

Laboratoire Européen Associé  
“Interdisciplinary Laboratory on Interactive  
Knowledge Systems” (ILIKS)  
Report 2005-2007

The LEA ILIKS was officially created on May 9th, 2005, when the convention was signed in Rome. This report covers the ILIKS activities since its creation till the end of 2007, i.e., the period May 2005 – December 2007.

## 1 Partners

- Institut de Recherche en Informatique de Toulouse (IRIT, Computer Science Research Institute of Toulouse), a mixed research unit (UMR 5505) shared by the CNRS, Université Paul Sabatier - Toulouse III, Institut National Polytechnique de Toulouse, Université Sciences Sociales - Toulouse I, and Université Toulouse-le-Mirail - Toulouse II.  
Research groups involved:
  - Logic, Interaction, Language and Computation (LILaC)
  - Raisonnements Plausibles, Décision, Méthodes de Preuves (RPDMP)
  - Conception de Systèmes Coopératifs (CSC)
  - Assistance à la Certification d’Applications DIstribuées et Embarquées (ACADIE)
  - Traitement et Compréhension d’Images (TCI)
- Istituto delle Scienze e Tecnologie della Cognizione (ISTC, Institute of Cognitive Sciences and Technologies), an institute of the Italian Consiglio Nazionale delle Ricerche (CNR).  
Research groups involved:
  - Laboratorio di Ontologia Applicata (LOA), Trento and Rome
  - Division of Artificial Intelligence, Cognitive Modelling and Interaction (IAMCI), Rome
  - Trust: Theory and Technology (T3), Rome
  - Sign Language Laboratory (SLL), Rome

- Gesture and Language Laboratory (GALL), Rome
- Language Development and Disorders (LADD), Rome
- Università degli Studi di Trento (UNITN, Trento University), with 3 departments:
  - Dipartimento di Informatica e Telecomunicazioni (DIT, Department of Information and Communication Technology), of which the following research programs are involved:
    - \* Information and Knowledge Management
    - \* Data Mining and Learning Systems
  - Dipartimento di Informatica e Studi Aziendali (DISA, Department of Computer and Management Sciences), with the research groups:
    - \* Research on Organization, Coordination and Knowledge (ROCK)
    - \* NetEconomy
  - Dipartimento di Scienze della Cognizione e della Formazione (DiS-CoF, Department of Cognitive Science and Education).

## 2 Members

The list of ILIKS members is naturally evolving along with the groups themselves. In addition, new research groups of IRIT and ISTC who are collaborating on a subject of interest for ILIKS have joined it in 2006. Below is the list of members during 2007 (total 72). Each member is listed under his/her main affiliation. The members who are actively participating, i.e., visiting, contributing to the meetings and/or with joint publications are indicated in italics (total 38). The others are members who are working on topics relevant to ILIKS and have renewed their interest, so they might become active participants in the near future.

**IRIT**

Carole Adam  
*Nicholas Asher*  
*Nathalie Aussenac-Gilles*  
Philippe Besnard  
Jean-Paul Bodeveix  
Mohand Boughanem  
*Julien Brunel*  
*Patrice Dalle*  
Didier Dubois  
Mamoun Filali  
*Benoit Gaudou*  
*Andreas Herzig*  
Mouna Kamel  
Noel Laverny  
*Jerome Lang*  
Dominique Longin  
Josiane Mothe  
*Philippe Muller*  
Henri Prade  
Tiago Santos de Lima  
Florence Sedes  
*Martin Strecker*  
*Nicolas Troquard*  
Ivan Varzinczak  
*Laure Vieu*

**ISTC**

Eduard Barbu  
*Stefano Borgo*  
*Emanuele Bottazzi*  
Olga Capirci  
Cristina Caselli  
*Cristiano Castelfranchi*  
*Carola Catenacci*  
Rino Falcone  
*Roberta Ferrario*  
*Aldo Gangemi*  
*Nicola Guarino*  
*Emiliano Lorini*  
Francesca Marzo  
*Claudio Masolo*  
Maria Miceli  
*Alessandro Oltramari*  
*Fabio Paglieri*  
*Giovanni Pezzulo*  
Domenico Pisanelli  
*Elena Pizzuto*  
*Geri Steve*  
*Robert Trypuz*

**UNITN**

*Liliana Albertazzi*  
*Matteo Bonifacio*  
Nicolao Bonini  
*Paolo Bouquet*  
*Volha Bryl*  
Pierfranco Camussone  
*Marco Cruciani*  
*Roberta Cuel*  
Vincenzo D'Andrea  
*Francesca Delogu*  
Franco Fraccaroli  
Daniel Giacomuzzi  
*Paolo Giorgini*  
*Fausto Giunchiglia*  
Alexander Lazovik  
*Fabio Massacci*  
John Mylopoulos  
*Massimo Poesio*  
Diego Ponte  
Giuseppe Riccardi  
Heiko Stoermer  
Maurizio Teli  
Marco Zamarian  
Enrico Zaninotto  
*Nicola Zannone*

**2.1 Official exchanges of researchers****2.1.1 French members officially connected to an Italian Partner**

- Laure Vieu, CNRS researcher at IRIT “mise à disposition” at the Laboratorio di Ontologia Applicata of the ISTC-CNR (2003-2005 + 2006-2008).
- Laurent Prévot, after his PhD at IRIT has done a Post-Doc at the LOA of the ISTC-CNR (April 2004 - October 2005).
- Nicolas Troquard, PhD student in co-tutorship between IRIT & Université Paul Sabatier and the LOA of the ISTC-CNR & the University of Trento, till his defense in July 2007 of his PhD Dissertation with title “Independent agents in branching time: Towards a unified framework for reasoning about multiagent systems”.

**2.1.2 Italian members officially connected to IRIT**

- Emiliano Lorini, Post-Doc at IRIT since October 2007, was PhD student at ISTC-IAMCI/T3 (with University of Siena) till his defense in March 2007. He had also done a Master at IRIT & Université Paul Sabatier from September 2004 to June 2005. His PhD dissertation, obtained in with title “Variations on intentional themes: from the generation of an

intention to the execution on an intentional action” has been done in a non-official but de-facto co-tutorship, with regular visits to Toulouse.

### 2.1.3 Other multiple affiliation and exchange cases

- Alessandro Oltramari, of ISTC-CNR, has been doing his PhD with the University of Trento (DiSCoF), under the joint supervision of Liliana Albertazzi (UNITN) and Nicola Guarino (ISTC-CNR), from November 2003 to October 2006.
- Robert Trypuz, of ISTC-CNR, has been doing his PhD with the University of Trento (DIT), under the supervision of Laure Vieu (IRIT & ISTC-CNR), from October 2004 to December 2007.

