



UNIVERSITY OF AMSTERDAM

Institute for Logic, Language and Computation Annual Report 2007

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1. Annual Survey

1.1 Scientific mission

The Institute for Logic, Language and Computation (ILLC) of the Universiteit van Amsterdam is an interdisciplinary research institute, in which researchers from the Faculty of Science and the Faculty of Humanities co-operate. Its scientific mission is to study formal properties of information, viz., the logical structure and algorithmic properties of processes of encoding, transmitting and comprehending information. Emphasis is on natural and formal languages, but other information carriers, such as images and music, are studied as well. Research at ILLC is interdisciplinary, and aims at bringing together insights from various disciplines concerned with information and information processing, such as logic, computer science, linguistics, cognitive science, artificial intelligence and philosophy. The resulting view of information science transcends the boundaries of the university. ILLC is also committed to dissemination of its results into the broader world of general education, vocational training and industrial research. Moreover, ILLC strives to build strong alliances with institutes which share this view.

1.2 Research and Funding

ILLC's research is concentrated in three core programmes.

1. *Logic & Computation*. (Project leader: Jouko Väänänen, Deputy: Leen Torenvliet.)
2. *Logic & Language*. (Project leader: Jeroen Groenendijk, Deputy: Paul Dekker.)
3. *Language & Computation*. (Project leader: Remko Scha, Deputy: Khalil Sima'an.)

The programmes serve as the main logistic unities in the institute. For each of them, a description, a

report of the developments in 2007, and a sketch of the plan for 2008 can be found in the next three chapters.

All three programmes contribute to ILLC's two research spearheads: *Cognitive modelling, and Logic and Games*.

Logic and Games

In the past decade it has become increasingly clear that studying information, first and foremost, means studying information *exchange*. This acknowledgement of the inherently 'social' character of information shows up at many places in modern theory. Most strikingly, it has led to crucial contacts between logic and game theory, bringing an entirely new set of disciplines into the scope of logic: viz., economics, and the social sciences. One particular area where interaction is crucial to intelligent behaviour is natural language. Here in the past decade, pragmatics, the study of the actual use of language between different agents, has become the primary focus of research rather than syntax or semantics. After all, it is the communicative situation that determines how syntactic and semantic conventions can arise and remain stable over time. Notions from game theory, in particular evolutionary game theory, are being used today to chart and explain these phenomena.

Cognitive Modelling

While much of ILLC's research is abstract and normative, far removed from everyday practice, there is the reality of human performance. Nowadays disciplines such as neurophysiology and cognitive psychology are increasingly concerned with information processing and make great progress in unravelling the underlying psychophysical mechanisms. These results are of immediate

relevance to logic in the broad sense it is conceived of within ILLC. Conversely, insights from logic turn out to be important for cognitive and neurosciences, providing high-level models for cognitive functions, and leading to new questions and insights that suggest new experimentation at the level of brain processes.

Also in the computational work done at ILLC there has been a cognitive turn. In the fields of computational linguistics, for example, the focus is on the development of computational models of human information processing. The methods used build on formal theories of linguistic syntax and logical semantics, but extend these with a variety of more performance-oriented techniques, such as probabilistic grammars and computational models of human Gestalt perception. The aim is to develop algorithms that are cognitively plausible as well as practically useful. Both are attainable by developing algorithms that model the learning process and that learn fast.

Together with the Amsterdam Center for Language and Communication (ACLC), ILLC has proposed the theme of *Cognitive Modelling and Learning* as one of the focus points for research in the Faculty of Humanities for the next four years. The work on cognitive modelling described above would be ILLC's contribution to this.

The total amount of research time available in ILLC for senior staff (ud, uhd and hl) directly funded by the UvA is about 10 fte. The number of PhD students paid directly by the UvA is about the same. The research time funded by NWO and the EU is about 15 fte for staff (mostly researchers at postdoc level) and 30 fte for PhD students. That is about the maximum one can expect from an institute with a senior staff of 10 fte.

ILLC's share in NWO's *Innovation Impulse* is considerable: in 2007 the institute hosted two VICI projects, five VIDI projects and two VENI projects. Add to this one Mosaic grant, one Rubicon grant, and six programmes in NWO's open competition, and it will be clear that as far as NWO is concerned ILLC's target for the next few years is to keep funding at the level it is now.

As for funding by the European Community, there is room for improvement. In 2007 ILLC got some funding in the Marie Curie Programme and in the

Sixth Research Framework Programme (all in all 10 fte). In 2008 the ESF Eurocores theme LogiCCC will bring us four more fte. The Seventh Framework (FP7), however, offers better chances than the sixth in particular in the field of computational modelling. It could also be profitable to apply for another Eurocores theme in the field of 'computational learning'.

1.3 Teaching and PhD training

As an interdisciplinary institute, ILLC participates in a great number of teaching programmes. In 2007 courses were given in the Beta-Gamma bachelor, the master of Rhetoric, Argumentation & Philosophy, the master of Cognitive Science and the bachelor and master tracks of Philosophy, Computer science, Artificial Intelligence, Linguistics, and Mathematics. Still, the main thrust of our teaching activities centres on the Master of Logic, a two year international research master. The wide range of courses in logic and its applications offered in this programme attracts many students from all over the world. Currently, there are about 60 active students coming from about 20 different countries. The success rate is 80%. About 75 % of the graduates took up a PhD position, either at ILLC or elsewhere. The percentage of Master Theses that lead to a scientific publication is 35%. In 2007 an international committee performed an assessment of the Master of Logic. The aim of the assessment was to verify the quality of the programme with regard to the accreditation framework of the Accreditation Organisation of the Netherlands and Flanders (NVAO). The NVAO has verified that the programme is in accordance with the subjects and facets of the accreditation framework. Apart from this accordance, the NVAO has awarded the programme four excellent ratings, for the quality of the teaching programme, the quality of the teaching staff, for the student support and guidance, and for the level that has been achieved.

The one threat to the success of this Master arises from the relocation of the faculty of Science in the Watergraafsmeer. In view of the fact that an important part of the programme also plays a role in the Research Master of Philosophy and is presently taught in the centre of Amsterdam, a number of serious logistic problems will have to be solved. The PhD training of ILLC takes place at a national level in collaboration with the *Dutch Graduate School in Logic* (OZSL). Internationally, ILLC is

very active in the European Foundation for Logic, Language and Information (FoLLI). Each year FoLLI organizes the European Summer School on Logic, Language and Information (ESSLLI). All PhD students at ILLC are supposed to attend this summer school.

Most of the PhD students in ILLC are employed on a project externally funded by NWO or the European Union. About 15 PhD candidates from abroad bring their own funding, usually in the form of an individual grant from their government. Within the Faculty of Science, the director of ILLC can allocate positions for PhD students to research programmes. The budget does not allow to do this on a regular basis. Within the Faculty of Humanities, the Faculty awards a number of PhD positions each year to the research institutes. For ILLC the average is one position per year.

It is the policy of ILLC to treat these different categories of PhD students equally. The regulations are such that it is not easier to get in for students that bring their own money than for students who apply for a paid PhD position. All PhD students have only limited time to find a promotor and to develop a training and supervision plan. This plan is renewed once every year in the progress interviews that take place between the student and supervisors. Apart from this, the progress of the PhD-projects is reviewed once a year by the *Promotion Progress Committee* which is appointed by the scientific director of ILLC. This committee, which consists of junior staff members, evaluates not only the progress of the student but also the quality of the supervision, and suggests solutions if there are any problems between the supervisor(s) and student. Since 2001 only three PhD students left ILLC without a doctor degree. Very few PhD students finished their work within the official time frame of four years, but the average of 56 months between starting date and exam date is quite good in the Dutch context.

It is not yet clear how these figures will change due to the fact that in the Faculty of Humanities the available time for a PhD project has been reduced to three years. The mere fact that the Faculty of Science and the Faculty of Humanities maintain different standards creates a major problem for the institute as it is impossible to apply the same criteria to dissertations written on a three year track and dissertations written on a four year track.

1.4 Administration

A remark that has been made a number of times in ILLC's annual reports concerns its awkward position in the university's administrative structure. Being part of two faculties, with two different types of financial organization, human resources management, employment regulations, and so on, creates a complicated and time-consuming environment. That this situation needs to be remedied, was also noted by the Research Evaluation Committee in 2006, that reported as follows about a number of threats that may weaken the institute:

‘...These concern problems created by the financial structure and in particular those concerning teaching credit, the plan to abolish the chair in computational linguistics, and the implications for a cross-faculty institute of the move of the science faculty to a satellite campus. The problem with the chair in computational linguistics is in part a consequence of the first problem, since the problem stems from allocation of teaching resource credit across departmental/faculty boundaries. A solution might therefore be sought in terms of more explicit transfer of teaching income. If that is impossible, then the central role that computational linguistics plays in the Institute, both in terms of linkage to contiguous departments and in terms of its contribution to the empirical and probabilistic modelling elements of its research skills, suggests to this committee that a solution must be found elsewhere, either in terms of the Science wing of ILLC taking on the responsibility for an activity it already benefits from by providing a position, or by consciousness-raising on the Humanities side, since computational linguistics seems to this committee to be a vital component of a modern linguistic education. The problem posed by the proposed Science campus varies by programme. The strongest threat is to the groups in the Humanities. There is also a danger that moving ILLC to join Informatics will cause it to split, destroying its unique interdisciplinary culture, and with it much of its value to UvA. The optimal solution would appear to be to locate Informatics and the entire ILLC at some location more accessible to the concerned Humanities departments, perhaps at Plantage Muidersgracht.’

However, locating the entire ILLC at the Plantage Muidersgracht turned out unfeasible. The University decided to locate all interdisciplinary

activities - and ILLC is one of these - in Science Park in Watergraafsmeer. The Faculty of Science and the Faculty of Humanities agreed that the entire ILLC will be housed in the new building in Science Park and that for ILLC members with teaching duties in the centre of Amsterdam *a pied à terre* will be created in the Philosophy Department at the Binnengasthuisterrein.

The two faculties also agreed to clean up the opaque relations at the level of personnel - some members of staff having two part time jobs, one in each faculty, some others with a job in one faculty but mainly working in the other, and so on. The plan is to create a situation in which it is possible to develop a transparent system for the allocation of teaching resource credit. The matter will be settled in 2008.

2. Research

2.1 Language and computation

Programme leaders

Remko Scha
Khalil Sima'an (deputy)

Research area

This project develops computational models of human information processing, especially natural language processing and music perception. The project builds on formal theories of linguistic syntax and logical semantics, but extends these with a variety of more performance-oriented techniques, such as probabilistic grammars and optimality theory. The project aims at computational models which are cognitively plausible as well as practically useful.

