Interacting bodies and interacting minds

Research on multimodal communication has overviewed the multifaceted possibilities of our body to convey information about the world, our beliefs, goals, emotions, identity. But body behaviour shows different levels of intentionality and consciousness.

This work proposes some criteria to distinguish communication from non communication, and to define different ways in which information passes from mind to mind: behavioural implicit communication, expression, direct, indirect, contradictory, ambivalent, ambiguous, deceptive communication, faked expression, furtive communication. I focus on the communication of emotions and first define the notion of “emotion induction”: the fact that an Agent comes to feel an emotion due to some belief concerning another Agent. Emotion induction is not always governed by an Agent’s goal but may be a non deliberate effect on another Agent. I explore different cases of emotion induction, among which empathy and contagion, while making clear that, while contagion necessarily needs some emotional expression, empathy does not. B may feel empathy for A even if A did not communicate her emotion to B; it is sufficient for B to imagine A’s emotion. Then I overview cases of deliberate induction of emotion, that may pass through faked and ostentated expression, and the concealment, masking, simulation of emotions.

La ricerca sulla comunicazione multimodale ha mostrato le molteplici possibilità del nostro corpo di comunicare sul mondo, le nostre credenze, scopi, emozioni, la nostra identità. Ma la comunicazione corporea opera a livelli diversi di intenzionalità e coscienza.

Il lavoro propone una serie di criteri per distinguere comunicazione da non comunicazione e definisce vari modi in cui l’informazione passa da mente a mente: comunicazione comportamentale implicita, espressione, comunicazione diretta, indiretta, contraddittoria, ambivalente, ambigua, ingannevole, espressione finta, comunicazione furtiva.

Concentrandomi sulla comunicazione di emozioni, definisco «induzione di emozione» il fatto che un Agente provi un’emozione a causa

di una cendenza su un altro Agente. L'induzione non è sempre governata da uno scopo deliberato, può essere un effetto non deliberato. Esplorando casi diversi di induzione, tratto alcune differenze fra contagio ed empatia, osservando fra l'altro come il contagio richieda tipicamente un'espressione emotiva, mentre ciò non vale per l'empatia, che possiamo provare per un altro anche se lui non prova un'emozione, o se la prova e non la esprime. Passo in rassegna, inoltre, casi di deliberata induzione di emozioni, che passano per l'emozione finta od ostentata, e per l'occultamento, il mascheramento e la simulazione di emozioni.

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The meaning of gaze in LIS (Italian Sign Language)

Sign studies (e.g., Baker & Padden, 1978; Baker-Schenk, 1985; Volterra, 1987) acknowledged the importance of nonmanual components in Sign Languages: the lexical, syntactic, pragmatic functions of mouth behaviours, facial expression, eyebrows and eye gaze. Yet, a systematic view of gaze communicative behaviour in Sign Languages, and of its difference from gaze in the hearings, is still lacking.

This work analyses the communicative use of gaze in LIS (Lingua Italiana dei Segni). Starting from a model of gaze in Italian hearing speakers, which found out the lexicon and the formational parameters of eye communication (Poggi, 2001), the use of gaze by Italian deaf signers of LIS is analysed. The working hypotheses are that the Hearings' and the Deaf's lexicons of gaze differ in both quantity and quality, and that the Deaf use more communicative and meta-communicative gaze items than the Hearings do. To test these hypotheses, four deaf signers of LIS and four hearing speakers of Italian were videotaped while telling the story of *"The snowman"* in their respective languages, their gaze during narration was analysed and classified in terms of meaning and formational parameters, and the differences in frequency and semantic types between Signers and Speakers were assessed.

La ricerca sulle Lingue di Segni ha evidenziato il ruolo in esse dei componenti non manuali (Baker & Padden, 1978; Baker-Schenk, 1985; Volterra, 1987): le funzioni lessicali, sintattiche e pragmatiche della bocca, dell'espressione facciale, delle sopracciglia, dello sguardo. Ma ancora non disponiamo di un modello dello sguardo nelle Lingue di Segni, e delle sue differenze dallo sguardo negli udenti.

Questo lavoro analizza l'uso comunicativo dello sguardo in LIS (Lingua Italiana dei Segni). Partendo da un modello dello sguardo negli

italiani udenti, che ne ha individuato il lessico e i parametri formazionali (Poggi, 2001), si è analizzato lo sguardo di sordi segnanti in LIS. L'ipotesi è che i lessici dello sguardo di sordi e udenti differiscano sia quantitativamente che qualitativamente, e che i sordi usino più sguardi sia comunicativi che metacomunicativi rispetto agli udenti. Per verificare quest'ipotesi sono state videoregistrate le produzioni narrative di quattro segnanti LIS e di quattro parlanti udenti italiani che raccontavano la storia *"Il pupazzo di neve"*; i loro sguardi durante la narrazione sono stati analizzati e classificati dal punto di vista del significato e dei loro parametri formazionali, valutandone infine le differenze quantitative e semantiche.