## 3 Directive Committee

The Directive Committee has been officially appointed during 2006. It is composed of:

- Rogelio Lozano, Representative of CNRS
- Nicholas Asher, Representative of Université Paul Sabatier
- Cristiano Castelfranchi, Representative of CNR
- Fausto Giunchiglia, Representative of University of Trento
- Johan van Benthem, External distinguished scholar
- Achille Varzi, External distinguished scholar

The Directive Committee first met on the occasion of the 2006 annual meeting. Fausto Giunchiglia was elected President of the Directive Committee.

## 4 Activities

ILIKS activities aim at studying interacting knowledge systems, human or artificial, for the understanding and the construction of a (hybrid) society of intelligent agents. The theoretical bases of interaction and interacting systems are studied in a deeply interdisciplinary approach, involving Computer Science, Logic, Cognitive Sciences, Philosophy, Linguistics and Economy.

The activities are organized in five research areas:

1. *Agents and Mental Attitudes*: Modelling cognitive agents
2. *Social Relationships and Organizations*: Understanding the collective dimension
3. *Actions and Plans*: Understanding actions and reasoning to act
4. *Interaction and Communication*: Analyzing the structure of interaction and managing dialogues

5. *Lexicon, Ontologies, Semantic Interoperability and Information Extraction: Getting the contents of communication right*

4.1 **Summary of the research activities during 2005-2007**

4.1.1 **Area 1, Agents and Mental Attitudes**

**Chairs: Andreas Herzig and Alessandro Oltramari**

The partners develop studies in this area for a variety of motivations: agent-oriented software engineering (UNITN-DIT), modeling of cognitive processes (ISTC-IAMCI), ontology of interaction (ISTC-LOA) and logics of interaction (IRIT-LILaC). However, they share a common view on agents, based on a BDI-like agent model.

**Joint publications.** Joint work that gave rise to joint publications has been carried out on two topics:

- The search for a definition of intention (IRIT-LILaC, ISTC-IAMCI/LOA) [HLTT06]. The current approach chosen is based on STIT logic. It is being applied to the modelling of strong and weak delegation (see Area 2) and the generation of intentions.
- The study of intentions and goals in their relation to action, via the notion of attempt or non-deterministic action (IRIT-LILaC, ISTC-IAMCI/LOA) [LHC06, TLV07] (see also Area 3).

**Other work.** Several topics are being addressed by the partners either collectively or in parallel. Such closely related work may give rise in the near future to further collaborative work and joint publications:

- Ontology of mental states and attitudes (ISTC-LOA): characterization of intentional agents (intentional stance) and the relation of aboutness in mental attitudes.
- Use of goals of agents (actors) in agent-oriented software engineering, using the TROPOS methodology (UNITN-DIT, ISTC-LOA). See also Area 2 for goals in organizations.
- Belief revision: analysis of its foundations (ISTC-IAMCI), its relation with argumentation (ISTC-IAMCI), its relation with doxastic logic (IRIT-LILaC), and minimization issues (IRIT-RPDMP); belief update and its relationship with action (IRIT-RPDMP)
- Formalization of emotions: ontology of emotions (ISTC-LOA), characterization of the concept of surprise (ISTC-IAMCI), modelling of Ortony, Clore and Collins's theory in a BDI logic (IRIT-LILaC).

#### 4.1.2 Area 2, Social Relationships and Organizations Chairs: Claudio Masolo and Emanuele Bottazzi

The area covers two classes of approaches, those focusing on the social dimension, and those focusing on the institutional dimension of agent interaction.

In the first case, the main objective is to model collectives and groups of agents, either on the basis of interpersonal relations such as mutual beliefs, trust and dependencies, or addressing emergent aspects like collective intentionalities, collective actions, collective acceptances, emerging rules and conventions. Additional work analyses the nature of social entities such as artifacts and products.

The work on the institutional dimension aims at modelling organizations and institutions. It deals with: normative (deontic) rules that influence agents' interaction (rights, obligations, powers, ...); constitutive rules that create a new level of entities (actions, roles, ...) and artifacts that structure the interaction to coordinate collectives.

**Joint publications.** Joint work that gave rise to joint publications has been carried out on four topics:

- The analysis and formal characterization of roles (ISTC-LOA, IRIT-LILaC) [MGV<sup>+</sup>05]
- The characterization of the socially-dependent categories of artefacts and products in a formal ontology (ISTC-LOA, IRIT-LILaC) [BV06, BVG08]
- The modelling of delegation based on mental states (ISTC-IAMCI, IRIT-LILaC) [LTHC07]
- The characterization of power in terms of actions and mental attitudes (ISTC-IAMCI, IRIT-LILaC) (see also Area 3) [LHBT07]

**Other work.** The above topics belong to a set of numerous inter-related topics that are being addressed by the partners either collectively or in parallel. Some of these have produced the collective reports for the MOSTRO project [MOS06a, MOS07a, MOS07b, MOS06b, MOS07c, MOS06c, MOS07d]. The ForTrust project is also dedicated to issues in this area. Such closely related work will give rise in the near future to further collaborative work and joint publications:

- Mental dimension of the collectives, collective intentionality
  - group attitudes, formalization of Tuomela's group belief, application to agent communication languages (IRIT-LILaC, ISTC-IAMCI/LOA/T3)
  - group preferences (IRIT-LILaC, ISTC-IAMCI/LOA/T3)
- Social/Normative dimension
  - trust and delegation (ISTC-IAMCI/T3, IRIT-LILaC, UNITN-DIT)
  - power and control (ISTC-IAMCI/T3, UNITN-DIT)

- dependence and autonomy (ISTC-IAMCI/T3, UNITN-DIT)
- ownership (UNITN-DIT)
- from expectations to norms via conventions (ISTC-IAMCI/T3)
- mental counterpart of norms in organizations (ISTC-IAMCI/T3)
- deontic (and temporal) logics, propagation of obligations (IRIT-ACADIE/LILaC)
- computational social choice (IRIT-RPDMP)
- Organizations
  - Ontological nature of organizations (ISTC-IAMCI/LOA,T3) [MOS06a, MOS07a]
  - Organization modeling and analysis (UNITN-DIT, ISTC-LOA) [MOS06b]
  - Security analysis (UNITN-DIT, ISTC-LOA, IRIT-ACADIE)
  - Risk analysis (UNITN-DIT)
  - Organization design and design analysis (UNITN-DIT, ISTC-IAMCI/LOA/T3)
  - Case study of electronic voting processes (UNITN-DIT, ISTC-LOA)

#### 4.1.3 Area 3, Actions and Plans

**Chairs: Jérôme Lang and Emiliano Lorini**

This area is dedicated to ontological and modelling issues and to reasoning problems, the two being often intertwined.

The much-debated ontological nature of actions (what is an action, what are the essential properties of actions) underlies a large part of the work. Actions being often considered as dependent on the intentionality of agents (goals, expectations...), this work is closely related to that of Area 1.