An important focus is the further development of corpus-based processing methods for natural language, building on the 'Data-Oriented Parsing' model that we developed over the last fifteen years. Blind tests on annotated corpora have shown that this model is very successful in computing syntactic surface structures. Our current research in this area is increasingly involved with grammar induction and first language acquisition. We also pursue practical applications, such as Statistical Machine Translation.

Another important application area is information storage and retrieval. Here we investigate system-centred as well as user-centred approaches, in ways that contribute to our understanding of the cultural and societal context of information access. We concentrate on innovative techniques which exploit textual information in combination with additional data, such as document structure, Web-link structure, and other metadata.

In cooperation with the project 'Logic and Language', we develop models of linguistic processes at the level of pragmatics and discourse. Here we employ the framework of 'Optimality Theory' to articulate fairly complex models as hierarchies of competing constraints.

Our research on music cognition focuses on an aspect of music which is fundamental but ill-understood: the perception of the temporal aspects of music, such as rhythm, tempo and timing. We develop computational models which implement mathematically articulated theories, and which are validated through psychological experiments with human listeners. The models we develop here can be applied in algorithms for automatic transcription, automatic accompaniment and music generation.

Language research and music research deal with significantly different domains; they cannot be expected to use exactly the same concepts, tools, and techniques. But language and music do have important features in common: both are sign systems evolved in human society, which rely on the human ability to perceive complex hierarchical structures in linear sequences. We believe it is useful, therefore, to explore these two domains jointly. Some convergence can be observed already.

Developments in 2007

Probabilistic Language Processing

An important strand of our work has been involved with bridging the apparent gap between our statistical computational models and the concerns of traditional linguistic theory. Work on the integration of syntax and morphology in Modern Hebrew and Arabic demonstrated that the probabilistic parsing approach can be extended to morphologically rich languages. New models for Data-Oriented Parsing were

developed, which try to find the productive units employed by natural language users. This results in more parsimonious models which bear some resemblance to linguistically motivated ‘construction grammars’.

The cognitive process of language acquisition has become a new focal point in our research. We have thus been increasingly involved with empirical studies of child language corpora, and with various models of unsupervised grammar induction.

In Statistical Machine Translation (the most promising practical application of our approach), a major breakthrough was achieved. While all existing statistical translation algorithms worked on the basis of carefully aligned bilingual corpora, we have now shown how statistical translation models may be trained on unrelated monolingual corpora of the relevant languages.

Our exemplar-based approach to natural-language syntax remains a source of inspiration for computational models of other cognitive modalities. One instance is scientific reasoning: we developed an exemplar-based problem-solving algorithm for Fluid Dynamics, using a corpus of proof trees obtained from textbooks.

The probabilistic formal grammar approach is also applied in the development of image analysis algorithms in collaboration with the UvA Computer Science Institute.

Discourse and Optimality Theory

Continuing earlier research the main concern in 2007 was to investigate the role of bidirectional optimization as a cognitive realistic mechanism of language comprehension/generation. The final aim is to come to a simple and implementable system for interpreting natural language using OT syntax, plausibility estimation, and relevance maximisation. Results in 2007 include work on rhetorical structure, connectives, and robust semantic parsing. We demonstrated how optimality-theoretic pragmatics overcomes the gap between experimental pragmatics and neo-Gricean pragmatic theory.

Information Storage and Retrieval

In 2007 we investigated the use of document structure to provide more direct access to information. In particular, we analyzed the link structure in Wikipedia, and developed methods for automatic link detection. In the context of large-scale Web-based retrieval tasks, we studied the use of explicit feedback, and developed language models that take topical feedback into account.

We also studied domain-specific retrieval, focusing on cultural heritage descriptions, historic document retrieval, and legal information. Main results in 2007 were the development of domain-specific test collections based on transaction log data, and the development of score normalization methods for information fusion.

Music Cognition

We concluded a methodological study concerning the ‘cognitive turn’ which took place in the development of music research during the last few decades: the shift from music as an art object to music as a process in which the performer, the listener, and music as sound all play an equal role.

We continued our research on computational models of music cognition, exploring the hypothesis that perception is an active process, which involves making predictions. This conjecture was confirmed conclusively in our studies of the effect of syncopation and metrical hierarchy in the perceived rhythmic complexity of music.

In cooperation with biologists at Leiden University, we initiated a project which employs the conceptual tools of formal language theory to study the structure of bird song.

Perspectives and expectations

We expect major progress in the development of models for first language acquisition, as complementary insights and techniques from empirical studies, Data-Oriented parsing, and grammar induction will be integrated.

A similar integrative effort will be undertaken in the area of Machine Translation where ideas from

different approaches with complementary strengths should be combined: transfer-based MT, statistical MT, example-based translation, and Data-Oriented Translation.

In music cognition, we intend to move from empirical investigations towards computational models. In doing this, parallels with exemplar-based models of language cognition will be explored. In collaboration with the Information Retrieval researchers, work on Music retrieval will be initiated.

A monograph on optimality-theoretic pragmatics will be completed in 2008.

An emerging topic is the relation between our symbolic models and their connectionist implementations. This applies to the probabilistic models as well as to the optimality-theoretic ones.

Internal and external cooperation

- Probabilistic Language Processing: St. Andrews University, Scotland.
- Linguistics and Bird Song: Leiden University.
- Language Acquisition: UiL OTS (Utrecht University).
- Statistical Machine Translation: Dublin City University, Pittsburgh University.
- Corpora and Parsing for Modern Hebrew and Arabic: Technion (Haifa).
- Image Parsing: Computer Science Institute, UvA.
- Discourse and Optimality Theory: Radboud Universiteit Nijmegen, Rijksuniversiteit Groningen, Potsdam University (Germany), Stuttgart University (Germany).
- Information Retrieval: Computer Science Institute, UvA.
- Music Cognition: ICI (Radboud Universiteit Nijmegen), Centre for Theoretical and Computational Neuroscience (University of Plymouth), Fundació Barcelona Media (Universitat Pompeu Fabra), Institute for Psychology (Hungarian Academy of Sciences).

External validation and outreach activities

Publicly released software:

- MorphTagger (A segmenter and POS-tagger for Modern Hebrew and Modern Standard Arabic). www.cs.technion.ac.il/~barhaim/MorphTagger/

- AmbLex (Bi-directional Estimation for Noisy-Channel Models)/ <http://staff.science.uva.nl/~mmylonak/software.html>

Popularizing publications:

Honing, H. (2007). Noten of letters. De taal van de muziek en het plezier van het luisteren. *Academische Boekengids*, 6(3), 6-7.

Prizes and Awards

Honingh, A.K.

- *Vice-President Elect of the European Society for the Cognitive Sciences of Music (ESCOM).*

Mylonakis, M. (2007).

- Best Paper Award 19th Belgian-Dutch Conference on Artificial Intelligence (BNAIC 2007).

Professional distinctions, memberships of scientific boards, etc.

Bod, L.W.M.

- Member of the Program Committee for Conference on Empirical Methods in Natural Language Processing (EMNLP 2007).
- Member of the Engineering and Physical Sciences Research Council Peer Review College.

Sima'an, K.

- Member of the Program Committee for the 11th Conference on Theoretical and Methodological Issues in Machine Translation (TMI-2007)
- Member of the Program Committee for Annual Meeting of the Association for Computational Linguistics (ACL-2007)
- Member of the Program Committee for International Conference on Parsing Technologies (IWPT 2007)
- Member of the Program Committee for Empirical Methods in NLP / Computational Natural Language Learning (EMNLP/CoNLL 2007)
- Member of the Program Committee for Computational Approaches to Semitic Languages: Common Issues and Resources (ACL-2007 workshop)
- Member of the Program Committee for Belgian-Dutch Benelearn 2007 Conference
- Member of the Program Committee for Belgian-Netherlands AI Conference (BNAIC 2007)

Editorial positions

Honing, H.J.

- Empirical Musicological Review.
- Journal of New Music Research.
- Music Perception.

Sima'an, K.

- European chapter of the ACL (EACL'06).
- Journal of Computational Linguistics.
- Journal of Science of Computer Programming.

Zeevat, H.

- Journal of Semantics

Researchers and other personnel LaCo 2007

Research input 2007 in FTE		Funding				Grand Total
Position	Name	UvA	NWO	EU	Other	
Full professor	Scha, R.J.H.	0.40				0.40
Full professor Total		0.40				0.40
Associate professor	Bod, R.		0.37			0.37
	Zeevat, H.W.	0.40				0.40
Associate professor Total		0.40	0.37			0.77
Assistant professor	Blutner, K.R.	0.45				0.45
	Bod, R.	0.03				0.03
	Honing, H.J.		0.53	0.01		0.54
	Kamps, J.	0.40				0.40
	Sima'an, K.		0.50			0.50
Assistant professor Total		0.88	1.03	0.01		1.92
Postdoc	Arampatzis, A.		1.00			1.00
	Frank, S.L.		0.15			0.15
	Seginer, Y.		0.04			0.04
	Smith, L.M.			1.00		1.00
	Zuidema, W.H.		0.86			0.86
Postdoc Total			2.05	1.00		3.05
PhD student	Borensztajn, G.		0.67			0.67
	Fachry, K.N.		0.29			0.29
	Kaptein, A.M.		1.00			1.00
	Koolen, M.H.A.		1.00			1.00
	Ladinig, O.			1.00		1.00
	Mylonakis, M.		0.56			0.56
	Perquin, A.				0.40	0.40
	Tsarfaty, R.		0.75			0.75
	Zhang, J.		0.38			0.38
PhD student Total			4.65	1.00	0.40	6.05
Grand Total		1.68	8.10	2.01	0.40	12.19

2.2 Logic and Computation

Programme leaders

Jouko Väänänen
Leen Torenvliet (deputy)

Research area

A long-standing characteristic of research in the area of Logic and Computation is the use of logical techniques to better understand a wide range of processes and behaviours involving computation. The unique combination of expertise in modal logic, model theory and complexity theory at ILLC is combined here to yield qualitatively new applications to computation. Research at ILLC has long emphasized update and transfer of information in language use and computation. Originally, this dynamic perspective was focused on update and learning by individuals. But the essential feature of many information-based activities is interaction between several agents, and accordingly, games have become a major paradigm for integration.

The sub-programme Games and Interaction is about developing interfaces between logic, computer science, and game theory, with a view toward creating an integrated multi-agent process theory based on modal and dynamic logics with mathematical depth and a wide range of applications. As for the latter, in addition to language and computation, our second aim is developing new interfaces with congenial areas in the socio-economic sciences (decision theory, social choice theory, welfare economics), along with topics such as negotiation, fair division, and general multi-agent resource allocation.