Age-related change of frames of reference in children: Gesture and speech in route-description

The purpose of this study is to investigate the development of spatial "Frame of Reference" (FOR) in childhood in terms of gesture and speech. Four-, five-, and six-year-old preschoolers (N=55) were asked to describe a route from the nursery school to their own home. Children were classified into three groups of FOR depending on the direction of gesture and speech. Absolute FOR children made gestures consistently with an actual direction of the route. The gestures were produced with a fully extended elbow and a raised hand above the shoulder. Relative FOR children did not match their gestures with the actual direction and described the route within an imagery space. Some of them seemed to represent survey-map-like gestures. Mixed FOR children used both Absolute and Relative FOR in the description and showed more numbers of gesture-units than the other two FORs. It was also found that Relative and Mixed children mentioned more landmarks than Absolute children. Each age group had a predominant FOR. Four-year-olds relied on Absolute FOR. Most 5-year-olds used Mixed FOR. Relative FOR was dominant in 6-year-olds. These results indicate a developmental change among different types of a spatial frame in childhood.

Le but de cette étude est d'étudier le développement de la spatiale "armature de la référence" dans l'enfance ainsi de geste et la parole. Des enfants âgés de quatre, cinq, et six-ans (N=55) ont été demander à décrire un itinéraire de l'école maternelle à leur propre maison. Des enfants se sont classés en trois groupes d'armature de la référence selon la direction de leurs gestes et la parole. Les enfants de Référence Absolus ont fait des gestes uniformément à une direction réelle de l'itinéraire. Les gestes ont été produits avec le coude entièrement tendu et avec la main Au-dessus de l'épaule. Quant à les enfants de Référence Relative qui ne sont pas accordé gestes de la direction réelle. Ils ont décrit l'itinéraire dans un espace d'imagination. Certain d'entre eux ont semblé représenter exam-

iner-carte-des gestes.Mélangé des enfants ont utilisé tout les deux Référence Absolu et Relative dans la description et Ils ont guidé plus de nombres de geste-unité que les autres deux Références. Chaque catégorie d'âge a eu la prédominance l'armature de la référence. Quatre-ans ont compté Référence Absolu. 5-ans ont utilisé Référence mélangé. Référence Relative était dominant dans 6-ans.Ces conséquences un changement développementale parmi différents types d'une armature spatiale dans l'enfance.

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Photos de présentation de soi dans les blogs adolescents

Skyblog, principal hébergeur, compte en avril 2005 1,6 millions de blogs actifs (10% des adolescents français) et croît à raison de 2000 blogs par jour. Les blogs, sortes de journaux de bord personnels en ligne, principalement composés de photos et commentaires en style SMS, fonctionnent auprès des adolescents comme une 'forge identitaire'. Lieu d'expression comparable aux murs de la chambre de l'adolescent, il sert d'espace transitoire entre le virtuel et le réel, entre soi et les autres, instaurant une proximité émotionnelle et une distance physique propice au dialogue interne. L'ado s'y dévoile auprès d'un public extérieur restreint en affichant par juxtaposition les éléments qui composent son univers, amis, fêtes, passions, premiers pas ... Quelque part dans cette identité bricolée s'annonce une photo et un "c'est moi" parfois embarrassé. A partir des photos de présentation de soi d'une cinquantaine de blogs ados de Vannes (56) et sa région, on a examiné: 1) La quantité et la position des photos du blogueur, 2) Leur contexte et mise en scène, 3) Les caractéristiques de prise de vue, rapport à l'objectif, centrage sur visage/corps, 4) La gestuelle expressive (visage, regard, sourire, autocontacts), 5) La composition, posée ou sur le vif, 6) La gestuelle significative (injures et saluts).

Author photographs in teenage blogs

In April 2005, there were 1.6 million active blogs on Skyblog (the principal host). This number corresponds to 10% of French teenagers, and is increasing by 2000 per day. Blogs are a sort of on-line personal logbook, comprising mostly photographs and comments in SMS style. They function as a forge of the author's identity. Comparable to bedroom walls as a site for self-expression, they act as a transitional space between the virtual and the real, and between the blog's author and others. Emotional proximity coupled with physical distance is favourable to internal dialogue and self-questioning. The teenager reveals him/herself to a restricted external audience by

posting a juxtaposition of elements that comprise his or her world: friends, parties, enthusiasms, experiences. Somewhere in this patchwork there is a self-photograph and a sometimes-embarrassed “This is me” text. Working from such photographs in about fifty teenage blogs from the Breton town of Vannes and its surroundings, I have examined: 1) The number and position of the blogger’s self-photographs, 2) Their context and staging, 3) The characteristics of the shots such as position relative to the lens and centering on face or body, 4) The expressive gestures pictured (face, look, smile, self-contact), 5) The composition, i.e. whether posed or taken on the fly, and 6) The attitude adopted (insult or welcome).

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