On the modelling side, existing and new modal logics and first-order theories of action are developed (see also Area 4 for the special case of communicative actions). The relation between the notions of agency and action is also analyzed, largely focusing on understanding, revisiting and enriching STIT logic. Finally, psychological and neurobiological models of action and actuation are studied.

Reasoning problems focus on two important topics: reasoning about action and beliefs in combination, and reasoning about plans, i.e., planning. Reasoning about action and belief addresses among other things the problem of linking reasoning about action and belief update, while reasoning about plans is in particular studied from the perspective of partial observability.

**Joint publications.** Joint work that gave rise to joint publications has been carried out on five topics:

- Establishing mutual beliefs through public events (ISTC-IAMCI/T3, IRIT-LILaC) [LTH05]
- Understanding STIT
  - Formal comparison of STIT with respect to CL and ATL (IRIT-LILaC, ISTC-LOA) [BHT05, BHT06a, BHT06b]

- Simulation of Coalition Logic in STIT, and its extension to epistemic modalities [BHT07]
- New, simpler, axiomatics for STIT and relative complexity results (IRIT-LILaC, ISTC-LOA) [BaHT07]
- First-order translation of STIT, “OntoSTIT”, and analysis of STIT’s ontological commitments (ISTC-LOA, IRIT-LILaC) [TTV06a, TTV06b]
- Logic of attempt, i.e., characterizing fully or partially executable actions (ISTC-IAMCI, IRIT-LILaC) [LHC06] (see also Area 1)
- Ontology and logic of actions and agency
  - Extending OntoSTIT to non-deterministic actions (ISTC-LOA, IRIT-LILaC) [TTV06b]
  - Extending STIT with PDL-like action operators, where actions have a duration (ISTC-LOA, IRIT-LILaC) [TV06]
  - Links between ontologies of action and mental entities [TOV07]
  - Developing a taxonomy of actions related to aspectual properties (ISTC-LOA, IRIT-LILaC) [TV07]
- Enriching STIT with knowledge operators, uniform choices in logics of agency (IRIT-LILaC, ISTC-LOA) [HT06]

**Other work.** Several topics are being addressed by the partners either collectively or in parallel. Part of such closely related work is already strongly connected with the above joint publications and relative joint master and PhDs, while other may give rise in the near future to further collaborative work and joint publications:

- Developing existing and new logics of action
  - Logic of concurrent actions and group actions (ISTC-LOA)
  - Analysis of epistemic actions (ISTC-IAMCI)
- Agency and action
  - Analysis of the relations between actions, goals, and expectations (IAMCI-ISTC) (cf also Area 1)
  - Models of action selection and goal-oriented behaviour, bridging the gap between the intentional and the ‘actuation’ level (ISTC-T3/IAMCI) (cf also Area 1)
- Reasoning about action and belief
  - Modularity in action description (IRIT-LILaC)
  - Linking reasoning about action and belief update, either with Katsuno-Mendelzon’s or with Veltman’s update (IRIT-LILaC/RPDMP)
  - Reasoning about action and graded belief (IRIT-RPDMP)
  - Reasoning about action in multiagent belief structures (IRIT-LILaC/RPDMP)
- Reasoning about plans
  - Logics for planning under partial observability ; belief-based programs; purely epistemic Markov decision processes (IRIT-RPDMP)
  - Plans formed from individual and group actions (ISTC-LOA)

#### 4.1.4 Area 4, Interaction and Communication Chairs: Massimo Poesio and Laure Vieu

The activities covered by this area range from the ontological study of the “ingredients” of interaction and communication to fully-developed models of interaction and communication. These models are either language-oriented, agent-oriented, social-oriented, or combine these focuses.

Accordingly different sort of phenomena are studied and the models developed rely on different sorts of ingredients. Approaches focusing on the linguistic structure of communication model the semantics and pragmatics of discourse and dialogue. Those mainly concerned with tracking the evolution of agents attitudes in dialogue analyze the interrelationships between communicative actions, i.e., speech acts, and agents’ intentions and beliefs. Approaches considering communicative interaction as a social process primarily model the conventions and commitments regulating interaction, and the establishment of a common ground.

Finally, the visual dimension of communication has gained a special interest in ILIKS, with four groups joining in 2006: the Sign Language Laboratory, the Gesture and Language Laboratory, the Language Development and Disorders of ISTC and the Traitement et Compréhension d’Images group of IRIT. These groups collaborate with ISTC-LOA on the analysis and the representation of signed languages and coverbal gestures.

**Joint publications.** Joint work that gave rise to joint publications has been carried out on four topics:

- Analysis of discourse structure and development of Segmented Discourse Representation Theory
  - Characterization of the subordinating or coordinating nature of discourse relations (IRIT-LILaC, ISTC-LOA) [AV05]
  - Analysis of the right-frontier and other global constraints in discourse (IRIT-LILaC, ISTC-LOA) [PV05]
  - Study of the discourse relations of Background (IRIT-LILaC, ISTC-LOA) [APV07, APV08]
- Role and recognition of topics in discourse and dialogue
  - Sentence locating adverbs as markers of topic shifts in discourse (IRIT-LILaC, ISTC-LOA) [VBAA05, VBLDA06] (see also Area 5)
  - Intonation rises as markers of topic shifts in dialogue (IRIT-LILaC, ISTC-LOA) [SMP05]
- Social constraints on dialogue structure: public commitments and grounding (IRIT-LILaC, ISTC-LOA) [MP05, PMM05]
- The evolution of communication processes: a case study (ISTC-LOA, UNITN-DISA) [CFC07]

**Other work.** Several topics are being addressed by the partners either collectively or in parallel. One of these topics has been already addressed in the collective reports of the MOSTRO project. The project ANNODIS on the annotation of discourse is starting in 2008. Such closely related work may give rise in the near future to further collaborative work and joint publications:

- Ontology of interaction: state of the art, comparison of approaches, and characterization of communication and interaction (ISTC-LOA, IRIT-LILaC) [MOS06a]
- Discourse theory and discourse semantics
  - Anaphora resolution (IRIT-LILaC, ISTC-LOA, UNITN-DIT/CIMEC)
  - Complex speech acts (biased questions), embedded speech acts (IRIT-LILaC)
  - Presupposition in indexicals (IRIT-LILaC)
  - Semantics of modals and counterfactuals (IRIT-LILaC)
  - Discourse parser (IRIT-LILaC)
- Dialogue theories (SDRT & PTT), dialogue games, dialogue structure and dialogue management
  - Cues for identification of dialogue relations / acts: lexicon, syntax & semantics (IRIT-LILaC, ISTC-LOA)
  - Multiple levels of dialogue acts and micro-conversational events (UNITN-DIT/CIMEC)
  - Grounding: analysis of acknowledgement, establishment of common ground, negotiation (IRIT-LILaC, ISTC-LOA, UNITN-DIT/CIMEC)
  - Topic segmentation in dialogues (UNITN-DIT/CIMEC)
  - Cooperation and coordination in dialogue (IRIT-LILaC, ISTC-LOA, UNITN-DIT/CIMEC)
  - Dependencies between players in Boolean games (IRIT-RPDMP)
- Annotating discourse and dialogue: rhetorical relations / dialogue acts, coreference, ambiguity, misunderstandings, intonation, semantic roles... (IRIT-LILaC, ISTC-LOA, UNITN-DIT/CIMEC)
- Agents attitudes in dialogue: dynamic logics and epistemic logics
  - Speech acts and epistemic logic. Application to indirect speech acts, dialogue analysis (IRIT-LILaC)
  - Logic of public and private announcements (IRIT-LILaC)
  - Logic of grounding: semantics of speech acts in terms of group-beliefs. Application to FIPA ACL semantics (IRIT-LILaC)
- The visual dimension of communication
  - Signed languages and coverbal gestures (ISTC-LOA, ISTC-SSL/GALL/LDD, IRIT-TCI)
  - Dialogue with avatars (UNITN-DIT/CIMEC)

#### **4.1.5 Area 5, Lexicon, Ontologies, Semantic Interoperability and Information Extraction**

**Chair: Nathalie Aussenac-Gilles**

The activities in this area aim at improving interaction and mutual understanding by explicitly representing the contents of the information exchanged, mainly in its linguistic form. They address three main issues.

First, theoretical investigations about the nature of lexical semantics and lexical categories lead to formal analyses and the representation of semantics, lexicon and ontology and their relationships.

Second, techniques and tools are developed to go from language to representations. They cover text analysis and information extraction methods to identify meaning in texts, as well as semantic annotation methods for information retrieval.

Finally, meaning negotiation and evolution issues are investigated to understand and represent the processes of negotiation, stabilization or modification of meaning.

The state of this area is somehow paradoxical. It is and has been for quite a long time an important research area for all partners, but no common work has given rise yet to joint publications. The approaches developed are complementary and we already know, from the several joint discussions and working sessions that have been devoted to this area, that joining our efforts is very promising. New collaboration work and projects are currently under discussion, and one joint project already been proposed. As a result, we can expect in the near future further collaborative work and joint publications. The following topics have been developed in parallel by the three partners:

- Lexical semantics, founded on formal semantics and formal ontology.
  - Semantics of space, time and motion (IRIT-LILaC, ISTC-LOA) (see also Area 4)
  - Semantics of parthood (IRIT-LILaC, ISTC-LOA)
- Well-founded computational lexica and ontologies
  - Clarifying the distinction between lexica and ontologies (UNITN-DIT, ISTC-LOA)
  - Formal theory of lexical types (IRIT-LILaC)
  - Foundations and formal methods for ontology engineering (ISTC-LOA)
  - Conceptual analysis of existing lexical taxonomies, ontological restructuring of WordNet (ISTC-LOA)
  - Interfacing ontologies and lexical or terminological resources (ISTC-LOA, IRIT-CSC)
  - Ontology enrichment with lexical resources (UNITN-DIT, ISTC-LOA)
- Tools and Methods
  - Relation identification from texts: temporal relations in written texts; extraction of lexical relations from dictionaries (IRIT-LILaC)

- Ontology learning
  - \* Attribute, concept and relation acquisition from texts (UNITN-DIT/CiMEC, ISTC-LOA, IRIT-LILaC)
  - \* Evaluation of pattern-based relation extraction from various types of corpora (IRIT-CSC)
  - \* Meaning elicitation from schemas (UNITN-DIT)
  - \* Concept extraction cycle in keeping with document collections (IRIT-CSC and IRIT-SIG)
- Ontologies and lexical resources for document management and information retrieval (IRIT-CSC/SIG)
- Meaning negotiation and evolution
  - Meaning negotiation process and interests (UNITN-DIT/DISA)
  - Embodied nature of meaning (ISTC-LOA, UNITN-DISCOF)
  - Mediated negotiation through documents, data or knowledge models, Semantic coordination (UNITN-DIT)

## 4.2 Visits of ILIKS members across partner sites

- Laure Vieu’s visits to Toulouse: 2 weeks in July 2005, 2 weeks in November 2005, 3 weeks in January-February 2006, 1 week in March 2006, 1 week in June 2006, 1 week in September 2006, 2 weeks in December 2006, 1 week in April 2007, 1 week in May 2007, 1 week in July 2007, 1 week in November 2007
- Stefano Borgo’s visits to Toulouse: 2 weeks in March 2006
- Claudio Masolo’s visits to Toulouse: 1 week in December 2006, 1 week in July 2007
- Robert Trypuz’s visit to Toulouse: 2 weeks in March 2006
- Emiliano Lorini’s visits to Toulouse: 5 weeks in May-June 2005, 2 weeks in September 2005, 2 weeks in May 2006, 2 weeks in September 2006
- Nicolas Troquard’s visits to Trento: 3 weeks in April-May 2005, 3 weeks in September-October 2005, 1 week in February 2006, 2 weeks in November-December 2006, 5 weeks in February-March 2007
- Nicholas Asher’s visit to Trento: 4 weeks in June-July 2006
- Andreas Herzig’s visits to Trento: 1 week in September 2005, 1 week in February 2006, 1 week in November-December 2006
- Jérôme Lang visits to Trento: 1 week in September 2005, 1 week in November-December 2006
- Nathalie Aussenac-Gilles’s visits to Trento: 1 week in September 2005, 1 week in November-December 2006, 2 weeks in April 2007, 1 week in December 2007
- Benoit Gaudou’s visit to Trento: 1 week in August 2006
- Martin Strecker’s visit to Trento: 1 week in September 2005
- Julien Brunel’s visit to Trento: 1 week in November-December 2006
- Andreas Herzig’s visits to Rome and Siena: 1 week in November 2005, 1

week in October 2006, 1 week in April 2007

- Dominique Longin's visit to Rome: 1 week in April 2007
- Nicola Troquard's visit to Rome: 1 week in April 2007