The next three sub-programmes provide mathematical foundations for these ambitions, while also adding key concerns of their own. This is particularly so for the sub-programme Algebra and Co-Algebra. A heightened sensitivity to the computational costs of information processing has turned modal logic into the most widely spread branch of logic. Modal logic lies at the fault line of algebra and co-algebra, and some basic connections are emerging today. Our main focus here is on: (1) representation of partially ordered algebras, modal canonicity and correspondence; (2) universal co-algebra as a general mathematical framework for the study of

behaviour; (3) modal fixpoint logics, the natural formalisms for reasoning about ongoing behaviour. While modal logic is largely concerned with expressive power, the other side of the coin is computational complexity of natural information-related tasks.

For the sub-programme Computation and Complexity the contribution of our CWI-members is crucial. Quantum Computing and Kolmogorov Complexity are still the key words here. In addition, the identification of structural properties that characterize complexity classes remains an ongoing theme. Also, in close cooperation with work on finite model theory in the sub-programme Sets and Models methods are developed for descriptive complexity analysis of data base queries, logic programs, and related topics in computer science. Wider applications range from graph theory to semantics of natural language. All the preceding themes presuppose an up-to-date understanding of the foundations of model theory and set theory, and hence they involve strong links to the foundations of mathematics. The sub-programme Sets and Models studies a number of mathematical themes, with games as a running thread. Topics include determinacy axioms, infinitary combinatorics, transfinite and multi-player games, generalized quantifiers, and abstract logics. One recent high-light are Turing machines for infinite computation, and their consequences for recursion theory and automata theory. While firmly grounded in mathematical logic, this sub-programme already has applications to natural language, descriptive complexity theory, and modal logic - and it is actively seeking new ones at ILLC, all the way to philosophy and cognition.

Developments in 2007

Games and Interaction

Research on temporal models for information update and belief revision continued in 2007 with the development of new merged systems in between dynamic-epistemic logic and epistemic temporal logic. Completeness and decidability were proved for the resulting 'logic of conversational protocols', presented at TARK 2007. Continuing the work on dynamic logics for belief revision, partly in collaboration with sabbatical visitors Baltag (Oxford) and Smets (Brussels), the group found a characterization

of the standard mechanism of ‘product update’ in terms of aggregation principles from social choice theory, thus linking up with the latter area as well as current research into ‘belief merge’. Three dissertations were completed summarizing three years of research into modal preference logics, and other themes in the analysis of rational agency. A systematic theory of preference structure, preference change, and preference merge was developed with many new connections to belief revision theory. Also an alternative constraint-based first-order approach was given. A formal theory of decision making with explicit intentions was developed, linking this to dynamic preference logics enriched with intention structure. A version of such preference logics which includes equality- (or dependence-) based ‘ceteris paribus’ preferences, linked to belief revision, was also developed. New proofs that propositional dynamic logic and the modal μ -calculus are closed under a natural new property of ‘product closure’, inspired by dynamic epistemic logic, were given. Members of the group continued their work on compact logic-based languages for representing preferences and have started to apply these techniques in the field of combinatorial auctions. The group has also continued its fruitful collaboration with the Université Paris-Dauphine and introduced and analyzed a new model for multi-agent resource allocation where the negotiating agents are nodes in a graph limiting possible exchanges of goods. The group developed a fault-tolerant platform for mechanism design that can deal with arbitrary network topologies and unknown number of players in absence of any centre authority. A prototype of this platform is implemented in Java. Further, the group finalized its work on a comparative study of various definitions of rationalizability and iterated elimination of strictly dominated strategies in strategic games with arbitrary number of strategies. In the case of finite strategic games the relative strength of four commonly used ways of iterated elimination of dominated strategies were compared. The group also provided an epistemic analysis of arbitrary strategic games that deals with common beliefs and common knowledge. An axiomatic presentation of the main results was given, incorporating into this analysis also iterated public announcements. Finally, the group studied sequential Groves mechanisms and identified in the

case of public project problems strategies that maximize social welfare.

The group was involved in organizing the Dagstuhl Seminar on Computational Issues in Social Choice in October 2007. A KNAW Academie-Colloquium titled ‘New perspectives on Games and Interaction’ was co-organized. The colloquium was followed by a Master Class

Algebra and Coalgebra

Scientifically, 2007 was the year that the VICI project ‘Algebra and Coalgebra’ picked up momentum. The group substantially increased its understanding of the properties of the coalgebraic modalities. Axiomatizations were obtained for the cover modality, and these were turned into Gentzen-style proof systems, some of these cut-free. Comparisons were made between two of the main formalisms of coalgebraic modal logic. In some cases translations were constructed. In the area of fixpoint logics, group members found a general and uniform axiomatization for fixpoint connectives. Also, an axiomatization result was obtained for the modal μ -calculus interpreted over finite trees. On the algebraic side of the project, research focused on the relation between various kinds of completions of lattice expansions. The group could prove that in some cases, the MacNeille completion coincides with the profinite completion. Research into the theory of Quantales brought out sufficient conditions for the representability of unital involutive quantales as quantales of relations. Comparisons between descriptive models and Kripke models revealed the topological connections between Vietoris bisimulations and ordinary ones.

Alessandra Palmigiano was awarded an NWO Vernieuwingsimpuls VENI project with her proposal ‘Dualities for Quantales - a spatial understanding of non-commutative topology’. Yde Venema co-authored the book ‘Finite model theory and its applications’, Springer, 2007. The group organized a workshop on Coalgebraic Modal Logic, and some of its members played a big role in the organization of two international conferences: the ‘International Conference on Order, Algebra and Logics’ (Nashville), and the Third International Conference on ‘Topological and Algebraic Methods in Non-Classical Logics’.

Computation and Complexity

With Ben Hescott and Steve Homer the group further investigated non-uniform reductions. We now have a substantial body of results. Part of this appeared in Ben Hescott's thesis (Boston University). The paper on this subject is to appear. Nicolaj Vereshchagin found new results concerning the sparse self-reducible sets and has joined as a co-author on the paper.

In cognitive sciences the group explained how 'Ideal learning' of natural language works. The new area of Individual communication complexity was studied. Together with R. Cilibrasi, the group adapted the compression-based universal similarity metric to obtain a relative semantic distance based on aggregate page-counts of search engines. This leads to automatic 'meaning' assessment of words and phrases. This is hugely successful, obtains citations very fast, and is used in many places including the new champion question-answer system.

Together with Pieter Adriaans the group analyzed the power and perils of MDL, a major method for model selection, both in theory and in practice. In cooperation with researchers from Cambridge and Toronto, the group studied the (Im)possibility of Quantum String Commitment. Together with researchers from Brussels, Cambridge and Copenhagen, the group started a project on the continuous variable translation of the quantum string commitment scheme, hopefully leading to an implementation. With researchers from Prague, Moscow, Cambridge and Israel, a 3-round two parties polynomial time protocol with communication length $2n$ outputting an n -bit string with Shannon entropy at least $3n/4 - O(1)$ provided at least one of the parties is honest (obeys the protocol) was constructed. The paper was accepted at RANDOM 2007. To enlarge the activities in computational biology, a project investigating the inherent error robustness of the genetic code was started. With Hitchcock, the group studied the density and instance complexity of NP complete and hard sets. They show that NP hard sets under a wide range of reductions, contain exponentially many hard instances unless $NP = co-NP$. The paper is accepted for CCC'08.

A Minisymposium quantum computing, Nederlands Mathematisch Congres, 12 and 13 April 2007, in Leiden was co-organized. The Dagstuhl workshop on Algebraic Methods in Computational Complexity, 7-12 October 2007, was co-organized.

Sets and Models

The group continued developing dependence logic, launched in the book with the same title (by Cambridge University Press, 2007) in new directions, such as modal logic. In cooperation with the Helsinki Logic Group the group solved the problem proposed by W. Hodges of characterizing team properties definable in dependence logic.

In cooperation with S. Shelah the group proved the independence from ZFC of two model theoretic conjectures of Keisler and Chang, assuming the consistency of strongly compact cardinals.

The work of the group, in co-operation with ten Cate from the Informatics Institute, on modal Lindström theorems and their potential for starting a new systematic abstract model theory for fragments of first-order logic was presented at LICS 2007.

A new abstract analysis of earlier characterizations of potential isomorphism was found, and extended to cover modal bisimulation. It was also shown that 'safety' for process operations, properly understood, can be reduced to standard invariance criteria in an abstract model theory setting.

The group was instrumental in establishing cooperation in set theory on the European level. This was concretely manifested by the first European Set Theory Workshop, where the group was involved in a major way.

Perspectives and expectations

In 2008 the VICI project 'Algebra and Coalgebra' will be in full swing, with a second post-doc to be hired. Palmigiano will start up her NWO VENI project on Dualities for Quantales. The Algebra and Coalgebra team will organize a workshop on Modal Fixpoint Logics, and edit a special issue of the Journal of Logic and Computation on 'Coalgebra and Logic'. Ulle Endriss has obtained an NWO Vernieuwingsimpuls VIDI award for his project 'Collective Decision Making in Combinatorial Domains' in 2007. The project, which started in January 2008 and will allow the group to hire one PhD student and one postdoctoral researcher, will further strengthen the group's standing in computational social choice.

The ILLC is heavily involved in the organization of ESSLLI 2008 in Hamburg. The event in Hamburg will be one of the major events in logic in 2008.

The group plays a central role in the new European

COST Action on Algorithmic Decision Theory launched in 2007. This networking project coordinates and funds interaction between researchers in artificial intelligence and decision analysis from 19 European countries.

The group has a strong presence in the final round of the Eurocores LogiCCC programme. Provided that the grants will be awarded, this topic will feature prominently in the programme of the group in 2008 and later.

Internal and external collaboration

Common threads inside the programme ‘Logic and Computation’ are the concepts such as game, modal logic, socio-economic interface, multi-agent systems, social software, semantics, descriptive complexity, and fixed point logic. Inside the ILLC the group has close ties with the two other programmes ‘Logic and Language’ and ‘Language and Computation’. The group has strong cooperation with CWI in the areas of computer science and game theory.

With Utrecht University the group has a joint seminar on Mathematical Logic. This seminar is revitalizing itself, with more and more foreign visitors. The international contacts of the group are excellent, with strong presence in both organizing and contributing to major international events in the area of logic and computation.

Members of the algebra and co-algebra group are very active in expanding their network. In 2007, active collaboration has been undertaken with researchers from the Institute for Informatics and CWI (Amsterdam), Radboud Universiteit (Nijmegen), London, Leicester and Oxford (UK), Barcelona (Spain), Marseille (France), Prague (Czech Republic), Helsinki (Finland), and Las Cruces (USA).

The Computation and Complexity group has internal collaborations with P. Adriaans (UvA), P. Grünwald (CWI), and oio’s. External collaborations: Homer and Hescott (B.U.), M. Li (Univ. Waterloo, Canada), N.K. Vereshchagin (Moscow State Univ., Russia), N. Chater (Univ. of London, UK).

In 2007, the German ‘Gesellschaft für Philosophie des Mittelalters und der Renaissance’ started a new subdivision on logic and semantics. This was marked by an international workshop in Bonn,

co-organized by two members of the group. The workshop was widely praised as the best venue to meet researchers in medieval logic.

The group started a new joint project (funded by the DFG and the NWO in their bilateral programme) connecting the ILLC and the University of Bonn. Their project deals with infinitary combinatorics without the axiom of choice and can be understood as the continuation of the old project ‘Determinacy and infinitary combinatorics’.

The project PhiMSAMP (Philosophy of Mathematics: Sociological Aspects and Mathematical Practice) is bearing its first fruits. Together with Thomas Müller and Eva Wilhelmus, the first empirical results of investigations of mathematicians are being evaluated and prepared for publication.

External validation plus outreach activities

Paul Vitányi received a Knighthood (Ridder in de Orde van de Nederlandse Leeuw) for excellent scientific work. A 3/4 page article in NRC W&O katern about Vitányi and his scientific work, ‘Meesterlijk Complex’, by B. Mols, NRC September 8, 2007, W&O p. 47.

Yurii Khomskii, an MSc Logic graduate, won a Mozaïek award for his research project ‘Making guesswork precise’ under the supervision of Benedikt Löwe. He joined the ILLC as a PhD student in the fall of 2007.

The group organized a three day event with researchers from Utrecht University ‘Aesthetics and Mathematics’ involving an art exhibition ‘Logic Unfettered - European and American Abstraction Now’ in the Mondrian House, Amersfoort.

Prizes and Awards 2007

Apt, K.R..

- Member elect of the Council of the European Association for Theoretical Computer Science (EATCS).

Endriss, U.

- Vernieuwingsimpuls Vidi.
- Khomskii, I.
- NWO Mosaic grant.

Palmigiano, A.

- Vernieuwingsimpuls Veni.

Vitányi, P.M.B.

- Ridder in de Orde van de Nederlandse Leeuw.
- Adjunct Professor Computer Science, University of Waterloo, Ontario, Canada.

Professional distinctions, memberships of scientific boards, etc.**Apt, K.R..**

- Member of the Advisory Board of Logical Methods in Computer Science (LMCS).
- Member of the Board, International Federation for Computational Logic (IFCoLoG).
- Member of the Advisory Board of the Book series 'Texts in Logic and Games'.
- Member Advisory Board of the Computing Research Repository (CoRR).
- Member of Academia Europea, Informatics Section.
- Council member of the European Association for Theoretical Computer Science (EATCS).

Benthem, J.F.A.K., van

- Member, Academia Europaea.
- Member, Hollandse Maatschappij van Wetenschappen.
- Member, Institut International de Philosophie.
- Member, Royal Dutch Academy of Sciences.
- Doctor honoris causa: Université de Liège.
- First honorary member, European Association for Logic, Language and Computation (FoLLI).
- International Who is Who.

Buhrman, H.M.

- Chair of programme board for Computer Sciences, Lorentz Center.
- Member of board of the Dutch Association for Theoretical Computer Science (NVTI).
- Member of the program committee for the 4th Symposium on Stochastic Algorithms, Foundations, and Applications (SAGA 2007).
- Member of the program committee for the 15th Annual European Symposium on Algorithms (ESA 2007).
- Member of the scientific board of the Institute for Quantum Computing Waterloo (IQC).
- Member of the Quantum Information Processing Advisory Committee, Canadian Institute for Advanced Research (CIFAR).
- Member of the QUROPE governing board (EU, Coordination action project).

Emde Boas, P., van

- Member of the Steering Committee CiE.

Endriss, U.

- Vice Chair of the European COST Action IC0602 on Algorithmic Decision Theory.

Löwe, B.

- Chairman of the Steering Committee, CiE-CS (Computability in Europe Conference Series).
- Member of the Board (Vorstandsmitglied), Deutsche Vereinigung für Mathematische Logik und für Grundlagenforschung der exakten Wissenschaften (DVMLG).
- Member of the Scientific Council, European Association for Computer Science Logic (EACSL).

Väänänen, J.

- Treasurer of the European Mathematical Society.
- Executive Committee member of the European Mathematical Society.
- Member of the board of the European Mathematical Foundation.
- Executive Committee member of the Association for Symbolic Logic (ASL).
- President of the Committee of Logic in Europe (ASL).
- Member of the Founding Committee of the European Set Theory Association (EST).
- Member of the Finnish Academy of Science and Letters.

Venema, Y

- Member of the Steering Committee of Advances in Modal Logic.
- Member of the Program Committee for Advances in Modal Logic.
- Member of the Steering Committee of Topological and Algebraic Methods in Logics.
- Member of the Program Committee for the International Conference on Order, Algebra and Logics.

Vitányi, P.M.B.

- Vice-chair Gödel Prize Committee, Gödel Prize Committee.
- Vice-chair International Federation for Information Processing (IFIP) WG 1.4.
- Member of Descriptive Complexity (IFIP) Working Group 1.2.

- Member of the Program Committee for Benelearn 2007, Amsterdam, 14-15 May, 2007.
- Member of the Program Committee for the Third International Conference on Advanced Data Mining and Applications (ADMA07).

Editorial Positions

Apt, K.R.

- ACM Transaction on Computational Logic.
- Journal of Logic and Computation.
- Theory and Practice of Logic Programming (TPLP).
- Journal of Computer and System Sciences; special issue on selected papers from EuroCOLT'95 (guest editor).

Benthem, J.F.A.K., van

- Managing Editor, Studies in Logic & Foundations of Practical Reasoning.
- Managing Editor, Who's Who in Logic.
- Managing Editor, Studia Logica.
- Managing Editor, Journal of Applied Logic.
- Managing Editor, Synthese.
- Managing Editor, Transactions on Computational Logic.
- Editor-in-Chief, Texts in Logic and Games.
- Managing Editor, The Philosopher's Annual.
- Member of Editorial Board, Journal of Philosophical Logic.
- Member of Editorial Board, Studia Logica.
- Member of Editorial Board, Studies in Linguistics and Philosophy.
- Member of Editorial Board, Logic Journal of the Interest Group in Pure and Applied Logics.
- Member of Editorial Board, Logic and Computation.
- Member of Editorial Board, Language and Computation.
- Member of Editorial Board, Cognitive Science Quarterly.
- Member of Editorial Board, Amsterdam University Press.
- Member of Editorial Board, Logic, Epistemology, and the Unity of Science.
- Member of Editorial Board, Knowledge, Rationality and Action.
- Member of Editorial Board, Lecture Notes in Logic, Language and Information (LNLLI).
- Member of Editorial Board, Theoria.
- Member of Editorial Board, Universal Logic.

Emde Boas, P. van

- Information and Computation.
- RAIRO Informatique theorique et applications.

Endriss, U.

- Associate Editor, Journal of Autonomous Agents and Multiagent Systems.

Löwe, B.

- Journal of Logic, Language and Information.
- Book series: 'Texts in Logic and Games' (TLG).
- Tbilisi Mathematical Journal.
- Abhandlungen aus dem Mathematischen Seminar der Universität Hamburg.
- ILLC Publications.

Väänänen, J.

- Notre Dame Journal of Formal Logic.
- Logica Universalis.

Venema, Y.

- Logical Methods in Computer Science.
- Springer Book series on Logic, Language and Information.
- Journal of Logic and Computation.

Vitányi, P.M.B.

- Frontiers in Computing Systems Research.
- Information Processing Letters.
- International Journal of Foundations of Computer Science.
- Journal of Computer and System Sciences.
- Journal of New Generation Computer Systems.
- Parallel Processing Letters.
- Theory of Computing Systems.

Researchers and other personnel LoCo 2007

Research input 2007		Funding				Grand Total
Position	Name	UvA	NWO	EU	Other	
Full professor	Apt, K.R.	0.10				0.10
	Bentham, J.F.A.K., van	0.50				0.50
	Buhrman, H.M.	0.10				0.10
	Emde Boas, P., van	0.40				0.40
	Jongh, D.H.J., de				1.00	1.00
	Vitanyi, P.M.B.	0.10				0.10
	Väänänen, J.A.	0.50				0.50
	Full professor Total		1.70			1.00
Associate professor	Torenvliet, L.	0.50				0.50
	Venema, Y.		0.75			0.75
Associate professor Total		0.50	0.75			1.25
Assistant professor	Endriss, U.	0.50				0.50
	Löwe, B.	0.50				0.50
Assistant professor Total		1.00				1.00
Postdoc	Ghosh, S.		0.55			0.55
	Joosten, J.J.	0.33				0.33
	Palmigiano, A.		0.90			0.90
Postdoc Total		0.33	1.45			1.78
PhD student	Degremont, C.M.L.			0.92		0.92
	Erven, T.A.L. van				1.00	1.00
	Fontaine, G.M.M.		0.75			0.75
	Gheerbrant, A.P.			0.92		0.92
	Gierasimczuk, N.				1.00	1.00
	Girard, P.				0.30	0.30
	Hoshi, T.				0.29	0.29
	Ikegami, D.			1.00		1.00
	Keskinen, L.	0.69				0.69
	Khomskii, J.D.		0.25			0.25
	Kleczek, M.A.M.				0.25	0.25
	Kontinen, J.A.	0.69				0.69
	Koolen-Wijkstra, W.M.				1.00	1.00
	Kurzen, L.M.		0.25			0.25
	Leal Rodriguez, R.A.		0.25			0.25
	Liu, F.	0.75				0.75
	Minica, S.A.				0.33	0.33
	Penedones Fernandes, H.A.				0.33	0.33
	Rooij S., de				1.00	1.00
	Roy, O.				1.00	1.00
	Semmes, B.T.				1.00	1.00
	Staudacher, M.				0.75	0.75
	Uckelman, J.D.				1.00	1.00
	Uckelman, S.L.				1.00	1.00
	Unger, F.P.				1.00	1.00

Research input 2007		Funding				Grand Total
Position	Name	UvA	NWO	EU	Other	
<i>PhD student</i>	Uridia, L.	0.75				0.75
	Velazquez Quesada, M.Sc. F.R.				0.33	0.33
	Vosmaer, J.		0.75			0.75
	Wehner, S.D.C.				1.00	1.00
	Witzel, S.A.			1.00		1.00
	Zvesper, J.A.			1.00		1.00
PhD student Total		2.88	2.25	6.59	10.83	22.55
Guest researcher	Baltag, A.				0.33	0.33
	Hendriks, A.				0.20	0.20
	Kennedy, J.C.				0.20	0.20
	Kontinen, J.A.				0.25	0.25
	Niekus, J.M.				0.20	0.20
	Pacuit, E.J.				0.67	0.67
	Rybalko, K.				0.42	0.42
	Smets, S.J.L.				0.33	0.33
	Wilhelmus, E.C.				0.17	0.17
Guest researcher Total					2.77	2.77
Grand Total		6.41	4.45	6.59	14.60	32.05

2.3 Logic and Language

Programme leaders

Jeroen Groenendijk
Paul Dekker (deputy)

Research area

The programme Logic and Language is a broad research plan in philosophy, the philosophy of language, and logic, crossing the borders of empirical linguistics, cognitive science and the behavioural sciences. Human reasoning and the interpretation of natural language are the major themes. Logical and philosophical analysis are the basic scientific methods. Empirical ratification of analytical work is the main touchstone for success. Binding force is the conviction that interpretation should be studied as a dynamic cognitive process that is embedded in both social practices and the external environment. Hence, the integration of semantics and pragmatics is a dominant long term research aim.