### 4.3 Working Meetings and Seminars

- Mostro meeting, 11-12 may 2005, Trento. Talks by: Robert Trypuz, Nicolas Troquard, Claudio Masolo, Emanuele Bottazzi, Laurent Prevot, Fabio Massacci, Volha Bryl
- Mostro meeting, 28 september 2005, Trento. Talk by: Luiz Olavo Bonino
- Mostro meeting, 13-14 February 2006, Trento. Talk by: Guido Boella
- Mostro meeting, 28-29 November 2006, Trento. Talks by: Volha Bryl, Yudis Asnar, Roberta Ferrario and Robert Trypuz
- Workshop on "action", 28 March 2006, Toulouse. Talks by: Stefano Borgo, Robert Trypuz, Emiliano Lorini, Hans van Ditmarsch, Robert Demolombe, Andreas Herzig.
- Seminar by Hans van Ditmarsch, 19 June 2006, Trento: "Introduction to public announcement logic".
- Seminars by Benoit Gaudou, Trento, 25 August 2006: "A New Semantics for the FIPA Agent Communication Language based on Social Attitudes", "A logical framework for an emotionally aware intelligent environment"
- Mostro seminar, 1 February 2007, Trento. Talk by: Roberta Ferrario "Designing Organizations: Toward a Model"
- Seminar by Laure Vieu, 1 February 2007, University of Trento: "Part-hood relations, between semantics and ontology"
- Tocai working meeting for activities 6 and 2, 8 February 2007, Bologna
- Seminar by Nathalie Aussenac-Gilles, 11 April 2007, Trento: "Ontology engineering from texts: Evolution issues" + Working discussion with Paolo Bouquet, Massimo Poesio, Nicola Guarino and Laure Vieu.
- ForTrust Kick-off meeting, 16-17 April 2007, Rome. Participation from IRIT: Andreas Herzig, Dominique Longin, Robert Demolombe, Nicolas Troquard.
- Tocai.it meeting, 30 May 2007, Capri. Talk by ILIKS members Claudio Masolo & Nicola Zannone
- Workshop on the Semantics and Pragmatics of Dialogue, 11th of the SEMDIAL series, University of Trento, May 30 June 1 2007. Organized jointly by Massimo Poesio (UNITN) and Laure Vieu (IRIT & ISTC-CNR), this edition has received the support of ILIKS in the form of sponsoring the Invited Speaker Paul Piwek (Open University, Milton Keynes), who gave a talk on "Dialogue Games for Crosslingual Communication."
- Workshop on "ontology of action and organizations", 17 July 2007, Trento Talks by Stefano Borgo, Emanuele Bottazzi, Roberta Ferrario,

#### 4.4 Annual meetings

See programs in Annex.

- Inaugural meeting, September 26-27, 2005, Trento.  
Participation: 40 people
- 2006 Annual meeting, November 30 - December 1, 2006, Trento.  
Participation: 35 people
- 2007 Annual meeting, December 20-21, 2007, Trento.  
Participation: 30 people

### 5 Publications

The number of publications done by all the members of ILIKS in connection with their ILIKS activities during the 2005-2007 period is of course very large.

Below are first listed the masters and PhDs obtained in official co-tutorship as well as those that have been supervised (totally or partially, officially or de facto) by researchers from a different partner than the main affiliation of the student.

Next are listed only those publications that have been co-authored by members from several partners. Because some members are affiliated with several partners, a distinction can be made within these joint publications: we first list those that are co-authored by members from several partners considering their main affiliation only, and then the additional joint papers, that is, considering the secondary affiliation of one or several authors.

Papers from a single author with multiple affiliation are not listed.

The full list of publication can be sent on request.

#### 5.1 Joint masters and PhDs

- [Lor05] Emiliano Lorini. *Atoms of action: For a formal theory of Intention and Attempt*. Master thesis, Université Paul Sabatier, 2005.
- [Olt06] Alessandro Oltramari. *Hybridism in Cognitive Science and Technology: Foundational and Implementational issues*. PhD thesis, University of Trento, 2006.
- [Lor07] Emiliano Lorini. *Variations on Intentional themes: From the generation of an intention to the execution of an intentional action*. PhD thesis, University of Siena, 2007.
- [Tro07] Nicolas Troquard. *Independent agents in branching time: Towards a unified framework for reasoning about multiagent systems*. PhD thesis, Université Paul Sabatier & University of Trento, 2007.
- [Try07] Robert Trypuz. *Formal Ontology of Action: A Unifying Approach*. PhD thesis, University of Trento, 2007.

## 5.2 Joint publications

These publications are co-authored by members from several partners, considering their main affiliation only.

- [BV06] Stefano Borgo and Laure Vieu. From artefacts to products. In Roberta Cuel and Roberta Ferrario, editors, *Formal Ontology Meets Industry (FOMI 2006)*, pages 85–99, Trento, 2006.
- [BVG08] Stefano Borgo, Laure Vieu, and Nicola Guarino. Artefacts in Formal Ontology. In Anthonie Meijers, editor, *Handbook of Philosophy of Technology and Engineering Sciences*, to appear. Elsevier, 2008.
- [CFC07] Roberta Cuel, Roberta Ferrario, and Pierfranco Camussone. Gli effetti dei sistemi informativi sui processi di comunicazione: un caso di studio. In T.M. Fabbri and L.E. Golzio, editors, *Relazioni di lavoro e forme organizzative. Nuovi modelli di progettazione*, pages 268–284. Carocci, 2007.
- [HLTT06] Andreas Herzig, Emiliano Lorini, Nicolas Troquard, and Robert Trypuz. The hidden faces of intention: Using STIT to discover them. In *Studia Logica International Conference, Towards Mathematical Philosophy, Trends in Logic IV*, Toruń, Poland, 2006.
- [LHC06] Emiliano Lorini, Andreas Herzig, and Cristiano Castelfranchi. Introducing attempt in a modal logic of intentional action. In Michael Fisher and Wiebe van der Hoek, editors, *Proc. 10th Eur. Conf. on Logics in Artificial Intelligence (JELIA06)*, LNAI 4160, pages 1–13. Springer-Verlag, 2006.
- [LHBT07] Emiliano Lorini, Andreas Herzig, Jan Broersen, and Nicolas Troquard. Grounding power on actions and mental attitudes. In *Workshop on Formal Approaches to Multi-Agent Systems (FAMAS 2007)*, LNAI 4160, pages 19–37. Durham University Press, 2007.
- [LTHC07] Emiliano Lorini, Nicolas Troquard, Andreas Herzig, and Cristiano Castelfranchi. Delegation and mental states. In E. H. Durfee and M. Yokoo, editors, *Proceedings of Sixth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS’07)*. ACM, 2007.
- [LTH05] Emiliano Lorini, Luca Tummolini, and Andreas Herzig. Establishing mutual beliefs by joint attention: Towards a formal model of public events (poster). In *Proceedings of CogSci05*, Stresa, 2005.
- [MGV<sup>+</sup>05] Claudio Masolo, Giancarlo Guizzardi, Laure Vieu, Emanuele Bottazzi, and Roberta Ferrario. Relational roles and qua-individuals. In Guido Boella, James Odell, Leendert van der Torre, and Harko Verhagen, editors, *Roles, an Interdisciplinary Perspective: Ontologies, Programming Languages, and Multiagent Systems. Papers from the AAAI Fall Symposium*, pages 103–112. AAAI Press, 2005.
- [MOS06a] MOSTRO. Deliverable 1, Organization and security modelling roadmap. Technical report, 2006.
- [MOS06b] MOSTRO. Deliverable 5, Methodologies for organization and security analysis. Technical report, 2006.