This view on how logic and language connect has obvious philosophical roots, e.g., in the writings of Aristotle, Leibniz, Frege, Wittgenstein, and Montague. Systematic and historical study of the works of these intellectual forebears forms a substantial part of the project, also to stimulate critical reflection on current systematic research. The various systematic investigations concentrate on empirical phenomena that are intrinsically related to the way in which information is structured in conversations.

In our investigations on reasoning we show that logical languages can be fruitfully used as high-level specifications of cognitive functions, and that formal logic can be used in explaining informal human reasoning. To achieve these aims logical and computational models are paired with methods from empirical psychology and neuro-science. The outlook on interpretation as a cognitive process embedded in social practices also makes a strong bond between interpretation and reasoning on the one hand and the evolution of rational human behaviour on the other.

Developments in 2007

The following is a report on the work done in the logic and language group in 2007. Note that even though it is subcategorized in 5 clusters, there are strong connections between them.

Semantics and Pragmatics

The topics studied under this heading are from a mixed semantic/pragmatic nature. They include:

- The development of an inquisitive semantics, in which virtually any sentence is seen to provide both information and to raise issues; its logic, pragmatics and the coherence of dialogue;
- Free choice items, alternative questions and knowledge attributions;
- The diachronic development of indefinite forms in various languages;
- Conditional presuppositions and an exhaustive interpretation of ‘only’;
- Exhaustivity operators and Hungarian focus;
- The generation and interpretation of anaphoric expressions;
- Identity and concealed questions.

A milestone was the appearance of the volume ‘Questions in Dynamic Semantics’ (eds. M. Aloni, A. Butler, and P. Dekker), which contains 11 contributions from members of ILLC on the typical Amsterdam subjects of dynamic semantics and the interpretation of questions and answers.

Philosophical Foundations

The investigations under this heading mostly centre on language, rules and action. They are concerned with the following topics:

- Philosophical inquiry into subjectivity and meaning in Wittgenstein;
- The concept of community at work in Wittgenstein’s later work;
- Wittgenstein’s notion of *übersichtliche Darstellung* and related to this the phenomenon of Installation in visual art;
- Wittgenstein’s notion of *übersichtliche Darstellung* and related to this the phenomenon of Installation in visual art;
- Compositionality and contextuality in the 19th century;
- Situated expertise: philosophy and neuroscience;

- Critical comparison of various approaches to language and meaning: classical descriptivism, the cognitive-computational approach, hermeneutics, and practice-based approaches;
- Philosophical foundations of formal languages in logic.

Logic and Cognition

The use of logic, both in actual practice and in cognitive psychology remains a constant theme. Topics studied include:

- Empirical implications of a logical model of language processing, both for healthy people and for the case of psychiatric disorders;
- Closed world reasoning and logical normativity;
- The relevance of Kant for modern cognitive science;
- The definability of collective quantification using the framework of second-order generalized quantifiers and the computational complexity of reciprocal expressions in natural language;
- Information and compositional translations between logics.

Mood and Modality

In addition to declaratives and the modalities used in declarative sentences, other moods and modalities are also studied. The main developments have been the following:

- Mixed modalities: the development of a theory that explains why natural language is highly restricted in allowing different modalities to occur in each other's scope. A typological study underpins the theory.
- Katrin Schulz finished her dissertation 'minimal models in semantics and pragmatics' which contains material on a number of different topics central to the logic and language group, for example, free choice permission, and a compositional analysis of conditional and counterfactual sentences;
- Rational choice models of communication for non-standard conditionals;
- Models of multi-agent unawareness to account for the discourse use of possibility modals.

Games and Evolution

Game theory is often put to use in order to explain linguistic phenomena:

- Uniform game theoretic account of various types of conversational implicatures;
- A game and optimality theoretic characterization of pragmatic interpretation rules;
- Formal models of pragmatic reasoning in the framework of signalling games.

Many of the group members participate in the local colloquia, such as the DIP, LEGO, and GLoRiClass meetings. The PhD students attend to the ILLC logic tea and the philosophy student's lunch. Many members are also active in summer schools (mostly ESSLLI) as participant, reviewer, in the program or standing committee. The group members are crucial to the organisation of the Amsterdam Colloquium, the seminar on logic, language and reasoning, the Tbilisi Symposia, the Szklarska Poreba workshops, and the PALMYR conferences.

Perspectives and expectations for 2008

We hope that in 2008 four of the PhD projects related to above will result in a dissertation.

On a general level a new initiative on Cross Linguistic Semantics relates the research of the ILLC members represented in LoLa and members of the linguistics research group ACLC. A new project has started on 'Indefinites and evolutionary pragmatics and typological semantics.' Also experiments are planned on the temporal perception in depressives in collaboration with the St. Lucas Hospital.

A VENI grant, a Eurocores grant from the European Science Foundation in the LOGICCC programme and a grant in the Free Competition of NWO's division of Humanities, make it possible to start up a project on Vagueness and Granularity in which two senior members of ILLC participate.

Work on the issues mentioned above is furthered, partly by means of additional projects. Subjects include, but are not limited to, inquisitive semantics and dialogue pragmatics, diachronic development of the meaning of indefinite expressions, typological studies on the semantics of indefinites, concealed questions, dynamic interpretation of anaphora,

conversational implicatures, compositionality and contextuality, polyadic lifts of quantifiers, situated expertise, the concept of a 'formal language', Kant's relevance for logic, and world pictures and certainty in Wittgenstein's work.

Research affiliates include Magdalena Schwager (Frankfurt), Anton Benz (Berlin), Paul Egré (Paris), Peter Gärdenfors (Lund), Gerhard Jäger (Berlin), Ewan Klein (Edinburgh), Manfred Krifka (Berlin), Stephen Read (St. Andrews), Barbara Grosz (Harvard), and Rebecca Nesson (Harvard).

Prizes and Awards 2007

Aloni, M.

- NWO VIDI award

Dutilh-Novaes, C.

- NWO VENI award

Maier, E.

- NWO Rubicon award

Stokhof, M.J.B. .

- Member elect of the Institut International de Philosophie.

Szymanik, J.

- Award of Foundations for Polish Science for Young Researchers

Professional Distinctions, memberships of scientific boards, etc.

Dekker, P.J.E.

- Chairman of the Standing Committee, European Summer Schools in Logic, Language and Information (ESSLLI).

Groenendijk, J.A.G.

- Member of the NWO Humanities Selection Committee for the Innovational Research Incentives Scheme -Vidi

Stokhof, M.J.B.

- Chairman of de Universitaire Onderzoekscommissie (UvA).
- Chairman, Alfa Beraad.
- Chairman of the Humanities Council of NWO.

- Member of the Standing Committee, the Humanities of the European Science Foundation.
- Member of the Transitional Board, the National Brain and Cognition Initiative.
- Member of the Steering Committee and Network Board, ERA network HERA.

Veltman, F.J.J.M.

- Member of the QANU assessment committee for Artificial Intelligence.

Editorial positions

Dekker, P.J.E.

- Journal of Semantics.
- Linguistics and Philosophy.

Groenendijk, J.A.G.

- Semantics & Pragmatics (electronic journal).

Rooij, R.A.M. van

- Synthese.
- Journal of Semantics.
- Language section of the bookseries 'Logic and Games'.

Stokhof, M.J.B.

- Current Research on the Semantics Pragmatics Interface.
- Journal for Research on Language and Computation.
- Linguistics and Philosophy.
- Natural Language Semantics.
- Logic and Language, Stanford Encyclopedia of Philosophy.
- Semantics and Pragmatics.

Veltman, F.J.J.M.

- Semantics and Pragmatics.
- Journal of Philosophical Logic.

Researchers and other personnel LoLa 2007

Research input 2007		Funding				Grand Total
Position	Name	UvA	NWO	EU	Other	
Full professor	Groenendijk, J.A.G.	0.40				0.40
	Lambalgen, M., van	0.20				0.20
	Stokhof, M.J.B.	0.20				0.20
	Veltman, F.J.M.M.	0.10				0.10
Full professor Total		0.90				0.90
Associate professor	Lambalgen, M., van	0.10				0.10
	Veltman, F.J.M.M.	0.10				0.10
Associate professor Total		0.20				0.20
Assistant professor	Dekker, P.J.E.	0.40				0.40
	Janssen, T.M.V.	0.30				0.30
Assistant professor Total		0.70				0.70
Postdoc	Aloni, M.		0.80			0.80
	Dutilh-Novaes, C.		0.25			0.25
	Rooij, dr. R.A.M., van		1.00			1.00
Postdoc Total			2.05			2.05
PhD student	Achourioti, T.		0.75			0.75
	Andrade-Lotero, E.J.	0.33				0.33
	Balogh, K.	0.80				0.80
	Bax, C.	1.00				1.00
	Bentzen, M.M.				1.00	1.00
	Counihan, M.E.		0.38		0.38	0.76
	Fitz, H.				1.00	1.00
	Franke, M.		1.00			1.00
	Gakis, D.				0.33	0.33
	Jager, S.T., de		1.00			1.00
	Nauze, F.D.		0.50		0.50	1.00
	Rietveld, D.W.	1.00				1.00
	Roelofsen, F.	1.00				1.00
	Schulz, K.				0.83	0.83
	Szymanik, J.			1.00		1.00
Wilde, M.	1.00				1.00	
PhD student Total		5.13	3.63	1.00	4.04	13.80
Guest researcher	Hara, Y.				0.38	0.38
	Wang, Y.				0.13	0.13
Guest researcher Total					0.51	0.51
Grand Total		6.93	5.68	1.00	4.55	18.16

3. Graduate Programme in Logic

3.1 PhD programme

In 2007 there were 56 PhD students who were fulltime or part-time working on a PhD project at ILLC. This is a growth of 12 PhD students compared to 2006.