- [MOS06c] MOSTRO. Deliverable 7, Case study description. Technical report, 2006.
- [MOS07a] MOSTRO. Deliverable 3, Ontology of organizations and security (final version). Technical report, 2007.
- [MOS07b] MOSTRO. Deliverable 4, Security reasoning analysis and roadmap. Technical report, 2007.
- [MOS07c] MOSTRO. Deliverable 6, Whole methodology specification. Technical report, 2007.
- [MOS07d] MOSTRO. Deliverable 8, Methodology evaluation. Technical report, 2007.
- [MP05] Philippe Muller and Laurent Prévot. Grounding information in route explanation dialogues. In *5th Workshop on Language and Space*, Delmenhorst, 2005.
- [PMM05] Laurent Prévot, Nicolas Maudet, and Philippe Muller. Speech acts, discourse structure and public commitments. In *9th International Pragmatics Conference*, Riva del Garda, 2005.
- [PV05] Laurent Prévot and Laure Vieu. The moving right frontier. In Claudia Sassen, Anton Benz, and Peter Kühnlein, editors, *Constraints in Discourse*, pages 136–142, Dortmund, 2005.
- [SMP05] Marie Safarova, Philippe Muller, and Laurent Prévot. The discourse function of final rises in french dialogues. In *Ninth Workshop On The Semantics And Pragmatics Of Dialogue (DIALOR)*, Nancy, 2005.
- [TTV06a] Nicolas Troquard, Robert Trypuz, and Laure Vieu. Ontology of agency. From modal logics to first-order theories. In *Studia Logica International Conference - Towards Mathematical Philosophy - Trends in Logic IV*, Toruń, Poland, 2006.
- [TTV06b] Nicolas Troquard, Robert Trypuz, and Laure Vieu. Towards an ontology of agency and action. From STIT to OntoSTIT+. In Brandon Bennett and Christiane Fellbaum, editors, *FOIS 2006*, pages 179–190, Amsterdam, 2006. IOS Press.
- [TLV07] Robert Trypuz, Emiliano Lorini, and Laure Vieu. Solving Bratman’s video game puzzle in two formalisms. In Xabier Arrazola and Jesus Mari Larrazabal, editors, *ILCLI International Workshop on Logic and Philosophy of Knowledge, Communication and Action (LogKCA-07)*, pages 411–426, Donostia, 2007. The University of the Basque Country Press.
- [TOV07] Robert Trypuz, Alessandro Oltramari, and Laure Vieu. Ontology of Actions and Mental Entities. In *Workshop on Concepts, Actions and Objects: Functional and Neural Perspectives (CAOs 2007)*, Poster session, Rovereto, 2007.
- [TV07] Robert Trypuz, and Laure Vieu. An Ontology of the Aspectual Classes of Actions. In Xabier Arrazola and Jesus Mari Larrazabal, editors, *ILCLI International Workshop on Logic and Philosophy of Knowledge, Communication and Action (LogKCA-07)*, pages 393–409, Donostia, 2007. The University of the Basque Country Press.

### 5.3 Additional joint publications, considering the secondary affiliation of some ILIKS members

Additional joint publications are co-authored by members from several partners, considering their main or secondary affiliation.

- [APV07] Nicholas Asher, Laurent Prévot, and Laure Vieu. Setting the Background in Discourse. In Laurent Roussarie, and, Christian Retoré, editors, *Journées Sémantique et Modélisation*, pages 3–4, Paris. 2007.
- [APV08] Nicholas Asher, Laurent Prévot, and Laure Vieu. Setting the Background in Discourse. *Discours(e)*, in press, 2008.
- [AV05] Nicholas Asher and Laure Vieu. Subordinating and coordinating discourse relations. *Lingua*, 115(4):591–610, 2005.
- [BaHT07] Philippe Balbiani, Andreas Herzig, and Nicolas Troquard. Alternative axiomatics and complexity of deliberative STIT theories. *Journal of Philosophical Logic*, in press, 2008.
- [BHT05] Jan Broersen, Andreas Herzig, and Nicolas Troquard. From Coalition Logic to STIT. In Wiebe van der Hoek, Alessio Lomuscio, Erik de Vink, and Mike Wooldridge, editors, *Int. Workshop on Logic and Communication in Multiagent Systems (LCMAS 2005)*, Electronic Notes in Theoretical Computer Science. Elsevier, 2005.
- [BHT06a] Jan Broersen, Andreas Herzig, and Nicolas Troquard. Embedding Alternating-time Temporal Logic in strategic STIT logic of agency. *Journal of Logic and Computation*, 16(5):559–578, 2006.
- [BHT06b] Jan Broersen, Andreas Herzig, and Nicolas Troquard. A STIT-extension of ATL, with applications in the epistemic and deontic domains. In Michael Fisher and Wiebe van der Hoek, editors, *Proc. 10th Eur. Conf. on Logics in Artificial Intelligence (JELIA06)*, LNAI 4160. Springer-Verlag, 2006.
- [BHT07] Jan Broersen, Andreas Herzig, and Nicolas Troquard. A Normal Simulation of Coalition Logic and an Epistemic Extension. In Dov Samet, editor, *Proceedings of the eleventh conference Theoretical Aspects of Rationality and Knowledge (TARK)*, pages 92–101. Presses universitaires de Louvain, 2007.
- [HT06] Andreas Herzig and Nicolas Troquard. Knowing how to play: Uniform choices in logics of agency. In Gerhard Weiss and Peter Stone, editors, *5th International Joint Conference on Autonomous Agents & Multi Agent Systems (AAMAS-06)*, pages 209–216. ACM Press, 2006.
- [TV06] Nicolas Troquard and Laure Vieu. Towards a logic of agency and actions with duration. In G. Brewka, S. Coradeschi, A. Perini, and P. Traverso, editors, *ECAI06 proceedings*, pages 775–776, Amsterdam, 2006. IOS Press.
- [VBAA05] Laure Vieu, Myriam Bras, Nicholas Asher, and Michel Aurnague. Locating adverbials in discourse. *Journal of French Language Studies*, 15(2):173–193, 2005.
- [VBLDA06] Laure Vieu, Myriam Bras, Anne Le Draoulec, and Nicholas Asher. Adverbiaux de localisation comme introducteurs de topiques de discours.

## 6 Projects

This section gathers current joint projects involving at least two of the three partners.