Statistics about the PhD students:

- These 55 PhD students came from as much as 23 countries. The top-5 countries:
 - Netherlands: 14
 - Germany: 8
 - Greece/USA/France: 3 each
- 11 PhD students were UvA funded, 17 NWO, 9 EU, and 18 were guest PhD students (including CWI PhD students).
- 18 were female, 37 male.
- 18 were graduates of the MSc in Logic programme.

There were 5 ILLC dissertations in 2007. The PhD projects had an average length of 4 years and 8 months, measured from the starting date to the date of the actual defence.

To maintain high standards of PhD research ILLC organizes yearly promotion progress talks (Promotievoortgangsgesprekken) with all the PhD students on top of the annual talks that supervisors have with their PhD students. This committee which consists of junior staff members evaluates not only the progress of the student but also the quality of the supervision. The leading question is whether ILLC provides good enough facilities (supervision, mental support, materials) for the students to come to a successful completion of their work. In case there are bottlenecks, the PVC tries to solve them, or lift them to a level where they can be solved. The PVC talks were held for the tenth time in 2007.

3.2 MSc programme in Logic

The final report of the accreditation committee and the final assessment of the NVAO confirmed the outstanding results of the accreditation of 2006: The MSc Logic received four scores of 'excellent' (indicative of world-class quality) and thirteen scores of 'good'. This result identifies the MSc Logic as one of the best Master's programmes in the Netherlands and a world-leader in the interdisciplinary field between the sciences and the humanities. The findings of the NVAO confirm the impression given by many other indicators that things are going well with the MSc Logic. As indicated in the annual report of 2006, the accreditation committee has pointed out a number of serious dangers for this unique and important graduate programme, in particular, the student fee hike for non-European students and the move to the Science Park. Neither of these problems was adequately addressed so far. In fact, the MSc Logic lost a large number of US student applicants for the academic year 2006/07 due to the high non-European tuition fee. Another consequence of the fee hike is the fact that grants which were sufficient to provide full grants for students in the past, now only provide partial grants (for instance, the Beth fellowship, generously given by the E W Beth Foundation to MSc Logic students). The Amsterdam Merit Scholarship, a grant system implemented by the UvA did not work properly in its first year: one of the MSc Logic students received this grant for the best five non-European applicants to the FNWI and was not able to finance his stay in Amsterdam from the AMS grant (he later successfully applied for a different fellowship).

Despite these problems, research and teaching in the MSc Logic continued at the usual high level. In September 2007, a new class of students was accepted. The new class was similar to those of earlier years:

26.9% of the new students were Dutch (down from 31.5% in 2006), 33.3% were non-European (down from 36.8% in 2006). As always, the new students represented a broad spectrum of subjects and countries. We were shocked to read that some people in the UvA administration seem to consider students from countries such as Iran and Colombia ‘not worth the bother’. It was reported in the NRC Handelsblad that the UvA

‘studenten uit ‘exotische’ landen, bijvoorbeeld ook Colombia, vanwege het ‘vele werk’ dat toelating met zich meebrengt ‘liever kwijt dan rijk’ te zijn’,

‘would rather have fewer than more students from ‘exotic’ countries, for instance, Colombia, due to the amount of work that enrolment of such students entails’

We are proud to report that our new group of students contained a married couple from Iran and yet another Colombian student who will certainly continue our successful contacts with various universities in Bogota.

As in the past years, our students were very successful in attracting grants for their studies. The Beth Foundation gave the prestigious Beth grant to three of our students (Spsychalska, Ciardelli, and Ramezani). This year was a special year for student grants, as Nuffic decided to have two separate rounds for HSP fellowships. In the first such round, our students and applicants won five such fellowships (Crespo, De Corte, Fulford, Icard III, Mascarenhas), in the second round, for February 2008, they won seven additional fellowships (Brumwell, Ciardelli, Cubides Kovascics, Galliani, Nebel, Uhlhorn, Spsychalska). The MSc Logic consistently provides about 20% of all HSP grantees of the FNWI. The new numbers for 2008/09 have just been released, again with outstanding results for the candidates of the MSc Logic.

The year 2007 saw 23 MSc Logic graduations, a record number finally witnessing the growth of the MSc Logic from a small programme run by the ILLC to a major international player in interdisciplinary graduate education. Over half of them started immediately as PhD students, some of them at the ILLC. We were particularly happy about Yurii Khomskii who graduated with a thesis on ‘Regularity

Properties and Determinacy’ in the summer of 2007 and won one of NWO’s Mozaïek grants intended to support Dutch citizens with a migration background. Yurii was one of 22 winners of this grant in all fields of research and the entire Netherlands. He started to work as a PhD student at the ILLC in the fall of 2007 on his research project entitled ‘Making guesswork precise’, under the supervision of Dr Benedikt Löwe.

4. Management

4.1 People, research input

In appendix 1 the research input of the ILLC staff members is represented. A comparison with 2006 shows an impressive rise of the total FTE from 48.26 to 62.14. This rise can almost fully be traced back to a rise in PhD students on NWO funded projects (+3), EU funded projects (+4) and on own money (+5).

In this respect it is good to mention that in 2007 all vacant positions were filled, except for the chair of Johan van Benthem (who became university professor in 2003). The ILLC budget still does not allow us to have this position filled by a full professor.

4.2 Publications, research output

The people working at ILLC together produced publications in the following METIS categories:

1 Academic publications	a. in refereed journals	57
	b. in other journals	6
	c. book chapters and articles in conf. proceedings	122
	Total	185
2 Monographs		3
3 Ph.D. theses		5
4 Professional publications and products		2

On average they published 3 publications per research FTE: 185 (=number of articles in journals, articles in proceedings and book chapters) divided by 62.14 (=research FTE). In 2006 these figures were as follows: 48.25 research FTE published 163 publications leading to 3.4 publications per research FTE.

4.3 External funding

The very successful years 2005 and 2006 were succeeded by another. In appendix 3.1 you will find an overview of all projects that were attracted by ILLC researchers.

The VIDI projects of Ulle Endriss and Maria Aloni and the VENI projects of Catarina Dutilh-Novaes and Jelle Zuidema are especially worth mentioning. With these 4 new ‘Vernieuwingsimpuls’ projects the ILLC has -at the time of writing- 2 VICI, 6 VIDI and 4 VENI projects. This is an amazingly high number for an institute with only 31 fulltime positions ranging from postdoc to full professor.

4.4 Communication

ILLC communicates by means of the following media:

- our website www.illc.uva.nl
- ILLC News, our weekly news letter announcing upcoming local events, job openings, funding opportunities, new publications etc., sent to almost 300 internal and external subscribers.
- ILLC Conferences Mailing, a monthly news letter announcing national and international conferences, calls for proposals etc., sent to the same subscribers as ILLC News.
- ILLC Magazine; a yearly magazine, mainly for our MSc and PhD alumni but sent to the ILLC community and interested parties as well.

4.5 Events

The number of events that ILLC is organizing is relatively high. We have as much as 7 regular colloquia, most of them bi-weekly. On top of this we organized 20 workshops/conferences in 2007. In appendix 4 you will find an overview.

4.6 Administration

Scientific director: Prof. dr F.J.M.M. Veltman
Director Master of Logic programme: Dr B. Löwe
Manager (Bedrijfsvoerder): Ms Drs. I.M. van Loon
Administrator Master of Logic programme: Ms Drs
T. Kassenaar
Secretary (ILLC Office): Drs P. van Ormondt
Secretary (ILLC Office): Ms K. Gigengack
System administrator and web master: Dr.
M. Vervoort

Appendix 1. People

Sum of Research FTE		Faculty		
Position	Funding	FGW	FNWI	Grand Total
Full professor	UvA	1.30	1.70	3.00
	Other		1.00	1.00
Full professor Total		1.30	2.70	4.00
Associate professor	UvA	0.50	0.60	1.10
	NWO	0.37	0.50	0.87
Associate professor Total		0.87	1.10	1.97
Assistant professor	UvA	1.03	1.55	2.58
	NWO	0.53	0.50	1.03
	EU		0.01	0.01
Assistant professor Total		1.56	2.06	3.62
Postdoc	UvA		0.33	0.33
	NWO	3.24	2.31	5.55
	EU		1.00	1.00
Postdoc Total		3.24	3.64	6.88
PhD student	UvA	5.13	2.88	8.01
	NWO	6.97	3.56	10.53
	EU	1.00	7.59	8.59
	Other	4.04	11.23	15.27
PhD student Total		17.14	25.26	42.40
Guest researcher	Other	0.51	2.77	3.28
Guest researcher Total		0.51	2.77	3.28
Grand Total		24.61	37.53	62.14

This table is based on the following figures

FGW

Full professor/associated professor/assistant professor: research FTE = 0.4

PhD students/postdocs: research FTE = 1.0

FNWI

Full professor/associated professor/assistant professor: research FTE = 0.5

Postdocs: research FTE = 0.9

PhD students (UvA and NWO funded, 4 years): research FTE = 0.75

PhD students (EU funded, 3 years) research FTE = 1.0

Guests: research FTE = 1.0

In FTE per research programme the figures are as follows.

FTE	Programme			Grand Total
	LaCo	LoCo	LoLa	
Position				
Full professor	1.00	4.40	3.00	8.40
Associate professor	1.54	2.50	0.60	4.64
Assistant professor	3.63	2.00	1.60	7.23
Postdoc	3.15	1.98	2.05	7.17
PhD student	5.82	23.26	13.80	42.88
Guest researcher		2.77	0.51	3.28
Grand Total	15.13	36.91	21.56	73.59

Appendix 2. List of publications

2.1 Language and Computation

Academic Publications

In refereed journals

Bar-Haim, R., Sima'an, K. & Winter, Y. (2007). Part-of-Speech Tagging of Modern Hebrew Text. *Journal of Natural Language Engineering*, 223-251.

Bod, R. (2007). Getting Rid of Derivational Redundancy or How to Solve Kuhn's Problem. *Minds and Machines*, 17(1), 47-66.

de Hoop, H., Hendriks, P. & Blutner, K.R. (2007). On compositionality and bidirectional optimization. *Journal of Cognitive Science*, 8(2), 137-151.

Trotman, A., Geva, S. & Kamps, J. (2007). Report on the SIGIR 2007 workshop on focused retrieval. *SIGIR Forum*, 42(2), 97-103.

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Aramatzis, A., Kamps, J., Koolen, M.H.A. & Nussbaum, N. (2007). Deriving a domain specific test collection from a query log. In *Proceedings of the Workshop on Language Technology for Cultural Heritage Data (LaTeCH 2007)* (pp. 73-80). ACL.

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Aramatzis, A., Kamps, J., Koolen, M.H.A. & Nussbaum, N. (2007). University of Amsterdam at the TREC 2007 legal track. In *The Sixteenth Text REtrieval Conference (TREC 2007) Notebook* (pp. 623-625). NIST.

Balog, K., Azzopardi, L.A., Kamps, J. & Rijke, M. de (2007). Overview of WebCLEF 2006. In *Proceedings of the 7th Workshop of the Cross-Language Evaluation Forum (CLEF 2007) Lecture Notes in Computer Science* (pp. 803-819). Heidelberg: Springer Verlag.

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Bod, R. & Cochran, D. (2007). Introduction to Exemplar-Based Models. In R. Bod & D. Cochran (Eds.), *Proceedings ESSLLI workshop 'Exemplar-Based Models of Language Acquisition and Use'* (pp. 4-6).

Bod, R. (2007). Is the End of Supervised Parsing in Sight? In *Proceedings of the Association for Computational Linguistics* (pp. 400-407). Prague: The Association of Computational Linguistics.

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Coath, M., Denham, S.L., Smith, L.M., Honing, H. J., Hazan, A. & Purwins, H. (2007). An auditory model for the detection of perceptual onsets and beat tracking in singing. In H. Purwins D.R. Hardoon (Ed.), *Workshop at Neural Information Processing Systems (NIPS) conference*. Whistler, CA: NIPS.

- Fachry, K.N., Kamps, J., Koolen, M.H.A. & Zhang, J. (2007). The University of Amsterdam at INEX 2007. In *Pre-Proceedings of INEX 2007* (pp. 388-402).
- Fuhr, N., Kamps, J., Lalmas, M., Malik, S. & Trotman, A. (2007). Overview of the INEX 2007 ad hoc track. In *Pre-Proceedings of INEX 2007* (pp. 1-22).
- Hassan, H., Sima'an, K. & Way, A. (2007). Supertagged Phrase-Based Statistical Machine Translation. In *Proceedings of 45th Annual Meeting of the Association for Computational Linguistics (ACL'07)* (pp. 288-295). Association for Computational Linguistics (ACL).
- Hiemstra, D., Kamps, J., Kaptein, A.M. & LI, R. (2007). University of Amsterdam and University of Twente at the TREC 2007 million query track. In *The Sixteenth Text REtrieval Conference (TREC 2007) Notebook* (pp. 626-628). NIST.
- Kamps, J., Lalmas, M. & Pehcevski, J. (2007). Evaluating relevant in context: Document retrieval with a twist. In *Proceedings of the 30th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval* (pp. 723-724). New York: ACM Press.
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Apt, K.R. (2007). Book review of ‘Alfred Tarski: Life and Logic’, by A. Burdman Feferman and S. Feferman. *Math. Intelligencer*, 29(2), 78-80.

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Apt, K.R. & Witzel, S.A. (2007). A Generic Approach to Coalition Formation. *ArXiv.org 0709.0435*.

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Benthem, J.F.A.K. van (2007). A New Modal Lindström Theorem. *Logica Universalis*, 1, 125-138.

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- PP-2007-32
Benedikt Löwe, Thomas Müller, Eva Wilhelmus Mathematical knowledge: a case study in empirical philosophy of mathematics.
- PP-2007-33
Bernd Buldt, Benedikt Löwe, Thomas Müller Towards a new epistemology of mathematics.
- PP-2007-34
Jacob Vosmaer MacNeille completion and profinite completion can coincide on finitely generated modal algebras.
- PP-2007-35
Michael Franke The Pragmatics of Biscuit Conditionals.
- PP-2007-36
Michael Franke Interpretation of Optimal Signals.
- PP-2007-37
Jakub Szymanik A Strong Meaning Hypothesis from a Computational Perspective.
- PP-2007-38
Çigdem Gencer, Dick de Jongh Unifiability in extensions of $K4$.

PP-2007-39

Balder ten Cate, Tadeusz Litak The importance of being discrete.

PP-2007-40

Gideon Borensztajn, Willem Zuidema Bayesian Model Merging for Unsupervised Constituent Labeling and Grammar Induction.

Appendix 3. Projects

3.1 Projects awarded in 2007

NWO VIDI awards (600,000 EURO) to Maria Aloni and Ulle Endriss: Within the Division of Humanities: Maria Aloni for her project ‘Indefinites and beyond: evolutionary pragmatics and typological semantics’, and within the Division of Exact Sciences: Ulle Endriss for his project ‘Collective Decision Making in Combinatorial Domains’.

NWO VENI awards (208,000 EURO) to Jelle Zuidema and Catarina Dutilh-Novaes NWO has announced that two NWO VENI projects have been awarded to: Jelle Zuidema (now postdoc at the ILLC), for his project proposal ‘Discovering grammar: statistical models of sequence learning in humans, animals and machines’, and Catarina Dutilh-Novaes (Master of Logic alumna), for her project: ‘Philosophical Foundations of Formal Languages in Logic: Formal Languages as Language Games’.

NWO Rubicon award (55,000 EURO) to Emar Maier A NWO Rubicon grant was awarded to Emar Maier from Nijmegen University. The grant allows him to work for one year as a researcher at ILLC

NWO Mosaic grant (180,000 EURO) awarded to Yurii Khomskii

Master of Logic alumnus Yurii Khomskii was awarded a NWO Mosaic grant for his project ‘Making Guesswork Precise: Developing a mathematical theory of rules-of-thumb in Set Theory of the Real Line’.

The Mosaic programme is developed to boost the participation of ethnic minorities in academic research and provides funds for a 4 year period of doctoral research.

NWO Vrije Competitie (Free Competition) project (494,974 EURO) to Remko Scha

Remko Scha project proposal ‘Towards an experience-based model of early syntax acquisition’ was awarded in the Vrije Competitie round by NWO. With this subsidy two PhD students can be appointed, one in Utrecht, one in Amsterdam.

NWO Vrije Competitie (Free Competition) (326.800 EURO) to Frank Veltman

Frank Veltman’s project proposal ‘On vagueness - and how to be precise enough’ was awarded in the Vrije Competitie as well. The grant provides funds for a PhD student and postdoc.

NWO Vervangingssubsidie (25,000 EURO) to Henkjan Honing

NWO had awarded a vervangingssubsidie to Henkjan Honing for his research on ‘Music Matters: on music and the cognitive sciences.’ This grant enables him to be replaced for (part of his) teaching and administrative duties for a period of 12 months.

3.2 Projects started or running in 2007

NWO project: Imperfect Information Games: Models and Analysis; project leaders Peter van Emde Boas and Johan van Benthem; September 1, 2002 - September 30, 2007

NWO project: Unsupervised Stochastic Grammar Induction from Unlabeled Data; project leader Rens Bod; August 1, 2004 - July 31, 2007

NWO VIDI project Robert van Rooij: The Economics of Language. Language Use and the Evolution of Linguistic Convention; January 1, 2005 - January 1, 2010

NWO Mosaic Grant Reut Tsarfaty: Integrated Morphological and Syntactic Ambiguity Resolution for Modern Hebrew; January 1, 2005 - January 1, 2009

EU project: Emergent Cognition through Active Perception (EmCAP); project leader Henkjan Honing; October 1, 2005 - October 1, 2008

EU project: Games in Logic Reaching Out For Classical Game Theory (GloRiClass); project leader Benedikt Löwe; February 1, 2006 - February 1, 2009

NWO project: Continuous Access to Cultural Heritage; project leader Jaap Kamps; April 1, 2006 - April 1, 2010

NWO Rubicon project Sujata Ghosh: Nonmonotonic Reasoning, revision processes and games; August 1, 2006 - August 1, 2007

NWO VICI project Yde Venema: Algebra and Co-Algebra: the mathematical environments of modal logic; September 1, 2006 - September 1, 2011

NWO project: The Origins of Truth and the Origins of the Sentence; project leaders Wolfram Hinzen/ Michiel van Lambalgen; October 1, 2006 - December 1, 2010

NWO VIDI project Khalil Sima'an: Priors for the Estimation of Probabilistic Grammars from Incomplete Natural Language Data; January 1, 2007 - January 1, 2012

NWO VICI project Rens Bod: Integrating Cognition, Unsupervised Learning with the DOP model; February 1, 2007 - February 1, 2012

NWO project: Effective Focused Retrieval Techniques; project leader Jaap Kamps; February 15, 2007 - February 15, 2011

NWO VIDI project Jaap Kamps: Retrieving Encoded Archival Descriptions More Effectively (README); May 1, 2007 - May 1, 2012

NWO VENI project Catarina Dutilh-Novaes: Philosophical Foundations of Formal Languages in Logic: Formal Languages as Language Games; September 1, 2007 - September 1, 2011

NWO project: Theoretical and Algorithmic Complexity Thresholds in Computer Games (TACTICS); project leaders Johan van Benthem and Peter van Emde Boas; September 1, 2007 - September 1, 2011

NWO VENI project Jelle Zuidema: Discovering grammar: statistical models of sequence learning in humans, animals and machines; October 1, 2007 - June 1, 2011

NWO VIDI project Maria Aloni: Indefinites and beyond: evolutionary pragmatics and typological semantics; November 1, 2007 - November 1, 2012

Appendix 4. Events

4.1 Regular Events

DIP colloquium

The DIP is a bi-weekly colloquium of the ILLC members at the Department of Philosophy, University of Amsterdam. The program of the colloquium reflects the current research interests of the group: cognition and reasoning, formal semantics and pragmatics, computational linguistics and philosophy of language.

Speakers in 2007 included:

- Charlotte Wollermann (University of Bonn): The Influence of Audiovisual Prosody on the Perception and Interpretation of Multimodal Speech
- Cornelia Endriss (University of Osnabrück): Intermediate Scope Readings as Embedded Speech Acts
- Ruth Millikan (University of Connecticut): How children learn language without having a representational theory of mind
- Petra Hendriks (Center for Language and Cognition, Groningen): Asymmetries in grammar
- Evangelia Vlachou (Utrecht Institute of Linguistics): Readings and distribution of free choice items: the case of ‘qui que ce soit’ and ‘n’importe qui’
- Yurie Hara (Kyoto University; ILLC visiting fellow): Questions are immediate issues
- Jeroen Groenendijk (ILLC): Alternative Logical Semantics/Paul Egré (CNRS, Institut Jean-Nicod, Paris): Embedded Questions Revisited: An Answer, not Necessarily The Answer
- Rick Nouwen (UiL-OTS, Utrecht U.): A guide to $<$, $>$, \leq , and \geq in natural language
- Yoad Winter (Computer Science, Israel Institute of Technology): Multiple Coordination - Recursion and the Syntax-Semantics Interface
- Regine Eckardt (Dept. of English Language and Literature, U. Gottingen): Almost - A Theory
- Carla Umbach (Institute of Cognitive Science, U. Osnabrück): Focus in German Noun Phrases
- Cecile Meier (Institute for Cognitive Linguistics, Johann Wolfgang Goethe University, Frankfurt):
- The predicative analysis for PP resultatives revisited
- Mana Kobuchi-Philip (UiL-OTS, Utrecht U.): Semantics of Individual-Denoting Classifiers and Its Consequences
- Markus Egg (Center for Language and Cognition, U. Groningen): Rhetorical Questions
- Tamas Biro (ACLC-UvA): Finding the Right Words - Implementing Optimality Theory with Simulated Annealing

Logic Tea

The Logic Tea is a series of talks for students in philosophy, mathematics, computer science, artificial intelligence and related fields of interest. In particular, it addresses the Masters of Logic and PhD students of the Institute for Logic, Language, and Computation. The series covers a large variety of topics reflecting the diverse and interdisciplinary character of the institute. Speakers are mainly students or staff of the ILLC, but also visitors from other universities and research institutions. The talks aim at being accessible to the entire ILLC audience.