- **MOSTRO**: MOdelling Security and Trust Relationships within Organizations. Funded by the “Fondo provinciale per i progetti di ricerca” of the Provincia Autonoma of Trento, 2004-2007 (400 K€).  
The MOSTRO joint project has involved the three ILIKS partners: ISTC-LOA (Nicola Guarino, project leader), UNITN-DIT and IRIT-LILaC.  
*Aim*. The development of a well founded ontology and of a methodology (based on that ontology) for modelling organizations, with special emphasis to relationships among agents and to security considerations from very early phases of requirement analysis.
- **TOCAI.IT**: Tecnologie Orientate alla Conoscenza per Aggregazioni di Imprese in Internet. Funded by the program FIRB (Fondo per gli Investimenti della Ricerca di Base) of the Italian Ministero dell’Universit e della Ricerca, 2006-2009  
The TOCAI.IT project involves two ILIKS partners: ISTC-LOA and UNITN-DIT, among other, external, research units.  
*Aim*: The development of integrated knowledge-based methodologies for the analysis, specification, implementation and field evaluation of new enterprise organization models, in the perspective of internetworked enterprise.
- **ForTrust**: Social Trust Analysis and Formalization. French ANR call “Sécurité et informatique” (SETIN), 2006-2010.  
The ForTrust project involves two ILIKS partners: IRIT-LILaC (Andreas Herzig, project leader) and ISTC-IAMCI/T3, and another, external, research unit.  
*Aim*: To provide an in-depth logical formalization of the concept of trust together with the implementation of a reputation-based platform for the interaction between intelligent agents.

Additional relevant projects must be mentioned:

- The CNR/CNRS joint project on “Language, its formal properties and cognition: What can be learned from signed languages”, in which one ILIKS partner (ISTC-SLL) is involved (Coordinators: E. Pizzuto, ISTC-CNR and C. Cuxac, CNRS UMR 7023 & Univ. Paris 8, St.Denis), 2004-2007.
- The French ANR project on “Annotation discursive : corpus de référence pour le français et outils d’aide à l’annotation et à l’exploitation (ANN-

ODIS”), 2008-2010 (2007 call on “Corpus et outils pour la recherche en SHS”), which involves one ILIKS partner, IRIT, and one multi-affiliated member, Laure Vieu.

## 7 Other joint activities

- ESSLLI course “Formal Ontology for Semanticists”, Edinburgh, August 2005, 5 x 1h30. Co-lecturers: Nicola Guarino, Laure Vieu, Stefano Borgo (ISTC-LOA and IRIT-LILaC).
- ESF workshop on “Understanding the Dynamics of Knowledge: Integrating Models of Knowledge Change, Development and Evolution in Cognitive Science, Epistemology, Philosophy, Artificial Intelligence, Logic, and Developmental and Evolutionary Psychology”, Siena, 17-19 November 2005. Organized by Cristiano Castelfranchi and Fabio Paglieri (ISTC-IAMCI/T3), with the participation of Andreas Herzig, Henri Prade and Leila Amgoud (IRIT-LILaC/RPDMP).
- Nicholas Asher’s (IRIT-LILaC) lectures on “Ontology and Language”, Verona, June - July 2006. Presentation of a theory of predication and lexical meaning based on lexical types. Organized by the University of Verona with the support of ILIKS.
- ESSLLI workshop on “Formal Ontologies for Communicating Agents”, Malaga, July-August 2006. Organized by Nicola Guarino, Roberta Ferrario and Laurent Prévot (ISTC-LOA), participation of members from the three ILIKS partners to the Program Committee.
- The “Senso Comune” initiative counts ISTC-LOA among its founding members, and possibly all partners among its contributors. This initiative (<http://www.senso-comune.it/>), which is both an open project and an association, aims at the cooperative construction of an open knowledge base on the Italian language.
- Although IRIT and ISTC were founding members of the “Logical Modelling in Interaction, Communication, Cognition and Computation” (LogiCCC) program of the ESF “EUROCORES” initiative (March 2007), the Italian CNR didn’t fund it so ILIKS could not apply in the end.

## 8 Perspectives

The annual meetings serve to identify common research lines for the near future.

The very fruitful common research on action, intentions and social relationships will certainly be further pursued.

Among hot topics common to all lines of research which have emerged recently, we find emotion (increasingly mixed with rational attitudes both in modelling agents and in modelling communicative interaction) and dy-

namics (of norms and organizations, of meaning and ontologies). We plan to dedicate exploratory workshops to them.

The relationships between texts, lexicon and ontologies and the relative methodologies, is not so novel a topic since all partners have been working and exchanging on it for a long time, but it seems now mature for convergence and in fact, several projects are under elaboration or have already been submitted.

More generally, we of course discuss all opportunities to set up joint future projects. Unfortunately, the LogiCCC program of the ESF Eurocores initiative which was identified as a major venue ended up impossible since the CNR didn't get involved. The new calls of the FP7 are now being considered.

Lastly, the possibility to publish an "ILIKS" special issue of a journal or even some collective work is being worked upon.

# Annex 1 - Program of the Inaugural meeting 26-27 Sept. 2005

## ILIKS Inaugural Meeting Polo Tecnologico, Via Solteri 38, Trento

### **Monday 26th**

10:30 *Welcome with coffee*

11:00 - 12:15 Inauguration addresses

- Davide Bassi, Rector, University of Trento
- Michele Nulli, Head of the Office for University and Scientific Research, Provincia Autonoma di Trento
- Luis Fariñas del Cerro, Director-Ajunct of the Department "Sciences et Technologies de l'Information et de la Communication" (STIC) of the French CNRS, Appointed to the International and European Affairs; Head of IRIT
- Nicola Guarino, Head of ISTC-CNR's Laboratory for Applied Ontology
- Fausto Giunchiglia, Head of DIT-UNITN
- Franco Fraccaroli, Head of DISCOF-UNITN
- Luca Erzegovesi, Head of DISA-UNITN

12:15 - 12:30 Presentation of ILIKS's Research Program

Laure Vieu, IRIT-CNRS and ISTC-CNR, ILIKS coordinator

*Lunch*

14:00 - 16:00 The Mental Bases of Interaction

- 14:00 Alessandro Oltramari, LOA - ISTC & DISCOF – UNITN, "Towards ACKIRA: Affective and Cognitive Knowledge-base for Interaction Resources in Agent technologies"
- 14:40 Emiliano Lorini, LABSS – ISTC, "Atoms of Action: for a formal theory of Intention and Attempt"
- 15:20 Andreas Herzig, LILaC – IRIT, "A logical framework for grounding-based dialogue analysis"

*Coffee break*

16:30 - 18:30 Organizations

- 16:30 Roberta Ferrario, LOA – ISTC, "A path to an ontology of organizations"
- 17:10 Matteo Bonifacio, DISA – UNITN, "Semantic conflict in organizations"
- 17:50 Fabio Massacci, DIT – UNITN, "A modelling framework for security"

20:00 *Social Dinner*

### **Tuesday 27th**

9:00 - 10:20 Action in Multi-Agent Systems

- 9:00 Jérôme Lang, RPDMP – IRIT, "Action progression and revision in multiagent belief structures"
- 9:40 Stefano Borgo, LOA – ISTC, "Modal operators with adaptable semantics for multi-agent systems"

*Coffee break*

11:00 - 12:20 Communication Content

- 11:00 Nathalie Aussenac, CSC – IRIT, "From texts to ontologies and back to texts"
- 11:40 Paolo Bouquet, DIT – UNITN, "Semantic coordination"

*Lunch*

14:00 - 16:00 Plans, Planning & Verification

- 14:00 Carola Catenacci, LOA – ISTC, "DDPO: an ontology for plans and tasks"
- 14:40 Martin Strecker, Acadie – IRIT, "Architecture description languages - Expressions and semantics"
- 15:20 Paolo Traverso, ITC-IRST, "Planning for the Automated Composition of Web Services: Results and New Challenges"

*Coffee break*

16:30 - 18:00 ILIKS Organization matters

- Extending ILIKS to ITC-IRST
- ILIKS Directing Committee
- Organizing the research activities

## Annex 2 - Program of the Annual meeting 30 Nov-1 Dec 2006

ILIKS Annual Meeting  
Centro Panorama, Sardinia, Trento

### Thursday Nov 30

14:00 Opening

14:15 (Area 4) Interaction and Communication (chairs: Massimo Poesio, Laure Vieu)

Summary of the work done

Sample joint work: *Signed Languages, Verbal languages, Coverbal Gestures: Analysis and Representation*, presented by Carola Catenacci (joint work with Elena Pizzuto, Brigitte Garcia and Patrice Dalle)

Discussion

15:30 Coffee break

16:00 Johan van Benthem, *Logic in Games: the rationality in interaction*, invited talk

17:00 (Area 1) Agents and mental attitudes (Chairs: Andreas Herzig, Alessandro Oltramari)

Summary of the work done

Sample joint work: *Action, attempt, and intention*, presented by Andreas Herzig (joint work with Emiliano Lorini and Cristiano Castelfranchi)

Position talk by Fabio Paglieri, *The Role of Beliefs in Goal Dynamics: Prolegomena to a Constructive Theory of Intentions*

Discussion

19:00 End of session

20:00 Social Dinner, Maso Bergamini, Cognola

### Friday Dec 1

9:00 Achille Varzi, *Actions and Action Talk*, invited talk

10:00 Coffee break

10:30 (Area 3) Actions and Plans (Chair: Jerome Lang)

Summary of the work done

Sample joint work: *Action and Agency*, presented by Robert Trypuz (joint work with Nicolas Troquard and Laure Vieu)

*Panel* (Achille Varzi, Johan van Benthem, Stefano Borgo, Andreas Herzig, Jérôme Lang, Giovanni Pezzulo, Laure Vieu) and Discussion

12:45 Lunch (buffet at the Centro Panorama)

14:00 (Area 2) Social relationships and organizations (Chairs: Claudio Masolo and Emanuele Bottazzi)

Summary of the work done

Sample joint work: *Delegation and Mental States*, presented by Nicolas Troquard (joint work with Emiliano Lorini, Andreas Herzig and Cristiano Castelfranchi)

Discussion

15:25 Coffee break

15:55 (Area 5) Lexicon, ontologies, semantic interoperability and information extraction (Chair: Nathalie Aussenac-Gilles)

Summary of the work done

Sample joint work: *Bootstrapping semantics on the Web: meaning elicitation from schemas*, presented by Paolo Bouquet (joint work with Luciano Serafini and Stefano Zanobini)

Position talk by Alessandro Oltramari, *LexiPass methodology: a conceptual path from frames to senses and back*

Position talk by Nicola Guarino, *The "Senso Comune" initiative*

Discussion

17:40 General Discussion - Towards next year's programme

18:15 End of public meeting

Evening: ILIKS Directive Committee meeting

## **Annex 3 - Program of the Annual meeting 20-21 Dec 2007**

### **Interdisciplinary Laboratory on Interactive Knowledge Systems (ILIKS) 2007 Annual Meeting**

Aula 21-20, Università di Trento, Facoltà di Scienze, Via Sommarive 14, Povo, Trento

#### **Thursday December 20th, Aula 21**

10:00 Luc Schneider, Université de Genève, "The Logic of the Ontological Square", Invited Talk

11:00 Coffee break

11:30 "Social relationships and organizations" session (chairs: Claudio Masolo, Emanuele Bottazzi)

Emiliano Lorini, IRIT & ISTC, "Group acceptance and the "counts as" relation"

Emanuele Bottazzi & Roberta Ferrario, ISTC, "Singular and Plural stances in Collective Intentionality"

12:50 Lunch (mensa at IRST)

14:30 Antony Galton, University of Exeter, "On some problems in the individuation of processes", Invited Talk

15:30 Coffee break

16:00 "Actions and plans" session (chair: Emiliano Lorini)

Beth Huffer, Microsoft Research Redmond, "Plans and Scripts in Ontology Systems", Invited Talk

Emiliano Lorini & Andreas Herzig, IRIT, "Action and agency"

17:40 ILIKS organization matters

18:40 End of session

20:00 Social Dinner ("Ai Due Mori", Trento)

#### **Friday December 21st, Aula 20**

9:30 "Lexicon, ontologies, semantic interoperability and information extraction" session – part1 (chair: Nathalie Aussenac-Gilles)

Nathalie Aussenac-Gilles, IRIT, "An OWL meta-model for term representation in ontologies"

Aldo Gangemi, ISTC, "A rope bridge crossing social, linguistic and formal semantics"

10:50 Coffee break

11:20 "Lexicon, ontologies, semantic interoperability and information extraction" session – part2 (chair: Nathalie Aussenac-Gilles)

Alessandro Oltramari, ISTC, "Wiki-base construction of Ontolex resources: the project Senso Comune"

Paolo Bouquet, UNITN, "Managing identity and reference on the Semantic Web: a key issue for linking and integrating Semantic Web data"

12:40 Lunch (mensa at IRST)

14:30 Chris Welty, IBM Watson Research Center, "Kinds of rigidity", Invited Talk

15:30 Coffee break

16:00 "Interaction and communication" session (chairs: Laure Vieu, Massimo Poesio)

Francesca Delogu, UNITN, "Intensionality in sentence processing and anaphora resolution"

Laure Vieu, IRIT & ISTC, "Discourse relation semantics and intentions"

Massimo Poesio, UNITN, "Completions in dialogue"

18:00 End of meeting