Speakers in 2007 included:

- Krzysztof Apt (CWI and ILLC): How to Write a Good Article: Some Suggestions
- Luc Segoufin (INRIA Futurs): Order Invariance over Finite Structures
- Erik Rietveld (ILLC): Situated and Lived Normativity
- Ramasubramanian Sharma: Hetv⁻abh⁻asa and Theory of Negation in Indian Logic

- Simon Kramer (Polytechnique): The Intended and Actual Meaning of a Cryptographic Message and Protocol
- Wouter Koolen-Wijkstra (ILLC & CWI): Discovering the Truth by Conducting Experiments
- Sonja Smets (VUB): Dynamic-Epistemic Quantum Logic
- Ulle Endriss (ILLC): Models for Dialogue Protocols
- Eva Wilhelmus, University of Bonn: Formalizability and knowledge ascriptions in mathematical practice

Colloquium on Mathematical Logic

The Colloquium on Mathematical Logic is a joint event organized by the logicians at the Universiteit van Amsterdam and the Universiteit Utrecht.

The CML meets biweekly on Fridays, alternatingly in Amsterdam and in Utrecht.

The Colloquium intends to bring together researchers working in Mathematical Logic and Logic related areas of Theoretical Computer Science.

It is also meant as a forum for (PhD) students and recent PhD's to present their own work.

Speakers in 2007 included:

- Tim Baarslag (Utrecht): Limitations of primitive recursive algorithms
- Rosalie Iemhoff (Utrecht): Skolemization and Herbrand's theorem
- Ronald de Wolf (CWI): Quantum proofs for classical theorems
- Juha Kontinen (Helsinki): Majority in logic and computation
- Juliette Kennedy (Helsinki): Square-like principles, Arithmetic and Model Theory
- Andres Villaveces (Bogotá): Generic Predicates over Hilbert Spaces - (Continuous) Model Theory of Pairs
- Roman Kossak (CUNY): Forcing in models of arithmetic
- Yuri Gurevich (Microsoft research): Why Sets?
- Bas Spitters (RU): Computable sets: Located and overt locales
- Lauri Hella (Tampere): Constraint Satisfaction Problems and Quantifier Free Reductions
- Ali Enayat (temporarily UU): From fragments of arithmetic to large cardinals via Quine-Jensen set theory

- Dimitri Hendriks (VUA): A calculus for deciding productivity of recursive stream definitions
- Piet Rodenburg (UvA): Piecewise Initial Algebra Semantics
- Yuri Gurevich (Microsoft Research): Zero-one laws of discrete mathematics
- Kamal Lodaya (Chennai, India): Marking time
- Jeff Paris (Manchester): Rationality as conformity
- Joel Hamkins (CUNY): Boolean ultrapowers
- Sunil Simon (Chennai): Structured specification of strategies in games on graphs
- Shingo Saito : Knot points of typical continuous functions
- Valery Plisko: Primitive recursive realizabilities
- Denis Bonnay (Paris): Invariance, Definability and Monoids
- Tatiana Yavorskaya: Interacting explicit evidence systems
- Valentin Shehtman (Moscow): More on completeness in first-order modal and intuitionistic logic
- Sonja Smets: An Dynamic-Logical Setting for Quantum Mechanics

Computational Social Choice Seminar

The Computational Social Choice Seminar is a series of occasional talks being organised at the Institute for Logic, Language and Computation (ILLC) at the University of Amsterdam. The talks mostly address issues at the interface of computer science (including logic, multiagent systems and artificial intelligence) and mathematical economics (including social choice theory, game theory and decision theory).

Speakers in 2007 included:

- Andreas Witzel (ILLC): A Generic Approach to Coalition Formation
- Vangelis Markakis (CWI): On the Complexity of Computing Approximately Envy-free Allocations
- Ulle Endriss (ILLC): Introduction to Cake-Cutting Procedures
- Brammert Ottens (ILLC): Comparing Winner Determination Algorithms for Mixed Multi-Unit Combinatorial Auctions
- Krzysztof Apt (CWI & ILLC): Sequential Groves Mechanisms for Public Project Problems
- Jouko Väänänen (ILLC): Dependence Logic
- Joel Uckelman (ILLC): Preference Representation with Weighted Goals: Some Properties and an Application to Voting

- Steven J. Brams (New York): Divide-and-Conquer: A Proportional, Minimal-Envy Cake-Cutting Procedure
- Hylke Buisman, Gijs Kruitbosch and Nadya Peek (UvA): A Simulation Platform for Distributed Multiagent Resource Allocation
- Ulle Endriss (ILLC): Vote Manipulation in the Presence of Multiple Sincere Ballots
- Elise Bonzon (Toulouse): Boolean Games

Logic, Language, and Reasoning Seminar

This seminar aims at unifying the Netherlands-based researchers interested in language processing and human reasoning. It takes place more or less bi-monthly.

Speakers in 2007 included:

- Johan van Benthem (Amsterdam & Stanford): Logic and Psychology: Do the Facts Matter?
- Robin Clark (University of Pennsylvania): The Neurobiology of Quantification
- Bart Geurts (University of Nijmegen): Scalar implicatures and local pragmatics
- Michiel van Lambalgen (University of Amsterdam): Is probability theory useful in modelling human reasoning
- Marian Coughlan (University of Amsterdam): Logical premises and everyday language
- Jakub Szymanik (University of Amsterdam): A comment on a neuroimaging study of natural language quantifier comprehension

GLoRiClass Seminar

The GLoRiClass Seminar is the weekly meeting for the Marie Curie Research Training Site GLoRiClass. It is organized for and by the GLoRiClass fellows with talks by ILLC staff members, students and game-related guests.

The 'Cool Logic' Meetings

The Master of Logic Committee organizes the 'Cool Logic' meetings. These are a series of one to two hour sessions in which a master of logic student gives a talk about his/her thesis (in progress) or a particular topic he/she is enthusiastic about.

4.2 Workshop and Conferences

KNAW Academie Colloquium 'New perspectives on Games and Interaction'

Date: 5-7 Februari 2007

Place: KNAW, Amsterdam

Website: www.illc.uva.nl/KNAW-AC/

Workshop 'Musical Structure: Expectation generation, disruption and resolution'

Date: 7 February 2007

Place: private address

ILLC-ACLIC afternoon on 'Language Evolution'

Date: 9 March 2007

Place: PC Hoofthuis, Amsterdam

Arithmetic Days: Models and Interpretations

Date: 4 -5 April 2007

Place: Utrecht University

staff.science.uva.nl/~vaananen/ami

Foundations of the Formal Sciences VI: Reasoning about Probabilities and Probabilistic Reasoning

Date: 2-5 May 2007

Place: ILLC, Amsterdam

Website: www.math.uni-bonn.de/people/fofths/VI/

Workshop on Logics for Coalgebras

Date: 10-11 May 2007

Place: ILLC, Amsterdam

Website: staff.science.uva.nl/~gfontain/logics_for_coalgebras/home.html

PALMYR-V : Dynamic Perspectives on Meaning, Ecole Normale Supérieure

Date: 1-2 June 2007

Place: Paris, France

Website: www.illc.uva.nl/PALMYR/PALMYR-5/

EmCAP Workshop on modeling music cognition

Date: 18 June 2007

Place: Universiteitstheater, Amsterdam

Website: www.hum.uva.nl/mmm/EmCAP/

RUC-ILLC Workshop on Formalizing Action

Date: 22 June 2007

Place: Roskilde University, Denmark

Website: akira.ruc.dk/~mamobe/actionworkshop.html

Meeting of the Minds

Date: 2 July 2007

Place: ILLC, Amsterdam

Website: homepages.cwi.nl/~apt/meeting07/**Workshop Logic, Rationality and Interaction**

Date: 5-9 August 2007

Place: Beijing, China

Website: www.illc.uva.nl/LORI/**ESSLLI-2007: 19th European Summer School in Logic, Language and Information**

Date: 6-17 August 2007

Place: Dublin, Ireland

Website: www.cs.tcd.ie/esslli2007/**Set theory meeting**

Date: 13 August 2007

Place: ILLC, Amsterdam

Website: staff.science.uva.nl/~ikegami/Ams_Aug_2007.html**CWI Lectures 2007, in honor of Paul Vitanyi**

Date: 7 September 2007

Place: CWI, Amsterdam

Games in Logic, Language and Computation (GLLC 14½)

Date: 28 September 2007

Place: ILLC, Amsterdam

Website: www.illc.uva.nl/lgc/gllc14.5/**Seventh International Tbilisi Symposium on Language, Logic and Computation**

Date: 1-5 October 2007

Place: Tbilisi, Georgia

Website: www.illc.uva.nl/Tbilisi2007/**Workshop on ‘Learning Syntactic Structure’**

Date: 12 October 2007

Place: ILLC, Amsterdam

Recent Developments in the Semantics of Conditional Sentences

Date: 3 November 2007

Place: VOC zaal, Oost-Indischhuis, UvA

Website: www.illc.uva.nl/dip/events.html#katrin-workshop**RUC-ILLC Workshop on Deontic Logic**

Date: 8-9 November 2007

Place: Roskilde University, Denmark

Website: akira.ruc.dk/~mamobe/deonticworkshop**A Day of Mathematical Logic**

Date: 8 November 2007

Place: ILLC, Amsterdam

Website: www.phil.uu.nl/~iemhoff/beauty.html**Aesthetics and Mathematics**

Date: 9-10 November 2007

Place: Utrecht

Website: www.phil.uu.nl/~iemhoff/beauty.html**PALMYR-VI : Truth, Logic and Games**

Date: 14-15 December 2007

Place: ILLC, Amsterdam

Website: www.illc.uva.nl/PALMYR/PALMYR-6/**Sixteenth Amsterdam Colloquium 2007, Amsterdam**

Date: 17-19 December 2007

Place: ILLC, Amsterdam

Website: www.illc.uva.nl/AC2007/

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